

Installation and Configuration Manual

14221-3100-4100

Rev. P, February 2022



Symphony™ Dispatch Console



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MANUAL REVISION HISTORY

REV	DATE	REASON FOR CHANGE
D	Jan/16	Revised Backup Radio Auto mode functionality and corrected description of the RX Audio Level Control. Corrected other typographical errors.
E	May/16	Revised for release R5, including changes to the History tab, File Locations tab, and changes for using Backup Radio. Also provided instructions for setting headset audio attenuation.
F	Apr/17	Revised for release R6, including Radio Check, Discreet Listening, RUM, and SIP. Added sections for PBX Configuration and PBX Access configuration. Added additional license information, Configuration Utility section for Contacts and Speed Dial administration. Revised headset audio configuration instructions. Added Surveillance section for configuring RUM.
G	May/17	Revised for release R7.
H	May/18	Revised for release R9.
J	Jan/19	Revised for release R10.
K	Jul/19	Revised for release R11. Added Dynamic Cross-Mute.
L	Apr/20	Revised for release R12. Incorporated addenda and updated Sections 3.2, 3.3, 4, 5, 9.1.6.4, 12.1, 12.2, 12.5.4, 12.5.5, 12.6, 14.1, 15.1, 15.2, 15.3, 15.5, 16.2, 16.2.4, 16.2.12, Appendix C, and Appendix D.
M	Jun/20	Updated Sections 6.1, 9.2.4, 16.2.3, and Appendix C.5.
N	Feb/21	Updated to support XL-200M as Backup Radio.
P	Feb/22	Added Sections 11.4.5 and 12.2.4.3. Updated Sections 16.2.2, 16.2.4, 12.6.2, and 21.

1. REGULATORY AND SAFETY INFORMATION

1.1 REGULATORY INFORMATION

1.1.1 FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and,
2. This device must accept any interference received, including interference that may cause undesired operation.

1.1.2 FCC Information

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an AC outlet on a circuit different from that which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved by L3Harris could void the user's authority to operate this equipment.

1.1.3 ICES/NMB-003 Compliance

Cet appareil de la classe A est conforme à la norme NMB-003 du Canada.

This device complies with Canadian ICES-003 Class A.

1.1.4 Safety Compliance

Approved for US and Canada. CAN/CSA-C22.2 No. 60950-1-07, UL 60950-1: Safety of Information Technology Equipment.

Approuvé pour les Etats-Unis et le Canada. CAN/CSA-C22.2 No. 60950-1-07, UL 60950-1: Sûreté d'équipement de technologie de l'information.

1.2 SAFETY CONVENTIONS

The following conventions may be used in this manual to alert the user to general safety precautions that must be observed during all phases of operation, service, and repair of this product. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the product. L3Harris assumes no liability for the customer's failure to comply with these standards.



The **WARNING** symbol calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a **WARNING** symbol until the conditions identified are fully understood or met.



The electrical hazard symbol indicates there is an electrical hazard present.



The **CAUTION** symbol calls attention to an operating procedure, practice, or the like, which, if not performed correctly or adhered to, could result in damage to the equipment or severely degrade equipment performance.



The **NOTE** symbol calls attention to supplemental information, which may improve system performance or clarify a process or procedure.

1.3 IMPORTANT SAFETY INSTRUCTIONS

- **SAVE THIS MANUAL**—It contains important safety and operating instructions for the installing and configuring the Symphony Console Platform.



Risk of Electric Shock or Fire. There are no user-serviceable parts in the Symphony Console Platform. Do not disassemble the platform. Contact L3Harris if service or repair is required. Incorrect reassembly may result in the risk of electrical shock or fire.



Prior to beginning the installation, carefully read, understand, and follow all related *safety guidelines and documentation*. This manual includes warnings, recommendations, and safety precautions that must be observed.

- Only technically qualified service personnel are permitted to install or service the equipment.
- Do not use auxiliary equipment not recommended or sold by the manufacturer. To do so may result in a risk of fire, electric shock, or injury to persons.
- To reduce the risk of damage to the electric plug and cord, pull by the plug rather than the cord when disconnecting power.
- Make sure the cord is located so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.
- Do not use the platform with a damaged cord or plug—replace them immediately.
- Do not operate the platform if it has received a sharp blow, been dropped, or otherwise damaged in any way. Contact L3Harris for a replacement.
- **ELECTROSTATIC DISCHARGE SENSITIVE COMPONENTS** - This equipment contains CMOS and other circuit components that may be damaged by electrostatic discharge. Proper precaution must be taken when handling platform components. As a minimum, grounded wrist straps should be used at all times when handling components.

Installers should observe the following safety instructions when installing the Symphony Dispatch Platform.

- **Elevated Operating Ambient** - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified in Appendix D.
- **Reduced Air Flow** - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- **Mechanical Loading** - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- **Circuit Overloading** - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

- Installers should review the recommended grounding procedures in the *Site Grounding and Lightning Protection Guidelines Manual*, AE/LZT 123 4618/1, and ensure a suitable ground is installed between the Symphony Console Platform's ground lug and earth ground. Grounding must also comply with any local and national electrical codes.



NOTE

Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips). To prevent equipment damage, ensure all equipment is connected to a single-point ground system and keep all grounds leads as short as possible.



NOTE

Installers should ensure the socket-outlet is installed near the equipment and is easily accessible.

2. INTRODUCTION

This manual presents both high-level and detailed configuration information to personnel responsible for installing and configuring the Symphony™ Dispatch Console System. Covered topics include general overviews on the Symphony's hardware and software, configuration and customization of its proprietary software, and general configuration and customization information.

This manual assumes the reader has a working knowledge of the Microsoft® Windows® 8.1 operating system and/or Microsoft Windows 10 operating system, and has a working knowledge of the Symphony Dispatch Console System. This information may be obtained by reviewing the introductory sections within the related manuals listed in Table 2-1.



FlexPath is an advanced version of talkpath used by Symphony. A detailed description of FlexPath is available in Section 7.2.1.

2.1 ADDITIONAL QUALIFICATIONS

Installation personnel should also have general knowledge of the Voice Network Interface Control (VNIC) Digital Audio Switch, its supporting equipment such as the Unified Administration System (UAS), and the Regional and Centralized Network Managers (RNM and CNM). In addition, a good understanding of dispatch center customizations that may be required and a well-developed knowledge of the operating system are recommended. Ideally, administrators should hold or have held a supervisory-type position in a dispatch center and have excellent computer skills. Normally, information in this manual should *not* be made available to, or be the concern of, dispatchers using a Symphony Console on a day-to-day basis.

2.2 HOW TO USE THIS MANUAL

This manual is structured such that an installer can proceed from chapter to chapter to install, configure, and verify the operation of a Symphony Dispatch Console System. However, we recommend installing and configuring the system according to the sequence provided in Section 6.

2.3 CONVENTIONS USED IN THIS MANUAL

This manual uses the following typographic conventions:

Boldface Font	Used to emphasize words, particularly important field names, and commands.
<code>Courier Text</code>	Normal text in the courier font represents text displayed.
<i>Italics</i>	Manual Titles, emphasized words, and file names.
<Return> or <CR>	This represents pressing the RETURN or ENTER key to activate a command.
→	Denotes stepping from one menu bar item to a submenu item, such as File → Exit .

2.4 SYMPHONY USER ID FORMATS

- User IDs in Symphony administration tools follow the VIDA® User ID format of wwwwww-rrrr-aaaa-uuuu.

Where:

- wwwwww: is the P25 WACN, up to seven digits
- rrrr: is the P25 system which is equivalent to the VIDA Region
- aaaa: is the VIDA agency
- uuuu: is the VIDA unit

This lines up well with the VIDA architecture and other VIDA administration tools.

- User IDs in the Symphony application use the P25 user ID convention wwwwww-ssss-uuuuuuuu.

Where:

- wwwwww: is the P25 WACN, up to seven digits
- ssss: is the P25 system which is equivalent to the VIDA Region
- uuuuuuuu: is the P25 unit which is equivalent to the concatenation of the VIDA agency and VIDA unit (aaaauuuu)

This format simplifies data entry and presents data in a format most familiar to P25 dispatchers. See the *Symphony Operator's manual*, 14221-3100-2010, for more details.

2.5 RELATED MANUALS

Throughout this manual, references are made to other manuals that include information supplemental to that provided here. Table 2-1 lists the manuals referenced herein. It is recommended that these manuals are available to administrative personnel during the performance of any console configurations or customization procedures.

Table 2-1: Related Manuals

MANUAL NUMBER	DESCRIPTION
14221-3100-2010	Symphony Dispatch Console Operator's Manual
14221-7400-6010	Symphony Dispatch Platform Product Manual
<u>Other L3Harris Products and Services:</u>	
MM1000018633	Regional and Centralized Network Managers (RNM and CNM) User's Manual
MM24374	Unified Administration System (UAS) User's Manual
MM-018794-001	Active Directory® for VIDA Networks Installation and Configuration Manual
MM1000019423	Key Manager – Key Admin Overview and Operation Manual

2.6 CUSTOMER SERVICE

2.6.1 Customer Care

If any part of the system equipment is damaged on arrival, contact the shipper to conduct an inspection and prepare a damage report. Save the shipping container and all packing materials until the inspection and the damage report are completed. In addition, contact the Customer Care center to arrange for replacement equipment. Do not return any part of the shipment until you receive detailed instructions from an L3Harris representative.

Contact the Customer Care center at <https://www.l3harris.com/all-capabilities/pspc-customer-care> or:

North America:

Phone Number: 1-800-368-3277
Fax Number: 1-321-409-4393
E-mail: PSPC_CustomerFocus@l3harris.com

International:

Phone Number: 1-434-455-6403
Fax Number: 1-321-409-4394
E-mail: PSPC_InternationalCustomerFocus@l3harris.com

2.6.2 Technical Assistance

The Technical Assistance Center's (TAC) resources are available to help with overall system operation, maintenance, upgrades, and product support. TAC is the point of contact when answers are needed to technical questions.

Product specialists, with detailed knowledge of product operation, maintenance, and repair provide technical support via a toll-free (in North America) telephone number. Support is also available through mail, fax, and e-mail.

For more information about technical assistance services, contact your sales representative, or contact the Technical Assistance Center directly at:

North America: 1-800-528-7711
International: 1-434-385-2400
Fax: 1-434-455-6712
E-mail: PSPC_tac@l3harris.com

2.6.3 Tech-Link

For more information about this and other Harr L3Harris PSpC products, visit Tech-Link at <https://premier.pspc.harris.com/>.

Tech-Link provides access to Technical Documentation (downloadable PDFs), Software Revisions, Feature Encryption, pictorials of parts and accessories, and other information pertaining to our products.

2.7 ABBREVIATIONS AND ACRONYMS

The following table contains a list of abbreviations and acronyms used in this manual.

Table 2-2: Abbreviations and Acronyms

ABR	Advanced Backup Radio	RSM	Radio Status Message
APCO	Association of Public-Safety Communication Officials	RTT	Request-to-Talk
CAD	Computer Aided Dispatch	RUM	Radio Unit Monitoring
CNM	Centralized Network Manager	SAS	Site Access Switch
DSE	Default Selected Entity	SDP	Symphony Dispatch Platform
KMF	Key Management Facility	SIP	Session Initiation Protocol
IP	Internet Protocol	SMS	Short Message Service
LMR	Land Mobile Radio	SSD	Solid-State Drive
MWI	Message-Waiting Indicator	TCP	Transmission Control Protocol
NENA	National Emergency Number Association	TIA	Telecommunications Industry Association.
NKMF	Network Key Management Facility	TRS	Tip-Ring-Sleeve
NSC	Network Switching Center	UAS	Unified Administration System
NSS	Network Switching Server	UKEK	Unique Key Encryption Key
OTAR	Over-the-air-rekeying	VIDA	Voice, Data, Interoperability, and Access
P25	Project 25	VLAN	Virtual LAN
PSAP	Public Safety Answering Point	VNIC	Voice Network Interface Controller
PSTN	Public Switched Telephone Network	VoIP	Voice over IP
PTT	Push-To-Talk	VPN	Virtual Private Network
QoS	Quality of Service	VTI	VIDA Telephone Interconnect
RF	Radio Frequency	WACN	Wide Area Communication Network
RFSS	RF SubSystem	WAN	Wide Area Network
RNM	Regional Network Manager	XRTT	Extended Request-to-Talk
RRI	Remote Radio Interface		

3. DESCRIPTION

3.1 SYMPHONY DISPATCH CONSOLE

The Symphony Dispatch Console System is used by dispatchers to communicate with a fleet of radios. In addition to classic dispatch functions such as Patch, SimulSelect, Emergency, and Call History, the Symphony Dispatch Console system provides many advanced features such as receiving Emergency Alert with GPS location, and integrated Call Check Recorder. Communication modules for these features plus trunking Talk Groups, conventional channels, and individual radios may be combined on the same screen. The Symphony User Interface is designed to enhance workflow by providing easy access to frequently used features.

Symphony also allows administrators and users to configure their working environment with the features and functions that work best for them. Multiple screen configurations can be created for scenarios ranging from crisis situations to shift/staffing changes.

The software supplied by L3Harris is initially installed at the factory. This includes:

- Microsoft Windows 8.1 or Windows 10, 64-bit version. This is the standard Windows 8.1 or Windows 10 operating system that is pre-configured for a typical dispatch environment. It is also pre-installed with the pre-requisites required by the Symphony Dispatch Console application.
- The Symphony Dispatch Console application. The application provides two form factors: Full Screen and the Baton for use on local or remote computers.



Figure 3-1: Dispatcher's Main Display



Figure 3-2: Symphony Baton Display

3.2 SYMPHONY DISPATCH PLATFORM

The Symphony Dispatch Console system is built around the Symphony Dispatch Platform (SDP). The Symphony Dispatch Platform 1.0, L3Harris part number 14017-1001-01, is a single one rack-unit (RU) product that contains two primary subassemblies; the Symphony Main Computer and the Symphony Audio Processor, and a power supply sized to provide power to both subassemblies. Its design enables it to be placed on a surface (such as a dispatcher's desk), mounted in a cabinet or rack, or under a desk using the mounting brackets included.

The Symphony Dispatch Platform 2.0, L3Harris part number 14017-1001-04, is designed for use with the Symphony dispatch console systems. It is a single, one-rack product that contains an audio processor board and an embedded computer. It can be placed on a surface (such as a dispatcher's desk) or it can be mounted in a rack or under a desk using the mounting brackets included. This new hardware replaces the Symphony Dispatch Platform 1.0, L3Harris part number 14017-1001-01.



Figure 3-3: Symphony Dispatch Platform

The Symphony Embedded Computer, also referred to as the PC, is built around a COM Express® Type 6 computer. The computer uses the Windows 8.1/10 operating system and runs most of the dispatch software's logic and user display interfaces. The computer interfaces with the Symphony Audio Processor using an internal Ethernet connection.

The Symphony Audio Processor, also referred to as the "Audio Box," is the connecting hub for most of the console accessories. The processor collects audio from the microphones and other audio inputs and plays received audio in the speakers and headsets.

3.3 OPTIONS AND ACCESSORIES

The following options and accessories are available for the installation with the Symphony Dispatch Console system:

Table 3-1: Console Accessories

OPTION	DESCRIPTION	PART NUMBER
MONITORS		
UD-CU8X	Symphony 22" Monitor non-Touch HD Inputs: (Digital) DVI-D/(Analog) VGA	14017-0301-21
UD-CU6T	Symphony 21.5" Monitor non-Touch HD Inputs: (Digital) DVI-D/(Analog) VGA	14017-0301-22
UD-CU6U	Symphony 23" Monitor non-Touch HD Inputs: (Digital) DisplayPort™, DVI-D/(Analog) VGA	14017-0301-23
UD-CU6V	Symphony 27" Monitor non-Touch HD Inputs: (Digital) DisplayPort, DVI-D/(Analog) VGA	14017-0301-24
UD-CU6X	Symphony 21.5" Monitor Touchscreen HD Inputs: (Digital) DVI-D/(Analog) VGA	14017-0301-52
UD-CU6Y	Symphony 23" Monitor Touchscreen HD Inputs: (Digital) DisplayPort, DVI-D/(Analog) VGA	14017-0301-53
UD-CU8R	Symphony 22" Monitor Touchscreen HD Inputs: (Digital) Display Port, HDMI and DVI-D	14017-0301-62
UD-CU8T	Symphony 24" Monitor Touchscreen HD Inputs: (Digital) DisplayPort, DVI-D, HDMI/(Analog) VGA	14017-0301-64
UD-CU8U	Symphony 27" Monitor Touchscreen HD Inputs: (Digital) Display Port, HDMI and DVI-D	14017-0301-67
MONITOR ADAPTERS AND CABLES		
N/A	Cable, Adapter, DisplayPort Male to DVI-D Female	14017-0301-80
N/A	Cable, Adapter, DisplayPort Male to VGA HD15 Female	14017-0301-81
N/A	Cable, Adapter, DisplayPort Male to HDMI Female	14017-0301-82
UD-AB1J	Cable, DisplayPort Male to DVI-D Dual Link Male, 3 ft.	14017-0301-90
UD-AB1K	Cable, DisplayPort Male to DVI-D Dual Link Male, 10 ft.	14017-0301-91
UD-AB1L	Cable, DisplayPort Male to Male, 15 ft.	14017-0301-92
UD-AB1N	Cable, DisplayPort Male to Male, 3 ft.	14017-0301-93
UD-AB1P	Cable, DisplayPort Male to Male, 10 ft.	14017-0301-94
UD-AB1R	Cable, DisplayPort Male to Male, 15 ft.	14017-0301-95
UD-AB1S	Cable, DisplayPort Male to HDMI Male, 3 ft.	14017-0301-96
UD-AB1T	Cable, DisplayPort Male to HDMI Male, 10 ft.	14017-0301-97
UD-AB1U	Cable, DisplayPort Male to HDMI Male, 15 ft.	14017-0301-98

OPTION	DESCRIPTION	PART NUMBER
UD-AB1V	Cable, DVI-D Single Link Male to Male. 2 m (6.5 ft.)	14017-0301-99
UD-AB1W	Cable, DVI-D Single Link Male to Male, 3 m (9.8 ft.)	14017-0301-100
UD-AB1X	Cable, DVI-D Single Link pin Male to Male, 5 m (16.4 ft.)	14017-0301-101
DISPATCHER ACCESSORIES		
UD-AB1A	Symphony Nano Speaker Includes: Symphony Speaker Cable, 1/4"-1/4" TRS, 10 ft.	14017-0100-01 14017-0100-12
UD-AB1B	Jackbox, 6-wire	14017-0103-01
UD-AB1D	Single USB Footswitch	14017-0201-01
UD-AB1E	Dual USB Footswitch	14017-0201-02
UD-AB1F	Mouse, Optical, USB, Scroll Wheel	14017-0302-02
N/A	3-button Trackball Mouse	2C-CM22218-0608
UD-AB1G	Keyboard, 104 Key, USB, HUB	14017-0302-01
UD-AB1H	Keyboard, 104 key, USB, High Quality	14017-0302-03
UD-AB1M	Desktop Microphone, with DB-9	MC-014121-003
N/A	Gooseneck Microphone	CM-22218-0402M
N/A	Headset, Ear Bud Style with Noise Cancelling Microphone and Quick Disconnect (QD) connector	2C-CM22218-0300
N/A	Headset, Over-the-Head style with solid boom	2C-CM22218-0305
N/A	Adapter, Wired, 6 wire Jackbox to Headset QD connector	CM-022218-3006WJ
N/A	Adapter, Wireless Headset.	CM-022218-000304
N/A	Symphony Bracket, Hook switch	14002-0950-01
UD-AB2C	Symphony Handset with Hook switch	14017-0105-01
N/A	Symphony Handset	14017-0105-02
N/A	Symphony Cable Assembly, Hook switch	14017-0105-03
N/A	Power Supply, external Uninterruptible Power Supply, 60 Hz (120/230 VAC)	2C-CM22218-0604
N/A	Kit, Power Cord, International	2C-CM22218-0606

4. PREPARE FOR INSTALLATION

4.1 WHAT'S IN THE BOX

Customers receive the following:

- Symphony Dispatch Platform (SDP) 1.0 or Symphony Dispatch Platform (SDP) 2.0.
- Operating System pre-installed and configured (Windows 8.1 or Windows 10); the Symphony Dispatch Platform (SDP) 2.0 only supports Windows 10.
- Symphony Application pre-installed.
- Licenses included with bundle or purchased prior to shipment, pre-installed.

4.2 SYSTEM COMPATIBILITY

4.2.1 Hardware

The Symphony Dispatch Console System is only compatible with System Release SR10A.x (or later).

4.2.2 VNIC/UAS

The Symphony software application is compatible with the following:

- VNIC version R13Cxx (or later)
- UAS version R10x (or later)

4.2.3 Supported Vcoders (Radios)

The Symphony Console system is capable of interfacing with the following Vcoders:

- AMBE+2™ OpenSky® 2
- IMBE™ P25 Phase 1
- AMBE™ P25 Phase 2
- ADPCM (Analog conventional stations)



NOTE

The Symphony Console system does NOT support the original OpenSky Vocoder (AMBE). Installers must ensure communications are not disrupted prior to deploying Symphony. One option is to upgrade all radios to the AMBE+2 or OpenSky 2 Vocoder prior to deploying Symphony. For those systems which have radios not capable of using the OpenSky 2 Vocoder (such as M-803 radios), operational procedures must be put in place to ensure communications. The Symphony console is unable to transmit to or receive voice from radios that use the original OpenSky Vocoder.

4.2.4 Active Directory® Usage

The Symphony Console can use Active Directory for many administrative and configuration tasks. It is compatible with Windows Server® Version 2008 R2 and Windows Server version 2012 R2 running Active Directory GPOs version R3B01 or later.

To determine the GPO version installed, look at the GPO comment on one of the GPOs that start with "VIDA –." Refer to the following website for detailed instructions: <https://technet.microsoft.com/en-us/library/cc770974.aspx>.

To ensure your Active Directory installation supports Symphony, verify the following OU (Organizational Unit) exists: Vida.local→VIDA Workstations→Symphony Consoles. See Section 9.2.5 for more details. If the installed GPO version is correct, but the OU does not exist, refer to the *GPO Software Release Notes*, MS-018953-01, for instructions to run the **Update-SchemaAndDNS.ps1** script. This creates the correct entries in DNS and updates the AD SCHEMA to allow new features in the Symphony Console App.

4.2.5 Operating System

The Symphony software application is compatible with Microsoft Windows 8.1 or Windows 10, 64-bit only.

4.2.6 Accessing the Online Help

The Full Screen and Baton applications provide detailed online help. The online help is essentially a user guide for each application, providing descriptions, explanations, and detailed procedures. Access the online help for each application from the Windows Start menu, by pressing F1 while the application is in focus, or from the application's Main Menu.

5. HARDWARE AND SOFTWARE REQUIREMENTS

5.1 HARDWARE REQUIREMENTS

The Symphony Dispatch Console system requires the following hardware components:

- The Symphony Dispatch Platform 1.0, L3Harris part number 14017-1001-01 or the Symphony Dispatch Platform 2.0, L3Harris part number 14017-1001-04.
- A High-definition Monitor:
Minimum Resolution: 1366x768
Recommended: 1920x1080
- Dispatcher options and accessories (as required)

Product specifications are listed in Appendix D.

5.2 SOFTWARE REQUIREMENTS

The Microsoft operating system software and the Symphony Dispatch Console application software are stored on a removable Hard Drive assembly. The software is typically preinstalled at the factory and shipped with the Symphony Dispatch Platform (SDP).

The Hard Drive assembly is a standard 2.5" physical form factor Solid-State Drive (SSD) mounted to a custom retention bracket. This assembly plugs into the Symphony Dispatch Platform's front panel and interfaces with the platform's built-in computer and Symphony Audio Processor, also referred to as the "Audio Box."

The following table lists the software that may be installed on the Symphony Dispatch Platform's Hard Drives:

Table 5-1: Symphony Hard Drive Part Number 14017-1002-01 for SDP 1.0

MEDIA KIT PART NUMBER	MEDIA KIT DESCRIPTION
14004-0152-01	Symphony Dispatch Console Application
14004-0148-01	Microsoft Windows 8.1 Pro, 64-bit Version Image
14004-0245-01 R7	Microsoft Windows 10 Enterprise 2015 LTSC, 64-bit Version Image

Table 5-2: Symphony Hard Drive Part Number 14017-1002-05 for SDP 2.0

MEDIA KIT PART NUMBER	MEDIA KIT DESCRIPTION
14004-0152-01	Symphony Dispatch Console Application
14004-0245-01 R8 or later	Microsoft Windows 10 Enterprise LTSC, 64-bit Version Image

Table 5-3: Features Requiring Specific System Releases

FEATURES THAT REQUIRE SPECIFIC RELEASES	MINIMUM SYSTEM REQUIRED	MINIMUM CONSOLE REQUIRED
Full P25 User ID Range Up To 16 Million	SR10A.2	R4E
Radio Unit Monitor	SR10A.3	R6A
P25 Radio Check	SR10A.3	R6A
VIDA ID	SR10A.5	R10A



NOTE

The Symphony Dispatch Console application software is designed to be compatible only with the Symphony Dispatch Platform and its Operating System image (Windows 8.1 or Windows 10 for Symphony).

Windows 10 requires System Release SR10A.3 or later and is **not** supported by SR10A.0, SR10A.1, or SR10A.2.

The Symphony Dispatch Console Full Screen software should not be run on custom built or non-standard hardware configurations. However, the Symphony Baton Display is designed for this purpose.

6. SYMPHONY INSTALLATION AND CONFIGURATION PROCESS

This section provides an overview of the configuration process. Section 6.1 summarizes the configuration tools. Section 6.2 describes the access control mechanisms for the configuration settings. Section 6.3 provides a checklist of the configuration steps including references to the appropriate sections with detailed instructions.

6.1 CONFIGURATION TOOLS

The following figure provides an overview of the entities that must be configured to add a Symphony Dispatch Console to a VIDA network. Dotted lines denote network connections, double lines denote a separate application running on Windows 8.1 or Windows 10 (64-bit version), and blue arrows denote dialogs that are spawned from the main application.

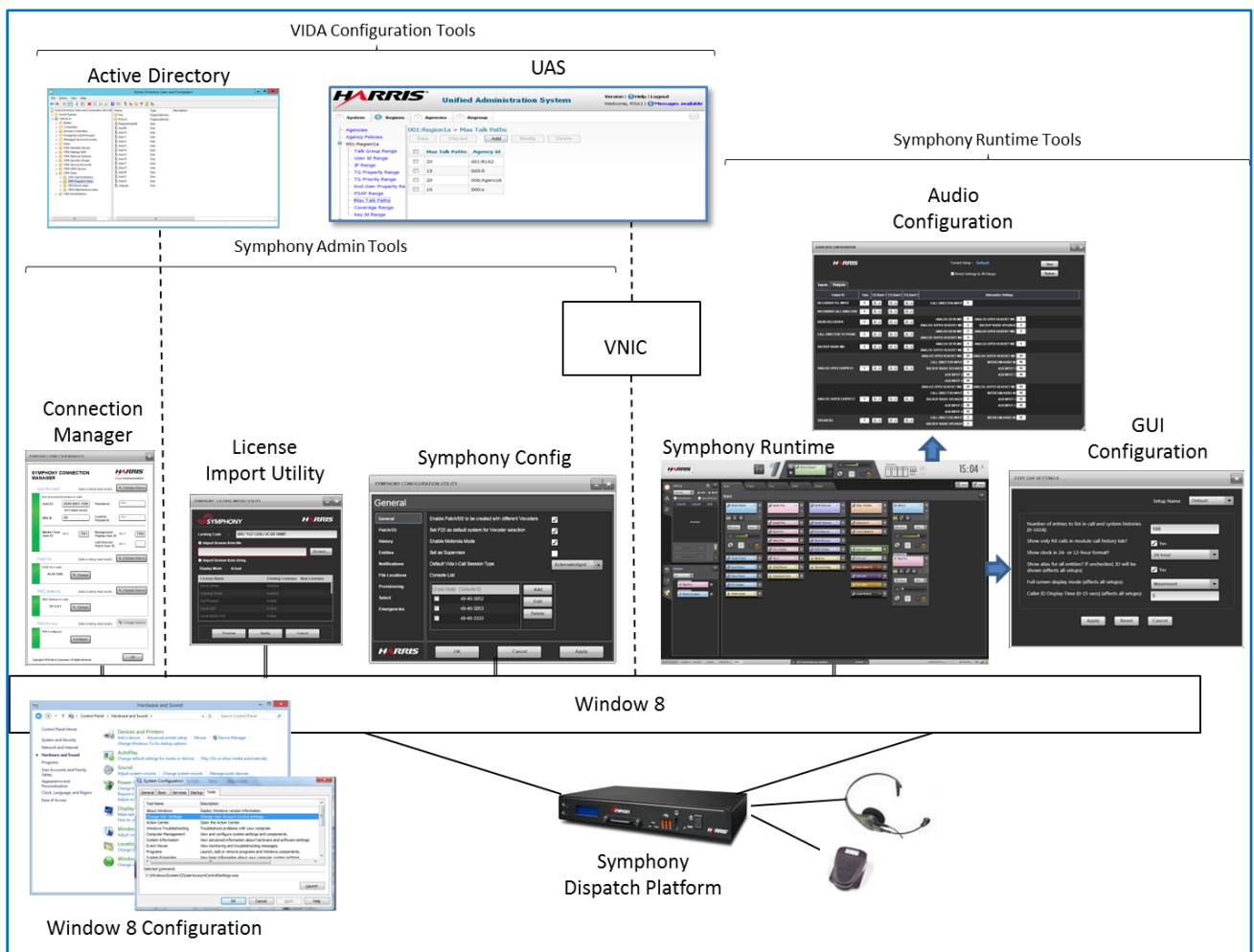


Figure 6-1: Symphony Configuration Overview

The configuration entities comprise the following tools:

- **VIDA Configuration Tools:**

- **Unified Administration System (UAS):** The UAS configures system-wide parameters, including Talk Groups, radio users, console users, and their associated parameters and privileges. Each Symphony console and each dispatcher must be configured in the UAS. Provisioning information from the UAS is passed through the VNIC to the Symphony console or held by the VNIC to police items like user passwords or FlexPath licenses¹.
- **Active Directory (AD):** The AD provides centralized policy control and enables centralized configuration as well as Roaming Profiles. Each Symphony console and each dispatcher must be configured in AD.

- **Symphony Operating System:**

Windows 8.1 or Windows 10: Symphony leverages many features provided by Windows 8.1 or Windows 10, including user accounts and privileges, networking, and time synchronization. Windows 8.1 or Windows 10 must be configured for each installation.

- **Symphony Administrative Tools:**

The following tools are separate applications that require Windows administrator privileges. Settings are per Symphony Dispatch Platform and apply to all user accounts on the SDP.

- **Symphony Connection Manager:** The Connection Manager sets fundamental connection parameters including console unique ID information and server hostnames or IP addresses. The parameters in this tool must be configured for Symphony to connect and log into the proper servers. The Connection Manager also includes connection parameters for SIP Telephony.
- **License Import Utility:** This utility installs and upgrades feature licenses. Symphony only supports features with a valid license.
- **Symphony Configuration Tool:** The Symphony Configuration Tool (Symphony Config) sets a multitude of Symphony behavioral options, such as how emergencies are acknowledged and the preferred I-Call type. These options must be defined before the Symphony application is started.

- **Symphony Runtime Tools:**

Additional configuration dialogs are available from the Symphony Application Main Menus, as shown in Figure 6-2 (for users with appropriate access privileges). These include:

- **Configure Admin Mode:** This menu option places Symphony in the Configuration Mode. This mode allows workspace tabs and modules to be added, deleted, and repositioned.
- **Configure GUI Settings:** This dialog configures GUI format items such as the clock time format.
- **Configure Audio Settings:** This dialog configures the Audio Box inputs and outputs including gain, mixing attenuation, and equalizer settings.
- **Manage Speed Dial Lists:** This dialog manages user defined telephony speed dial lists.
- **Setups:** This menu item reveals several dialogs that collectively manage setups. Setups are unique configurations that allow a single Symphony to support multiple user or department specific configurations.

¹ FlexPath is an advanced version of talkpath used by Symphony. See Section 7.2.1 for details.

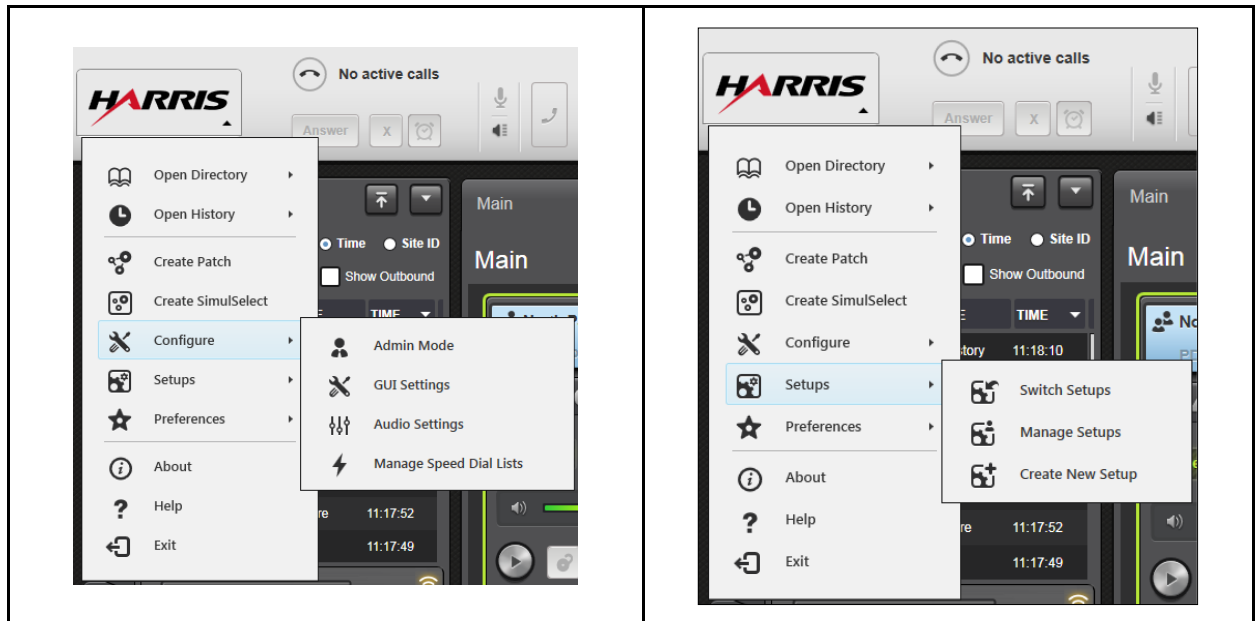


Figure 6-2: Symphony Runtime Tools

When configuring Symphony for encryption, additional tools are used which are not shown in Figure 6-1.

- **VIDA Encryption Tools:**

- **Unified Administration System (UAS):** The UAS is used to configure consoles, dispatchers, and Crypto Nets.
- **Key Management Facility (KMF):** The KMF creates and distributes keys for P25 systems using Over-the-Air-Rekeying (OTAR).
- **L3Harris Key Manager - Key Admin:** The Key Admin software enables an administrator to create a Master Set of keys, produce a Distribution Set, and save them in a Distribution Key File.

- **Symphony User Tools:**

The following tools are separate applications that can be run by the user. They do not require administrator privileges. Settings are per user.

- **Symphony Manual Key Loader:** The Symphony Manual Key Loader loads encryption keys in a manually keyed system and the Unique Key Exchange Keys (UKEK) in OTAR systems.
- **Symphony Configuration Tool:** The Symphony Configuration Tool sets encryption-specific parameters.

- **Non-VIDA Configuration Tools**

If using the SIP Telephony feature, configure your PBX to accept registration from the Symphony SIP client. Detailed PBX configuration is beyond the scope of this document; however, Section 8 provides basic information needed to configure each brand of PBX supported by Symphony.

6.2 CONFIGURATION ACCESS CONTROL

This section describes how Symphony leverages Windows and Active Directory to provide access control of the Symphony configuration tools described in the previous section. That is, who can access and modify each of the configuration tools. As an installer, you must determine the level of configuration access to provide to dispatchers. This is ultimately a tradeoff between security, configuration complexity, and user flexibility.

6.2.1 Access Control and User Accounts

Symphony uses Windows User Accounts to manage access to configuration tools. Figure 6-3 shows the relationship between user accounts and the configuration tools. Each account has unique login credentials and belongs to a Windows Group that controls access to programs and data. Windows Groups are also known as Security Groups or Computer Local Groups.

By default, Windows provides two groups of interest to Symphony installers: the Windows Administrator Group and the Windows User Group (WUG). The Windows Administrator Group provides access to everything on the Symphony Dispatch Platform. The Windows User Group provides access to programs and data in the user's private area and publicly shared areas. Accounts in the WUG cannot access programs that require administrator access. In general, dispatch administrators use an account in the Windows Administrator Group to configure Symphony and dispatchers use an account in the Windows User Group to run Symphony.

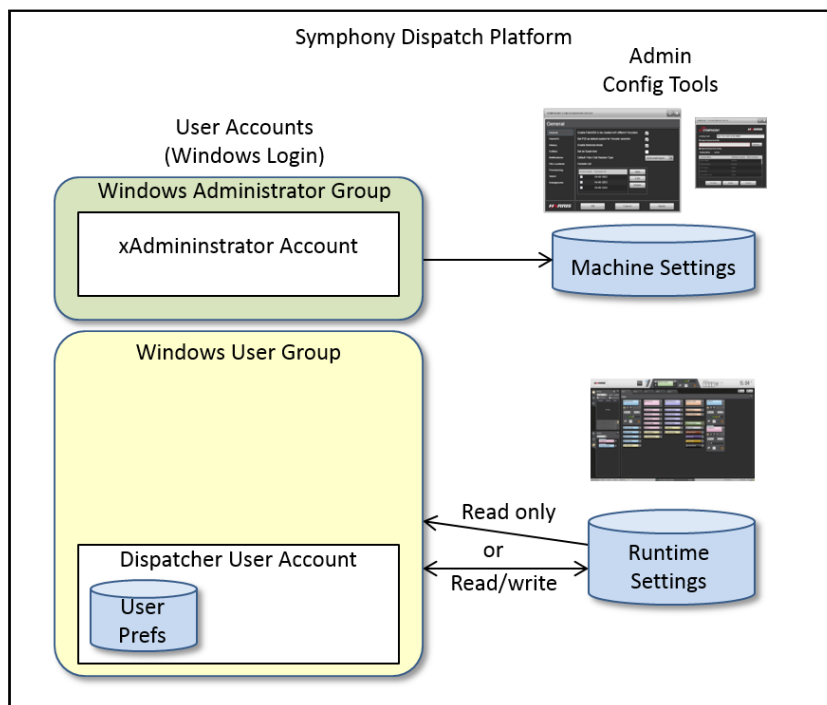


Figure 6-3: Relationship between User Accounts and Symphony Configuration Tools

Symphony ships with a single Windows Administrator account with the username xAdministrator. This account allows you to configure Windows and to access the primary Symphony configuration tools that set configuration parameters for the machine (i.e., the settings apply to all user accounts on the Symphony Dispatch Platform).

One or more user accounts can be created from Active Directory. The number of user accounts set up depends on numerous factors that are covered later in this section. Figure 6-3 shows a single dispatcher account.

Symphony configuration data comprises three basic kinds of settings:

- Machine Settings apply to the machine (i.e., the settings apply to all user accounts on the Symphony Dispatch Platform). These settings are controlled by the Connection Manager, Symphony Configuration Tool, and the License Import Utility. Machine settings can only be set from an account in the Windows Administrator Group.
- Runtime Settings are configured from the Symphony application. They include Workspace layout, Setup definition, Audio Box configuration, and GUI configuration. Access to these settings is controlled by controlling access to, and the location of, the Admin directory.
- User preferences, such as volume levels and mute settings for each module, are saved in the user account data area. They are unique for each user account. See Section 9.4 for a detailed list of user preferences.

Runtime settings are of particular interest since access to these settings can be provided to dispatchers at the administrator's discretion. Runtime settings are stored in a special directory known as the Admin Directory. The Windows User Group controls access to data. Symphony uses this capability to control access to runtime settings via the Admin Directory. For example, if the Windows User Group provides write access to the Admin Directory, then all user accounts in the Windows Group can change the runtime settings. If the Windows User Group only provides read access to the Admin Directory, the user accounts in the Windows User Group cannot change the runtime settings (menu items are removed to prevent the user from accessing the runtime configuration tools).

Multiple dispatcher accounts can be created. In this case, consider how runtime settings are shared and how access is controlled. Dispatcher accounts in the same Windows User Group can share runtime settings as show in Figure 6-4 or copies of the runtime settings can be stored with each user account as shown in Figure 6-5.

In Figure 6-4 , both the runtime settings and access control apply to all user accounts in the WUG. If the WUG provides access to runtime settings, then a change made by one use account is seen by all user accounts in the WUG. In Figure 6-5, runtime settings and access control are controlled independently by each user account, so changes in one user account are not seen by other user accounts in the WUG.

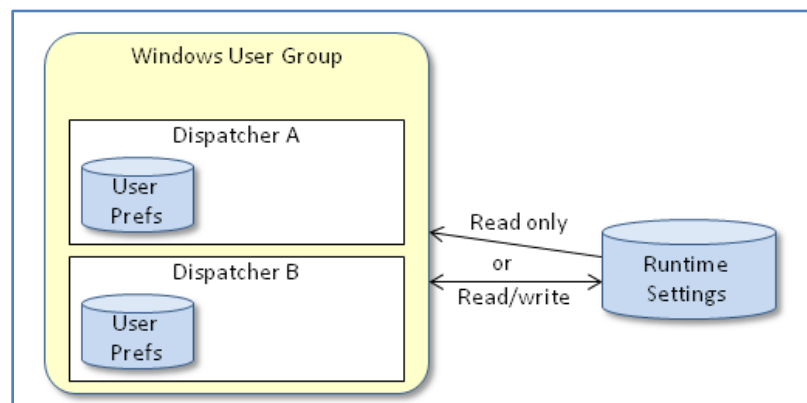


Figure 6-4: Shared Runtime Settings

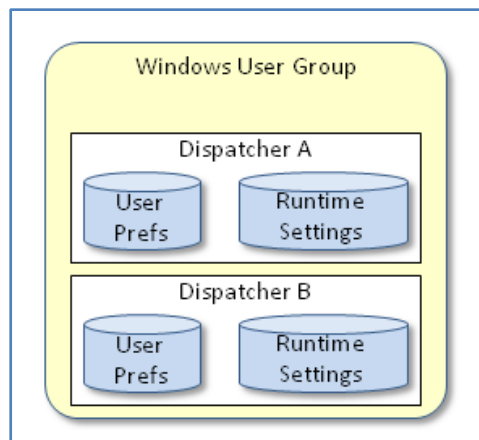


Figure 6-5: Runtime Settings per User Account

Figure 6-6 shows runtime settings shared by multiple Symphony Dispatch Platforms (SDPs). The runtime settings are placed on a network drive accessible by SDPs. A change in the runtime settings on the network drive impacts all machines/groups using the network drive. In this case, access control should be restricted to administrators to prevent a dispatcher from making changes on multiple machines.

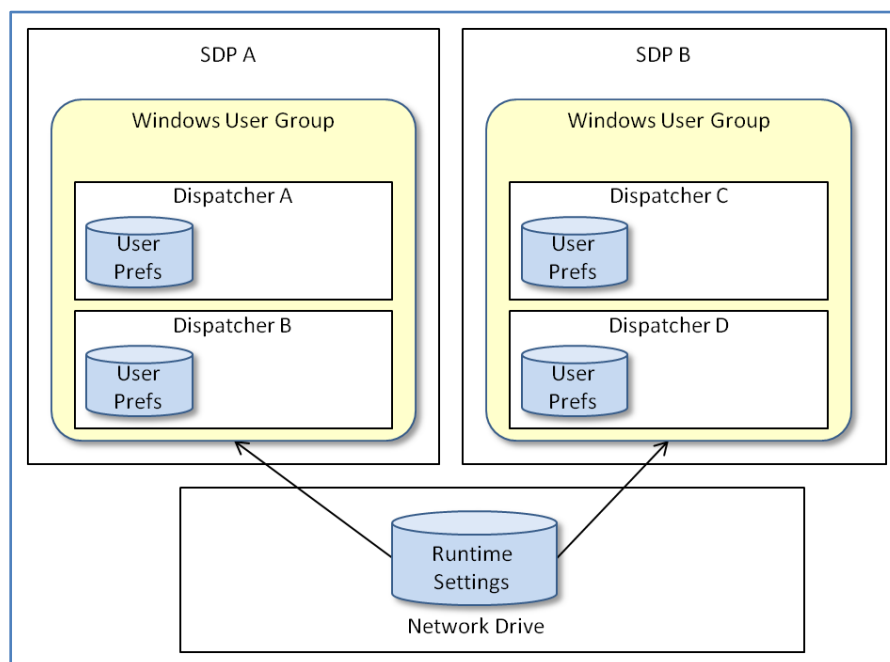


Figure 6-6: Runtime Settings shared by SDPs

Additional access control flexibility can be provided by creating additional Windows User Groups with different access controls and then assigning user accounts to the new Windows User Groups. Figure 6-7 shows a new Symphony Administrator Group. This group has write access to runtime settings while the Window Users Group has read access only. Both user groups share the same runtime settings. The only difference is which group has write privileges to change these settings. This arrangement has practical application to overcome a minor Windows limitation.

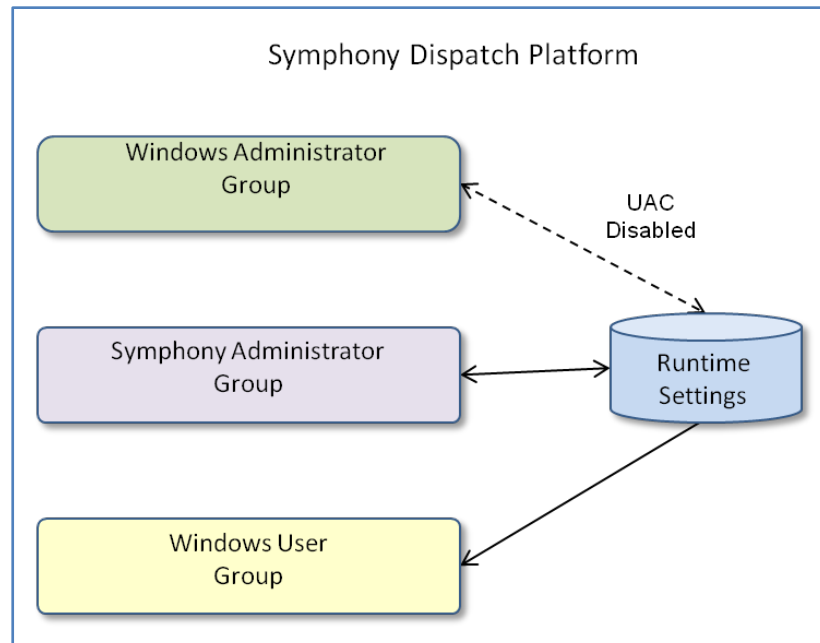


Figure 6-7: Using Additional Windows Groups

Windows provides a feature called User Account Control (UAC). When this feature is enabled, any application that requires administrative privileges, such as Symphony Configuration, prompts a non-admin user for the admin password. This is useful because it allows an administrator to make changes without logging out of a dispatcher's account. It also notifies a dispatcher that tries to open an administrative configuration tool that they do not have rights to modify the settings. If UAC is disabled, the dispatcher can access the Admin Configuration Mode and make changes, but the changes are not saved. This leads to confusion or the errant belief that Symphony is not functioning properly.

The limitation of UAC is that Symphony running on a user account in the Windows Administrator Group will not work properly when UAC is enabled. To prevent dispatchers from changing runtime settings, disable the UAC and change runtime settings from the xAdministrator account or enable UAC and create the Symphony Administrator Group with write access to runtime settings and add user accounts to this group for anyone that should be able to change runtime settings.

Multiple user accounts provide the strongest security and audit control. If each dispatcher has their own user account, console access is better controlled, each user can be tracked when they log in, and it provides the greatest flexibility for users to control their own settings. VIDA User IDs are bound to the user account, so if each dispatcher has a different VIDA User ID, multiple user accounts are necessary. The down side is that multiple user accounts add administrative overhead, configuration complexity, and require each dispatcher to log in and log out which disrupts dispatch operation as Symphony stops and restarts.

Symphony offers a feature called Setups to provide per user configuration flexibility without using multiple user accounts. Figure 6-8 shows how Setups relate to user accounts. Setups are part of the runtime settings. Each Setup can have different GUI and sound settings to support different departments or specific users within a department. Setups can be protected with a password.



This password is sufficient to prevent unintentional access, but is not as secure as a Windows account password.

The access and sharing rules apply to Setups, since they are part of the runtime data.

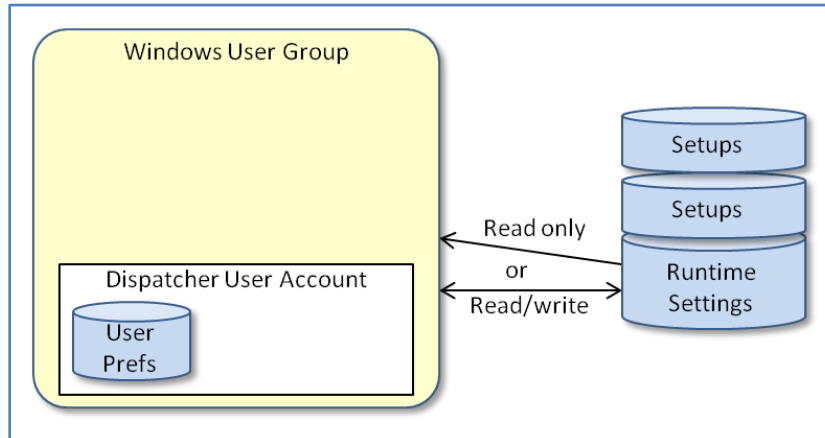


Figure 6-8: Settings

Setups simplify configuration and administration, and significantly reduce the dispatch disruption during changes (Symphony does not restart when changing setups). However, Setups do not provide the same level of traceability or security as separate Windows user accounts.

6.2.2 Active Directory and User Accounts

Active Directory (AD) provides central configuration and distribution of user accounts, group policies, and Symphony configuration.

Active Directory provides the following advantages:

- Create a user account one time and then add it to any Symphony(s) on the network.
- Create Roaming Profiles that allow a user to log into any Symphony and maintain personnel user preferences. That is, a dispatcher can start the shift in the main dispatch center, move to a backup center, and their backup Symphony will use all the user preferences from the main dispatch center.

Symphony must be configured in Active Directory. Non-AD configurations of Symphony are not supported. Figure 6-9 summarizes the relationship between AD and the SDP.

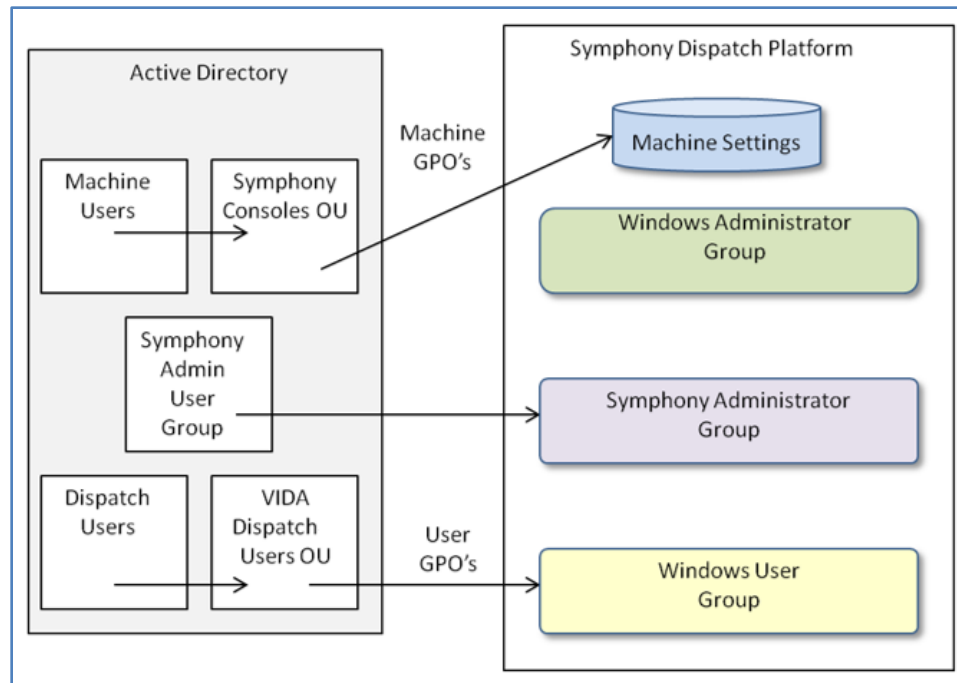


Figure 6-9: Relationship between AD and the SDP

This section provides an overview of how Active Directory and Symphony work together. Procedures to perform the various configurations are discussed in later sections. Detailed use of Active Directory is beyond the scope of this manual. Consult your Active Directory administrator for more detailed information if the Active Directory instructions in the rest of this manual do not meet your specific needs.

Figure 6-9 shows Active Directory objects on the left and objects located on the Symphony consoles on the right.

Machine Users are user accounts that represent computers in the Active Directory domain. In this case, they represent individual Symphony Dispatch Platforms (SDPs). These are created when an SDP is joined to the domain by an administrator. They are placed in a default OU and must be moved to a *Symphony Console OU* for the console to operate correctly. There are two *Symphony Console OUs*: One for Symphony Consoles running Windows 10 and another for those running Windows 8.1. Prior to SR10A.3, there was only one *Symphony Console OU* for Windows 8.1. The appropriate Group Policy Objects (GPOs), which configure the Windows operating system, are sent to the SDPs whose user accounts are in the *Symphony Console OUs*. These GPOs control things like firewall rules that protect Symphony and allow it to operate correctly on the VIDA network.

Dispatch Users are Windows user accounts created in Active Directory by domain administrators for logging into the SDPs and running the Symphony application. These user accounts must be placed into the *VIDA Dispatch Users OU*. Add each dispatch user account to the *VIDA Dispatch Users OU*. This defines the Windows login credentials and causes user-specific GPOs to apply to Symphony.

Symphony Admin User Group is an Active Directory security group. It is not present in the default Active Directory configuration, so adding it is recommended. It allows you to assign access rights to domain users which can perform admin operations on the Symphony consoles, such as changing the layout. It is also recommended to create a local security group (*Symphony Administrator Group*) on each SDP. The AD *Symphony Admin User Group* should be added as a member of this group. Finally, assign the required access rights to the local *Symphony Administrator Group* on the SDP. It is possible to use the built-in local administrator group as the local *Symphony Administrator Group*. Doing so also gives those individuals rights to perform administrative functions on Windows.

6.2.3 Passwords

Symphony uses up to three types of passwords.

- The first is the Windows user account login password. The password is set in Active Directory, enforced by Windows, and controls access to Symphony configuration settings.
- The second password is the VIDA user password. This is set in the UAS and the Symphony Connection Manager and is enforced by the VNIC. Symphony uses the VIDA ID and password associated with the current Windows user account to log into the VNIC.
- The final password is the optional Setup password. Once Symphony has launched, you can change Setups for specific users or departments. A unique password can be assigned to each Setup if desired.

6.2.4 Examples

By combining Windows Groups, User Accounts, and access to and the location of runtime settings, a wide variety of administrative models are possible to meet most any need. Section 9.2.6 provides details on four typical models. A quick summary of these models provides examples of the concepts presented in this section.

The default model gives the dispatch user account write access to runtime settings while Symphony Admin Tools are only available to the xAdministrator account. See Figure 6-3. A single dispatch user account is shared by multiple dispatchers. The runtime settings are shared by all dispatchers, so a change made by one dispatcher is seen by all dispatchers sharing the same dispatch user account.

This model can be enhanced by adding Setups. If passwords are added to each Setup, dispatchers can only change the runtime settings for their Setup.

If UAC is enabled, the administrator must use the dispatch user account to make changes to the runtime settings.

The local admin-controlled model only allows the WUG read access to runtime settings. See Figure 6-4. This prevents dispatchers from changing runtime settings. The additional Symphony Administrator Group should be added with write access to runtime settings. This enables administrators to configure the runtime settings while UAC is enabled. This model can support multiple dispatch user accounts in the WUG and/or Setups.

The power user model uses a different user account for each dispatcher and gives write access to runtime settings to all dispatcher accounts. See Figure 6-5. Each dispatcher can configure Symphony to their liking without impacting other dispatcher settings. Setups can be used, but do not add much value since the user already has complete control of the workspace tabs.

The networked model shares runtime settings with multiple Symphony consoles. See Figure 6-6. Dispatch user accounts do not have write access to the runtime settings. This allows the administrators to control and coordinate changes that will impact multiple machines. As with the local admin-controlled model, the Symphony Administrator Group should be used to avoid UAC conflicts.

6.3 CONFIGURATION CHECKLIST

This section provides instructions for installing the Symphony Dispatch Console. The instructions are written as a checklist for installing and running the console in a minimum configuration. Each step has references to detailed instructions that are also provided in this manual. Once the basic installation is complete and the operation is verified, additional options may be installed.

The configuration sequence is summarized in the following bullets and detailed in the Installation Checklist (Table 6-1).

- Gather requisite data before starting.
- Configure the VIDA system – UAS.
- Install and cable the Symphony H/W and accessories.
- Configure the Symphony operating system.
- Add Symphony to Active Directory.
- Configure the Symphony application including basic operational parameters, Setups, Workspaces, and Audio.
- Verify Symphony operation.
- Complete detailed configuration.

The Symphony Dispatch Platform uses the Windows 8.1 or Windows 10 operating system preconfigured for the Symphony application. For a factory-new console system, the operating system and console software are installed on the computer's hard drive by L3Harris or a L3Harris-approved vendor.



CAUTION



Full customer support cannot be guaranteed if the operating system software and/or the console application software are initially installed by the customer.

Unless otherwise described elsewhere in this manual, all operating system-specific settings remain per the default established by Microsoft.

Table 6-1 serves as a check list of the installation process with references to the appropriate sections for details.

Table 6-1: Symphony Installation Process

STEP	OPERATION
1.	<p>Preparation:</p> <p>Gather the following information prior to installing the Symphony Dispatch Console.</p> <p>The following must be known before installing a console position:</p> <ul style="list-style-type: none"> • VNIC IP Address or Hostname. • The IP Address of the console position. • The computer name for the new console. • The primary system type being supported (P25 Trunked, OpenSky, Conventional etc.). • Whether Motorola® P25 Radios are used on the radio system. <p>The following are set in the UAS for each console position and must be entered into the console configuration:</p> <ul style="list-style-type: none"> • The User ID(s). This has 4 parts: the WACN, Region, Agency, and User. • The User's Password(s) for the console. • The PSAP ID of the console. This has 3 parts: the WACN, Region, and Machine (or PSAP ID). • Number of FlexPaths to be used by the console position.
2.	<p>Pre-Requisite System Configuration (Section 7):</p> <p>Perform the necessary steps to configure the UAS. This process adds the console and dispatchers to the assigned agency.</p> <ul style="list-style-type: none"> • Define Console's identity (PSAP ID). • Define dispatchers' identity. • Background IDs if available. • Define the System. • Configure the UAS for PSAP operation. • Proceed to next step.
3.	<p>Non-VIDA System Configuration (Section 8)</p> <p>Perform the necessary steps to configure the PBX. This should include:</p> <ul style="list-style-type: none"> • Define SIP Registrar Configuration. • Define Directory numbers. • Assigning Directory Numbers to Consoles. • Enabling Voicemail and MWI features.

STEP	OPERATION
4.	<p>Install and cable the Console Hardware (Sections 10 and 11):</p> <div>  <p>NOTE</p> </div> <div style="border: 1px solid black; background-color: #f0f0f0; padding: 5px;"> <p>The following steps should be completed with the Symphony Dispatch Platform powered off. For detailed wiring instructions, refer to the <i>Symphony Dispatch Platform Product Manual</i>, 14221-7400-6010.</p> </div> <ol style="list-style-type: none"> a. Unpack and mount Symphony Dispatch Platform (SDP). b. Place peripheral equipment (monitor, keyboard, etc.) at dispatcher location. c. Connect monitor to the SDP and AC power outlet. d. Connect keyboard and mouse to the SDP. e. Connect speakers to SDP: <ul style="list-style-type: none"> • Audio connection to SDP. • Power connection to AC power outlet. f. Connect dispatch peripherals to SDP: <ul style="list-style-type: none"> • Install and connect Desk Microphone or Gooseneck Microphone. • Install and connect Foot switch(es). • Install and connect Jackbox(es) and Headsets (or Handset) as required. g. Proceed to next step.
5.	<p>Log into the Symphony Dispatch Console (Section 14):</p> <ol style="list-style-type: none"> a. Apply power to the console and associated equipment (Section 14.1). <div>  <p>NOTE</p> </div> <div style="border: 1px solid black; background-color: #f0f0f0; padding: 5px;"> <p>Follow the procedures and turn on equipment in the proper sequence.</p> </div> <ol style="list-style-type: none"> b. Log into the console by entering the default User Name and Password (Section 14.3). c. Proceed to next step.
6.	<p>Configure the Symphony Dispatch Platform's Computer and Network (Section 12):</p> <ol style="list-style-type: none"> a. Configure computer Operating System parameters (Section 12.1). b. Configure Network IP Addresses (Section 12.2). <p>Fixed IP addresses are recommended, but Dynamic Host Configuration Protocol (DHCP) may be used.</p>

STEP	OPERATION
7.	<p>Configure the Computer Name:</p> <ul style="list-style-type: none"> a. Set the computer name (Section 12.1.2). b. Join the computer to the domain (Section 12.1.2). c. Move computer account to appropriate Symphony OU (Section 9.2.5).
8.	<p>Create one or more Dispatcher User Accounts in Active Directory:</p> <ul style="list-style-type: none"> a. Create a domain dispatcher account(s) (Section 9.2.1). b. Move the domain user into the Symphony Organizational Unit (OU) (Section 9.2.5).
9.	<p>Configure Console Connection Parameters:</p> <ul style="list-style-type: none"> a. Login to each console using the xAdministrator account. b. Configure PSAP for local data source (Section 9.1.3). c. Configure the VNIC for local data source (Section 9.1.4). d. Login to <i>each</i> user account and Configure User Accounts for local data source (Section 9.1.2).
10.	<p>Setup the console for the required administration model (Section 9.3).</p>
11.	<p>Review Licenses to verify feature set and understand what will and will not be available to configure in the following steps (Section 15).</p>
12.	<p>Configure the Critical Console Configuration Items:</p> <p>All settings on the General Tab must be set appropriately for Symphony to operate properly. The default values for these settings may cause improper operations in some systems (Section 16.2.2).</p>
13.	<p>Create Console Setups (Section 17.1).</p>
14.	<p>Customize Workspace as required (Section 18).</p>
15.	<p>Configure the Audio System (Section 18.5):</p> <ul style="list-style-type: none"> a. Configure the Audio system by using the Audio Box Configuration tool (Section 19.2). b. Setup the audio and voice input levels (Section 19.5). c. Setup the audio and voice output levels (Section 19.6).

STEP	OPERATION
16.	<p>Verify Console Application is Operating Properly (Section 14):</p> <ol style="list-style-type: none"> a. Start the Console software (Section 14.1). b. Verify system operation as described in Section 14.6. <p>This completes the basic console installation. Continue to the following steps to optimize the system, if necessary.</p>
17.	<p>Configure Symphony Console Features (Section 16):</p> <p>Use the System Configuration Utility and configure the following elements, as required:</p> <ul style="list-style-type: none"> • Configure general console operating information (Section 16.2.1). • Configure Patch and SimulSelect operational parameters (Section 16.2.3). • Define the Console History parameters (Section 16.2.4). • Configure Console Entities data (Section 16.2.5). • Configure Console Notification methods (Section 16.2.6). • Change the File Locations, if required (Section 16.2.7). • Configure Provisioning Data including listing other consoles (Section 16.2.8). • Configure Hardware selections (Section 16.2.9). • Configure Emergency parameters (Section 16.2.10). • Configure Encryption parameters (Section 16.2.11). • Configure Paging parameters (Section 16.2.12). • Configure Aux I/O parameters (Section 16.2.13). • Configure Base Station Control parameters (Section 16.2.14). • Configure Audio parameters (Section 16.2.15). • Configure RTT/RSM parameters (Section 16.2.16).
18.	<p>Configure Encryption Features:</p> <ul style="list-style-type: none"> • Configure Manual Keying parameters: <ul style="list-style-type: none"> ○ Generate keys (Section 7.3.1.4). ○ Load keys in Symphony (Section 13.1). ○ Configure Encryption Settings (Section 16.2.11). • Configure Over-the-Air Rekeying (OTAR): <ul style="list-style-type: none"> ○ Configure consoles, dispatchers, Crypto Nets, UKEKs (Section 7.3.1). ○ Load UKEKs in Symphony (Section 13.2). ○ Configure Encryption Settings (Section 16.2.11). • If using DES encryption, disable FIPS-140 compliance (Section 9.2.6).
19.	<p>Configure Baton Features (Section 16.3).</p>

7. PRE-REQUISITE SYSTEM CONFIGURATION

This section describes how to configure accounts for console machines (PSAPs) and console users (dispatchers) so Symphony consoles can connect to the VNIC.

7.1 GENERAL

The Symphony Dispatch Console is centrally administered from the Unified Administration System (UAS). The UAS configuration has two (2) levels. The first level is to configure the Console Device (Hardware). The second level is configuration of the User or Dispatcher.

The PSAP ID uniquely identifies a Symphony Dispatch Console within the VIDA system, while the User ID (or VES) defines a dispatch user. The Symphony console stores the PSAP ID per machine and binds VIDA User IDs to Windows user accounts.

The console's PSAP ID does not change when different users log into the console. However, the VES used to place calls from that position change when a different user logs in. For those familiar with the C3 Maestro^{IP} console, this is different behavior. The C3 Maestro^{IP} console changed both PSAP ID and User ID as dispatchers logged into and out of the position.

Symphony configuration complies with the Windows guidelines for application configuration and data file locations:

- Multiple dispatchers may use the same dispatch position by logging in as different Windows users. Each user's unique configuration data is stored in a personal location associated with their Windows user account.
- When dispatchers are configured on an Active Directory network, a dispatcher's console settings and VIDA User ID take advantage of Roaming Profiles. A dispatcher's configuration "follows" when switching from console to console.

The configuration files are split into per-user and per-machine file sets. The per-machine files can only be edited by an administrator. Per-user files are created when the user runs it for the first time. The per-user configuration may also be distributed using Active Directory services such as GPOs and Login Scripts.

When installing multiple consoles, it is easier to configure all the VES and PSAPs at one time.

7.1.1 PSAP ID

The console's Public Safety Access Point ID (PSAP ID) uniquely identifies the Console Device to the rest of the system and determines the set of Talkgroups that will be provisioned to the console. The provisioned Talkgroups are determined by the UAS based on the Coverage Class to which the PSAP ID is assigned. The number of FlexPaths that can be simultaneously monitored at the console device is also determined by the console's assigned PSAP ID.

The Coverage Class concept provides a huge range of flexibility for provisioning all Talkgroups in the system or provisioning a very narrow range, or a single Talkgroup. By default, the UAS provides Coverage Class ID#2 to **AllRegions:AllPSAP** which provides system-wide PSAP coverage. For more detailed information on Coverage Class and PSAP ID setup, refer to the *UAS User's Manual*, MM24374.



NOTE

With Symphony, the entities that are provisioned to the console are defined at the UAS. The group entities are provisioned through the VNIC and based on the coverage class defined for the PSAP at the UAS. The unit entities are also retrieved from the VNIC based on the Peer Info Record for the PSAP defined in the UAS. Console entities are configured directly in the Symphony.

7.1.2 **Dispatcher Login (User ID – VES)**

The second level of configuration required at the UAS is the Dispatcher's Login (or User ID). This item is configured much the same way as any Voice End System (VES). It is at this level that the Dispatcher is given permissions for Patch/SimulSelect and encryption.



NOTE

The Personality Detail (Profiles) is not used for provisioning the Symphony Console by default. The Symphony Dispatch Console can be configured to display only those groups in the VES profile. See the description of "Only Show Talkgroups from the Dispatch User's Profile" in Section 16.2.8.

7.1.3 **Background Transmission IDs – VESs**

Symphony supports multiple simultaneous transmissions allowing the dispatcher to continue normal dispatch operations while sending background transmissions such as Marker Tones and pages. These background activities require their own IDs which should be configured when the dispatcher User ID is configured. It is recommended to reserve a consecutive block of 10 IDs for each user to allow for future Symphony features that require a separate ID. For example, if console A's user ID is 4100, then the next console ID would start at 4110.

The background IDs are associated with the user via the Connection Manager. Users only log in with the dispatcher user ID. They do not need to log in for the background IDs.

Create background IDs in the UAS exactly like the User ID defined in Sections 7.2.3 through 7.2.5. Use the same parameter settings as the User ID with the following exceptions:

- Use a unique ID in the block reserved for the user as noted above. The Region and Agency must be the same as the User ID.
- Choose a descriptive and unique Alias. For example, the Marker Tones Aliases for North Dispatch and South Dispatch could be "MT North" and "MT South" respectively.
- Do not configure encryption parameters for the background IDs even if you are using encryption. Specifically, do not create a Subscriber Unit Detail Record in the UAS for the background IDs.

Create an ID for each of the following features you plan to use per console:

- Priority Marker Tone or Signal Tone: Sends a periodic tone on a group to notify users of a special or emergency situation. See Section 16.2.5 for more details.
- Background paging: Sends pages in the background, allowing the dispatcher to simultaneously transmit voice and alert tones to entities that do not conflict with the page. See Section 16.2.12 for more details.

7.1.4 System Properties

Another important configuration item at the UAS is the “System Properties” page. This is where certain system features, such as I-Call, can be configured for Message or Transmission Trunking. Refer to the *UAS User’s Manual*, MM24374, for additional details.

7.2 UAS CONFIGURATION FOR SYMPHONY

The following sections describe the UAS screens that must be visited to initially configure a Symphony Console.



The information presented in the following sections assumes an administrator is familiar with the UAS and its capabilities. It also assumes the administrator has completed all necessary System, Region, and Agency configuration parameters to the point where the UAS is ready for the addition of consoles and users.

7.2.1 Allocating FlexPaths

Symphony uses an advanced version of talkpaths known as FlexPaths. Each licensed FlexPath allows you to hear all traffic related to a communications entity such as a group. This differs from talkpaths which only allow one call per licensed talkpath. In most cases, a FlexPath equates to one call. However, there are cases where a FlexPath may support multiple calls for a given entity. For example, if two radios on different sites key on the same group at the same time, VIDA declares one to be the winner and one to be the loser. All radios in the system hear the winner, but Symphony hears both the winner and loser. The latter is referred to as “loser audio.” If a supervisor radio then preempts the winner and loser, then the supervisor becomes the new winner and the old winner becomes loser audio. All radios in the system hear the new winner, while Symphony hears the new winner and both losers. Therefore, the FlexPath in this case carries three calls.

If Symphony receives calls from more entities than it has licensed FlexPaths [e.g., calls from six (6) entities with only five (5) licensed FlexPaths], Symphony cannot process all the calls. To ensure the most important calls are received, Symphony chooses the highest priority calls that conform to the licensing limitations. Examples of the highest priority calls are Selected Entities and Emergencies, while muted calls are the lowest priority.

Regional Administrators assign the maximum number of FlexPaths to agencies. The maximum number of FlexPaths that can be setup in the system depends on the number required to support PSAP devices and the number of FlexPaths licenses available. Symphony can support up to 24 FlexPaths per console. The Regional Administrator then allocates a maximum number of FlexPaths to each agency within the region for assignment by the Agency Administrator to the PSAP devices.

The **Agency Maximum Talk Path** screen allows the Regional Administrator to define a Maximum Talk Path value contained within a Region. Agencies in the UAS are provisioned with the maximum FlexPaths per console that are homed in that Region.

Ensure there are sufficient FlexPaths allocated to an agency to support the number of consoles. Each console requests the number of FlexPaths that it is licensed for. To calculate how many FlexPaths should be allocated to an agency, multiply the expected number of consoles by the number of FlexPaths licensed to each console. See Section 15.2 for instructions on viewing a console’s licensed FlexPaths.



NOTE

The Symphony console will not complete the login process if it is not granted the correct number of FlexPaths. The maximum number of FlexPaths available for allocation to agencies is dependent on the number of FlexPath licenses purchased from L3Harris.

To Allocate FlexPaths:

1. Log in as a Regional Administrator.
2. Select the **Regions** tab and in the Left Navigation Panel, expand the desired region to display the region's menu options.
3. Click **Max Talk Path** to display the "Max Talk Path" screen as shown in Figure 7-1.

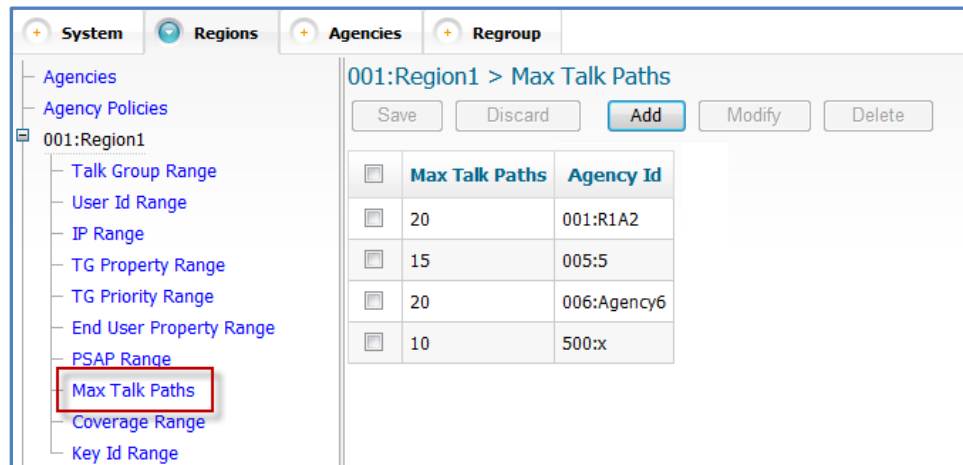


Figure 7-1: Region Maximum Talk Path Screen

4. Click **Add** to open the "Max Talk Paths Detail" dialog.

Max Talk Paths: *

Agency Id: 001:R1A2 *

OK Cancel

Figure 7-2: Agency Max Talk Paths Detail Dialog

5. Enter the maximum number of FlexPaths (Max Talk Paths field) that will be made available for the selected Agency.
6. Click **OK** after entering the data.
7. Click **Save**.

7.2.2 Adding Consoles (PSAPs)

The **Agency PSAP** screen enables the Agency Administrator to add consoles.

To add a Symphony Console:

1. Log in as an Agency Administrator.
2. Select the **Agencies** tab and in the Left Navigation Panel, expand the desired agency to display the agency’s menu options.
3. Click **PSAP** to display the “PSAP” screen as shown in Figure 7-3.

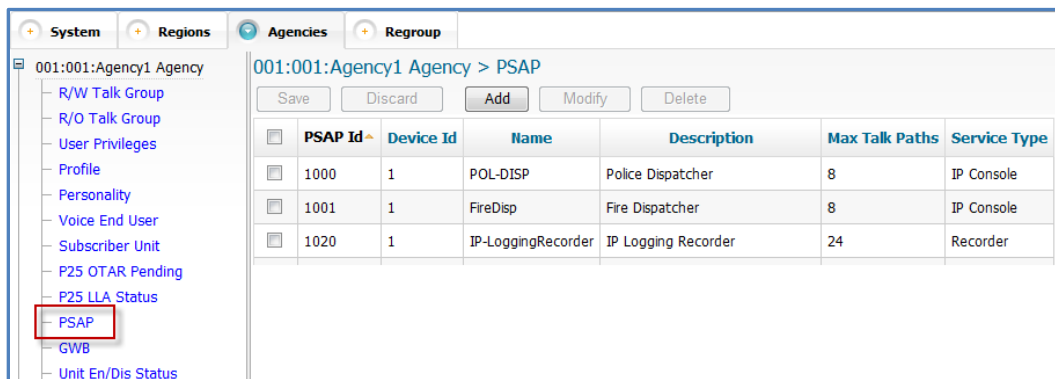


Figure 7-3: Agency PSAP Device Screen

4. Click **Add** to open the “PSAP Detail” dialog.

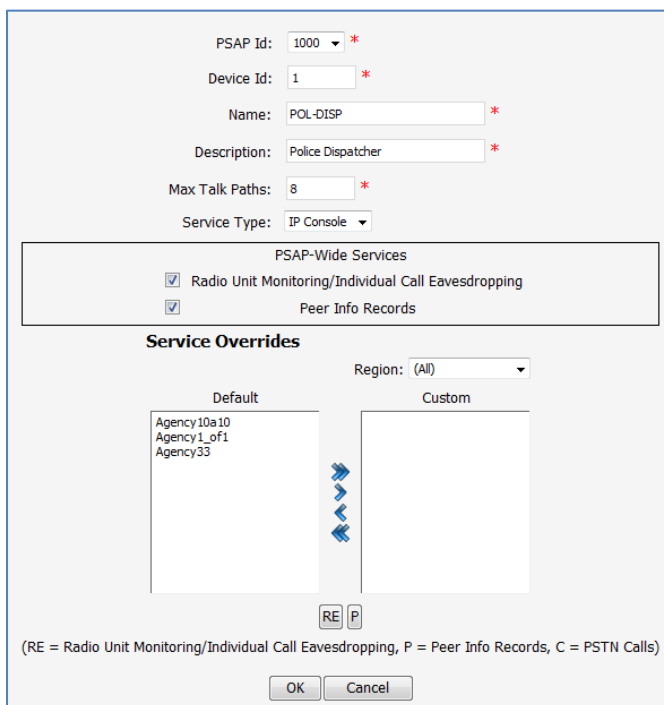


Figure 7-4: PSAP Device Detail Dialog

5. Enter the following data to identify the Symphony console:

PSAP ID: Select the PSAP ID the Symphony console will use to connect with the VNIC.

Device ID: Always Enter “1.” The Device ID applies when a console system uses a single interface to the VNIC for multiple consoles. In this case, the Device ID uniquely identifies each console sharing the interface. Symphony uses one interface to the VNIC for each console, so the Device ID is always set to 1.

Name and Description: Enter any legal value. It is recommended the Name and Description match the console computer’s name.

Max Talk Path: Must match or exceed the number of FlexPaths for which the console is licensed.

See Section 15.2 to view the number of licensed FlexPaths for a console. Symphony will fail to connect to the VNIC if it cannot obtain the number of FlexPaths it is licensed for.

Service Type: Always select “IP Console” from the pull-down list.

6. In the PSAP-Wide Services Section:

Radio Unit Monitoring/Selective Call Eavesdropping: Check this box to utilize these features.

Peer Info Records: Always check this setting.

7. Using the movement commands, select the Agencies the console can monitor. This only applies to systems with the “Remote User Monitoring” feature enabled in the previous step.

8. Click **OK** after entering the data.

If the new data entry is valid, the UAS adds the entry to the “PSAP” screen and color-codes it green.

9. Click **Save**.

The UAS adds the PSAP device to the database, refreshes the “PSAP” screen, and changes the new entry from green to black.

7.2.3 Creating Personalities

To Define a Personality:

1. Select the **Agencies** tab and in the Left Navigation Panel expand the desired agency to display the agency’s menu options.
2. Click **Personality** to display the “Personality” screen.
3. Enter the Personality data parameters.
4. Assign a profile or profiles to the Personality.



NOTE

Each personality must contain at least one profile.

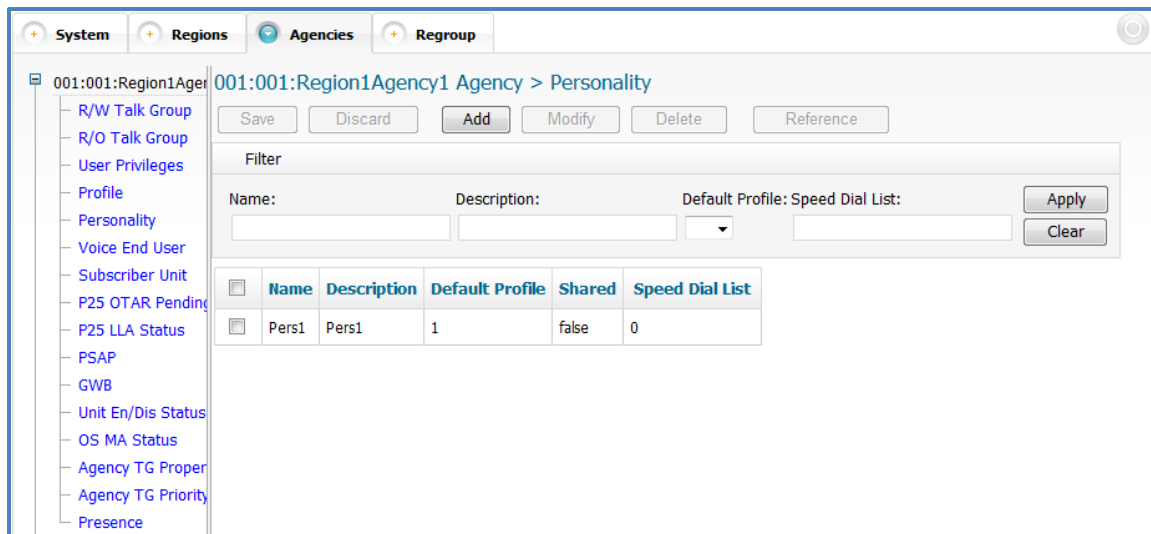


Figure 7-5: Agency Personality Screen

5. Click **Add** to open the “Personality Detail” dialog box.

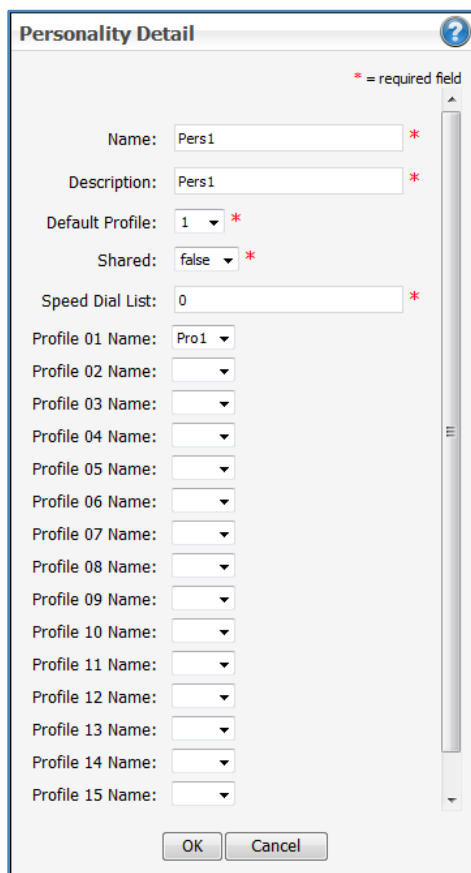


Figure 7-6: Personality Detail Dialog

6. Click **OK** after entering the data.

If the new data entry is valid, the UAS adds the entry to the “Personality” screen and color-codes it green.

7. Click **Save**.

The UAS updates database, refreshes the “Personality” screen, and changes the new entry from green to black.

7.2.4 Defining User Privileges

The User Privileges defines the operational permissions for the users (console dispatchers). Each privilege is unique and may be assigned multiple users.

To Define User Privileges:

1. Login as an Agency Administrator.
2. Select the **Agencies** tab and in the Left Navigation Panel, expand the desired agency to display the agency’s menu options.
3. Click **User Privileges** to display the “User Privileges” screen as shown in Figure 7-7.

	Name	Description	Individual Call	PSTN Privilege	Voice Encryption	Manual Keyed Voice	Individual Call Encryption	Test Partition	P25 Supervisor	SPNI	SMS IP
<input type="checkbox"/>	1_1_default	1_2_default	Allowed	Not Allowed	Enable	Not Allow	Not Allow	false	false	1	
<input type="checkbox"/>	UserPriv1	UserPriv1	Not Allowed	Not Allowed	Enable	Not Allow	Not Allow	false	false	1	10.10.10.10

Figure 7-7: User Privileges Screen

4. Click **Add** to open the “User Privileges Detail” dialog as shown in Figure 7-8.
5. Enter the User Privileges data.



NOTE

For P25 applications, ensure the SPNI is set to one (1).

6. Click **OK** after entering the data.

If the new data entry is valid, the UAS adds the entry to the “User Privileges” screen and color-codes it green.

7. Click **Save**.

The UAS updates database, refreshes the “User Privileges” screen and changes the new entry from green to black.

User Privileges Detail ?

* = required field

Name: *

Description: *

MES Allowed: *

Allow Console Flag: *

Selective Call:

PSTN Privilege:

Voice Encryption:

Manual Keyed Voice:

Selective Call Encrypt:

Test Partition: *

P25 Supervisor: *

SPNI: *

SMS IP: . . .

SMS Port:

I-Call Allowed: *

User Services Allowed: *

May initiate Patches and Simulselects: *

Coverage:

Valid Coverage:

WASI01:

OK Cancel

Figure 7-8: User Privileges Detail Dialog

7.2.5 Creating a Voice End User - Console

Agency Administrators must determine what Voice End Systems (VES) or Voice End Users are valid within their agency and grant that user access to the communication network. If a user is not authorized, the console will fail to connect to the VNIC.



NOTE

The primary reason console users are provided IDs is to enable them control Patch/SimulSelect build capability.

To Add Console Users:

1. Login as an Agency Administrator.
2. Select the **Agencies** tab and in the Left Navigation Panel, expand the desired agency to display the agency's menu options.
3. Click **Voice End User** to display the "Voice End User" screen as shown in Figure 7-9.

	User Id	Name	Description	Personality	User Privilege	Message Trunked ICall	Enable P25 AES OTAR	Manually-Keyed	P25 Voice Authentication	Preferred Vocoder	OS Voice Authentication	Transcoding Allowed Flag
<input type="checkbox"/>	001:001:0001	VES1	VES1	Pers1	UserPriv1	true	false	false	false	P25 Full Rate	false	true
<input type="checkbox"/>	001:001:0003	test	test	Pers1	1_1_default	true	false	false	false	P25 Full Rate	false	true
<input type="checkbox"/>	001:001:0004	test	test	Pers1	1_1_default	true	false	false	false	P25 Full Rate	false	true
<input type="checkbox"/>	001:001:0005	vesos5	vesos5	Pers1	1_1_default	true	false	false	false	OpenSky 2400 AMBE	false	true
<input type="checkbox"/>	001:001:0006	vesmix6	vesmix6	Pers1	1_1_default	true	true	false	false	P25 Full Rate	false	true

Figure 7-9: Agency Voice End User Screen

4. Click **Add** to open the "Voice End User Detail" dialog as shown in Figure 7-10.
5. Select a User ID from the pull-down list.
6. Enter the User's Name and Description.
7. Enter and confirm the User's password.
8. Select the Personality and Privileges from the drop-down list.
These were previously defined (see Sections 7.2.3 and 7.2.4).
9. Enter the User parameters.
10. Click the **OK** button after entering the data.

If the new data entry is valid, the UAS adds the entry to the "Voice End User" screen and color-codes it green.

11. Click the **Save** button.

The UAS updates database, refreshes the “Voice End User Detail” screen, and changes the new entry from green to black.

Voice End User Detail ?

* = required field

User Id: 001:001:9242 *

Name: VES38 *

Description: VES38 *

Password: ***** *

Confirm Password: ***** *

Personality: 123

User Privilege: 1_1_default

Enable P25 AES OTAR: false

Manually-Keyed: false *

P25 Voice Authentication: false

ISSI End User Property Id:

Custom Description:

Preferred Vocoder: P25 Full Rate

OS Voice Authentication: false

Transcoding Allowed Flag: true *

Quantity 1

OK Cancel

Figure 7-10: Voice End User Detail Dialog

7.3 P25 ENCRYPTION



NOTE

This section does not apply to Background Transmission IDs.



NOTE

FIPS-140 compliance prohibits the use of the DES (Data Encryption Standard) encryption algorithm. Therefore, FIPS-140 compliance must be disabled to use DES. This process is described in Section 9.2.6.

The Symphony console application supports two types of encryption key management, Manual Key Loading and Over-The-Air Rekeying (OTAR).

Manual Key Loading - L3Harris Key Admin software generates keys and bindings and exports them to an encrypted distribution file. This file is manually delivered to the Symphony Dispatch Platform using the Symphony Manual Key Loader. This process is described in Section 7.3.2.

Over-The-Air Rekeying - Keys and bindings are generated by the L3Harris Network Key Management Facility (KMF). The keys are delivered to the Symphony application, via a network connection, when instructed by the Unified Administration System (UAS) or initiated by the Symphony application itself. The UAS also instructs the KMF to rekey, change over active keysets, or zeroize all key data. These activities are described in other L3Harris documents.

In almost all cases, the Symphony administrator employs only one of these types of encryption key management approaches at a time. However, the Symphony console application can support both at the same time. When both are used at the same time, the following business rules apply:

- It is advisable that keys and bindings generated by the two systems do not use overlapping Key IDs and SLN (bindings) numbers. Also, keys from both systems should not be bound to the same Talk Groups.
- If keys and bindings from the two systems do overlap, the OTAR keys and bindings are used. If the OTAR keys and bindings are deleted, the manually loaded keys and bindings are used.

The following P25 Encryption features are supported:

- **Number of Active Keys:** 640.



NOTE

When using OTAR, each crypto-net has two (2) encryption keys to support changeover from the current active key to a new key.

- **Algorithms:** AES-256 and DES OFB with 56-bit keys.
- **Vocoders:** P25 Phase 1 IMBE (Full Rate) and P25 phase 2 AMBE+2 (Half rate).
- **Types of calls that can be encrypted:** P25 Group calls (AES and DES), P25 Patches (AES), P25 SimulSelects (AES), and P25 I-Calls (AES).

7.3.1 OTAR

This section provides an overview of the parameters that must be configured for Symphony to support OTAR. See the KMF and UAS manuals for more details.

There are three main steps to configure Symphony for OTAR:

- Configure the console machine and dispatch user for OTAR using the UAS.
- Configure a Crypto Net (if not already done) using the UAS.
- Generate a Unique Key Encryption Key (UKEK) using the KMF. The UKEK must be manually loaded in Symphony as defined in Section 13.2.

7.3.1.1 Configure the Dispatcher for OTAR

1. On the UAS, define the Key ID Range for the agency:
 - a. Navigate to **UAS**→**Regions**→ [your region] →**Key Id Range**.
 - b. Click **Add** to open the “Key Id Range Detail” dialog box.
 - c. Enter the Agency Key ID range (Agency Key ID low and high values) for the selected Agency and specify the OTAR Algorithm.

The dialog box titled "Key Id Range Detail" contains the following fields and values:

- Key Id Low: 1000 *
- Key Id High: 1099 *
- Agency Id: 001:Agency1 *
- OTAR Algorithm: AES *

Buttons: OK, Cancel

Figure 7-11: Agency Key ID Range Detail Dialog

- d. Click **OK** and click **Save**.
2. On the UAS, define and configure Subscriber Units for OTAR keys.
 - a. Navigate to **UAS**→**Agencies**→[your agency]→**Subscriber Units**.

The UAS displays a list of currently defined Subscriber Units and Consoles.

	P25 IP Address	OpenSky IP Address	Description	RSI	ESN	Protocol Mask	Status	Sub Type	Assigned End User	Algorithm Support
<input type="checkbox"/>			Dispatcher1	10033	000000000000000000	BeOn	Enabled Unit	BeOn Device	001:001:0033	Both
<input type="checkbox"/>			Dispatcher2	10034	000000000000000001	BeOn	Enabled Unit	BeOn Device	001:001:0034	Both
<input type="checkbox"/>			Dispatcher3	10035	000000000000000002	BeOn	Enabled Unit	BeOn Device	001:001:0035	Both
<input type="checkbox"/>			Dispatcher4	10036	000000000000000003	BeOn	Enabled Unit	BeOn Device	001:001:0036	Both

Figure 7-12: Agency Subscriber Unit Screen

- b. Scroll through the list to determine if the desired Assigned End User (user/dispatcher) is defined as a Subscriber Unit.

If not, click **Add** to display the Subscriber Unit Detail dialog. If the console is defined already, navigate to the row for its definition, check its check box, and click **Modify** to display the Subscriber Unit Detail dialog.

Figure 7-13: Subscriber Unit Detail Dialog

3. Ensure all information for the Subscriber Unit is correct:

Protocol Type: Check **BeOn**
Sub Type: **Symphony Console**
Algorithm Support: **AES, DES, or Both**
Authentication Type: **P25-LLA**

4. Enter the dispatcher's Assigned End User ID.

The UAS generates the RSI automatically. Together these settings enable the console to receive keys at run time from the KMF service.

5. Click **OK** to commit the new Subscriber Unit and close the detail dialog.

049:013:Agcy13 Agency > Profile

Save Discard **Add** Modify Delete Reference

Filter

Name: Description: Apply Clear

Page 1 of 4 View More

<input type="checkbox"/>	Name	Description	Shared
<input type="checkbox"/>	MNOS	Matt OS	false
<input type="checkbox"/>	MNP25	Matt P25	false
<input type="checkbox"/>	RonOS	Ron OS Prof	false
<input type="checkbox"/>	DesiOS	Desi OS	false
<input type="checkbox"/>	JAP25	Jaber P25	false
<input type="checkbox"/>	GJOS	Gary OS	false
<input type="checkbox"/>	RHEOS	RHE OS Prof	false
<input type="checkbox"/>	Desi25	Desi P25	false
<input type="checkbox"/>	JAOS	Jaber OS	false
<input type="checkbox"/>	RHE25	RHE P25 Prof	false
<input type="checkbox"/>	Ron25	Ron P25 Prof	false
<input type="checkbox"/>	CKBOS	Barker OS	false

Figure 7-14: Agency Profile Screen

- Find the new Subscriber Unit in the updated list and write down the RSI (Radio Set Identifier), which was assigned by the UAS.

The RSI is needed when using the Manual Key Loader to Load the UKEK file for Over-the-Air Rekeying.

- Navigate to **UAS→Agencies→[your agency] →Profile**. A list of currently defined Profiles is displayed.

Verify that the UAS includes profiles for all talk groups that are to be provisioned for the console (dispatcher) and that are to be included in the Crypto Net.

- Scroll through the profiles list and verify that it includes all needed profiles. If not, click **Add** to open the Profile Detail dialog and add the necessary Profile.

If the list does contain all of the needed profiles, check the check box for each, one at a time, and verify each Profile's details.

9. Verify the console (dispatcher) Profile list includes all the profiles just added, modified, or verified.

Profile Detail ?

* = required field

Name: *

Description: *

Shared: *

Emergency Behavior

Send Unit Alert

Declaring User must clear User Alert

Declare Group Emergency

Use Default Emergency TG

ID	Talk Group	Default Emergency	Emergency Mask	Supervisor Mask	Scan Priority One	Scan Priority Two
1	01500:TPTT01	<input checked="" type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
2	01501:TPTT02	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
3	01502:TPTT03	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
4	01503:TPTT04	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
5	*01504:TPTT05	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
6	*01505:TPTT06	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
7	*01506:TPTT07	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
8	*01507:TPTT08	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
9	01520:TPMT01	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
10	01521:TPMT02	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
11	01522:TPMT03	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
12	01523:TPMT04	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
13	*01524:TPMT05	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
14	*01525:TPMT06	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
15	*01596:TPDESHR	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>
16	*01580:TPHfRat	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>

OK Cancel

Figure 7-15: Profile Detail Dialog

- Navigate to **UAS→Agencies→[your agency]→Personality**. The UAS displays a list of currently defined Personalities.

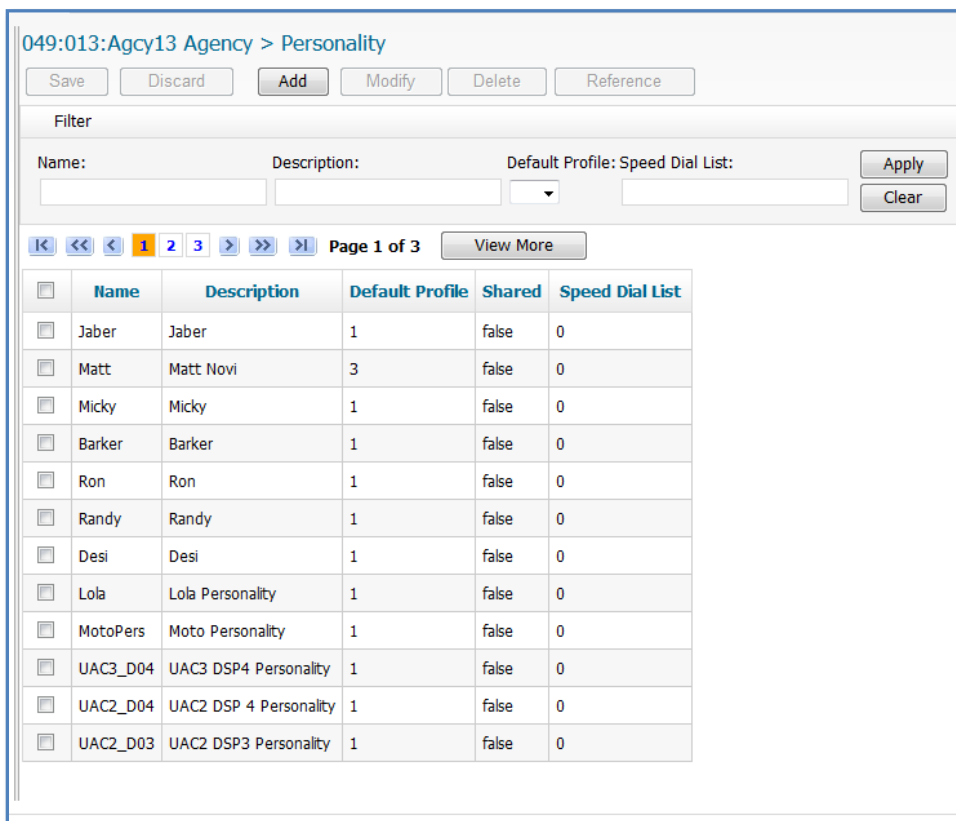


Figure 7-16: Agency Personality Screen

- Verify that the personalities for the dispatcher's profile are included in the list. If not, click **Add** to open a Personality Detail dialog and add a Personality.

If the personality is included, check the check box for each, one at a time, and click **Modify** to display and verify its details.

Personality Detail ?

* = required field

Name: DemoConsole *

Description: Demo Console *

Default Profile: 1 *

Shared: false *

Speed Dial List: 0 *

Profile 01 Name: DemoCons

Profile 02 Name: TPP25

Profile 03 Name:

Profile 04 Name:

Profile 05 Name:

Profile 06 Name:

Profile 07 Name:

Profile 08 Name:

Profile 09 Name:

Profile 10 Name:

Profile 11 Name:

Profile 12 Name:

Profile 13 Name:

Profile 14 Name:

Profile 15 Name:

OK Cancel

Figure 7-17: Personality Detail Dialog

- 12. Navigate to **UAS→Agencies→[your agency]→Voice End User** to define and configure the Voice End User settings for the dispatcher. The UAS displays a list of currently defined Voice End Users.

049:013:Agcy13 Agency > Voice End User

Save Discard Add Modify Delete Force Update Reference

Filter

User Id: 049:013: Name: Description: Apply Clear

Page 1 of 18 View More

	User Id	Name	Description	Personality	User Privilege	Message Trunked ICall	Enable P25 AES OTAR	Manually-Keyed	P25 Voice Authentication	Preferred Vocoder	OS Voice Authentication	Transcode Allow Flag
<input type="checkbox"/>	049:013:3043	Trevor1	Trevor1	Trevor	ConsoleDefault	true	true	false	false	P25 Full Rate	false	true
<input type="checkbox"/>	049:013:3044	Trevor2	Trevor2	Trevor	ConsoleDefault	true	true	false	false	P25 Full Rate	false	true
<input type="checkbox"/>	049:013:3045	Trevor3	Trevor3	Trevor	ConsoleDefault	true	true	false	false	P25 Full Rate	false	true
<input type="checkbox"/>	049:013:3046	Trevor4	Trevor4	Trevor	ConsoleDefault	true	true	false	false	P25 Full Rate	false	true
<input type="checkbox"/>	049:013:3000	Ron1	Ron1	Ron	ConsoleDefault	true	true	false	false	P25 Full Rate	false	true
<input type="checkbox"/>	049:013:3001	Ron2	Ron2	Ron	ConsoleDefault	true	true	false	false	P25 Full Rate	false	true
<input type="checkbox"/>	049:013:3002	Ron3	Ron3	Ron	ConsoleDefault	true	true	false	false	P25 Full Rate	false	true
<input type="checkbox"/>	049:013:3003	Ron4	Ron4	Ron	ConsoleDefault	true	true	false	false	P25 Full Rate	false	true

Figure 7-18: Agency Voice End User Screen

13. Navigate through the lists to determine whether the dispatcher is defined as a Voice End User. If not, click **Add** to display the Voice End User Detail dialog. If the dispatcher is defined already, navigate to the row for its definition, check its check box, and click **Modify** to display the Voice End User Details.

The screenshot shows the 'Voice End User Detail' dialog box. At the top right, there is a help icon and a legend indicating that an asterisk (*) denotes a required field. The fields are as follows:

- User Id: 049:013:0025
- Name: DemoConsole *
- Description: Demo Console *
- Password: [masked] *
- Confirm Password: [masked] *
- Personality: DemoConsole
- User Privilege: ConsoleDefault
- Message Trunked ICall: true
- Enable P25 AES OTAR: true** (highlighted with a red box)
- Manually-Keyed: false *
- P25 Voice Authentication: false
- ISSI End User Property Id: [empty]
- Custom Description: [empty]
- Preferred Vocoder: P25 Full Rate
- OS Voice Authentication: false
- Transcoding Allowed Flag: true *

At the bottom of the dialog are 'OK' and 'Cancel' buttons.

Figure 7-19: Voice End User Detail Dialog

14. Set **Enable P25 AES OTAR** to true.
Set all algorithm settings to **True**; AES, DES, or Both.
15. Select the personality that you added, modified, or verified.

7.3.1.2 Configure a Crypto Net

Use the following procedure to configure a Console Crypto Net:

1. Log into the UAS as a Crypto Officer.
2. Navigate to the Crypto Nets tab.

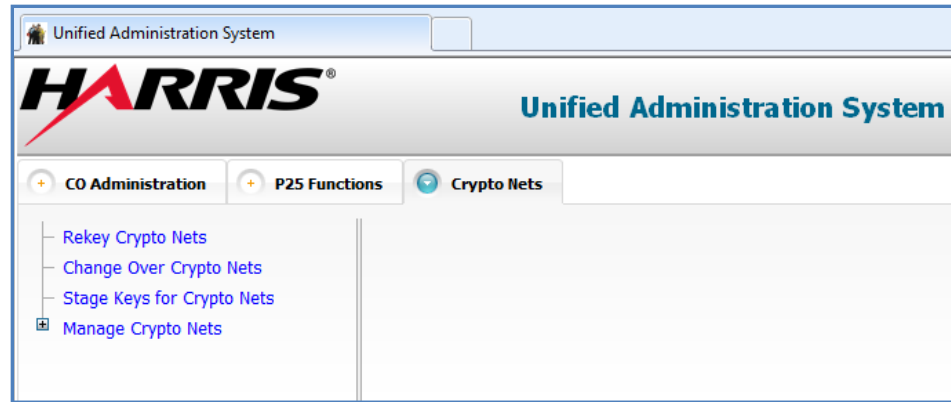


Figure 7-20: Crypto Nets Tab

3. Expand the **Manage Crypto Nets** link to display a list of existing Crypto Nets.
4. Click on the **Manage Crypto Nets** link to list information about these Crypto Nets.

Name	Description	SLN	Active Key Id	Inactive Key Id	Key Id Range	TGs	Users	CN Type	OTAR Algorithm	Encryption Level	Provision Type	Wait4TEK	ExportTEK
TP25E256	Trevor P25 256-bit	100	5004	5008	{5000...5050}	9	4	P25	AES	256-Bit	Default (UBK)	No	Yes
REOSE256	RandyOS 256	n/a	n/a	n/a		4	3	OpenSky	AES	256-Bit	Legacy	No	No
LOP25E256	Lola P25 256-bit	101	103	124	{101...150}	4	4	P25	AES	256-Bit	Default (UBK)	No	No
LOP25128	Lola P25 128-bit	102	104	104	{101...150}	4	4	P25	AES	256-Bit	Default (UBK)	No	No
LOOS128	Lola OS 128-bit	n/a	n/a	n/a		4	4	OpenSky	AES	128-Bit	Legacy	No	No
LOOS256	Lola OS 256-bits	n/a	n/a	n/a		4	4	OpenSky	AES	256-Bit	Legacy	No	No
LOP25TEST	P25 256bit for quick test	103	105	105	{101...150}	3	3	P25	AES	256-Bit	Default (UBK)	No	No
DB25E256	DB P25 256-by	109	201	203	{201...300}	16	5	P25	AES	256-Bit	Default (UBK)	No	No
DBOSE256	DB OpenSky256-bit	n/a	n/a	n/a	{201...300}	16	4	OpenSky	AES	256-Bit	Legacy	No	No
DB25E128	DB P25 128-bit	106	106	106	{101...150}	0	0	P25	AES	256-Bit	Default (UBK)	No	No
DBOSE128	DB OpenSky 128-bit	n/a	n/a	n/a	{101...150}	0	0	OpenSky	AES	128-Bit	Legacy	No	No
TPDES	Trevor DES	112	5051	5051	{5051...5100}	5	0	P25	DES	64-Bit	Default (UBK)	No	No

Figure 7-21: Manage Crypto Nets Screen

5. Click the **Add** button to display the Crypto Net Detail dialog.

- Enter a name and description and then specify **P25** as **CN Type**. The detail dialog expands to include additional properties, as shown.

Figure 7-22: Crypto Net Detail Dialog

- Use the **Key ID Range** drop-down list and select the range defined for your Crypto Net.
In most cases, you can check the **Autogen** check box and click **OK**. You also can leave the check box unchecked and fill in the remaining properties, then click **OK**. The dialog closes. The list now includes a row for the new Crypto Net, with SLN and Encryption Level filled in.
- Click **Save** to commit the new Crypto Net.
- Find the new Crypto Net in the list of Crypto Nets and click the **+** character beside its name to expand a list of operations to perform.

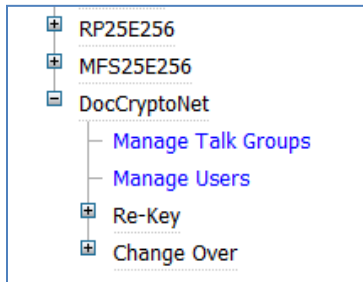


Figure 7-23: Manage Crypto Net Screen Expanded

- Click the link for **Manage Talk Groups**. The Manage Talk Groups page is displayed.

If you are managing an existing Crypto Net, the dialog lists Talk Groups that already belong to the Crypto Net. If the Crypto Net is new, no groups are listed.

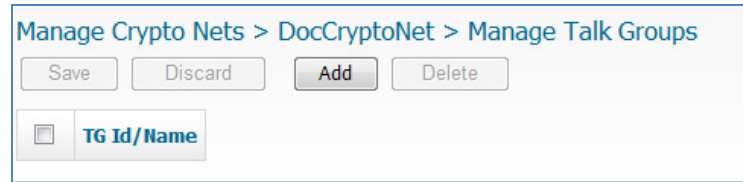


Figure 7-24: Crypto Nets Manage Talk Group (Add) Screen

11. Click **Add** to add groups to the Crypto Net.

The Manage Talk Groups Detail is displayed. The Available panel lists all the Talk Groups in the system that currently do not belong to a Crypto Net. The Selected panel lists the Talk Groups that belong or have been selected to add.

12. Highlight the IDs of Talk Groups to add to the Crypto Net, and then click the > arrow to select them.

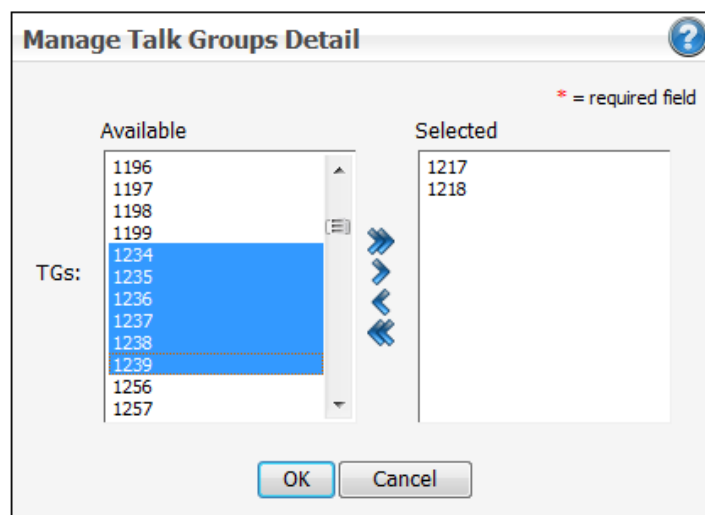


Figure 7-25: Crypto Nets Manage Talk Groups Detail Dialog

- After you select all the Talk Groups you want to add, click **OK**. The Manage Talk Groups Detail dialog closes, and the Manage Talk Groups page now lists the Talk Groups selected to be added to the Crypto Net.



Figure 7-26: Crypto Net Manage Talk Groups (Save) Screen Detail Dialog

- Click **Save**. The listed Talk Groups are added to the Crypto Net.
- Click the link for **Manage Users**.

This opens the Manage Users dialog. If managing an existing Crypto Net, the dialog lists users that already belong to the Crypto Net. If the Crypto Net is new, no users are listed.

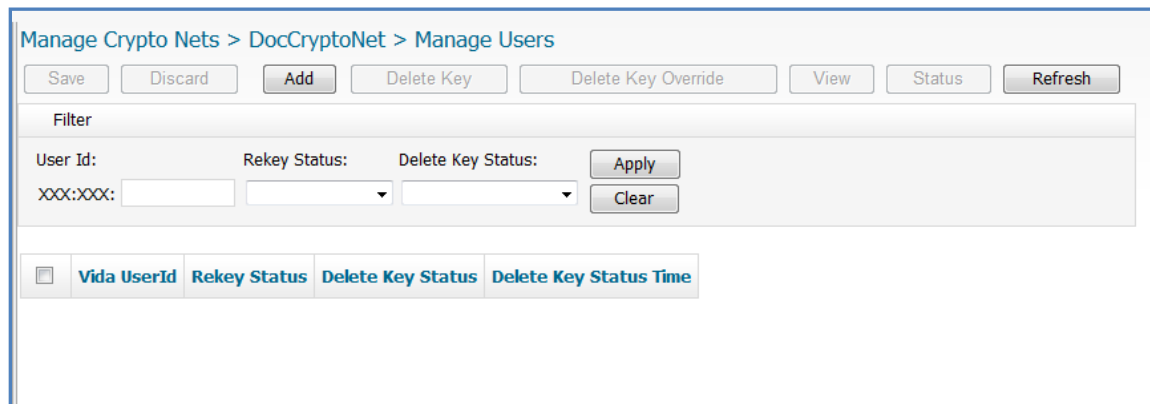


Figure 7-27: Crypto Manage Users (Add) Screen Detail Dialog

- Click **Add** to add users to the Crypto Net.

This opens the Manage Users Detail dialog (Figure 7-28). The Available panel lists all the users in the system that currently do not belong to a Crypto Net. The Selected panel lists the users that belong to, or have been selected, for addition to the Crypto Net.

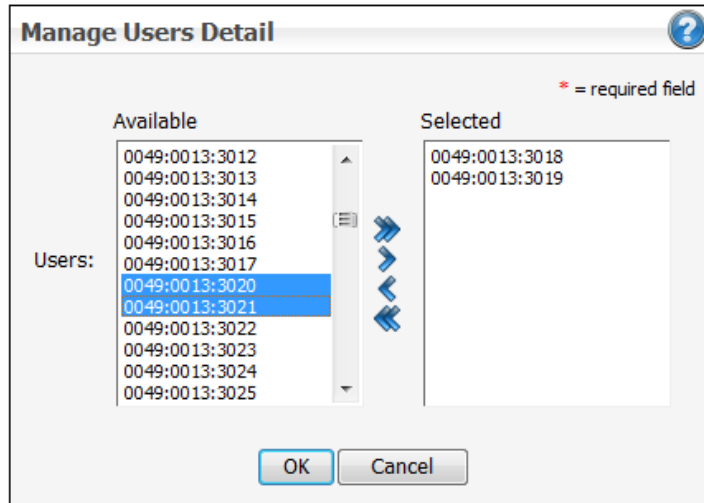


Figure 7-28: Crypto Manage Users Detail Dialog

17. Highlight the User IDs (including console users or dispatchers) being added to the Crypto Net, and then click the > arrow to select them.
18. After selecting all users being added, click **OK**. The Manage Users Detail dialog closes and the Manage Users page lists the users selected for addition to the Crypto Net.

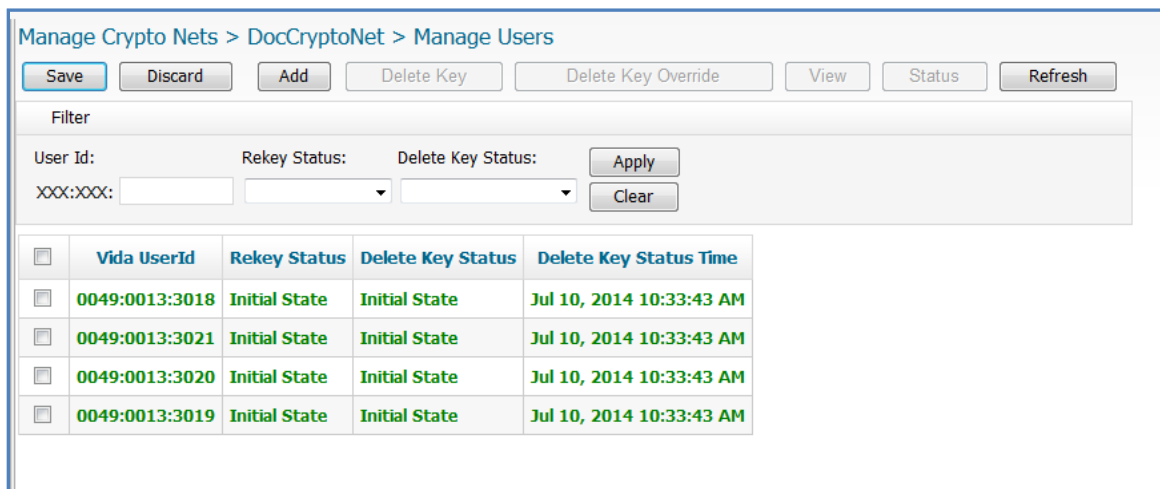


Figure 7-29: Crypto Manage Users (Save) Screen

19. Click **Save**.

The listed users are added to the Crypto Net. Now the UAS will tell the KMF to generate keys, including UKEK, and start keying the entities that belong to the Crypto Net. The status is updated in the **Rekey Status** column on the Manage Users screen (Figure 7-29).

7.3.1.3 Generate a Unique Key Encryption Key (UKEK) using the KMF

Use the following procedure to acquire a UKEK from the KMF:

1. Log onto the machine hosting the KMF service, then start the Network KMF Management Console application. This opens the Network KMF Management Console.

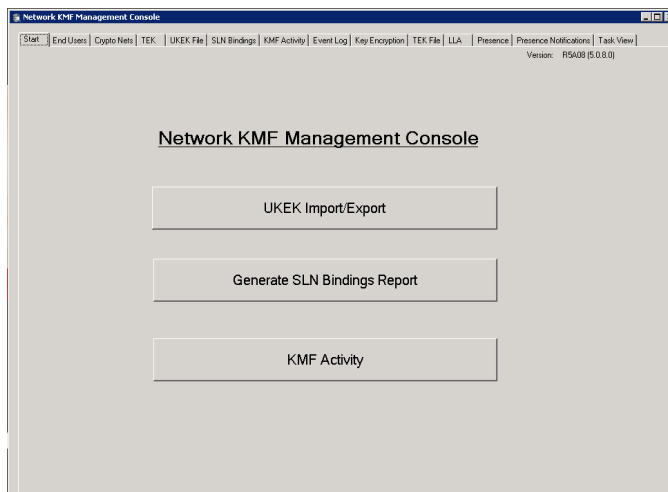


Figure 7-30: Network KMF Management Console – Start Tab

2. Click the **UKEK Import/Export** button (or select the **UKEK File** tab) to display the UKEK File page.

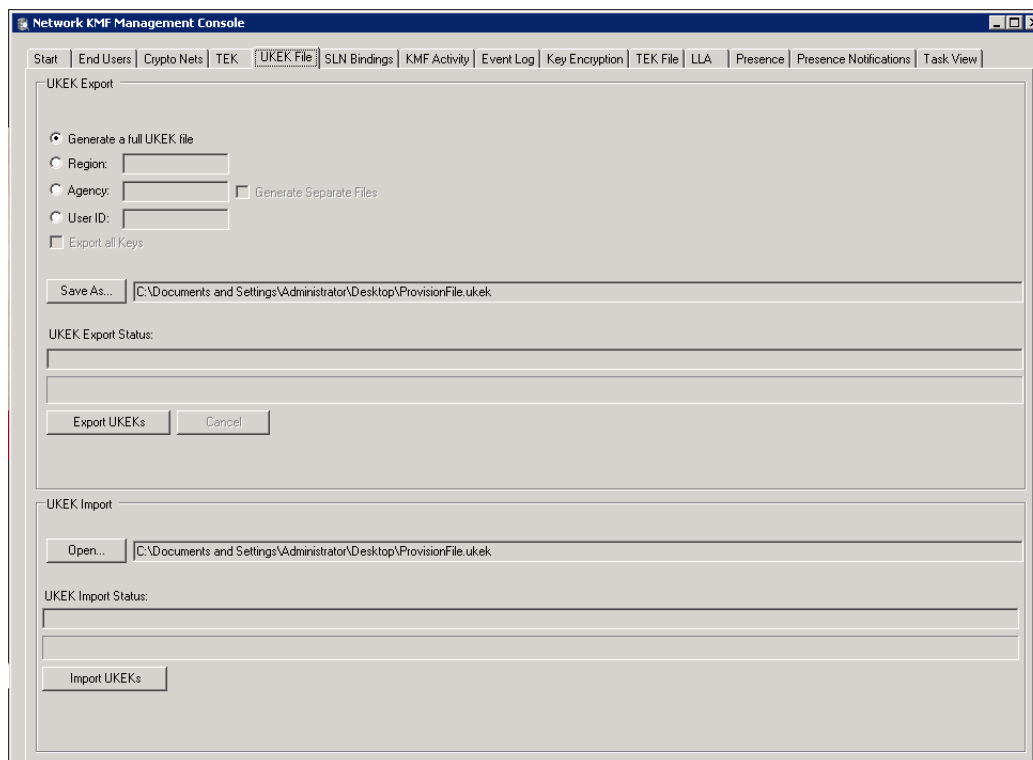


Figure 7-31: Network KMF Management Console – UKEK File Tab

3. Select **Generate a full UKEK file**.

- Click the **Save As** button.

Specify the UKEK file type (encrypted or unencrypted) and the destination folder and file name.



The file name extension defaults to “.ukek” which the Symphony processes as unencrypted. To have Symphony process the UKEK file as encrypted, append an “x” to the end of the file name extension (.ukekx).

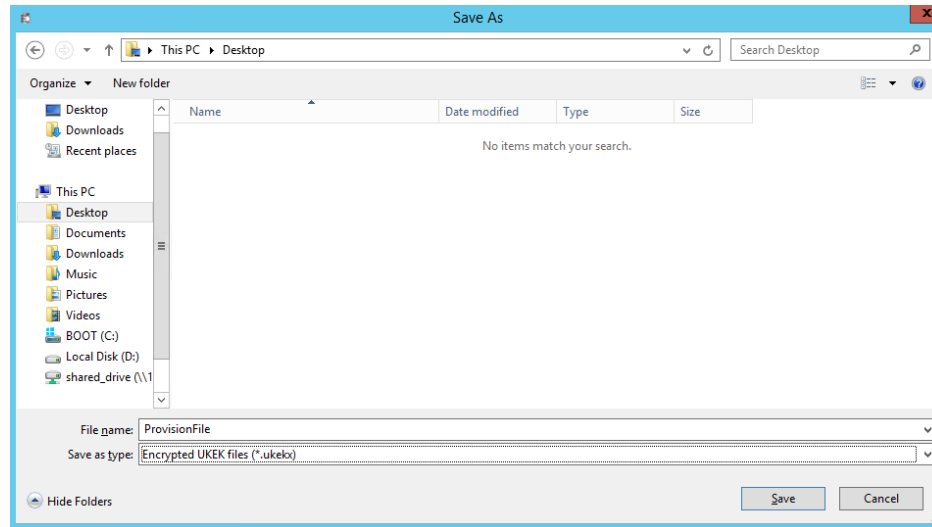


Figure 7-32: Network KMF Management Console – UKEK File “Save As” Dialog

- Click **Save**.
- On the UKEK File page, click **Export UKEKs**.

The Enter UKEK File Password dialog displays if you opted to save the UKEK file as encrypted (.ukekx).

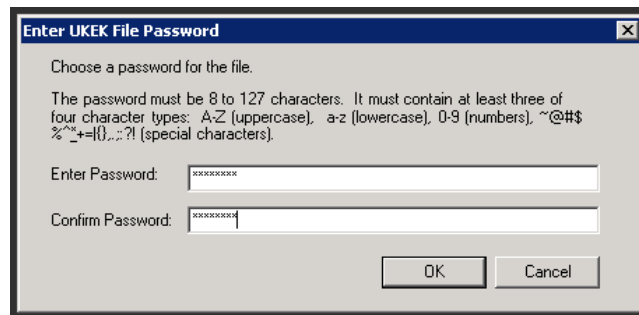


Figure 7-33: Network KMF Management Console – UKEK File “Save As” Password Dialog

- Enter and confirm a password that satisfied the requirements as stated on the dialog.
- Click **OK** to write the UKEK file out to the specified destination path and name. The Enter UKEK File Password dialog closes and the file is written out as specified.
- Close the Network KMF Management Console application and copy the new UKEK file from where it was created to a location on the Symphony host computer.
- See Section 13.2 for details of loading the UKEK on Symphony.

7.3.1.4 Configure KMF for P1025 Communication

The Symphony Console uses the P1025 Protocol to communicate with the KMF, including request and receipt of keys. Use the following procedure to configure the KMF for P1025 communication.

1. Log onto the machine hosting the KMF service, and use Windows Explorer to find the "personality.xml" file for the Network KMF service.

➤ On newer versions of MS Windows, the file exists on the following path:

C:\ProgramData\Harris\NKMF

➤ On older versions of MS Windows and Windows Server, the file exists on the following path:

C:\Documents and Settings\All Users\Application Data\Harris\NKMF

2. Make a backup copy of the 'personality.xml' file.
3. Using a text editor, open the file 'personality.xml' file.
4. Navigate to the following setting line. If the value already equals "true," then the KMF is already configured properly. Otherwise, perform the remaining steps.

<param id="40" name="Enable Part1025" type="Boolean" value="false"/>

5. Change the value between the quotation marks from "false" to "true," then save the file.
6. Start the Network KMF Management Console application. This opens the Network KMF Management Console.

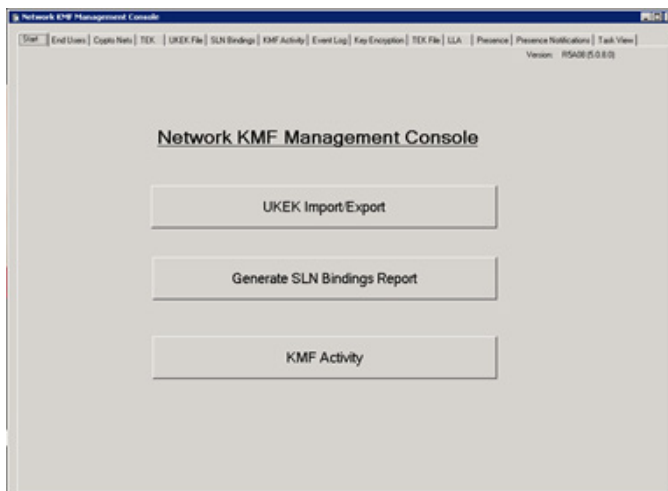


Figure 7-34: Network KMF Management Console – Start Tab

7. Open the "KMF Activity" tab.

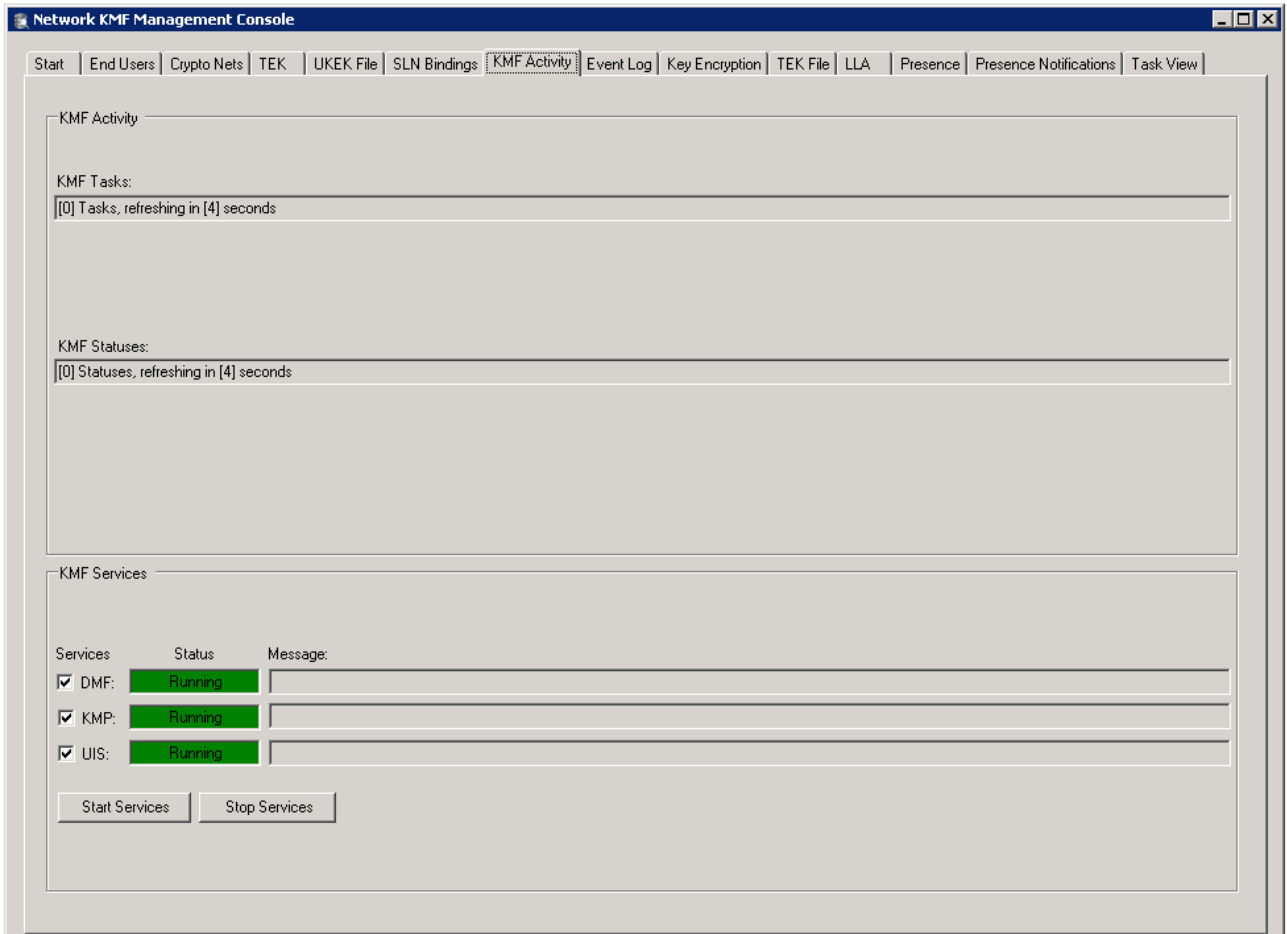


Figure 7-35: Network KMF Management Console – KMF Activity Tab

8. Uncheck the "DMF" and "UIS" check boxes, check the one for "KMP," and then click **Stop Services**.

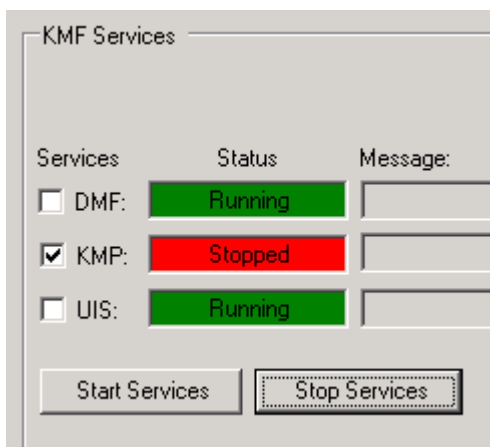


Figure 7-36: Network KMF Management Console – KMF Activity Tab – Stop KMP Services

- After the "KMP" Status shows "Stopped," click **Start Services**. After the "KMP" Status shows "Running," make sure all three check boxes are checked.

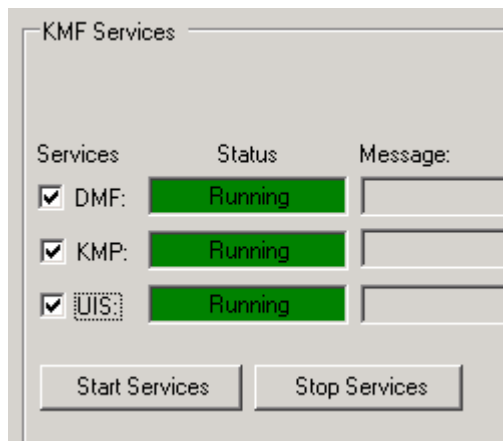


Figure 7-37: Network KMF Management Console – KMF Activity Tab – Start KMF Services

7.3.2 Manual Key Loading

Use the L3Harris Key Administrator to generate manual keys for use with the Symphony console application. After creating a Distribution Key file with this program, use the Symphony Manual Key Loader to load the keys into the Symphony console application as described in Section 13.1.



The current Symphony software release supports manually loaded Data Encryption Standard (DES) and the Advanced Encryption Standard (AES-256) keys. L3Harris Key Administrator (P/N SK102979V1) version R7B or later is required for DES key loading. This version is only available via an exception release at this time.

- Start the L3Harris Key Admin application.
- Select **New Master Set** from the **Set** panel or select **File**→**New Master Set** from the menu.

This function displays the Editing Pane for creation and editing of keys and key sets.

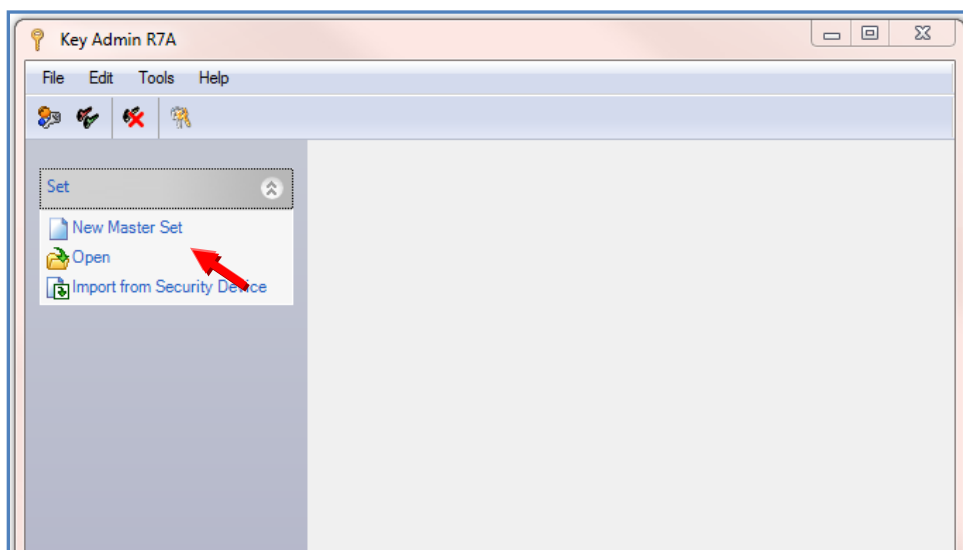


Figure 7-38: L3Harris Key Admin Main Screen

3. Select the **P25 AES/DES and ProVoice AES** tab, if not already selected.
4. Click **Add** on the **Key Sets** panel.

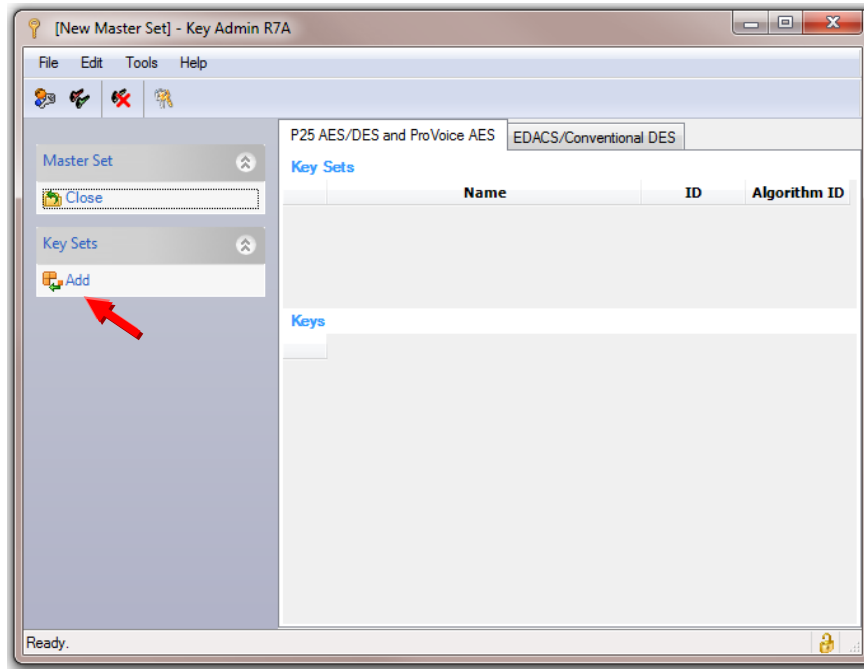


Figure 7-39: L3Harris Key Admin - Add New Key Set

A key set is automatically created. The default Key Set name is **Set001**. The Key Set name and Key ID can be changed; The Algorithm ID, which defaults to AES, can also be set to DES. Key Admin displays a list of operations that can be performed on keys in this new Key Set.

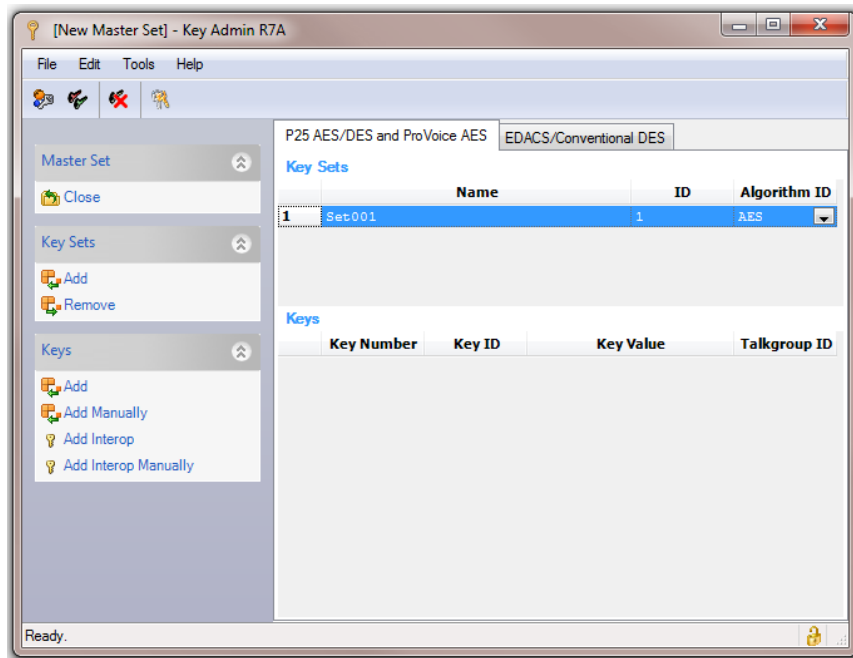


Figure 7-40: L3Harris Key Admin - New Key Set

5. Click **Add** from the **Keys** panel.

A key is automatically created. The Key Number and Key ID can be changed if necessary.

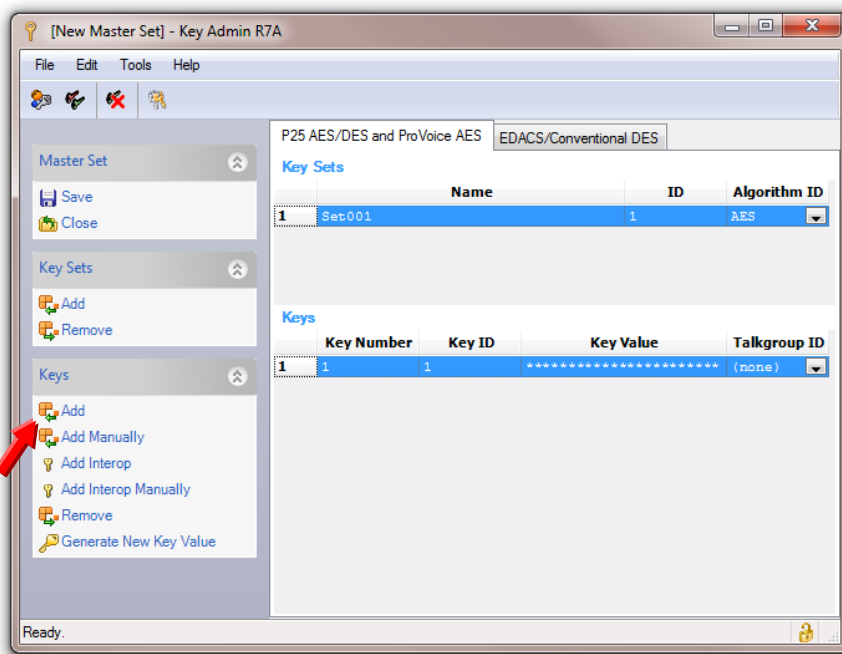


Figure 7-41: L3Harris Key Admin-Keys - Add

- To use this key as an unbound System key or All Call key, do nothing. To bind this key to one or more Talkgroups, click the **Talkgroup ID** down arrow to open the **Add Key(s)** dialog.



The system currently only supports using AES encryption for the unbound System or All Call keys.

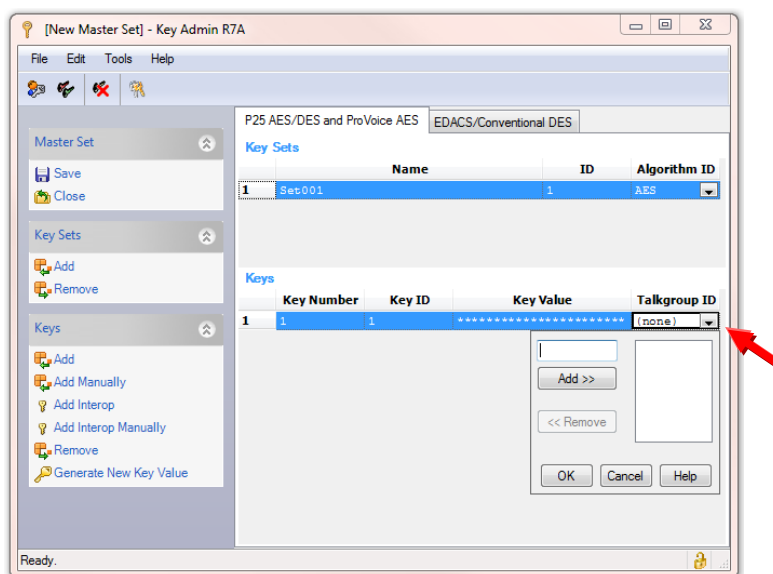


Figure 7-42: L3Harris Key Admin-Keys – Add Keys – Talkgroup ID

- Enter the Talkgroup ID of the first Talkgroup being bound to this key and click the **Add >>**.

The Talkgroup ID is added to the list of Talkgroup IDs that are to be bound to the key. Repeat this step to add any additional Talkgroup IDs binding to this key.

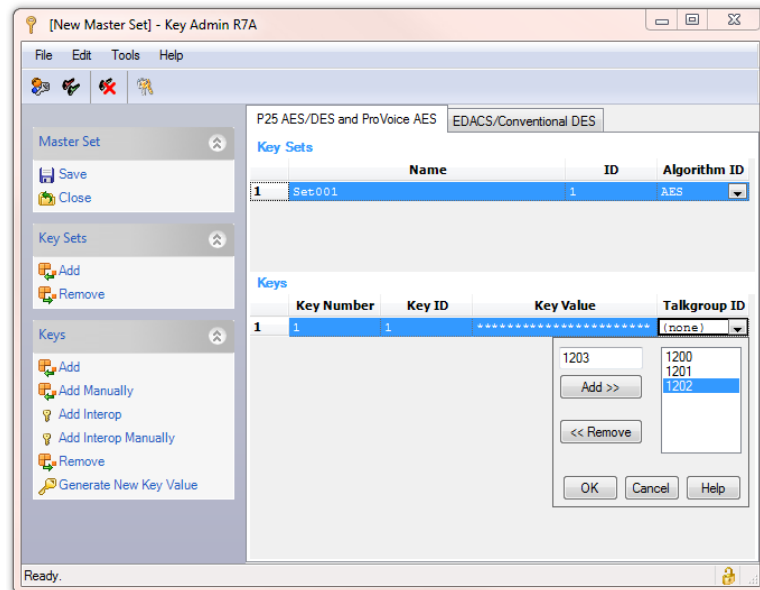


Figure 7-43: L3Harris Key Admin-Keys – Add Keys – Talkgroup ID Drop-Down

8. Click **OK** to accept the list of Talkgroup IDs.
9. Repeat Steps 5-8 to add additional **Keys**.
10. Repeat Steps 2-9 to add additional **Key Sets**.
11. When finished adding **Key Sets** and **Keys** to the current Master Set, click **Save** on the Master Set panel. The **Save Master Set in a Master Key File** dialog appears.

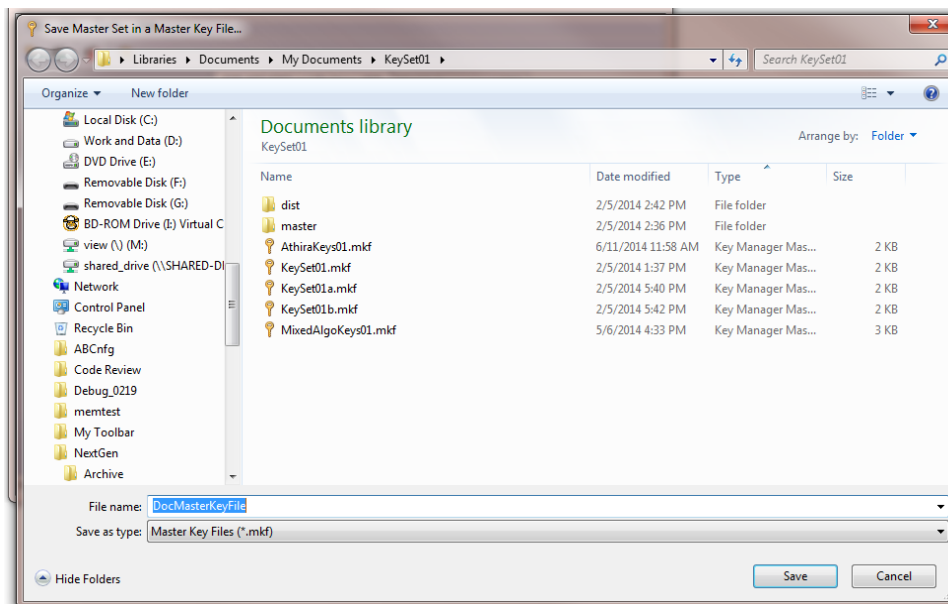


Figure 7-44: L3Harris Key Admin-Keys – Save Master Set Dialog

12. Navigate to the folder where you want to save the **Master Key File**.

13. Enter a file name for the **Master Key File** and click **Save**.
14. When prompted, enter and confirm a password for the file and click **OK**.



Ensure the password satisfies the requirements stated on the dialog. If the password is accepted, the password dialog closes.

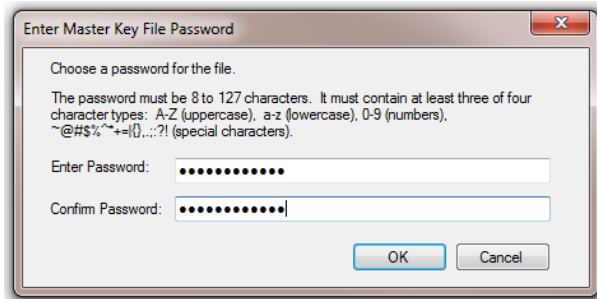


Figure 7-45: L3Harris Key Admin-Keys – Save Master Set – Enter Master Key File Password Dialog

15. Navigate to **Tools** → **Key File** → **Create distribution** to start the **Create Distribution Key File Wizard**.



Figure 7-46: L3Harris Key Admin-Keys – Create Distribution Key File Dialog

16. Click **Next**.

17. When prompted to select a master set, select **Yes** and click **Next** to create a distribution file from the **Master Set** currently open.



Figure 7-47: L3Harris Key Admin-Keys – Create Distribution Key File-Select Master Set Dialog

18. In the "Save Distribution Key File" dialog click **Browse**.

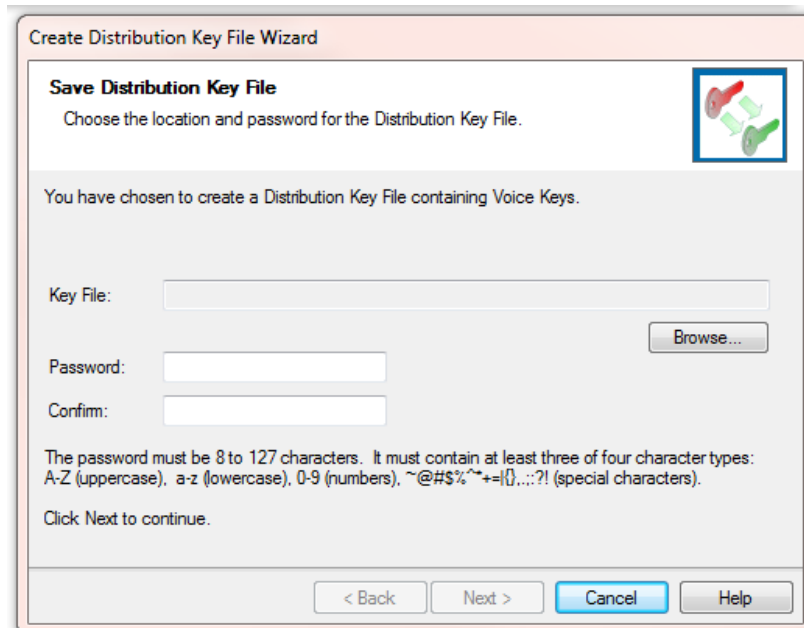


Figure 7-48: L3Harris Key Admin-Keys – Create Distribution Key File-Save Distribution Key File Dialog

19. Navigate to the target folder, enter a file name, and click **Save**.

The full file name and path are now displayed on the “**Create Distribution Key File Wizard.**”

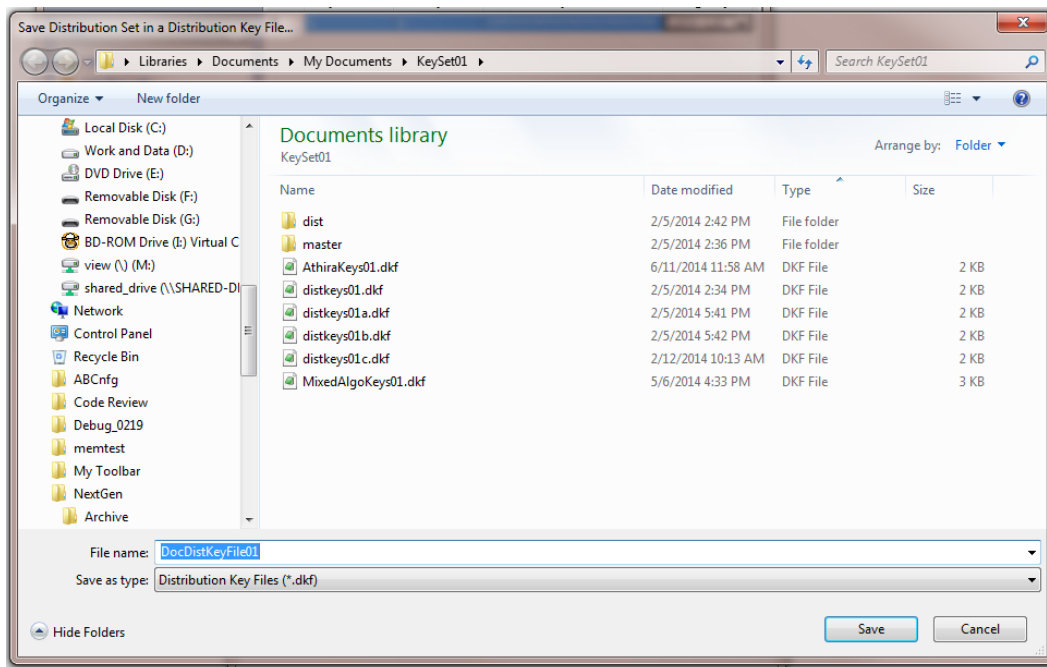


Figure 7-49: L3Harris Key Admin-Keys – Save Distribution Key File – File Name Dialog

20. Enter and confirm a password for the Distribution Key File and click **Next**.

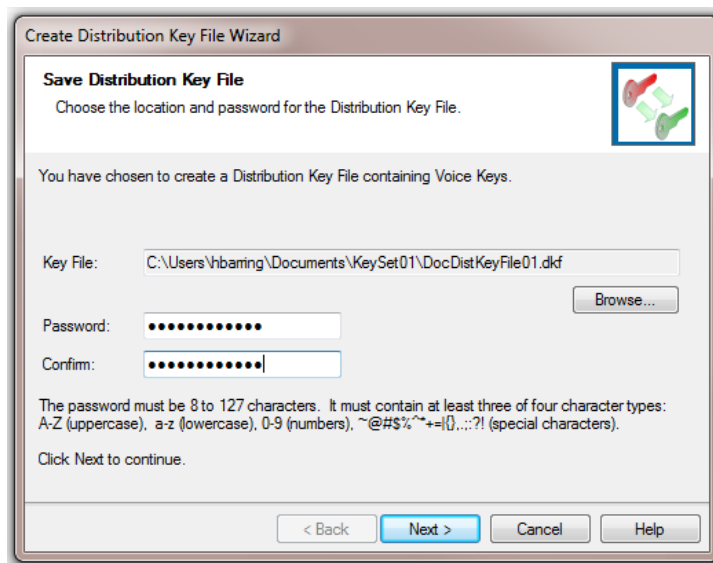


Figure 7-50: L3Harris Key Admin-Keys – Save Distribution Key File – Password Dialog

21. When the wizard indicates the distribution key file has been successfully created, click **Finish**.



Figure 7-51: L3Harris Key Admin-Keys – Create Distribution Key File – Complete Dialog

22. Click **Close** and exit the Key Admin.
23. Copy the distribution key file to a location where it can be accessed by the Symphony console that will be using the keys.
24. Perform the procedure for using the Symphony Manual Key Loader utility (Section 13.1) to load the keys into the Symphony application.
25. If applicable, set the System and All-Call Key IDs in the Symphony Configuration Utility Tool – Encryption tab (Section 16.2.11).

8. PBX CONFIGURATION

Symphony currently supports the following PBXs:

- Cisco® Unified Communications Manager – server-based enterprise telephony.
- Cisco Unified Communications Manager Express – runs on Cisco routers and is intended for smaller telephony configurations.



NOTE

Session Initiation Protocol (SIP) is a voluntary industry standard with room for vendor variation and customization. Because each PBX vendor can use SIP in slightly different ways, there is potential for unexpected results if Symphony is connected to PBXs other than those listed at the start of this section, against which Symphony has been fully tested. Though Symphony may work with other SIP-based PBXs, L3Harris does not recommend, nor is L3Harris able to support, direct connections to PBXs other than those listed above.

PBX configuration is complex and unique for each customer. The following sections provide a brief overview of typical configuration for the PBXs supported by Symphony. It is the customer's responsibility to fully understand and configure their PBX.

Symphony only supports the features defined in this manual and the Symphony Operator's Manual.



NOTE

Since the PBX is usually outside the VIDA firewall, Symphony, the VIDA firewall, and the PBX must all be configured to use the appropriate ports.

8.1 CISCO UNIFIED COMMUNICATIONS MANAGER

The Cisco Unified Communications Manager (CUCM) is a call-processing application that provides Telephony PBX functionality. Refer to applicable Cisco documentation for additional details. The Symphony console is compatible with Cisco Unified Communication Manager software version 10.5.

8.2 CISCO UNIFIED COMMUNICATIONS MANAGER EXPRESS

The Cisco Unified Communications Manager Express (CUCME) is a call-processing application that provides Telephony PBX functionality. Use the following procedures to configure a typical CUCME for deployment. Refer to applicable Cisco documentation for additional details. The Symphony console is compatible with Cisco Unified Communication Manager Express software version 10.5.

8.2.1 SIP Register Configuration

The SIP Register Configuration details the process for allocating PBX telephone extensions and services to the Symphony console. An administrator of the CUCME needs to set basic parameters and configure the CUCME to allow the Symphony SIP connections.

Summary Steps:

1. enable
2. configure terminal
3. voice service voip
4. allow-connections sip to sip
5. no supplementary-service sip refer
6. supplementary-service media-renegotiate
7. sip
8. registrar server expires max {Max in Seconds} min {Min in Seconds}
9. voice register global
10. mode cme
11. max-dn {Maximum number of Directory Numbers}
12. max-pool {Maximum number of Physical Devices}
13. authenticate register
14. authenticate realm {Domain or Hostname}
15. end

Detailed Steps:

STEP	COMMAND OR ACTION	PURPOSE
1.	enable Router> enable	Enables privileged EXEC mode. (Enter your password if prompted.)
2.	configure terminal Router# configure terminal	Enters global configuration mode.
3.	voice Service voip	Enters voip configuration section.
4.	Allow-connections sip to sip	Allows calls among SIP endpoints.
5.	No supplementary-service sip refer	Disables SIP Refer for Call Transfers and enables SIP Re-invites instead.
6.	Supplementary-service media-renegotiate	Enables Media renegotiation during Call Transfers.
7.	sip	Enters SIP configuration section.

STEP	COMMAND OR ACTION	PURPOSE
8.	Registrar server [expires [max {max in sec}] [min {Min in sec}]]	Enables SIP Registrar functionality: <ul style="list-style-type: none"> • Expires – (Optional) Sets the active time for incoming registration. • Max – (Optional) Sets maximum expires time for a registration, in seconds. Range is 600 to 86400. Default is 3600. • Min – (Optional) Sets minimum expires time for a registration, in seconds. Range is from 60 to 3600. Default is 60.
9.	voice register global Router(config)# voice register global	Enters voice register global configuration mode.
10.	Mode cme Router(config-register-global)# mode cme	Enables the mode for provisioning SIP phones in a CUCME system.
11.	Max-dn {Max number of Directory Numbers} Router(config-register-global)# max-dn 100	Sets the maximum number of Directory Numbers that can be configured in the CUCME.
12.	Max-pool {Max number of Physical Devices} Router(config-register-global)# max-pool 100	Sets the maximum number of devices that can be serviced by the CUCME.
13.	Authenticate register	Enables the Authentication of incoming registration requests from SIP devices.
14.	Authenticate realm {Domain or Hostname} Router(config-register-global)# Authenticate Realm harris.com	Enables the Authentication of incoming Invites to match the SIP Realm of the CUCME.
15.	end Router(config-register-dn)# end	Exits to privileged EXEC mode.

8.2.2 Creating Directory Numbers

To create a directory number in CUCME for a SIP phone or a Symphony Console, perform the following configuration in the CUCME Command Line Interface for each directory number being created.

Summary Steps:

1. enable
2. configure terminal
3. voice register dn {dn-tag}
4. number {Telephone Number}
5. name {Name of Contact}
6. end

Detailed Steps:

STEP	COMMAND OR ACTION	PURPOSE
1.	enable Router> enable	Enables privileged EXEC mode. (Enter your password if prompted.)
2.	configure terminal Router# configure terminal	Enters global configuration mode.
3.	voice register dn dn-tag Router(config)# voice register dn 17	Enters voice register dn configuration mode to define a directory number for a SIP phone, intercom line, voice port, or a message-waiting indicator (MWI).
4.	number number Router(config-register-dn)# number 7001	Defines a valid number for a directory number.
5.		
6.	end Router(config-register-dn)# end	Exits to privileged EXEC mode.

8.2.3 Assigning Directory Numbers to Consoles

To assign a Directory Number to a Symphony Console or to any other SIP Endpoint, perform the following configuration in the Command Line Interface of the CUCME for each Symphony Console.

Summary Steps:

1. enable
2. configure terminal
3. Voice register pool {pool-tag}
4. Id mac {MAC Address of device}
5. Number {Line number} dn {dn-tag}
6. Dtmf-relay rtp-nte
7. username {username} password {Password}
8. description {description}
9. codec {selected codec}
10. end

Detailed Steps:

STEP	COMMAND OR ACTION	PURPOSE
1.	enable Router> enable	Enables privileged EXEC mode. (Enter your password if prompted.)
2.	configure terminal Router# configure terminal	Enters global configuration mode.
3.	Voice register pool {pool-tag} Router(config)# Voice register pool 1	Enters voice register pool configuration.
4.	Id mac {MAC Address} Router(config-register-pool)# id mac FE:13:55:A9:B4:12	Sets the MAC address associated with the Voice Register Pool. Note: This only applies to Cisco SIP Phones. For Symphony Consoles, this just needs a valid MAC Address entry.
5.	Number {Line number} dn {dn-tag} Router(config-register-pool)# number 1 dn 10	Sets the associated Directory number.
6.	Dtmf-relay rtp-nte	Enables the use of Out-of-Band DTMF messages.

STEP	COMMAND OR ACTION	PURPOSE
7.	Username {Username} password {Password} Router(config-register-pool)# username symphony password pspc	Sets the username and password used during SIP registration.
8.	Description {description} Router(config-register-pool)# description Console 1	(Optional) sets a description for the Device Pool. This is not required. It is used to add an optional description of the SIP End device. Maximum of 12 characters.
9.	Codec {selected codec}	Selects the voice CODEC that will be used. Current options are: <ul style="list-style-type: none"> • G711alaw • G711ulaw
10.	end Router(config-register-dn)# end	Exits to privileged EXEC mode.

8.2.4 Enabling Voicemail and Message Waiting Indicator

Cisco Unity Express (CUE) provides the voicemail capability to CUCME. CUE software runs on a Service Module (SM) or an Integrated Service Module (ISM) on a Cisco Router. To enable voice mail to specific SIP Endpoints, configure the CUCME for each Symphony Console by entering the following CLI commands in Sections 8.2.4.1 and 8.2.4.2.

8.2.4.1 **Configure the following on CUCME**

Summary Steps:

1. enable
2. configure terminal
3. voice register dn {dn-tag}
4. call-forward b2bua busy {voicemail number}
5. call-forward b2bua noan {voicemail number} timeout {timeout in seconds}
6. mwi
7. sip-ua
8. mwi-server ipv4:{IP Address} expires 3600 port 5060 transport udp unsolicited
9. end

Detailed Steps:

STEP	COMMAND OR ACTION	PURPOSE
1.	enable Router> enable	Enables privileged EXEC mode. (Enter your password if prompted.)
2.	configure terminal Router# configure terminal	Enters global configuration mode.
3.	Voice register dn {dn-tag} Router(config)# Voice register dn 1	Specifies the DN to configure Voicemail.
4.	Call-forward b2bua busy {voicemail number} Router(config-register-dn)# call-forward b2bua busy 9000	Specifies the voicemail phone number to forward to when the Callee is busy.
5.	Call-forward b2bua noan {voicemail number} timeout {timeout in seconds} Router(config-register-dn)# call-forward b2bua noan 9000 timeout 30	Specifies the voicemail phone number to forward to when the Callee does not answer in the specified timeout.
6.	Mwi Router(config-register-dn)#mwi	Turns on MWI feature.
7.	Sip-ua Router(config-register-dn)#sip- ua	Enters SIP-UA configuration.
8.	Mwi-server ipv4:{IP Address} expires {expires in seconds} port {port number} transport {TCP or UDP} unsolicited Router(config-sip-ua)#mwi- server ipv4:192.168.1.10 expires 3600 port 5060 transport udp unsolicited	Specifies the MWI server IP Address and Port number.
9.	End Router(config-sip-ua)# end	Exits SIP-UA configuration.

8.2.4.2 Configure the following on Cisco Unity Express (CUE)

Summary Steps:

1. configure terminal
2. ccn subsystem sip
3. gateway address {CUCME IP Address}
4. mwi sip unsolicited
5. end subsystem
6. username {name} create
7. username {name} phonenumber {phone number}
8. voicemail mailbox owner {name} [size {seconds}]
9. description {description}
10. enable
11. end
12. ccn trigger sip phonenumber {voicemail phone number}
13. application "voicemail"
14. enabled
15. maxsessions {number}
16. end trigger
17. exit

Detailed Steps:

STEP	COMMAND OR ACTION	PURPOSE
1.	Configure terminal CUE# configure terminal	Enters global configuration mode.
2.	Ccn subsystem sip CUE(config)# ccn subsystem sip	
3.	Gateway address {CUCME IP Address} CUE(config-sip)# gateway address 192.168.1.10	Specifies the IP address of the CUCME.
4.	Mwi sip unsolicited CUE(config-sip)# MWI sip unsolicited	Enables Unsolicited SIP messages to enable Message Waiting Indicator (MWI).
5.	End subsystem CUE(config-sip)# end subsystem	Exit's CCN subsystem sip configuration.

STEP	COMMAND OR ACTION	PURPOSE
6.	Username {name} create CUE(config)# username symphony	Creates a new user with the specified username.
7.	Username {name} phonenumber {phone number} CUE(config)# username symphony phonenumber 3001	Associates the phone number with a voicemail user.
8.	Voicemail mailbox owner {name} [size {seconds}] CUE(config)# voicemail mailbox owner symphony size 1800	Creates a Voicemail mailbox for the specified user. (Optional) limits the storage size of the mailbox in seconds.
9.	Description {description} CUE(config-mailbox)# description "Symphony 1"	(Optional) Enters a description of the mailbox. Use double quotes around the text.
10.	Enable CUE(config-mailbox)# Enable	Activates the new mailbox or reactivate the disabled mailbox.
11.	End CUE(config-mailbox)# end	Exit Mailbox Configuration Mode.
12.	Ccn trigger sip phonenumber {voicemail phone number} CUE(config)# ccn trigger sip phonenumber 9000	Specifies the phone number that acts as the trigger to start the voicemail application on the Cisco Unity Express.
13.	Application "voicemail" CUE(config-trigger)# application voicemail	Specifies the application to invoke when triggered.
14.	Enabled CUE(config-trigger)# enabled	Enables the configured SIP Trigger.
15.	Maxsessions {number} CUE(config-trigger)# maxsessions 2	Specifies the number of callers the application can handle simultaneously. See Cisco Licensing.
16.	End CUE(config-trigger)# end	Exits SIP Trigger configuration.
17.	Exit CUE(config)# exit	Exits Configuration Mode.

9. SYMPHONY ADMINISTRATION

Symphony Administration deals with configuring Windows, the Symphony Connection Manager, and Active Directory to control the sharing of Symphony configuration parameters with different dispatchers on the same machine or different machines, as well as enabling configurations to follow a dispatcher from machine to machine (i.e., roaming profiles). Section 6 provides an overview that should be understood before reading this section.

9.1 SYMPHONY CONNECTION MANAGER

The Connection Manager sets fundamental connection parameters including console unique ID information and server hostnames or IP addresses. These parameters enable Symphony to connect and log into the proper servers. Some parameters are bound to the Windows login while others are bound to the SDP.

The Connection Manager binds the User Account information to the Windows login. This eliminates the need for a separate Symphony log in and enables roaming profiles (configured separately), but requires that Connection Manager User Accounts be configured for each Windows login. If roaming profiles are configured, the User Account information must be configured for each Windows login (i.e., user) on at least one console. Otherwise, the User Account information must be configured for each Windows login that will be used on each machine.


For example, if dispatchers A and B use machine-1 and dispatchers C and D use machine-2. If roaming profiles are configured, configure the Connection Manager for Windows login A and B on machine-1 and Windows login C and D on machine-2. In this case, dispatchers A and B can move to machine-2 and C and D can move to machine-1. If roaming profiles are not configured, configure the Connection Manager for Windows login A, B, C, and D on both machine-1 and machine-2 to allow the dispatchers to move between machines.


Parameters that are bound to the machine only need to be entered in the Connection Manager once per machine. These are the same for every Windows Login on the machine.

9.1.1 Starting the Connection Manager

The Symphony Connection Manager can be launched via the Start Menu (see Figure 9-1), or it launches automatically if you do not have appropriate settings configured for a connection with the VNIC. The colored bar on the left side of each data section turns red if the data is invalid.

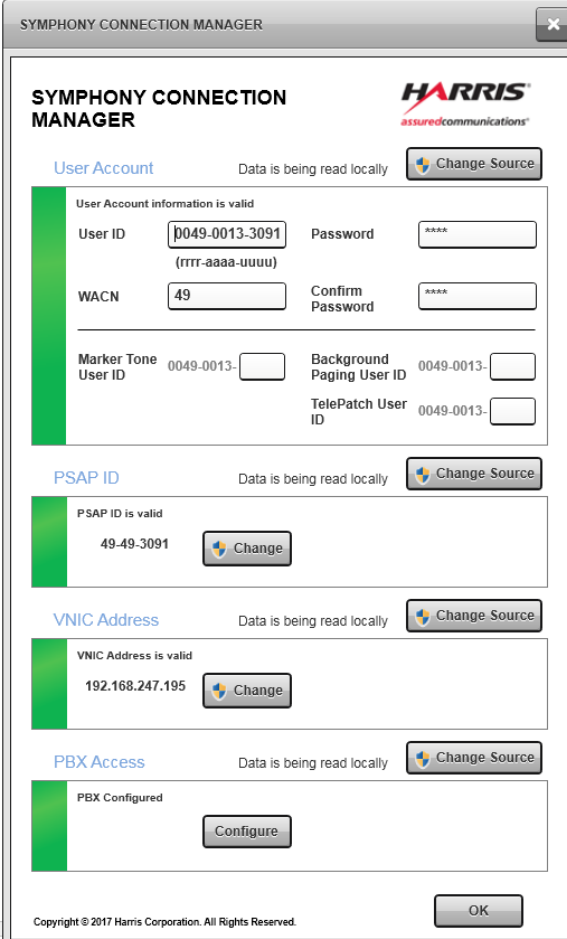
To open the Connection Manager:

1. On Windows 8.1, press the **Windows logo key**  to open the Start Screen.


On Windows 10, press the **Windows logo key**  then select **All apps**. Scroll through the alphabetical list and locate the **Symphony** folder. Click on the folder to expand it.


2. On Windows 8.1, click on the **Connection Manager** icon in the **Symphony** section.

On Windows 10, click on the **Connection Manager** icon.



SYMPHONY CONNECTION MANAGER

SYMPHONY CONNECTION MANAGER 


User Account Data is being read locally 

User Account information is valid


User ID Password
 (rrrr-aaaa-uuuu)


WACN Confirm Password

Marker Tone User ID Background Paging User ID
 TelePatch User ID


PSAP ID Data is being read locally 


PSAP ID is valid

49-49-3091 


VNIC Address Data is being read locally 

VNIC Address is valid

192.168.247.195 

PBX Access Data is being read locally 

PBX Configured




Copyright © 2017 Harris Corporation. All Rights Reserved. 

Figure 9-1: Symphony Connection Manager

9.1.2 User Account

The User Account section is where the User's account information is defined. These settings are defined per dispatcher. Only administrators can change the User Account Source. User's account information can be read from a local file or from Active Directory. For local configuration, this must be set to Local File. When using the Central Configuration Tool, this should be set to Active Directory. Refer to the Centralized Configuration Tool User Manual for more details. If you are not the administrator, you are asked for administrator credentials. See Centralized Configuration, in Section 9.2.1, for information on configuring Active Directory.

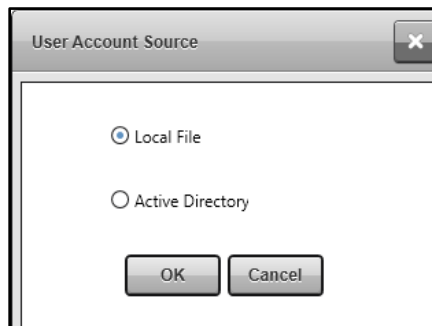


Figure 9-2: User Account Source Dialog

User ID - Enter the dispatcher's User ID here. The format should be Region – Agency – User ID.

WACN - Enter the dispatcher's WACN.

Password/Confirm Password - Enter and confirm the dispatcher's password.

Marker Tone User ID - Enter the last four digits of the Marker Tone User ID if applicable. The Region and Agency are assumed to be the same as the User ID. Leave the field blank if the Marker Tone feature is not used.

Background Paging User ID - Enter the last four digits of the Background Paging User ID if applicable. The Region and Agency are assumed to be the same as the User ID. Leave the field blank if the Background Paging feature is not used.

TelePatch User ID - Enter the last four digits of the TelePatch User ID if applicable. The Region and Agency are assumed to be the same as the User ID. Leave the field blank if the TelePatch feature (Call Director or SIP) is not used.

9.1.3 PSAP ID

This PSAP ID section is where the PSAP is defined. The PSAP is defined per machine, rather than per dispatcher. These settings can be read from the local computer or from the Active Directory. For local configuration, this must be set to Local File. When using the Central Configuration Tool, this should be set to Active Directory.

To change where the settings are read, you must be an administrator or you are asked for administrator credentials.



Figure 9-3: PSAP ID Source Dialog

When changing the PSAP information stored on a local computer, the following dialog is displayed. Administrator credentials are required to change the PSAP ID.

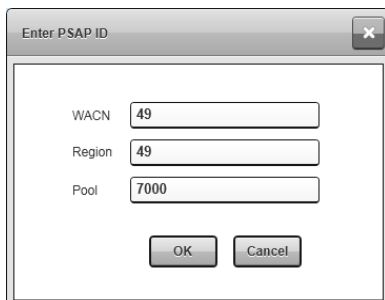


Figure 9-4: Enter PSAP ID Dialog

WACN – The WACN to be used for the PSAP ID. Typically the same WACN defined in the User ID.

Region – The Region to be used for the PSAP ID. Typically the same Region defined in the User ID.

Pool – The PSAP (Pool) ID to be used for this machine.

9.1.4 VNIC Address

This VNIC Address section is where the VNIC IP Address is defined. These settings can be read from the local computer or from DNS. You must have administrator credentials to change where the settings are read from, that is Local Computer or DNS.

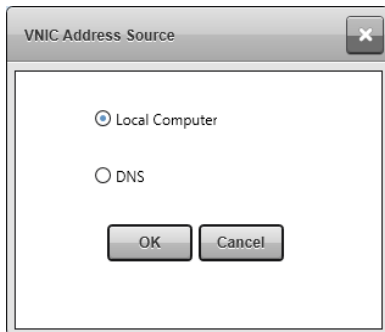


Figure 9-5: VNIC Address Source Dialog

When changing the VNIC's IP Address, the following dialog is displayed:

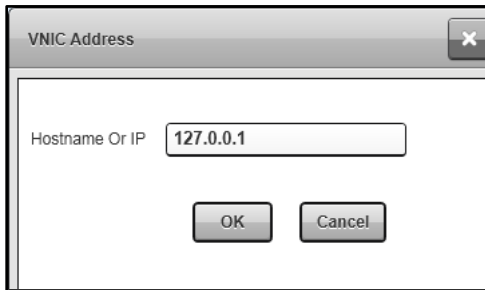


Figure 9-6: VNIC Address Dialog

Hostname Or IP – Enter the IP address or hostname of the VNIC's IP address.

9.1.5 Configuring Symphony to use DNS

The default VIDA system configuration contains DNS records that the Symphony console can use to lookup the address of the VNIC. It uses a special type of record called an SRV record. Unlike the normal DNS records which resolve host names like "harris.com" to an IP address, this record allows clients to find the Hostname, IP address, and port number for a network service by looking for a well-known service name. This means that there is no need to enter the VNIC hostname/IP address into the Symphony when running on a typical VIDA network. In the VIDA DNS, the VNIC service name is "**_p2020._udp.vida.local.**"

When configured to use SRV records, Symphony queries the DNS for the service name "**_p2020._udp.<domain>**." When joined to a VIDA domain, the <domain> portion is "**vida.local.**" If Symphony is running in a non-standard domain, then the <domain> is that shown on the System application Domain field in the "**Computer name, domain, and workgroup settings.**"

In addition to using the SRV record, the Symphony console can use normal DNS hostname lookups. To accomplish this, set the VNIC Address Source to "**Local Computer**" in the Connection Manager and type the Hostname as the VNIC's address. The Hostname is stored in the Windows registry and Symphony performs a DNS lookup.

Configuring Symphony to use DNS with SRV Records with the Connection Manager:

It is only necessary to configure Symphony to use SRV records once on each machine. Any user account can be used if User Account Control (UAC) is enabled, but administrator rights are required. If UAC is disabled, then the Connection Manager must be run with an Administrator account.

1. On Windows 8.1, press the **Windows logo key**  to open the Start Screen.

On Windows 10, press the **Windows logo key**  then select **All apps**. Scroll through the alphabetical list and locate the **Symphony** folder. Click on the folder to expand it.

- On Windows 8.1, click on the **Connection Manager** icon in the **Symphony** section.
On Windows 10, click on the **Connection Manager** icon.

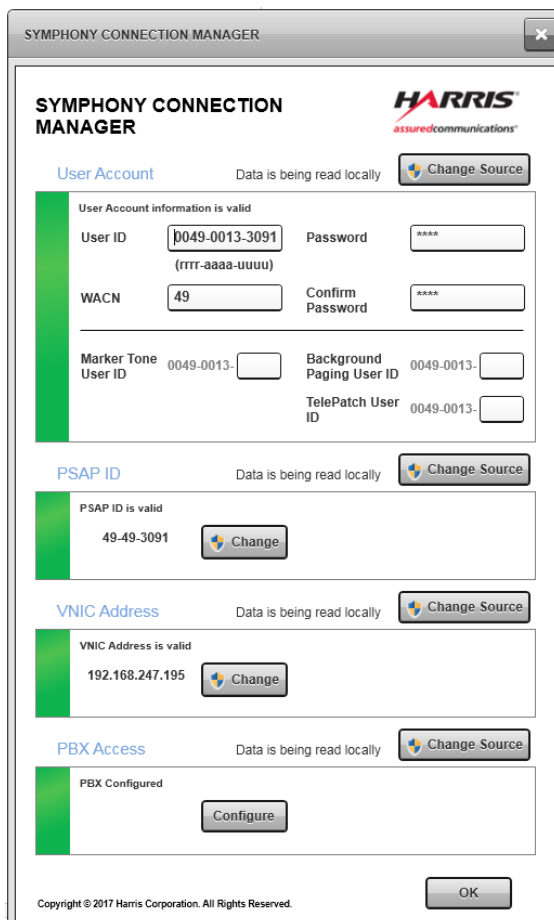


Figure 9-7: Symphony Connection Manager

- Above the VNIC Address section, click **Change Source**. Enter the xAdministrator password if necessary. See Section 12.1 for password details.
- Select **DNS** and click **OK**.

The VNIC Address section of the Connection Manager will indicate the status of the DNS. If the section is colored red and shows an error, check the DNS server setup and network.

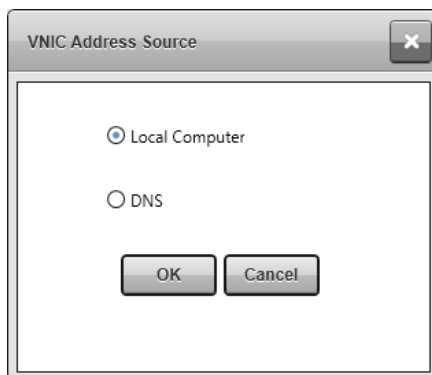


Figure 9-8: VNIC Address Source Dialog

Configuring Symphony to use DNS with SRV Records in the Registry:

Enabling DNS on Symphony can be accomplished using a login script or GPO. This eliminates the need to visit each console. The procedure to do this is outside the scope of this manual.

A Windows registry setting enables or disables the Symphony DNS query feature. It is located at:

HKLM\SOFTWARE\Policies\Harris\Symphony\System\IsDnsEnabled

It is a **DWORD** value. Zero (0) disables the DNS query, while one (1) enables it.



NOTE

Refer to the *Active Directory Installation and Configuration Manual*, MM-018794-001, for additional information.

9.1.6 PBX Access Configuration

The PBX Access configuration allows the configuration of SIP Telephony servers and accounts. The colored strip on turns green to indicate the PBX configuration is configured properly. Proper configurations are defined as at least one valid PBX server and one valid PBX Account. Press the **Configure** button to open the Symphony Telephony Configuration Utility.

Figure 9-9: Symphony Connection Manager

The Symphony Telephony Configuration Utility offers multiple sub-tabs to configure specific telephony aspects.

9.1.6.1 Servers Sub-Tab

The Telephony Server section is where the SIP PBX server information is defined.

The Servers Sub-Tab lets you:

- View existing SIP Servers.
- Add new Servers (number of servers is currently limited to 1).
- Edit existing servers.
- Delete existing servers.

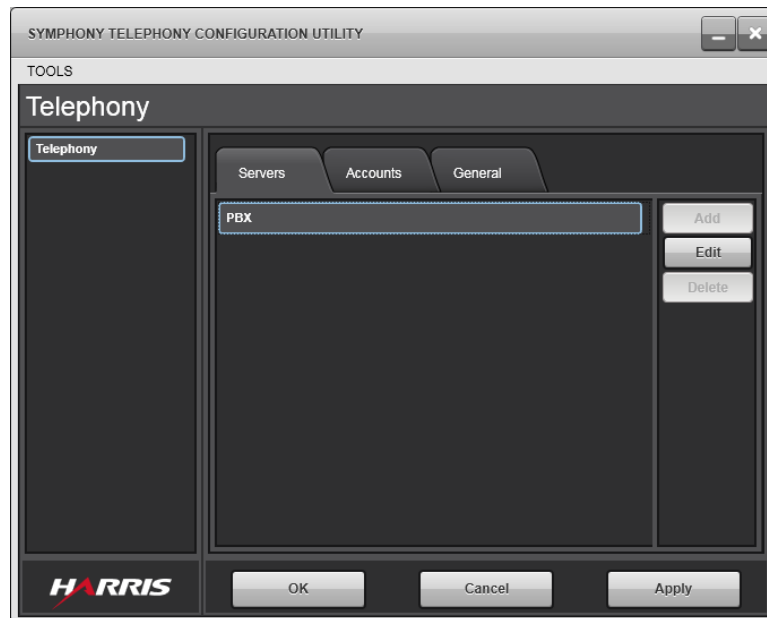


Figure 9-10: Symphony Telephony Configuration Utility – Telephony Servers Sub-Tab

9.1.6.2 Add/Edit Server Dialog

This dialog allows you to configure parameters for a SIP Server Parameters. When adding a new server, the dialog is populated with defaults and all entries with Red borders are required fields. The dialog has the following fields:

- **Server ID** - A unique identifier for this server. Can be any value. This is used for internal bookkeeping, e.g., Cisco PBX.
- **Type** - The transport type for this server, UDP or TCP. UDP is used generally except if the server only accepts TCP connections.
- **Local Address** - The local IP Address or FQDN of the SipUserAgent application. This application will be located on console machines and is used to communicate between the console and the PBX server (Default: 0.0.0.0).
- **Local SIP Port** - Port number in the range 1 to 65535 (Default: 5060).
- **Local RTP Start Port** - Port number in the range 1 to 65535 (Default: 16000).

- **Local RTP End Port** - Port number in the range 1 to 65535 (Default: 16100).
- **Registrar URL** - The Registrar's IP Address or URL that accepts SIP registration requests (mandatory).
- **Timeout** - Registration Timeout (Default: 3600) in seconds.
- **Proxy URL** - The proxy Server's IP Address or URL. The "Registrar URL" is used if this value is not provided (Default: {BLANK}).



NOTE

Typical PBX serves as both SIP Registrar and SIP Proxy. Proxy URL is only used when the SIP Registrar and SIP Servers are on different servers.

- **SIP Port** - Proxy port number in the range 1 – 65535 if a proxy is used (Default: 5060).
- **Voicemail number** - The phone number to call to retrieve voicemail messages.
- **Prepend Rules** - Prepend rule builder to apply to outgoing calls from symphony consoles. Prepend allows dispatcher not to dial any required prefix when making an outgoing call. The Symphony console will automatically include the prepend number(s) to the outgoing call.
 - **Digits** - The number of digits in the dialed phone number. Max digits is 20.
 - **Prepend** - The number(s) to be prepended. Max digits 10.
 - **Exclusion** - Pattern of most significant digits to exclude from prepending. If the most significant digit of a dialed call matches the number of digits and an exclusion, then no prepend is performed. Max 10 exclusions per row.

Once details have been entered, click **Save** to save changes or **Cancel** to exit without saving.

An example configuration is shown below. This example is to register with a Cisco Call Manager Express with a Static IP address of 192.168.247.15.

The 'Edit Server' dialog box contains the following configuration fields:

- Transport:** Server ID (PBX), Type (UDP), Local Address (0.0.0.0), Local SIP Port (5060), Local RTP Start Port (16000), Local RTP End Port (16100).
- Registration:** Registrar URL (192.168.247.15), Timeout in seconds (3600).
- SIP Proxy:** Proxy URL (empty), SIP Port (5060).
- Voicemail:** Voicemail number (9000).
- Prepend Rules:** A table with columns for Digits, Prepend, and Exclusion. One rule is shown: Digits '7', Prepend '9', Exclusion '750'.

Buttons at the bottom include Save, Cancel, Add, Edit, and Delete.

9.1.6.3 Accounts Sub-Tab

This dialog allows you to enter details for a SIP Account Parameters. When adding a new account, the dialog is populated with defaults and all entries with Red borders are required fields. The Symphony console can be configured to have multiple SIP Accounts which depends on the SIP license that is applied to the console.



SIP Telephony are feature-licensed options, this feature is only available if the console is equipped with this software license. There are two types of Licenses available for purchase:

- 4 SIP Lines – Allows for up to 4 SIP lines and up to 8 Simultaneous Calls.
- 8 SIP Lines – Allows for up to 8 SIP lines and up to 16 Simultaneous Calls.

The Accounts Sub-Tab lets you:

- View existing configured SIP accounts.
- Add new accounts.
- Edit existing accounts.
- Delete existing accounts.

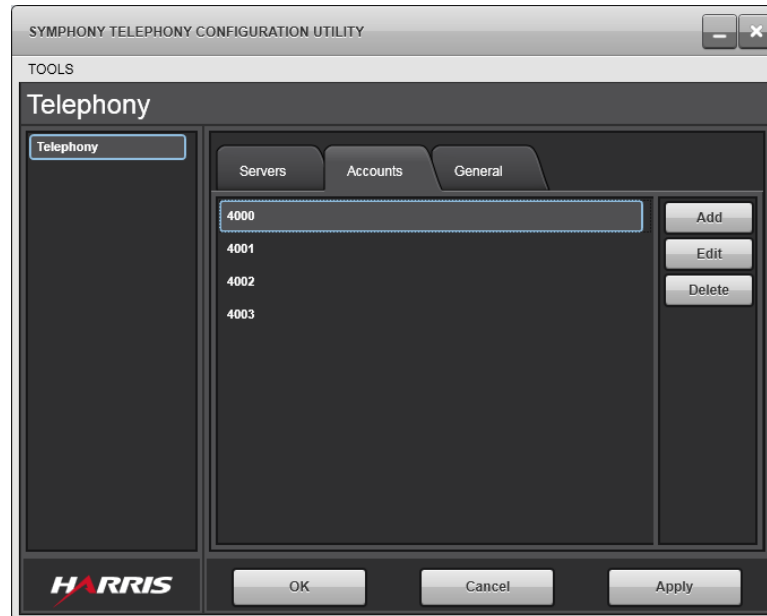


Figure 9-11: Symphony Telephony Configuration Utility – Telephony Accounts Sub-Tab

9.1.6.4 Add/Edit Account Dialog



The SIP account session timer expiry value must be greater than or equal to the Min-SE timer value configured at the CUCM/CME. For more information, refer to the Cisco documentation on the session timer:

<https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/voice/cube/configuration/cube-book.pdf>.

This dialog allows you to enter details for an account to be registered on a SIP Server.

The dialog has the following fields:

- **Account Number** - The incoming phone number. This must match the console's phone number as configured on the PBX.
- **Server ID** - A drop-down list of servers that have been configured on the Telephony Servers tab. Each account can be associated with a single server
- **Username** - Unique User Name associated with the server account. This must match the value configured in the PBX.
- **Password** - Password associated with the server account. This must match the value configured in the PBX.
- **Confirm Password** - This must match the entered "Password."
- **Session Timer Enabled** - Checkbox to specify if session timers will be used.
- **Session Timer Expiry** - The session timer expiry provided in seconds (Default: 3600).



NOTE

When interfacing to a Cisco Unified Communications Manager (CUCM), setting the session timer expiry to a value lower than the minimum session timer value in CUCM's configuration can cause telephony calls to be dropped in certain circumstances due to a known Cisco bug. Find the CUCM minimum session timer by traversing CUCM's configuration: **System → Service Parameters → Server = current server → Service = Cisco CallManager → SIP Min-SE.**

- **Voicemail number** - The phone number to call to retrieve voicemail messages. This overrides the Voicemail number setting in the PBX Server Section. If this is left blank, the PBX Server Voicemail number is used.

Once details are entered, click **Save** to save or **Cancel** to exit without saving.

The screenshot shows a dialog box titled "Edit Account" with the following fields and values:

- SIP Account**
 - Account Number: 4000
 - Server ID: PBX
- Authentication**
 - Username: 4000
 - Password: *****
 - Confirm Password: *****
- Session Timer**
 - Enabled:
 - Expiry in seconds: 1800
- Voicemail**
 - Voicemail number: (empty)

Buttons: Save, Cancel

9.1.6.5 General Sub-Tab

The General tab are additional Telephony parameters to control the overall behavior of the Telephony feature of the Symphony Application.

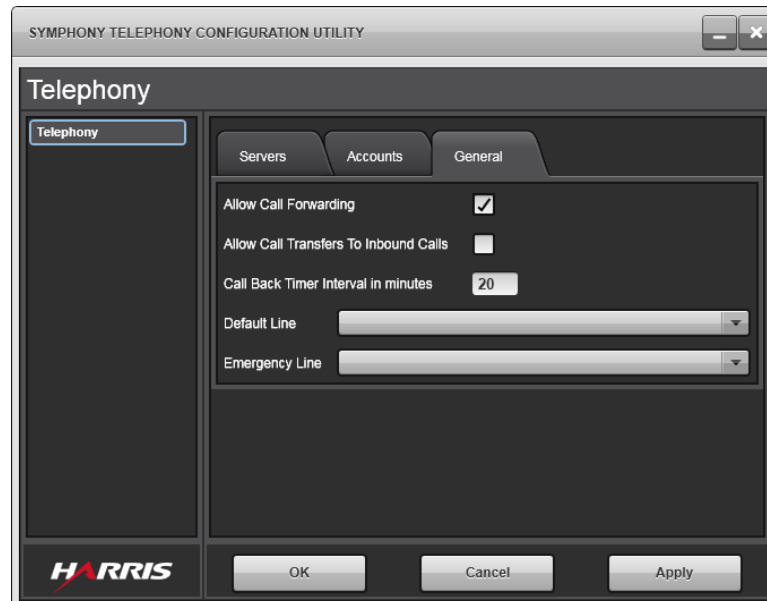


Figure 9-12: Symphony Telephony Configuration Utility – Telephony General Sub-Tab

The dialog has the following fields:

- **Allow Call Forwarding** – A checkbox to enable or disable the privilege of Symphony Application to setup Call Forwarding. Check to allow the dispatcher to use Call Forwarding.
- **Allow Call Transfers to Inbound Calls** – A checkbox to enable call transfers to an inbound call.



NOTE

A limitation of using Cisco Unified Communications Manager Express (CUCME) is that transfers to an inbound call fails. The checkbox prevents dispatchers from initiating the transfer to an inbound call.

- **Call Back Timer Interval** – The time, in minutes, it takes before showing a Call Back Reminder on the Symphony Console.
- **Default Line** – The default SIP Account that the console uses for new Outgoing Telephony calls.
- **Primary Line** – The SIP Account that is designated as the Primary Line. The Symphony Console is presented with different icons and colors to highlight any calls that uses the configured Primary Line.

9.2 CONFIGURING USERS AND SECURITY GROUPS

Active Directory is a directory service used to organize network objects (users, computers, or resources). An organization that uses active directory is logically organized into several containers or levels – organization units, domains, trees and forests. Physically, networks within the same organization are separated into sites.

Active Directory is also like a database, in that it can store configuration data and information about the consoles, users, and other objects on the network. It can gather the correct configuration information depending on which console machine and console user connects to the network. It supports authentication of the users, consoles, and servers, ensuring only those consoles/users with necessary rights are permitted access to requested objects.

The console uses active directory for multiple purposes: authentication, configuration, and management of multiple users and consoles.

To set up Symphony console machines and users, the following steps apply. See the subsequent subsections for details on each step.

- Define Domain accounts for dispatchers and administrators. Background transmission IDs are not added to AD.
- Define Additional Domain Security Groups if desired. For example, add a Symphony Administrator User Group for administrators that can change runtime settings.
- Add Domain Security Groups to the Computer Local Group.
- Add Symphony machines to the Symphony OU.
- Add dispatcher Domain accounts to the VIDA Dispatch Users OU.
- Add appropriate Domain accounts to Domain Security Groups. For example, add administrators to the Symphony Administrator User Group.

9.2.1 Creating Domain Dispatcher Accounts

Creating dispatcher accounts on the Domain requires a Domain Administrator account or another Administrator account with sufficient privileges. It may be done from the Domain Controller server or the L3Harris System Management Terminal (SMT) computer.

1. Login to the SMT or Domain Controller desktop.
2. Open the **Active Directories Users and Computers** application.

On the Domain Controller server, this is accomplished by opening the **Server Manager** by going to the Desktop and clicking on the Server Manager Icon on the task bar. Then click on the **Tools** menu and select **Active Directory Users and Computers**.

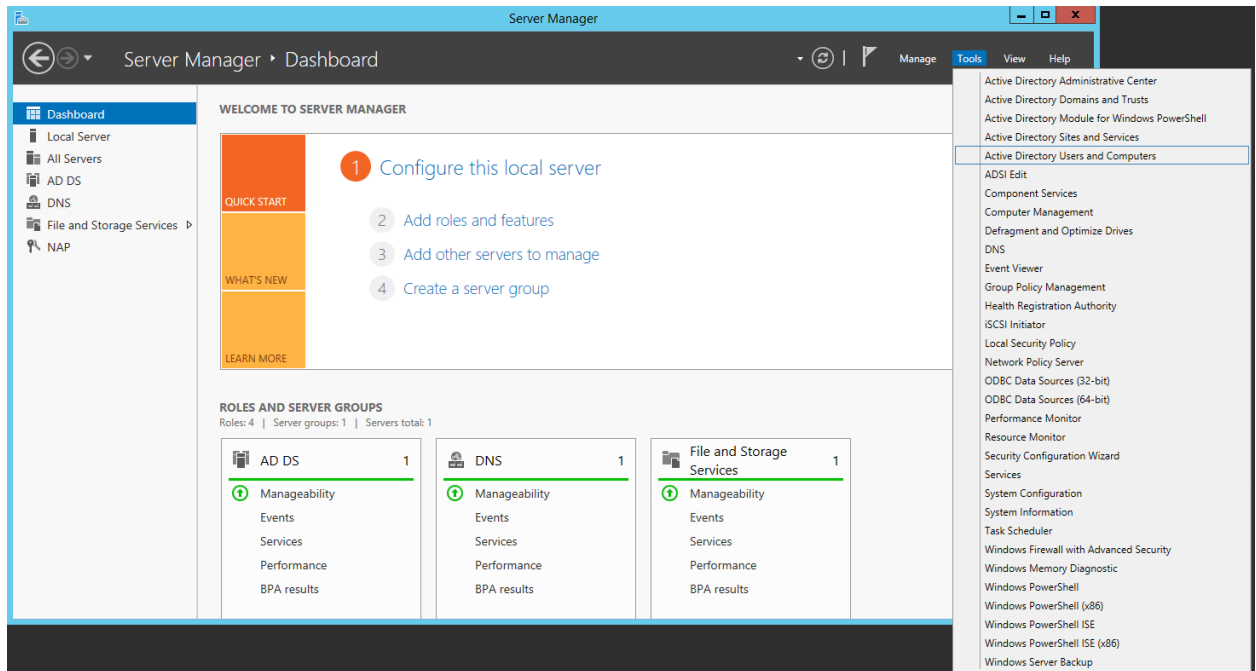


Figure 9-13: Active Directory Users and Computers Drop-Down

On the SMT or another Windows 7 computer, press the Windows Key + R at the same time to open the **Run** menu and, then type **dsa.msc**.

3. Once in the **Active Directory Users and Computers** tool, navigate to the **VIDA Users** → **VIDA Dispatch Users** OU in the tree (see Figure 9-14).

If running a non-standard Active Directory configuration, navigate to the appropriate OU for Dispatch User accounts.

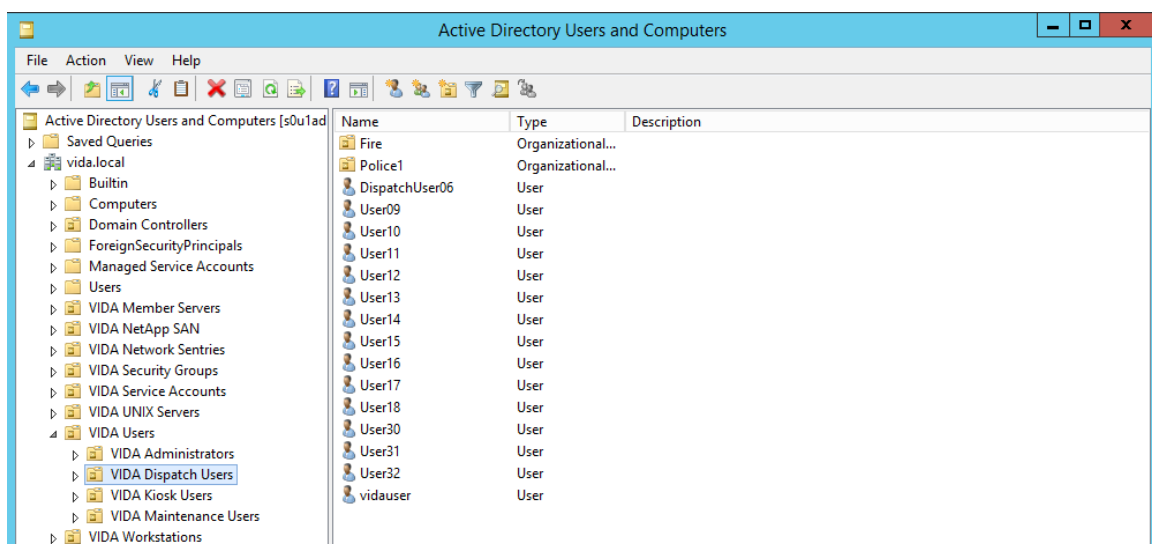


Figure 9-14: Active Directory Users and Computers

- Right-click on the **VIDA Dispatch Users** OU and select **New→User** from the Menu.

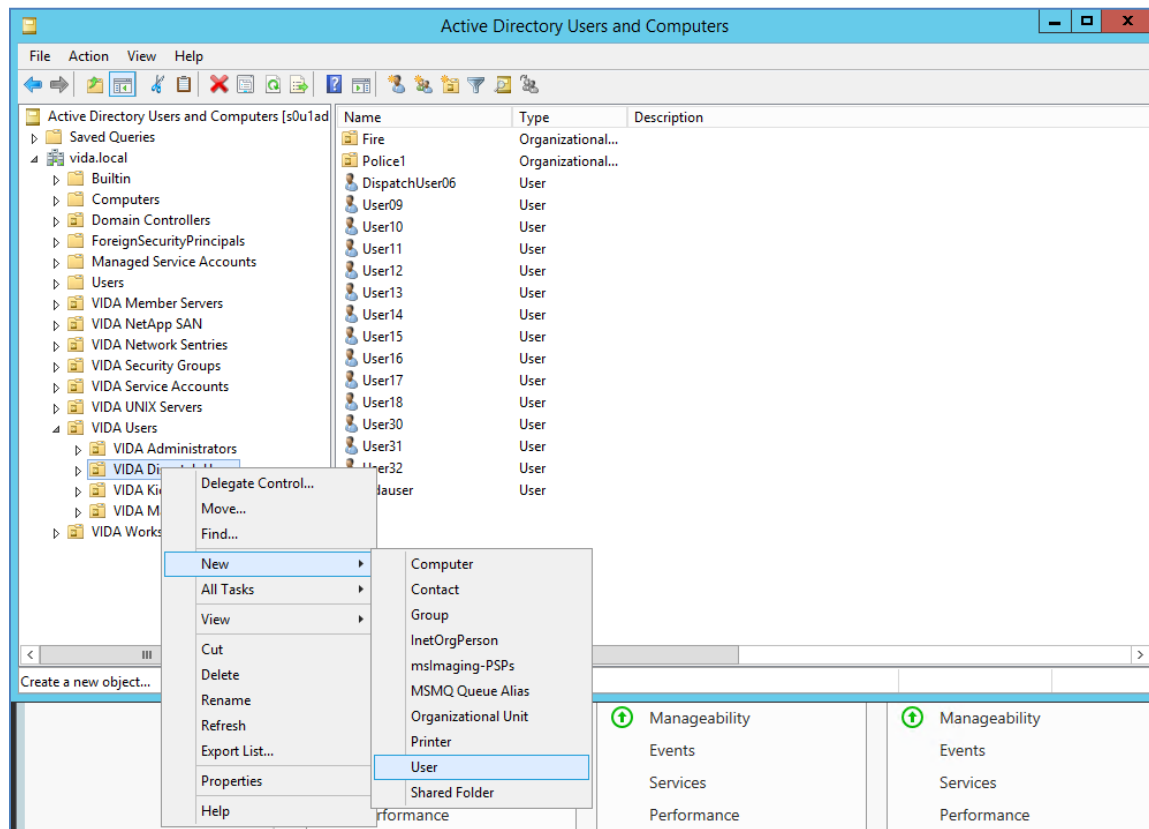


Figure 9-15: Active Directory VIDA Dispatch User

- Enter the required **User logon name** and any other desired information such as the First name and Last name for the Dispatcher account. Click **Next**.

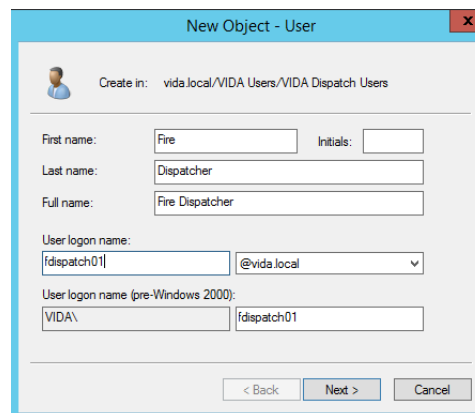


Figure 9-16: Active Directory New VIDA Dispatch User Dialog

- Enter an Initial password for the Dispatch account and set the security options. Click **Next**.

If no security requirements exist, it is recommended to specify that the **User cannot change password** and **Password never expires**. This prevents dispatchers from accidentally locking themselves and others out of the console and the dispatch users' account will always be available. If the console is to be configured for auto login, ensure that the **Password never expires** option is checked.



If the installation has specific information assurance requirements, then set these options to match.

Figure 9-17: Active Directory New VIDA Dispatch User Password Dialog

7. Confirm the user account options and click **Finish**.

Figure 9-18: Active Directory New VIDA Dispatch User Finish Dialog

Once the user account is created in Active Directory, it must be associated with a VIDA account to be used by a dispatcher as described in Section 9.1.2.


9.2.2 Creating Domain Security Groups

Creating dispatcher accounts on the Domain requires a Domain Administrator account or another Administrator account with sufficient privileges. It can be done from the Domain Controller server or the L3Harris System Management Terminal (SMT) computer.

Active Directory security groups are used to collect domain user accounts together and assign privileges. For Symphony, these can be used to give specific AD user accounts the right to change the Symphony GUI settings and layout (i.e., runtime settings).

Active Directory security groups are added as members to Local Security Groups on Symphony console machines. The local security groups are assigned privileges on Symphony. In this way, any domain user account that is added to the Active Directory security group is also added to the Local Security Group and automatically given privileges on the Symphony console machines.

Creating a domain security group:

1. Press the **Windows logo key**  on the keyboard to open the Start screen and enter “Active Directory” in the text box to search for the tool.
2. Click on **Active Directory Users and Computers** in the Search results to open the “Active Directory Users and Computers” tool.

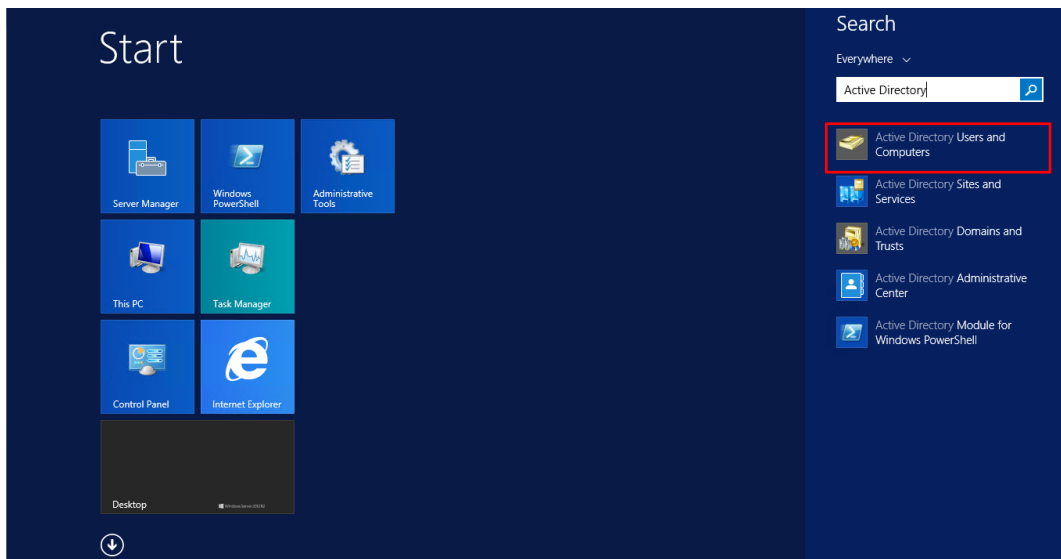


Figure 9-19: Active Directory Users and Computers on Start Screen

3. Navigate to **vida.local** → **VIDA Security Groups**.

4. Right-click on an empty area on the right-hand side and select the **New → Group**.

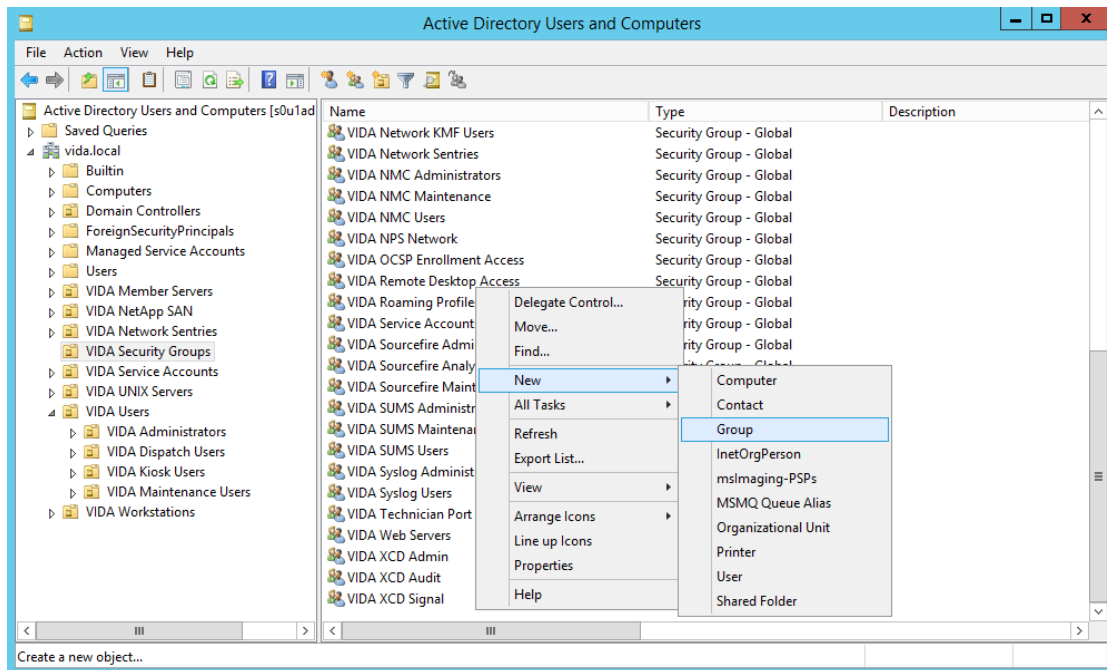


Figure 9-20: Active Directory New VIDA Security Group

5. Enter the group name (in this example, **Symphony Administrators**). Select a Group scope of **Global** and a Group type of **Security**. Click **OK**.

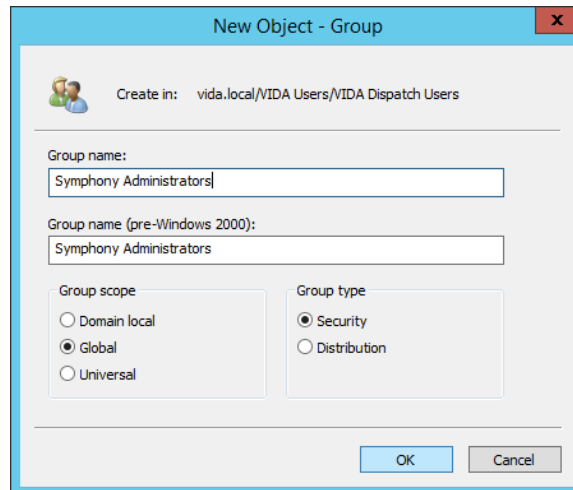


Figure 9-21: Active Directory New VIDA Security Group Dialog

9.2.3 Creating a Computer Local Security Group

Although not required for console operation, in some dispatch systems it may be desirable to have a Windows Local Security Group for Symphony administrator users. This group can be assigned permissions to write to the Admin directory thus allowing members to access Symphony's administrative mode.

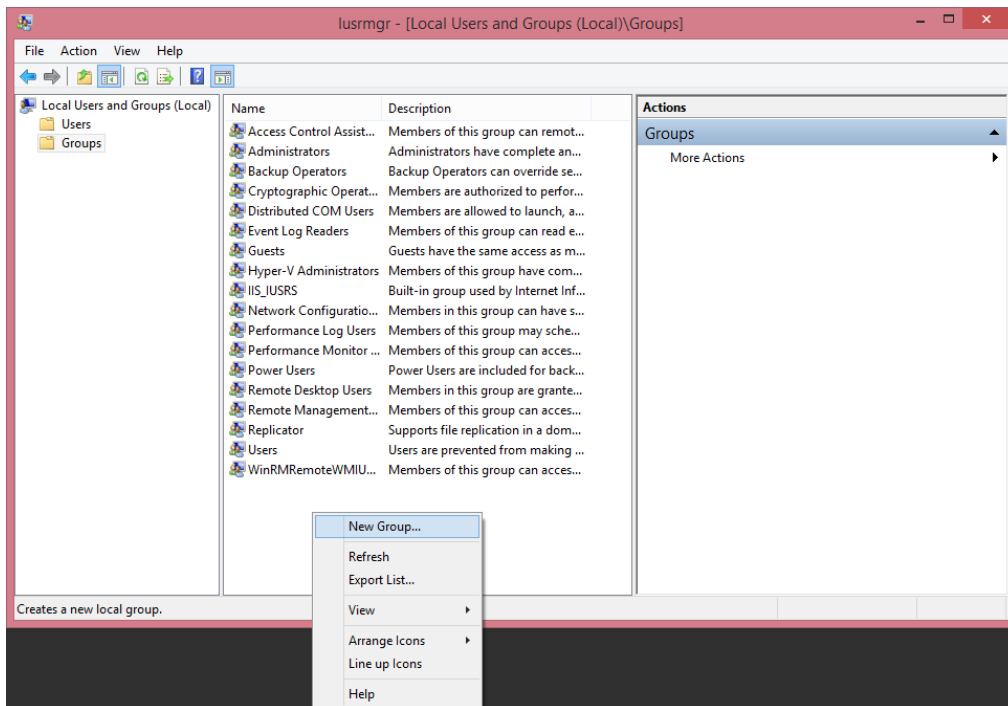


Figure 9-22: Creating a Computer Local Security Group

1. Open **Run** from the Apps screen, using **Windows logo key** + **R**, or via the Power User Menu. Enter the following command in the text box:

lusrmgr.msc

2. Click on the **Groups** folder in the tree on the left panel.
3. Right-click in the center panel and select **New Group** from the menu.

4. Enter the new group's information in the **New Group** dialog.

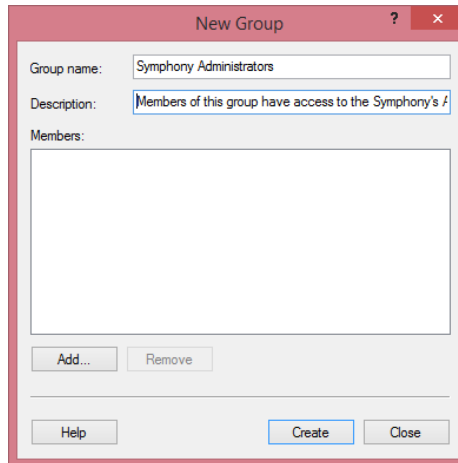



Figure 9-23: Creating a Computer Local Security Group Dialog

5. Click **Create** to finish adding the group.

9.2.4 Adding a Domain Security Group to a Computer Local Group

Adding a Domain security group to a Computer Local Group gives all the members of the domain group the privileges that are assigned to the Computer Local group. For Symphony, this can be used to give Domain User Accounts Symphony Administrators rights as described in Section 6.2. The following procedure describes how to add a Domain Group called **Symphony Administrators** to a local group also called **Symphony Administrators**.

Make sure that a Domain Group called **Symphony Administrators** exists as well as a local group of the same name. See Section 9.2.2 for instructions to create one.

1. Log into the Symphony Console machine using an account with Administrative privileges such as xAdministrator.
2. Open **Run** from the Apps screen, using **Windows logo key**  + **R**, or via the Power User Menu. Enter the following command in the text box:
lusrmgr.msc
3. Click on the **Groups** folder in the left side panel.
4. Right-click on a group in the center panel.

5. Select **Add to Group** from the menu.

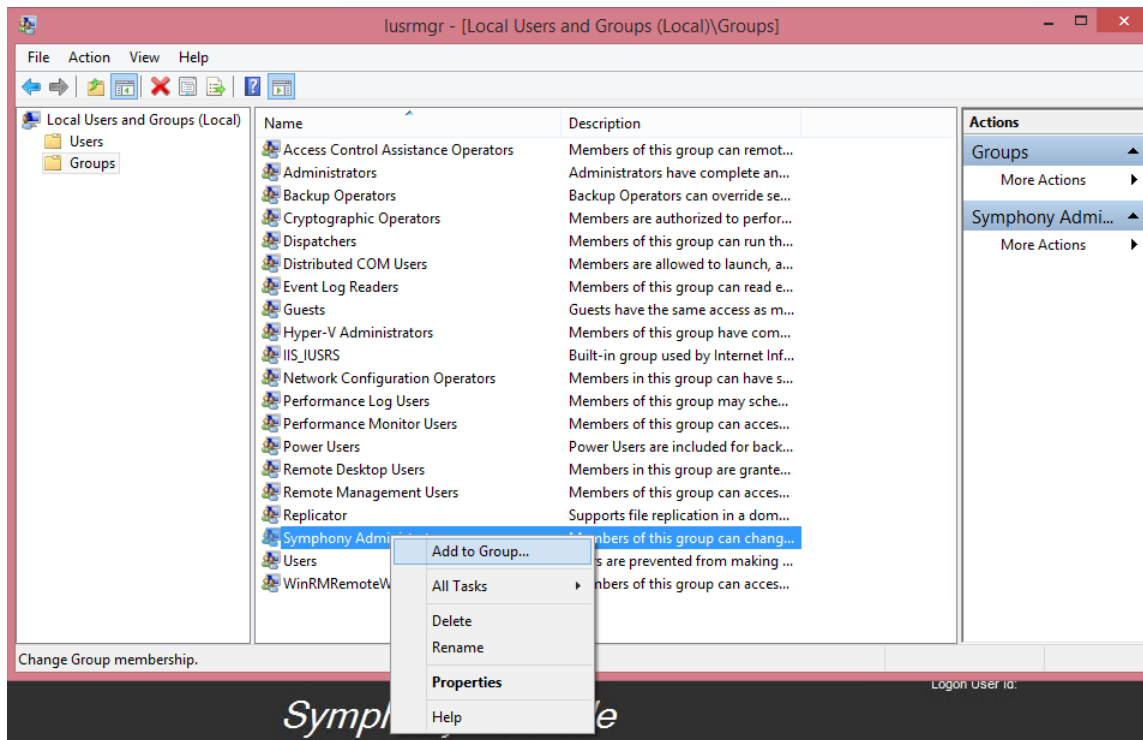


Figure 9-24: Assigning Domain Group to a Local Group

6. Click **Add**.

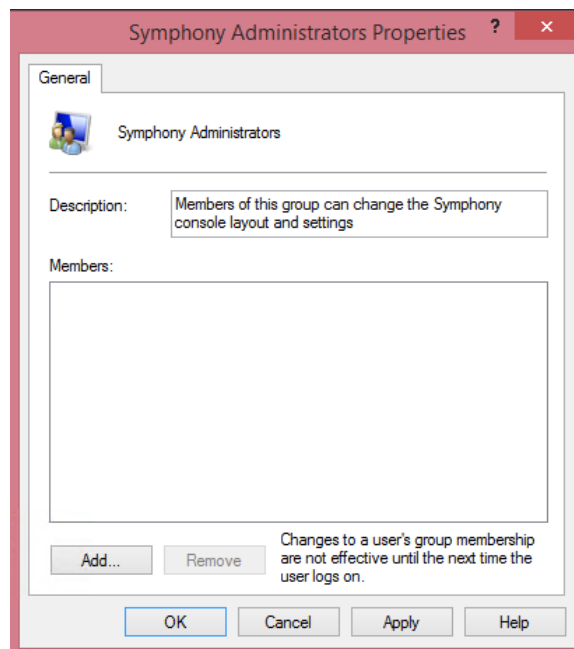


Figure 9-25: Assigning Domain Group to a Local Group

7. Enter the name of the Domain Group to add and click **Check Names**. The name is updated and underlined if found.

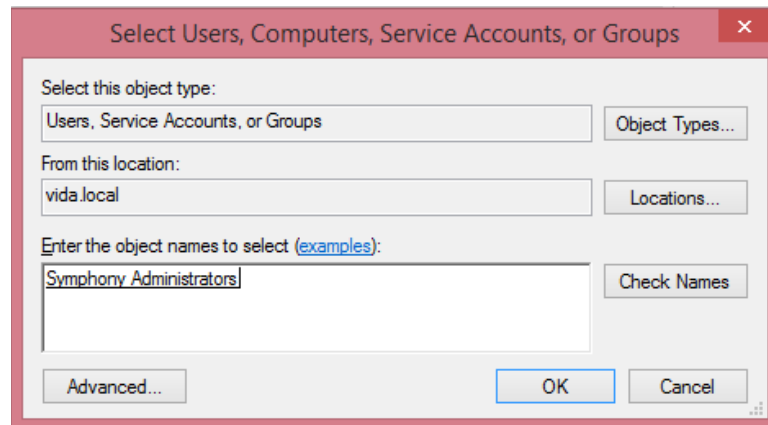


Figure 9-26: Select Users, Computers, Service Accounts, or Groups Dialog

8. Click **OK**.

9.2.5 The Symphony Organizational Units

The Active Directory installation shipped with the VIDA network is preconfigured with Organization Units (OUs) to support Symphony consoles. Organizational Units are like folders that allow you to group and apply policies to Users and Computers. Additional information on setting up and configuring OUs can be found in the *Active Directory for VIDA Networks Installation and Configuration Manual*, MM-018794-001.

The “Active Directory Users and Computers” tool can be used to manage dispatch users, Symphony computers, and OUs. The tool can be installed and run on any machine joined to the domain. It can also be run on the Domain Controller server. This tool can only be used by Domain administrators or an account with proper rights.

The **VIDA Workstations → Symphony Consoles** OU is intended to hold the machine accounts of Symphony Dispatch Platforms that are joined to the domain. The **VIDA Users → VIDA Dispatch Users** OU holds Windows user accounts that are used to login to the Symphony console. Computer and user accounts must be placed into these OUs by a system administrator.

Moving a Symphony Computer to the appropriate OU in the “Symphony Consoles” OU:



Proper administrator rights are required to perform this operation. A domain administrator account or one with proper, delegated rights must be used.

The computer account must be created in Active Directory before it can be moved to the Symphony OU. Typically, this is accomplished by joining the computer to the domain (see Section 12.1.2). The computer account will appear in the “Computers” OU.

1. Determine which OU is correct for your system. This depends on the VIDA system release, the version of Windows Symphony is running on, and whether you need DES encryption.

Enabling DES takes the operating system and Symphony console out of FIPS mode.

SR10A – SR10A.1	Windows 8.1	AES or No encryption	VIDA Workstations\Symphony Consoles
		DES + AES	VIDA Workstations\Symphony Consoles NOTE: DES Must be enabled manually.
SR10A.2	Windows 8.1	AES or No encryption	VIDA Workstations\Symphony Consoles
		DES + AES	VIDA Workstations\Symphony Consoles\DES Support
SR10A.3 – SR10A.4	Windows 8.1	AES or No encryption	VIDA Workstations\Symphony Consoles\VIDA Symphony Win8
		DES + AES	VIDA Workstations\Symphony Consoles\VIDA Symphony Win8\DES Support
SR10A.3 – SR10A.4	Windows 10	AES or No encryption	VIDA Workstations\Symphony Consoles\VIDA Symphony Win10
		DES + AES	VIDA Workstations\Symphony Consoles\VIDA Symphony Win10\DES Support

2. Press the Windows logo key on the keyboard to open the Start screen and enter “Active Directory” in the text box to search for the tool.
3. Click on Active Directory Users and Computers in the Search results to open the “Active Directory Users and Computers” tool.

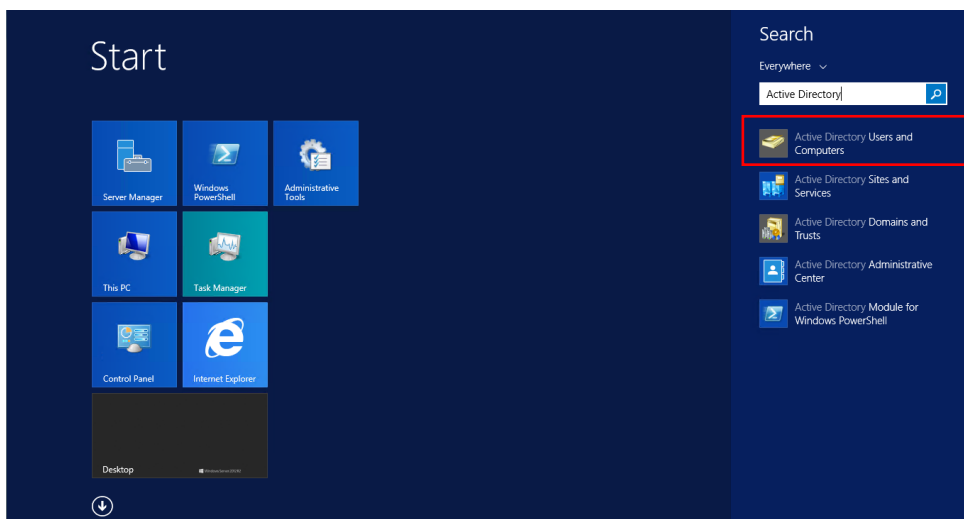


Figure 9-27: Active Directory Users and Computers on Start Screen

- Click on **Computers** in the tree in the left panel.

A list of computers appears in the right panel.

Ensure that the desired Symphony console computer is shown. If it is not, it may not be properly joined to the domain.

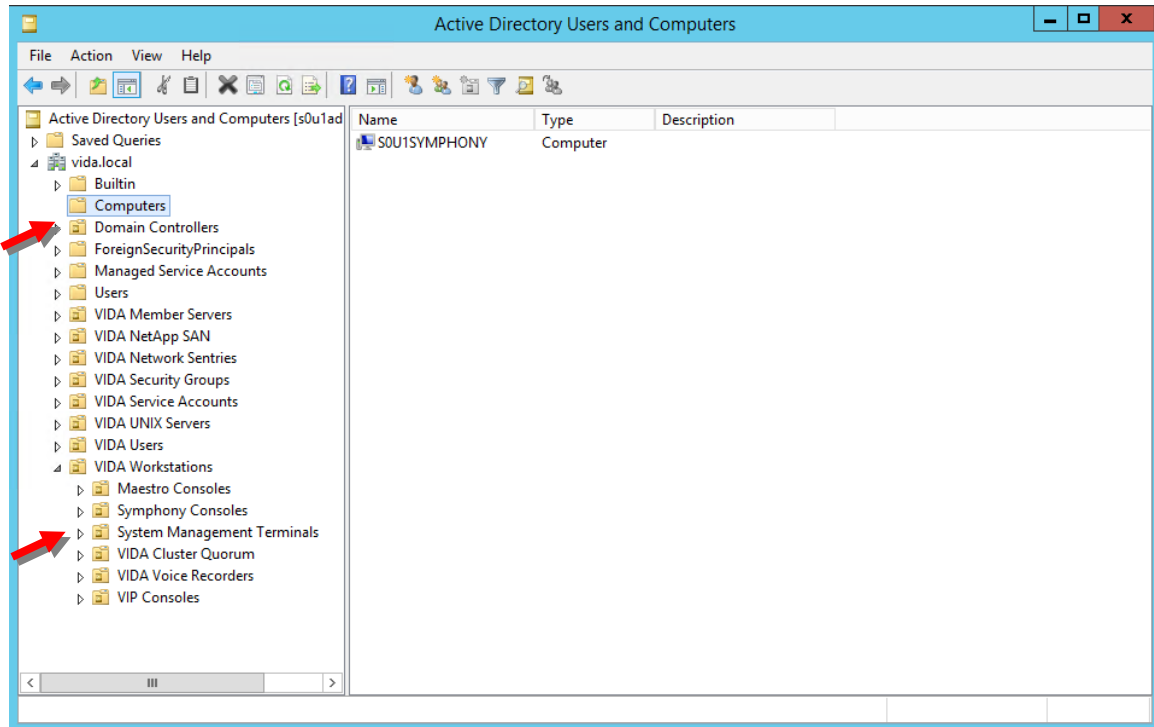


Figure 9-28: Active Directory Computers

- Drag and drop the Symphony computer to OU determined in Step 1.


If warned that moving objects between can cause the system to stop working, click **Yes** to accept the warning.

Moving a Windows User Account to the “VIDA Dispatch Users” OU:



Proper administrator rights are required to perform this operation. A domain administrator account or one with proper, delegated rights must be used.

The User account must be created in Active Directory before it can be moved to the **VIDA Dispatch Users** OU. This is accomplished by creating the user account using the same “Active Directory Users and Computers” (Section 9.2.1) it is also possible to create a user account directly in the OU by right-clicking on the OU’s folder in the tree.

- Press the **Windows logo key**  on the keyboard to open the **Start** screen and enter “Active Directory” in the text box to search for the tool.

- Click on **Active Directory Users and Computers** in the Search results to open the “Active Directory Users and Computers” tool.

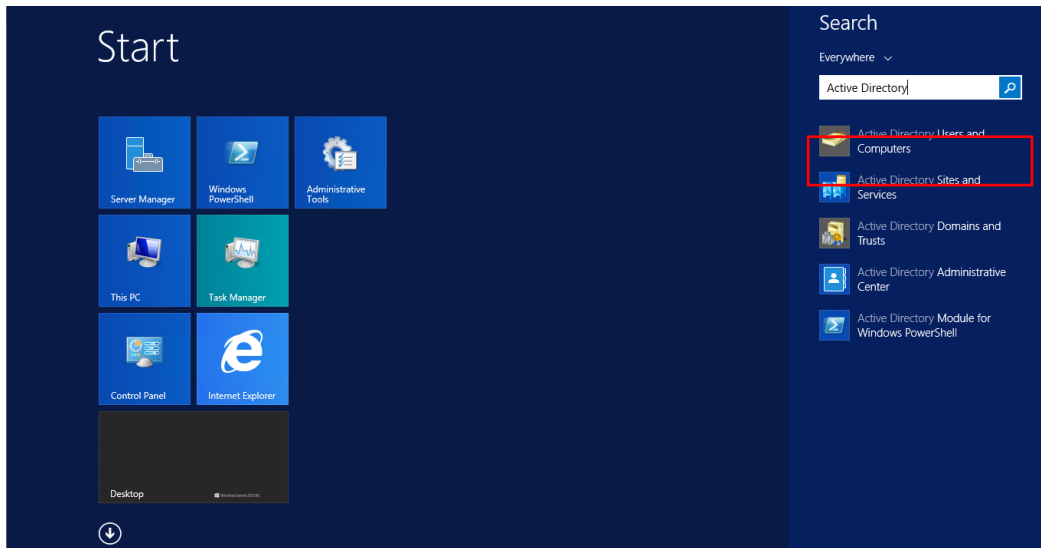


Figure 9-29: Active Directory Users and Computers on Start Screen

- Click on **Users** in the tree on the left panel.

A list of users appears in the right panel.

Ensure that the desired Dispatch User account is shown. If not, the account may not be properly setup. Refer to Section 9.2.1 to add the User account.

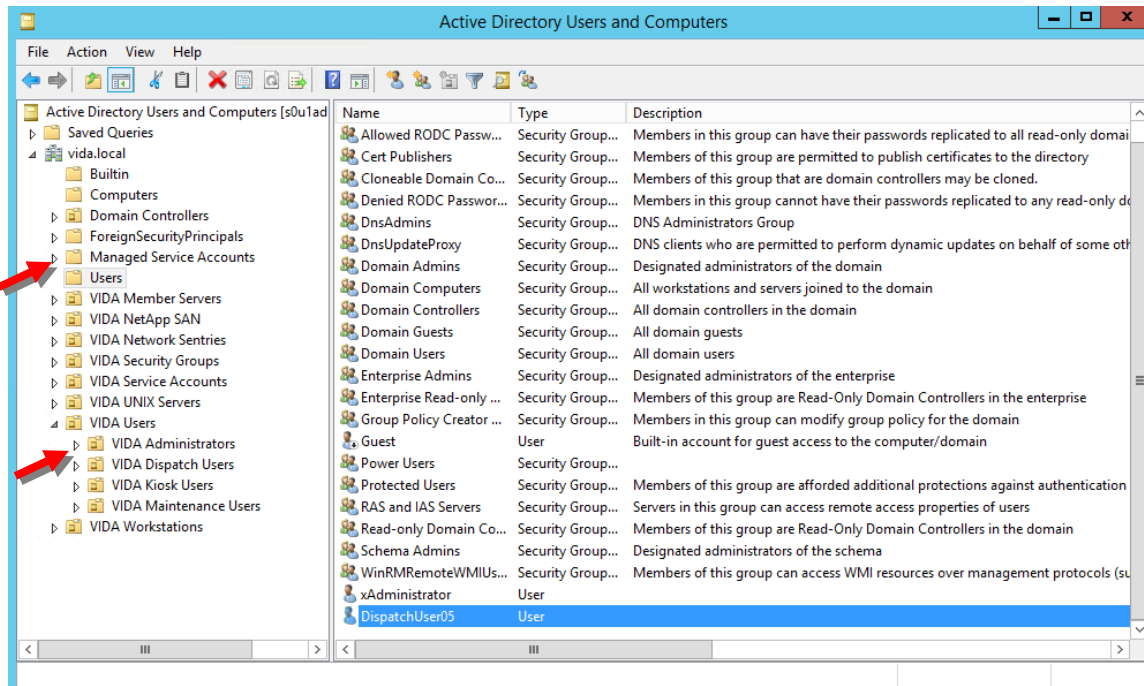



Figure 9-30: Active Directory Add Users to VIDA Dispatch Users

4. Drag and drop the user account to the **VIDA Users → VIDA Dispatch Users** folder (OU).
If warned that moving objects between folders can cause the system to stop working, click **Yes** to accept the warning.

9.2.6 Disabling the FIPS-140 Requirement

FIPS-140 compliance prohibits the use of DES (Data Encryption Standard) encryption algorithm. Therefore, FIPS-140 compliance must be disabled to use DES. Do this from the Domain Controller server.

To disable the FIPS-140 Requirement on systems with System Release SR10A.2 or later:

1. Press the **Windows logo key**  on the keyboard to open the **Start** screen and enter “Active Directory” in the text box to search for the tool.
2. Click on **Active Directory Users and Computers** in the Search results to open the “Active Directory Users and Computers” tool.
3. Click on **VIDA Workstations** in the tree in the left panel.
4. Click on **Symphony Consoles**.

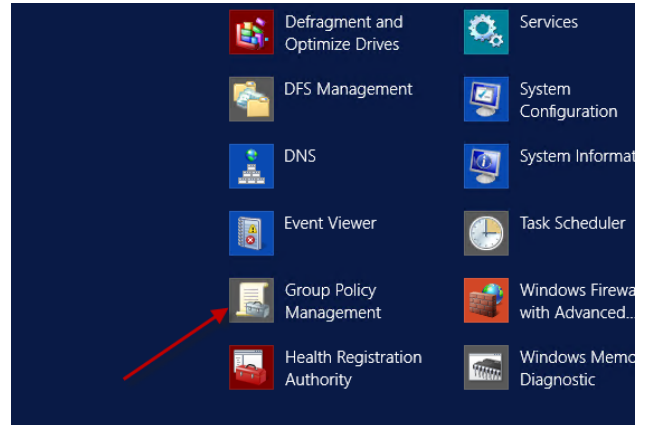
A list of computers will appear in the right panel.

Ensure that the desired Symphony console computer is shown.

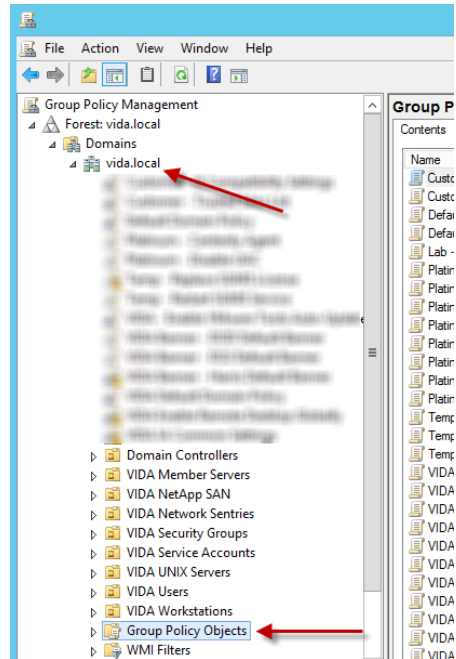
5. Drag and drop the Symphony computer to the **VIDA Workstations→Symphony Consoles→DES Support** folder.

To disable the FIPS-140 Requirement on systems with System Release SR10A.1 or earlier:

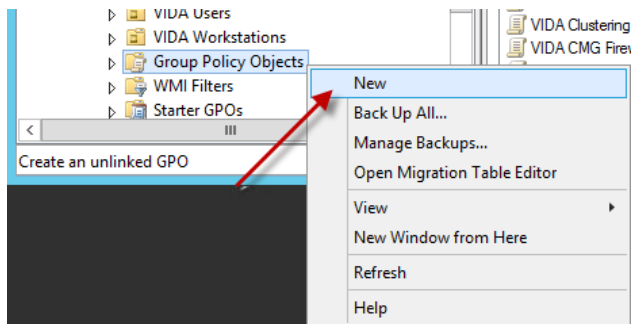
1. Open Group Policy Management Console.



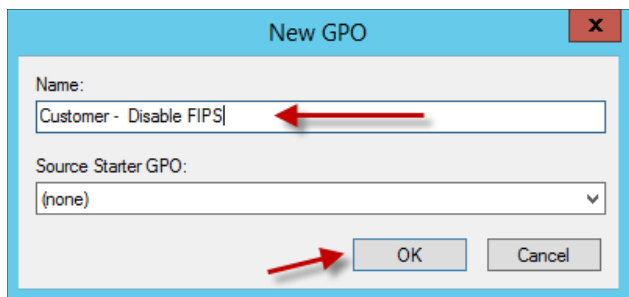
- Expand the domain (vida.local):
Select Group Policy Objects from the list.



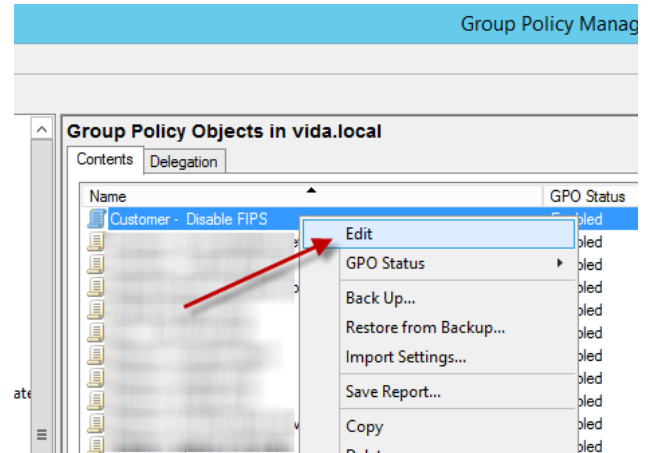
- Once selected:
Right-click: **New**



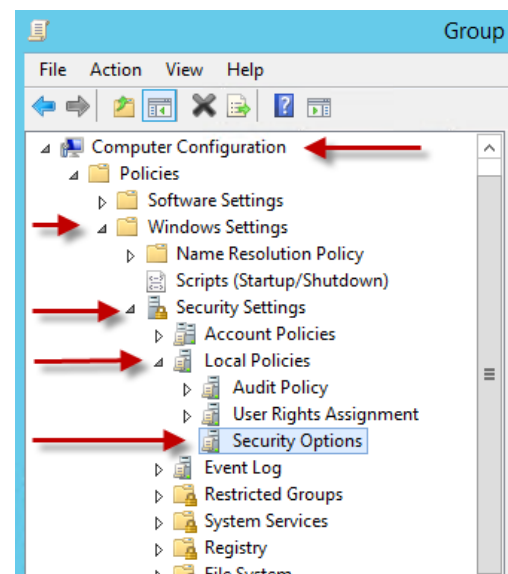
- Name GPO: **Customer – Disable FIPS**
Click: **OK**



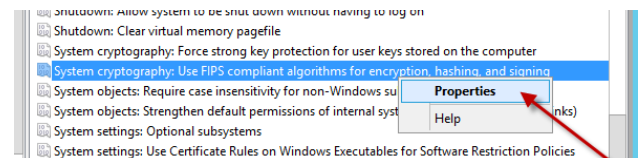
5. Edit GPO:
Right-click: **Customer – Disable FIPS**
Click: **Edit**



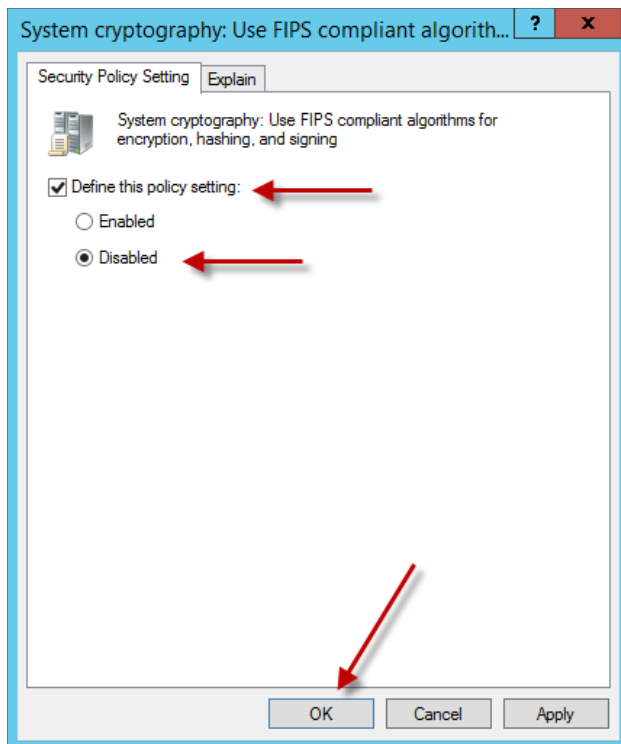
6. Select Computer Configuration:
Policies
Windows Settings
Security Settings
Local Policies
Security Options



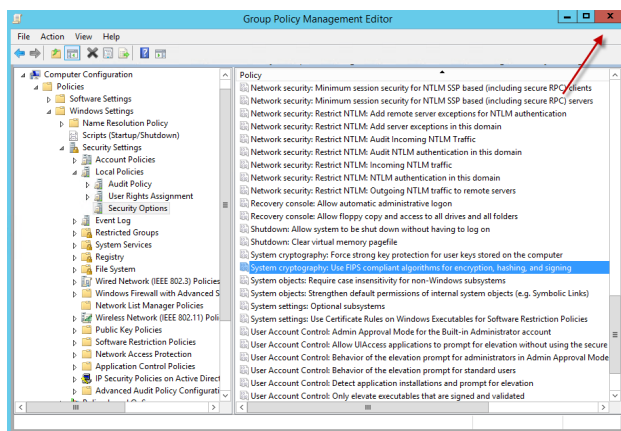
7. Select:
System cryptography: Use FIPS compliant algorithms for encryption, hashing, and signing
Right-click: **Properties**



8. Select:
 - Check: **Define this policy setting**
 - Click: **Disabled**
 - Click: **OK**



9. Close the policy editor.

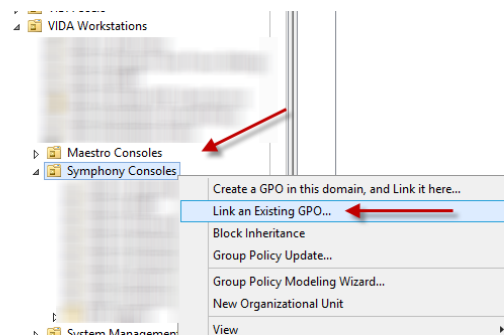


10. Select OU that the GPO needs to be applied:

Right-click OU: **Link an Existing GPO**

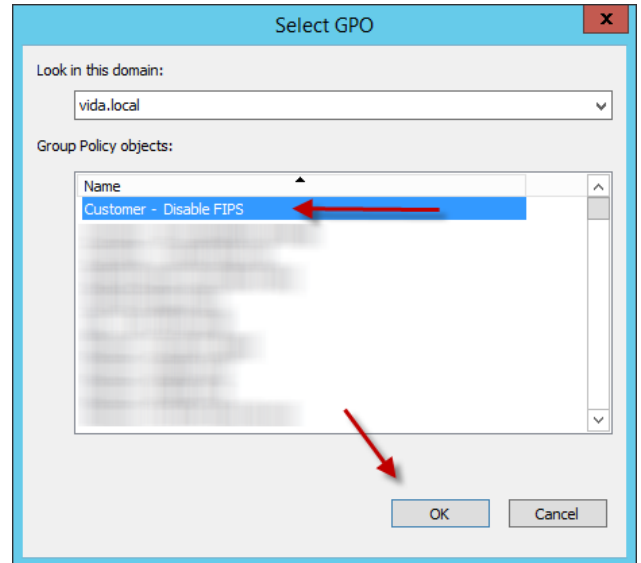
Click: **Disabled**

Click: **OK**




11. Select the GPO "Customer – Disable FIPS":

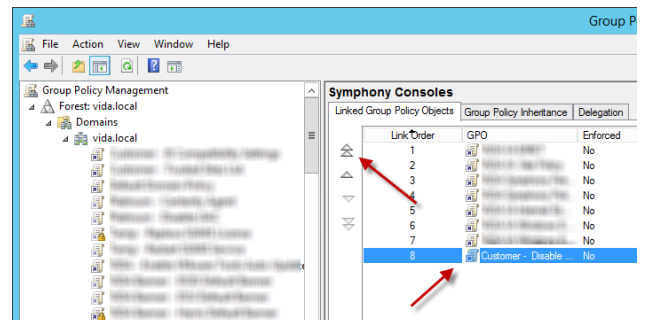
Select: **OK**



12. In the pane on the right, select the "Customer – Disable FIPS" GPO:

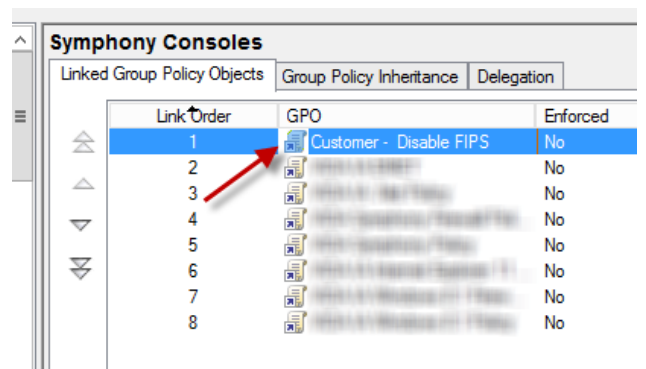
Select: **Customer – Disable FIPS**

Click: 



13. Verify:

Customer – Disable FIPS GPO is at the top



9.3 CONFIGURING ADMINISTRATION MODELS

Symphony offers several administration models. An administration model is a combination of settings that control:

- How parts of the Symphony configuration are shared among dispatchers.
- Controlling who can change configuration items.

Sharing a configuration item means multiple dispatchers obtain their configuration from the same source (such as a file for the registry). In many cases, it is advantageous to share configuration to avoid the overhead involved in creating one for each dispatcher, especially when they are identical. Sharing configuration also allows the administrator to make a change once and send it to many dispatchers.

Controlling who can change configuration items allows administrators and supervisors to lock down the console configuration so that some or all of it cannot be changed by dispatch users.

Symphony leverages Microsoft Windows security to control access to configuration. Many of the configuration items can only be changed by Windows administrators. The configuration tools themselves are compatible with User Account Control (UAC), which means they will prompt non-Administrator users for an administrator password before they are run.

The remainder of this section discusses Console Administrators and Dispatch Users. By default, Console Administrators are Windows User accounts that are members of the Windows Administrators group on the local machine. Likewise, Dispatch Users are Windows users that are NOT in the Administrators group and are in the Windows Users group. In some cases, installers may need to create a local Windows group specifically for Console Administrator users. The procedure to do this is discussed in Section 9.3.1. If this is done, the term “Console Administrator” refers to the Windows User Accounts in that group instead.

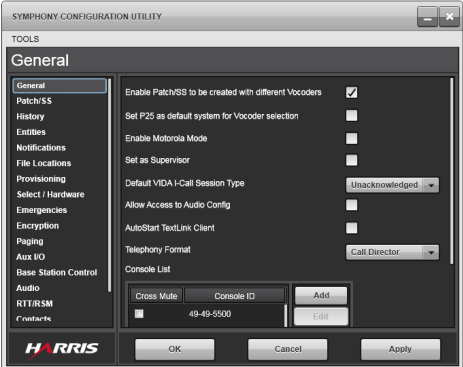
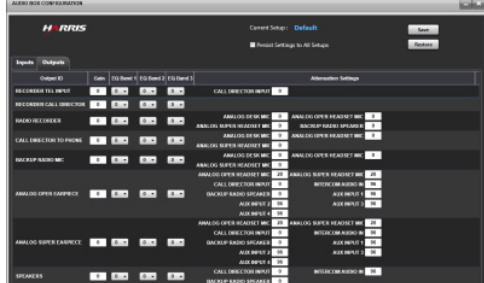

There are four basic configuration models that Symphony supports. It is also possible to mix and match aspects of these models to support more advanced scenarios. All these models are primarily concerned with controlling which users can change the screen layout and other GUI settings. Other settings (such as those in the Symphony Configuration Utility) are administrator controlled only. Table 9-1 summarizes the four models.


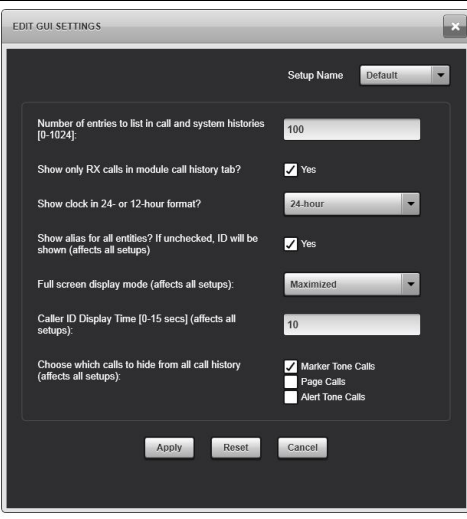
Table 9-1: Administration Models

MODEL NAME	WHO CAN CHANGE THINGS?	SHARING
Default (This is the model active after first time installation)	All dispatch users can make changes to the screen layouts and GUI settings.	The configuration is shared among all user accounts on the same Symphony computer.
Local Admin Controlled	Only Windows users in the Administrator group or a group specifically created for this purpose.	The configuration is shared among all user accounts on the same Symphony computer.
Power User	All dispatch users own and can make changes to the screen layouts and GUI settings. Administrators cannot override the users' settings.	Each dispatcher owns their screen layouts and GUI settings. Nothing is shared.
Networked	Only Windows users in the Administrator group or a group specifically created for this purpose.	The configuration is shared among all computers and user accounts on the network. A change made on one machine is reflected in all others.

9.3.1 Symphony Configuration Items

Table 9-2: Symphony Configuration Items

ITEM		WHO CAN CHANGE?	SHARING
<p>Symphony Config Settings</p>		<p>Windows Administrator</p>	<p>All settings are per-machine. All users on that computer share these.</p>
<p>Module Preferences (Volume, Mute, etc.) Select Entity</p>		<p>Dispatcher Users</p>	<p>Settings are stored per-setup and per-user. Each user has one copy per-setup.</p>
<p>Audio Box Configuration</p>		<p>Controlled by "Allow Access to Audio Config" in the Symphony Configuration Utility.</p>	<p>Settings are stored per-setup and per-user. Each user has one copy per-setup.</p>
<p>Setup Definitions and Screen Layout (Tabs and Modules, Colors) GUI Settings</p>		<p>Controlled by access to the "Admin" directory (Section 9.3.2). May be configured for Administrator Only or Admin + Dispatcher.</p>	<p>Controlled by location of the "Admin" directory. May be shared by multiple consoles. May be shared by all users on a single machine. May be per-user.</p>

ITEM		WHO CAN CHANGE?	SHARING
<p>Patch and SimulSelect Definitions</p>		<p>Controlled by Admin. Dispatchers can create/change definitions. (User Defined). Administrator may create definitions that cannot be changed. (Admin Defined).</p>	<p>User defined definitions are per-setup and per-user. Each user has a set of definitions in each setup. Admin defined are per-setup and shared based on "Admin" directory (see Screen layout).</p>
<p>GUI Settings</p>		<p>Controlled by access to the "Admin" directory (Section 9.3.2). May be configured for Administrator Only or Admin + Dispatcher.</p>	<p>Settings are stored per-setup and per-user. Each user has one copy per-setup.</p>

9.3.2 The Admin Directory

The **Admin** directory holds much of the configuration of the Symphony. It is important in understanding and implementing the Symphony administration models. This includes the list of Setups, Screen Layouts, and other GUI settings. The installer creates this directory in its default location **C:\ProgramData\Harris\Symphony\Admin**. The Symphony Configuration Utility allows an administrator to change the location of this directory on the File Locations tab.



CAUTION

The files located in the Admin directory and its subdirectories should not be edited with a text editor. Doing so will corrupt the console configuration.

Like all directories and files in Windows, the Admin directory is protected by Windows file system permissions. Symphony runs under the security context of the current Windows user. Symphony checks the user's permission to access the Admin directory. If the user only has read access, then the Configure and Setup menus are removed from the L3Harris menu in the application. This blocks users from making any changes to Setups, the Screen Layouts, or other GUI settings. Users that have write permissions will see these menus and can make changes.

If the Admin directory does not exist when Symphony is started, it is created and the current Windows account becomes the owner. That user has write access to the Admin directory and is able to access the configuration menu items.

The Admin directory contains one directory per console setup including the Default setup. The Default setup is always present in Symphony and cannot be password protected. If for some reason there is no Default directory, Symphony will attempt to create one. The application will not start if the Default directory cannot be created.

Each subdirectory in the Admin directory has the same name as the setup and contains all the configuration files for that setup that control the screen layout information and other GUI settings. When a setup is created in Symphony, a corresponding directory is added.

9.3.3 Default Administration Model

This model is active when the Symphony software is first installed. It is a good model to use when first configuring a console as any user can make changes to the screen layout and other GUI settings. Once the installer is satisfied with the screens, the configuration can be locked down by switching to another administration model. In installations where the dispatchers can be trusted to keep the configuration intact, it allows them to make small changes that enhance workflow for all users.

To Restore the Default Administrator Model:

1. To preserve the settings from a previous administration model, backup copies of the Setup Folders under the current Admin directory.
2. Delete the directory **C:\ProgramData\Harris\Symphony\Admin**. This may require administrator rights.
3. Ensure you are logged into the Windows as the Console Administrator account and create the directory **C:\ProgramData\Harris\Symphony\Admin**.
4. Open the **Symphony Configuration Utility** and ensure the “Admin Config Directory” on the File Locations page is set to **C:\ProgramData\Harris\Symphony\Admin**.
5. Copy the directories from step one under the new Admin directory or create a directory called **Default**.
6. Set the permissions on **C:\ProgramData\Harris\Symphony\Admin** to the following:
Ensure inheritance from the parent directory is turned off and these permissions are applied to all subfolders and files.
 - **Owner:** The Console Administrator account (this should be set this way when the directory was created).
 - **Windows User’s Group:** Modify, Read & execute, Read, and Write are inherited by this folder, subfolders, and files.
 - **Symphony Administrators Group:** Full Control, Modify, Read & execute, Read, and Write are inherited by this folder, subfolders, and files.

9.3.4 Local Admin Controlled Administration Model

Using the Windows Administrator’s group and xAdministrator account is possible in this model, but UAC must be disabled for it to work. If UAC is enabled, the console administrator will see the Configuration and Setup menus, but any changes made will not be saved.

Creating a local Windows group called “**Symphony Administrators**” is recommended. User accounts that are placed in this group should not be included in the local Administrators group. Doing so will introduce the same problem with UAC described previously. The Symphony Administrators user accounts can use the Admin-only administrative tools (such as the Symphony Configuration Utility) by typing the xAdministrator password when launching the tool.

Converting Symphony to Local Admin Controlled Administration Model:

1. Ensure that the Symphony Administrator account can run the console and connect to the VNIC as it will be necessary to create and edit setups and screen configurations.
2. To preserve the settings from a previous administration model, backup copies of the Setup Folders under the current Admin directory.
3. Delete the directory **C:\ProgramData\Harris\Symphony\Admin**. This may require administrator rights.
4. Ensure you are logged into the **Windows as the Console Administrator account** and create the directory **C:\ProgramData\Harris\Symphony\Admin**.
5. Open the Symphony Configuration Utility and ensure that “Admin Config Directory” on the File Locations page is set to **C:\ProgramData\Harris\Symphony\Admin**.
6. Copy the directories from step two under the new Admin directory or create a directory called **Default**.
7. Set the permissions on **C:\ProgramData\Harris\Symphony\Admin** to the following (see Section 9.3.7):

Ensure inheritance from the parent directory is turned off and these permissions are applied to all subfolders and files.

- **Owner:** The Console Administrator account (this should be set this way when the directory was created).
- **Windows User’s Group:** Read & execute and Read are inherited by this folder, subfolders, and files.
- **Symphony Administrators Group:** Full Control, Modify, Read & execute, Read, and Write are inherited by this folder, subfolders, and files.

9.3.5 Power User Administration Model

Use this model to give dispatcher users complete control over the Setups, Screen Layouts, and GUI settings. The configuration information is stored in the home directory of each user and is not shared. If Active Directory Roaming Profiles are used, then the setups, screens, and settings will follow the user from one Symphony console to the next.

Converting Symphony Power User Administration Model:

1. Log in as the xAdministrator or some other account that is in the Windows Administrator's group.
2. Open **regedit.exe** and add or modify the registry key:

From:

HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Harris\Symphony\System\AdminConfigLocation

To the value: **%APPDATA%\Harris\Symphony\Admin**

When users start Symphony for the first time, the Admin and Admin\Default directories are created automatically for the user. Any changes that are made to the setups screens and GUI settings are saved to the user's application data area.

It is possible to provide users with default settings by copying a default Admin directory tree to the users' location, using a script. The details are outside the scope of this manual; however, the general strategy is to write a script that is run either at user log in or when starting Symphony. The script must do the following:

1. Confirm that the **%APPDATA%\Harris\Symphony\Admin** directory does not exist for the user. If it does exist, then do nothing.
2. Copy a default Admin directory tree that was created by an administrator to the user's location. These default files may reside on a network share or a publicly readable directory on the local computer.

9.3.6 Networked Administration Model

This model is good for deployments where it is not feasible or desired to visit each console to make changes to screen configurations. This can include deployments with a large number of console positions or those that have many physical locations.

In summary, the Admin directory is moved to a shared network drive and secured appropriately.

To set up this Administration Model:

1. On the File Server, Domain Controller, or SMT setup the following:
 - a. Create two Security Groups in the Windows Domain using the **Active Directory Users and Computers** tool.
 - One called "**Dispatchers**" that is used for the user accounts that cannot access the Configuration and Setup menus.
 - Another called "**Symphony Administrators**" that is used for user accounts that will have rights to change the console setups and screens.
 - b. Create domain user accounts for Dispatchers and Symphony administrators and assign them to their respective Domain groups.

- c. On a file server, create a shared drive and an Admin directory. The admin directory should be secured as follows:
 - **Owner:** The one of the users in the “Symphony Administrator” account (this should be set this way when the directory was created:
 - **Dispatchers Group:** Read & execute and Read are inherited by this folder, subfolders, and files.
 - **Symphony Administrators Group:** Full Control, Modify, Read & execute, Read, and Write are inherited by this folder, subfolders, and files.
 - d. If the contents of the Admin directory being deployed are already available, copy them to the shared drive.
2. On each Symphony Console computer, setup the following:
 - a. Login with the “xAdministrator” account.
 - b. Join the Symphony computer to the domain.
 - c. Create a local group called “Console Administrators.”
 - d. Add the Domain group “Symphony Administrators” to the “Console Administrators group.
 - e. Add the domain “Dispatchers” group to the local “Users” group on the computer.
 - f. Setup the computer to map the network drive to an available drive letter and set it up to remap the drive on startup.
 - g. Open the Symphony Configuration Utility, go to the File Locations page, and choose the mapped drive’s Admin directory for the Admin Config Directory.

This configuration makes the network file share a critical component in the dispatch platform. If the Symphony cannot reach it, then it will not start. Proper precautions must be taken to ensure uptime.

To edit the contents of the Admin directory, login to one of the Symphony consoles using a domain account that is in the “Symphony Administrators” group. This account must be setup to login to the VNIC, so the Symphony can start and be provisioned with groups and units.

While the Admin directory contains the screen layout and module locations, the choice to monitor (listen to) a radio entity such as a Talkgroup or unit belongs to the dispatcher. When a user adds a module to the workspace, Symphony automatically monitors the entity. In the Networked Administration model, the Administrator can add the module to the screen using one user account, while the Dispatcher logs in with another. In that case, the dispatcher will see the modules, but they are unmonitored. To enable monitoring of an entity, use the Directory. See the *Symphony Operators Manual* for more detail.

It is possible to have multiple Admin directories that are shared on a network drive, each being used by a subset of consoles. This is useful in cases where the consoles are in different agencies and need different setups. Create two or more Admin directories on the file share and set the Admin Config Directory appropriately for each console.

9.3.7 Setting Permissions on the Admin directory

This section describes how to set permissions on the Symphony Admin directory. Specifically, this procedure converts the Default administration model to a Local Administrator Controlled model. The same procedure, with slight modification, can be used on the Networked Administration model to assign permissions.

The goal of this procedure is to give any User that is a member of the local **Symphony Administrators** group the ability to write to the Admin directory and subdirectories. This allows those users to open the **Configure → Admin mode** menu in Symphony and change the screen layout and module programming. At the same time, any users that are in the built-in **Users** group will have read access, allowing them to run the Symphony application.

Prerequisites:

A local Windows security group (called *Symphony Administrators*) has been created for Symphony Console administrator users and the correct user accounts or Active Directory.

9.3.7.1 Setting Admin Permissions:

1. Open Windows Explorer by pressing the **Windows logo key** **+** **E**.
2. Navigate to the Symphony Program data directory. This directory contains the Admin directory. By default, the admin directory is installed at **C:\ProgramData\Harris\Symphony\Admin**.



NOTE

The **C:\ProgramData** may be hidden. To see this directory, follow the instructions in Section 9.3.7.2, *Viewing Hidden Directories*. It is also possible to type the entire path into the Address bar at the top of Windows Explorer without having to view the directory.

3. Right-click on the Admin directory and select **Properties**.

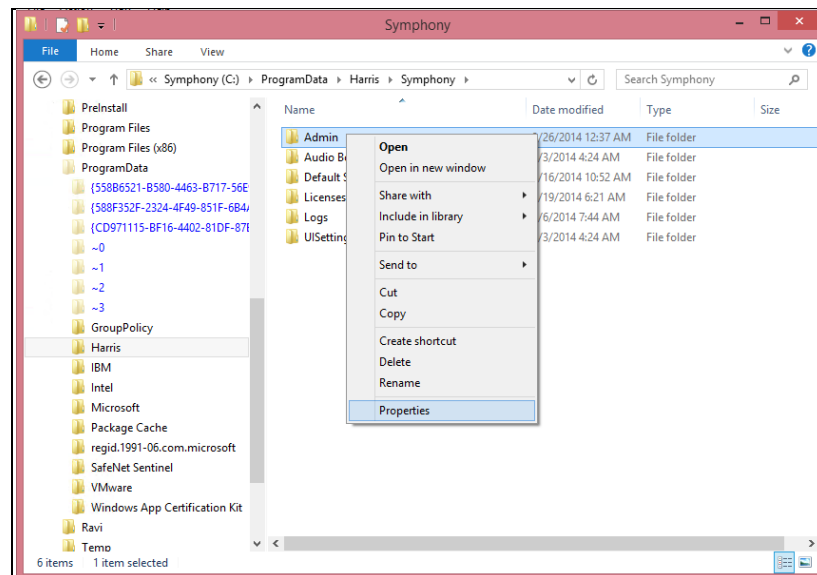


Figure 9-31: Folder Admin Properties Dialog (Windows 8.1)

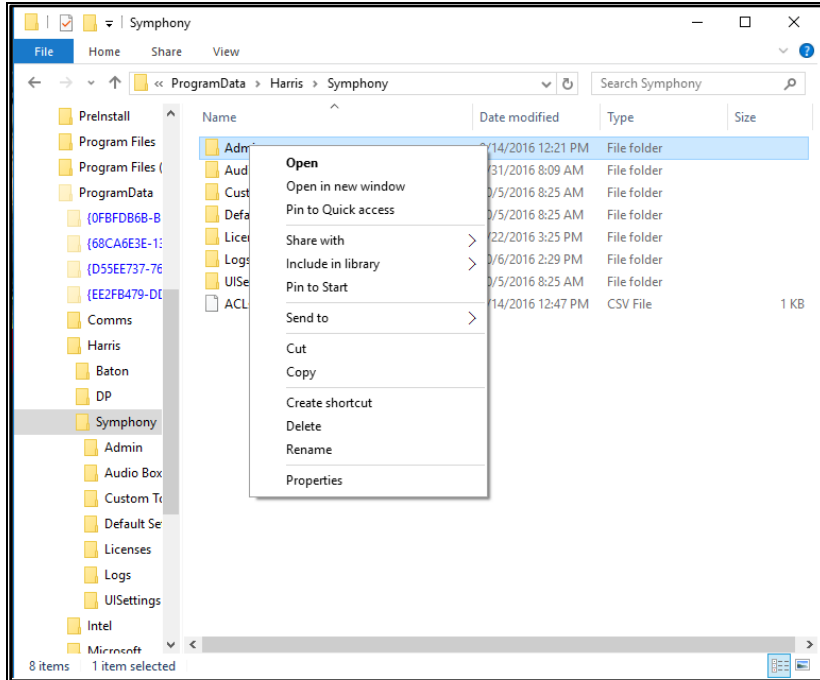


Figure 9-32: Folder Admin Properties Dialog (Windows 10)

4. Select the **Security** tab.

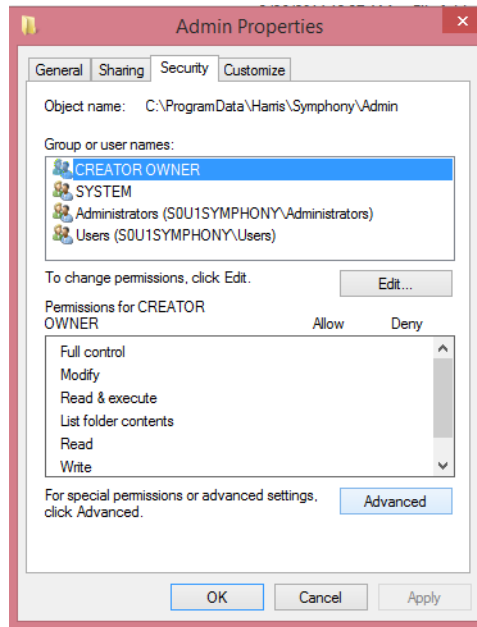


Figure 9-33: Security Settings Dialog

5. Click **Advanced** to open the **Advanced Security Settings for Admin** dialog.

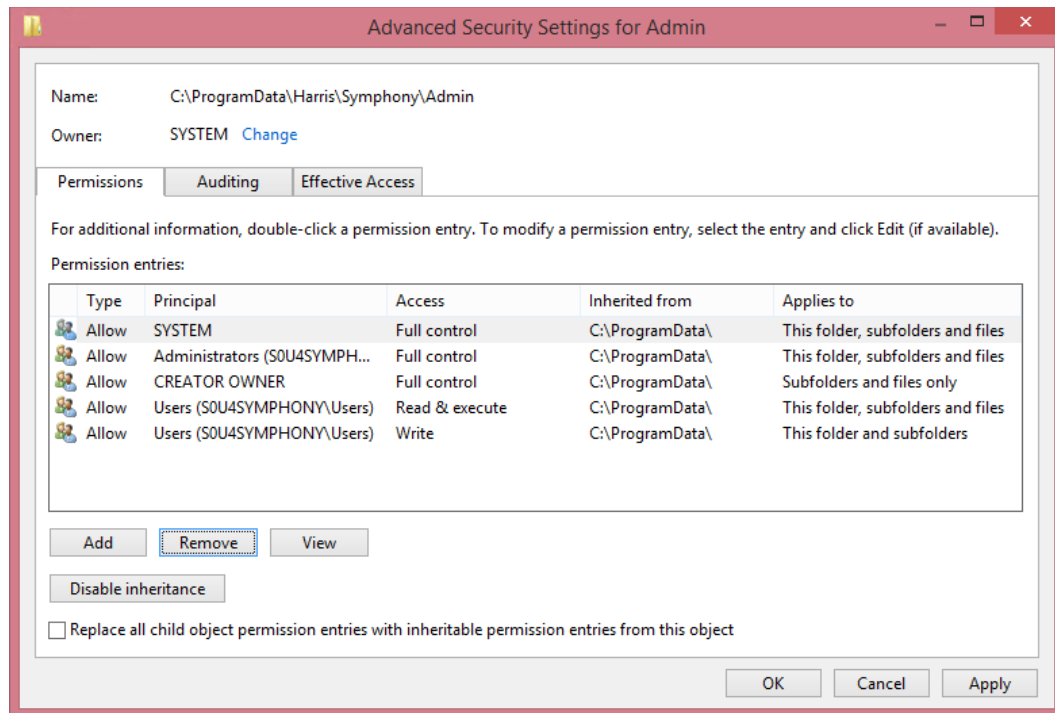


Figure 9-34: Advanced Security Settings for Admin Dialog

6. (If needed) Disabling inheritance is recommended if any of the Permission entries show that it is being inherited. This prevents permission changes by other administrators to parent directories from affecting the Symphony Admin directory. To do this, click **Disable inheritance** and select **Convert inherited permission into explicit permissions on this object**.

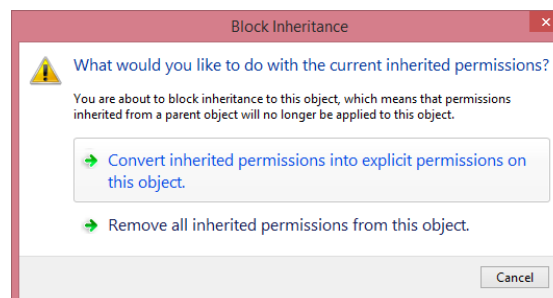


Figure 9-35: Inherited Permissions Dialog

7. Click **Add** to start adding the **Symphony Administrators** group to the Permission Entry list.

- Click on **Select a principal**.

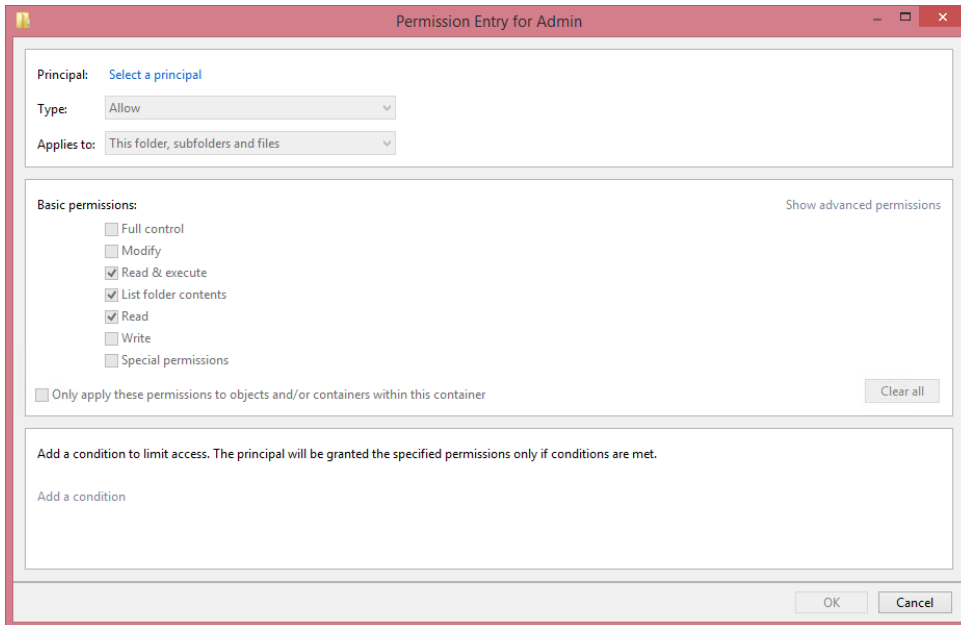


Figure 9-36: Permission Entry for Admin Dialog

- Click **Locations** and select the local computer's name from the list. Click **OK**.

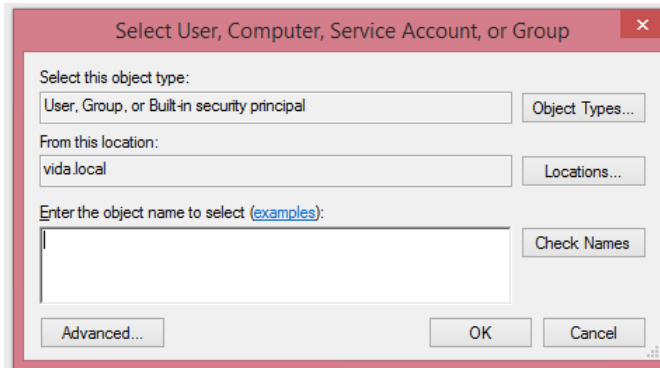


Figure 9-37: Select User, Computer, Service Account, or Group Dialog

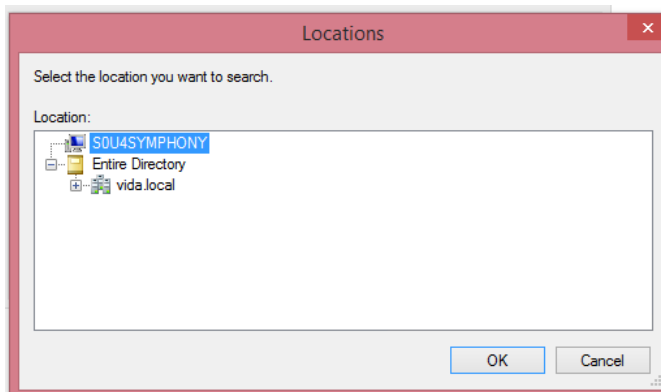


Figure 9-38: Locations Dialog

It is also possible to select an Active Directory location for the Security Group. This is not recommended. Instead, assign permissions to a local security group and then make the Active Directory group a member of the local group.

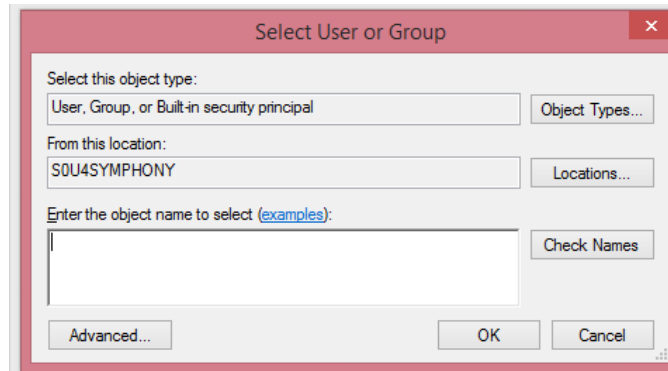


Figure 9-39: Select User or Group Dialog

- Next, type **“Symphony Administrators”** into the **Enter the object name to select** text box. Click **Check Names**. Make sure that the **“Symphony Administrators”** text becomes underlined.

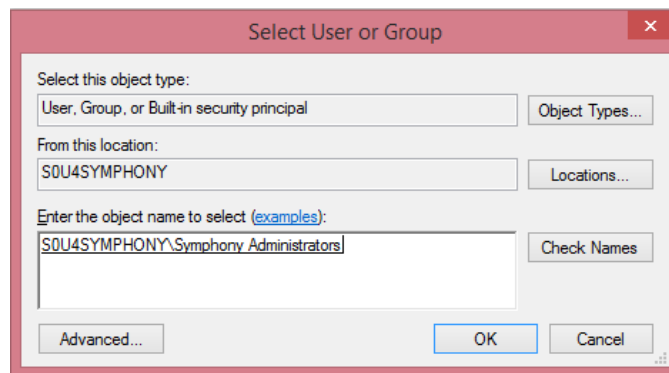


Figure 9-40: Select User or Group Dialog

- Click **OK** to close the **Select User or Group**.

12. Make sure that the permission type is set to *Allow* and the **Applies to:** field is set to *This folder, subfolders and files*.
13. Check the **Modify** box to add that permission. The **Write** box should automatically check. Make sure the dialog appears as shown in the following screen capture and then click **OK** to close the dialog.

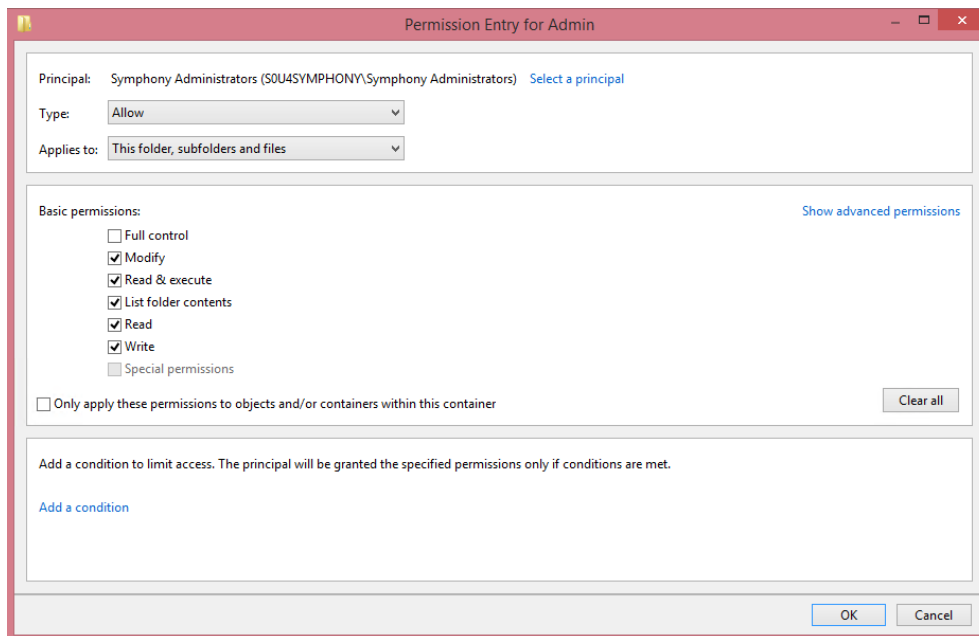


Figure 9-41: Permission Entry for Admin Dialog

14. Delete the *Users write* permission entry to remove the ability of normal Users to use the Admin mode of the console. To do this, highlight the entry and click **Remove**.

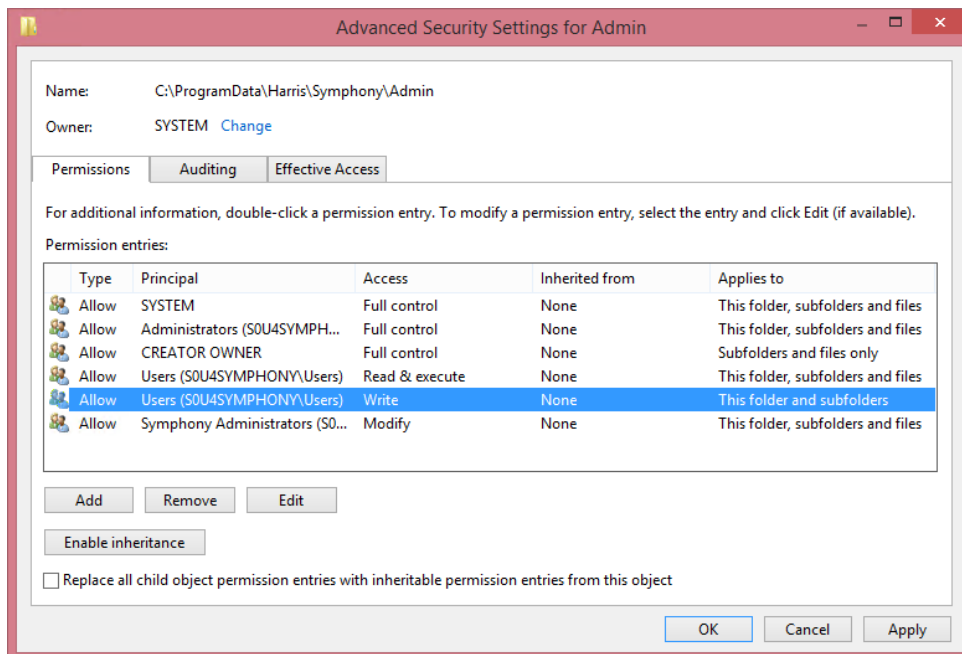


Figure 9-42: Advanced Security Settings for Admin Dialog

15. Verify the “**Advanced security Settings for Admin**” settings are similar to the following screen.

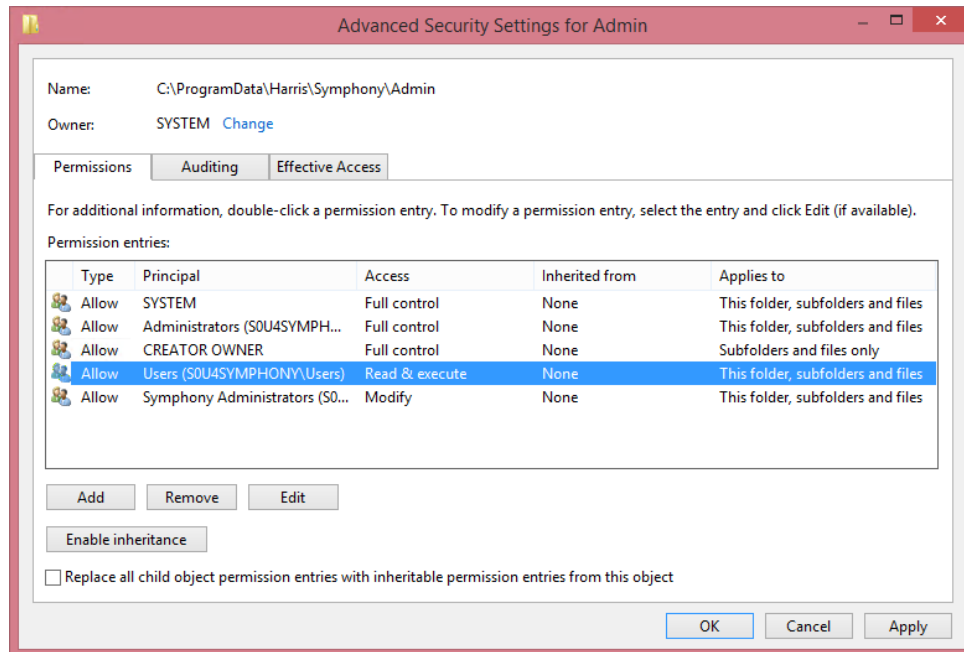


Figure 9-43: Advanced Security Settings for Admin Dialog

16. Click **OK** to apply the changes and close the dialog.

9.3.7.2 Viewing Hidden Directories

1. If not already, open the Windows Explorer by pressing the **Windows logo key** + **E**.

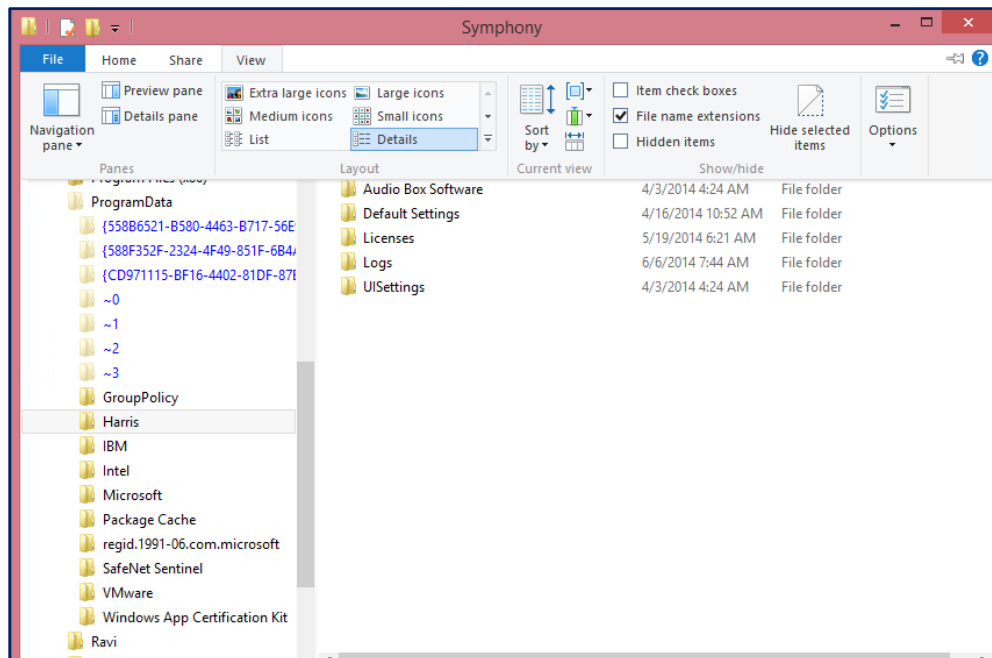


Figure 9-44: Windows Explorer Screen

2. Select **View** at the top of the Window to show the View ribbon.
3. Check the **Hidden Items** check box.

9.3.8 Forcing Users' Screen Layouts Back to Defaults

Sometimes it is desirable to allow dispatchers to make screen layout changes while the console is running, but force the console back to a set of defaults when it is re-started or a new user logs on.

1. Using a Symphony Administrator account, create the default screen layouts and setups. See Section 18.
2. Copy the contents of the Admin directory to a publicly readable directory on the machine. One such place may be **C:\ProgramData\Harris\Symphony\DefaultLayouts\Admin**.
3. Create a script that copies default layout to the Admin Config Directory.

This directory varies with the Administration model being used, but can be seen in the Symphony Configuration Utility.

```
@echo off
xcopy "%PROGRAMDATA%\Harris\Symphony\DefaultLayouts\Admin" "%APPDATA%\Harris\Symphony" /s /e /r /i /y
```

4. Configure the script to run at the desired time. See <http://technet.microsoft.com/en-us/library/cc753404.aspx> for information about configuring logins and other scripts.

9.4 CONFIGURING ROAMING PROFILES

Symphony is compatible with the Windows Roaming Profile feature. Roaming Profiles allow a user's account data (i.e., user preferences) to follow as the user logs into different computers. Symphony stores the users' volumes, audio settings, current select group, and many other preferences in the profile. Enabling Roaming Profiles allows these preferences to follow the user from one Symphony position to the next.

The exact behavior of Roaming Profiles depends on the Administrative model used. For this discussion, the term "source console" refers to the console the roaming user last logged into and the term "target console" refers to the console to which the user roams. Refer to Section 9.3 for a refresher on Administrative models and the types of configuration settings.

In the Power User model, the user preferences and runtime settings follow the user. If the machine settings are the same on all consoles, the target console will look and behave like the source console. In all other models, only the user preferences follow the user. If all machines have the same machine and runtime settings, then the target console will look and behave like the source console. However, if the target console has different machine or runtime settings from the source console, Symphony will apply user settings to any common entities, but the exact look and behavior of the source console will not be the same.



NOTE

When setting up Symphony using Connection Manager or Roaming Profile, ensure that the PSAP and User ID belong to the home region.

The following is a general listing of the Settings stored for a Symphony Console user (dispatcher) which will follow the dispatcher to any machine the dispatcher logs in to:

- Dispatcher Identification:
 - The WACN, Region, Agency, and User ID of the dispatcher's VIDA user account
 - The dispatcher's password to log into the VIDA system
- Modules Settings (defined for each Talk Group which has been programmed into a module on the Symphony Workspace):
 - Volume setting
 - Current unselect speaker
 - Muted State
 - Whether the Talk Group is receive only
 - Is the Talk Group currently being monitored
- Setup Information:
 - Current Setup name
- Select Entity Information:
 - Default Select Entity (DSE)
 - Current Select Entity
 - List of preferred Select Entities (PSE)
 - List of most recently selected entities (MRU)


- Pre-defined Patch and SimulSelect definitions
- Playback Volume and Speaker
- Preferred VIDA I-Call type for units (Acknowledged or Unacknowledged)

9.4.1 Prerequisites

The following must be completed before enabling Roaming Profiles for Symphony:

- The Symphony computer must be joined to Active Directory. (See Section 12.1.2.)
- The Symphony computer needs to be in the appropriate OU in the Symphony Console's OU. (See Section 9.2.5.)
- Maintenance Users need to be configured as Local Administrators. Refer to the *Active Directory for VIDA Networks Installation and Configuration Manual*, MM-018794-001.
- Set up "Roaming Profiles" as described in the *Active Directory for VIDA Networks Installation and Configuration Manual*, MM-018794-001.

9.4.2 Enabling Roaming Profiles for Symphony

1. Press the **Windows logo key**  on the keyboard to open the Start screen and enter "Active Directory" in the text box to search for the tool.
2. Click on **Active Directory Users and Computers** in the Search results to open the "Active Directory Users and Computers" tool.

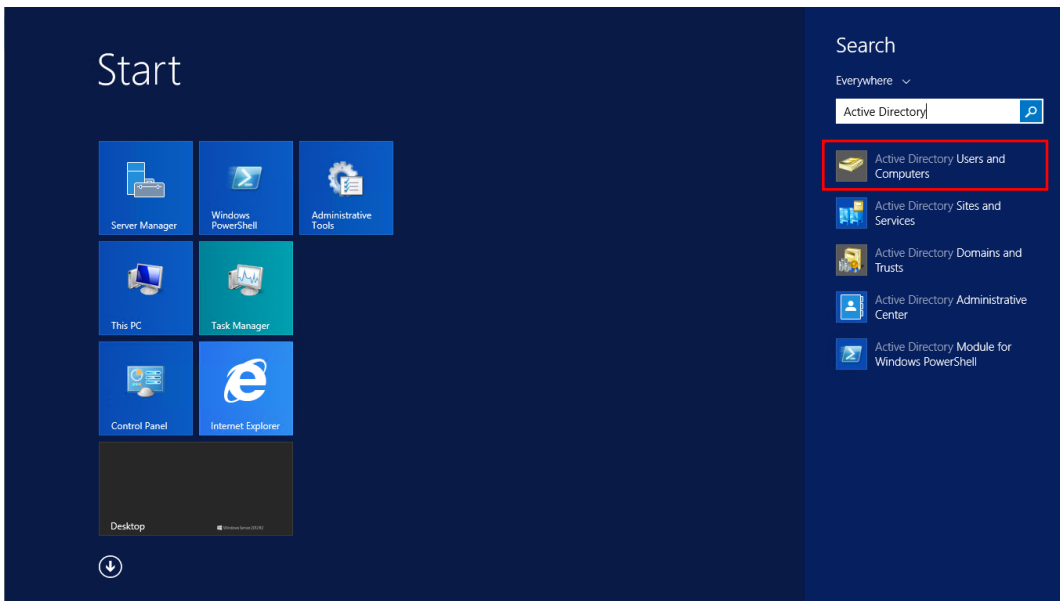


Figure 9-45: Active Directory Users and Computers Option on Start Screen

3. Navigate to **VIDA Users** → **VIDA Dispatch Users**.

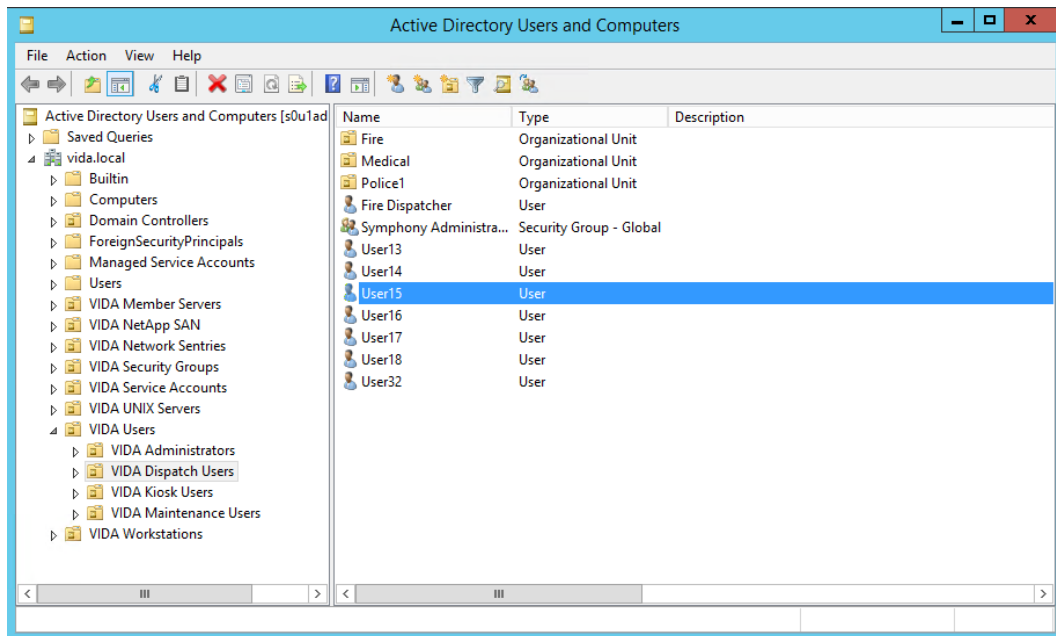


Figure 9-46: Active Directory VIDA Dispatch Users

4. Double-click on the user account to launch the **Properties** dialog. Select the **Member Of** tab.

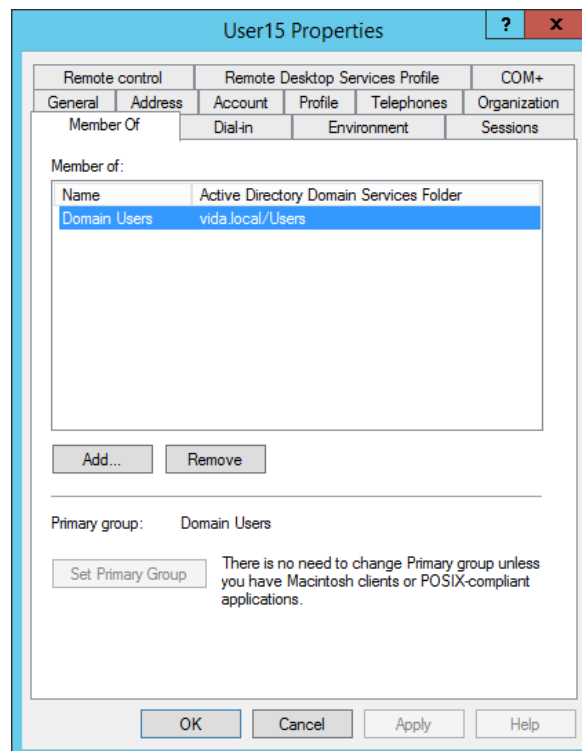


Figure 9-47: User Properties Dialog

- Click **Add** to open the **Select Groups** dialog.

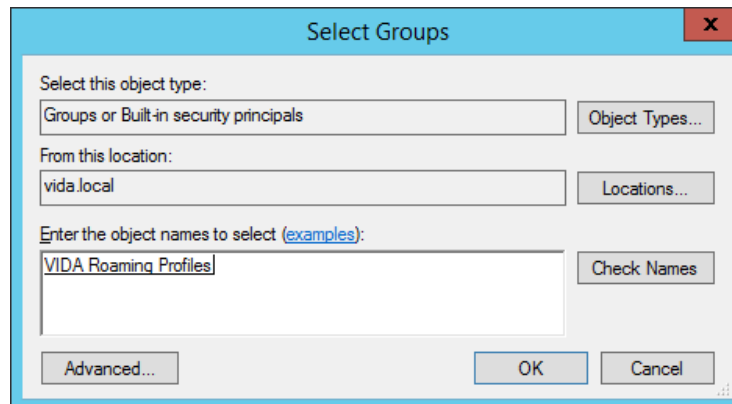


Figure 9-48: Active Directory VIDA Dispatch Users – Select Groups Dialog

- Type “**VIDA Roaming Profiles**” into the **Enter the object names to select** box. Click **Check Names** and confirm that the text becomes underlined.

9.4.3 Configuring User Accounts

On one of the Symphony consoles in the roaming pool, repeat the following steps for each user with a different Windows login:

- Log into Windows using the user’s Windows credentials.
- Open the Connection Manager and enter the data for this user. See Section 9.1 for details.



All users on the same console should have the same PSAP, WACN, and VNIC values.

- If using encryption, load keys or the UKEK for this user depending on the type of encryption: Manual or OTAR. See Section 13 for details.

Since roaming profiles have been configured for this user, the above data is stored centrally so that it is available to the roaming user.

10. HARDWARE INSTALLATION

This section provides information for installing the Symphony Dispatch Console system at the dispatcher station.

When determining the location of equipment, consider the amount of tabletop space required not only for the console, but also for the operator's working area. Also, consider where optional accessory items such as microphones, foot switches, and headset jackboxes can be placed.

10.1 UNPACKING EQUIPMENT

Upon receipt of the Symphony Dispatch Console equipment, carefully unpack the equipment and verify that the order is complete. Inspect the equipment for any shipping damage. If there is any damage to the equipment, contact the carrier immediately and have their representative verify the damage. If you fail to report the shipping damage immediately, you may forfeit any claim against the carrier.

When unpacking the equipment, check the contents against the packing list. Contact your L3Harris representative and the carrier if any discrepancies are noted.

If the equipment is installed in a cabinet, carefully open the cabinet and inspect the contents to ensure that enclosed equipment has not been damaged during delivery. If damage has occurred, note details of the damage and, if necessary, contact the carrier immediately and have their representative verify the damage. Contact your L3Harris representative if the damage is such that the installation cannot proceed.

10.2 MOUNTING PLATFORM

The Symphony Dispatch Platform can be mounted on a surface, in a rack, or under a desk (with or without an air gap). This section describes the different mounting methods for the platform and any additional parts required to complete each installation of the Symphony Dispatch Platform. Refer to Figure 10-1 to identify the parts required for a particular installation.



Installers should ensure the socket-outlet is installed near the equipment and is easily accessible.

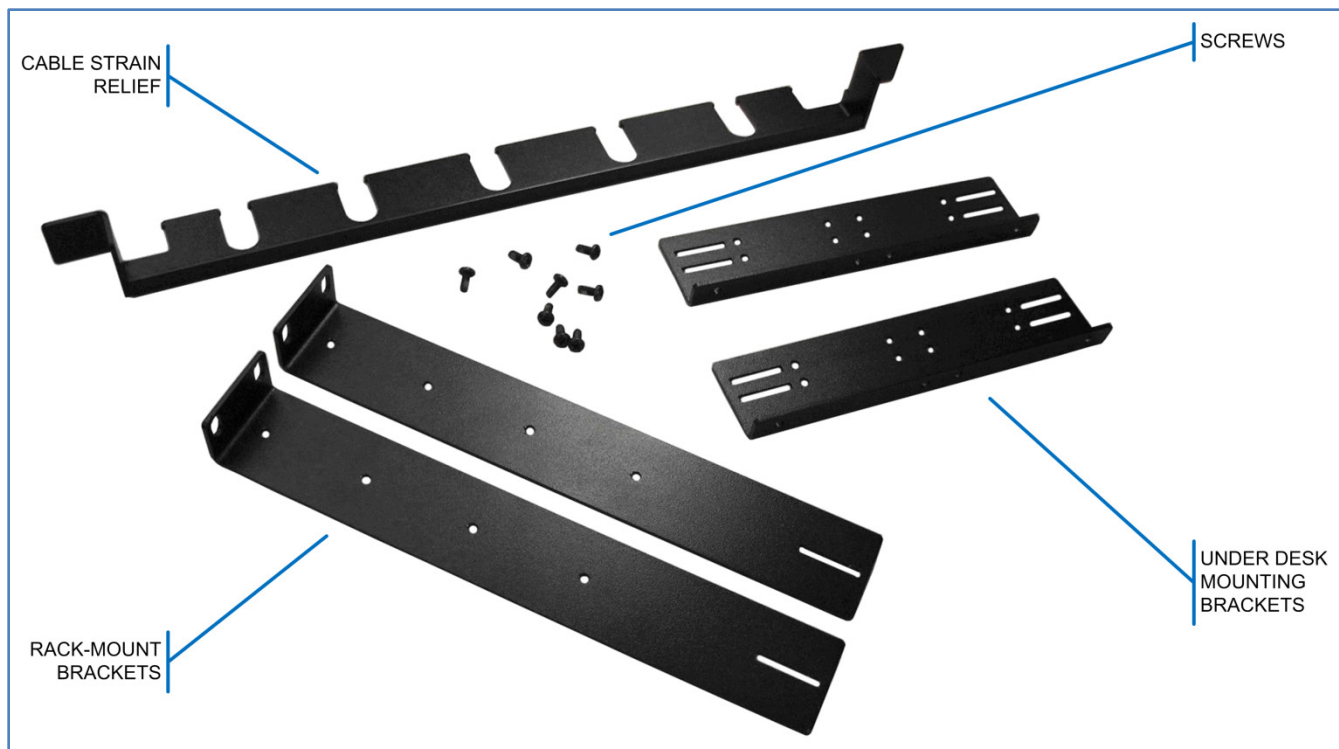


Figure 10-1: Mounting Brackets and Screws

10.2.1 Desktop/Surface Use

The Symphony Dispatch Platform is designed to sit on a desk top or other flat surface. Mounting brackets or additional hardware is not required.

10.2.2 Rack-Mounting

The Symphony Dispatch Platform may be rack-mounted in a standard 19" rack or cabinet. The two brackets required for rack-mounting the platform are L-shaped and 10.5 inches (26.67 cm.) long. These brackets, screws, and Cable Strain Relief assembly are shipped with the Symphony Dispatch Platform.



NOTE

When mounting in a rack or cabinet, be sure the Cable Strain Relief assembly is installed.

Tools/Material required:

- Phillips head screw driver
- Rack-Mount Brackets (supplied)
- Eight (8) 8-32 x 1/4" Phillips Flat-head Screws (supplied)
- Screws for mounting the platform to the rack or cabinet (not supplied)

Procedure:

Attach the mounting bracket to the Symphony Dispatch Platform as shown in Figure 10-2.

1. Attach one of the rack-mount brackets by aligning the mounting bracket holes with the holes in the platform and secure using four (4) 8-32 x 1/4" Phillips Flat-head Screws.

The bracket's mounting tab should be in the front and pointing away from the platform.

2. Insert the Cable Strain Relief assembly as shown.

The Cable Strain Relief assembly is inserted into each end of the mounting brackets. The horizontal tabs on each end of the Cable Strain Relief assembly fit into the slots as shown.

3. Attach the other bracket, inserting the Cable Strain Relief assembly, and securing the bracket to the platform by repeating the procedure in step 1.

4. Mount the platform in the rack or cabinet.

Align the holes on the mounting bracket tabs with the holes on the front of the rack or cabinet. Secure the Symphony Dispatch Platform using screws of the appropriate number and size.

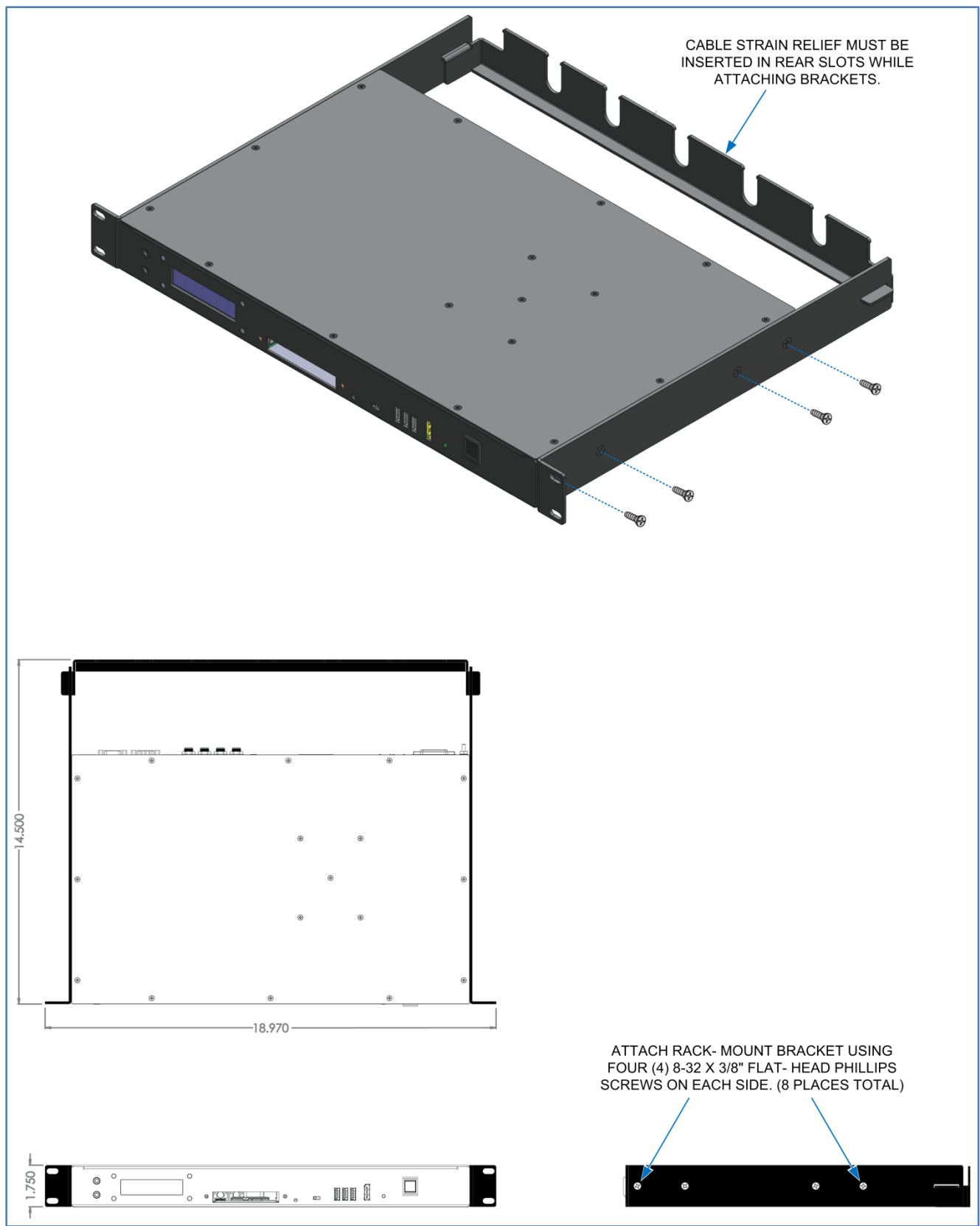


Figure 10-2: Attaching Rack-Mount Brackets

10.2.3 Under the Desk/Table Mounting

The Symphony Dispatch Platform can be mounted under a desk or table using the two under desk mounting brackets supplied with the platform. The under-desk mounting brackets are 7.6 inches (19.37 cm.) long with a narrow mounting flange on the long side. The mounting brackets and the screws required to attach the mounting brackets and the Cable Strain Relief assembly are shipped with the platform.

Tools/Material required:

- Phillips head screw driver
- Under Desk-Mount Brackets (supplied)
- Six (6) 8-32 x 1/4" Phillips Flat-head Screws (supplied)
- Screws for mounting the platform to the rack or cabinet (not supplied)

Procedure:

Refer to Figure 10-3 for an installation with a 1/2" air-gap between the Symphony Dispatch Platform and the desk.



NOTE

When mounting the Symphony Dispatch Platform beneath a desk or table, be sure the Cable Strain Relief assembly is installed.

1. Determine the installation type, flush-mount or with a 1/2" air-gap (based on heat transfer characteristics of the desk material).
2. Attach one of the desk-mount brackets by aligning the mounting bracket holes with the holes in the platform.
3. Secure the bracket using three (3) 8-32 x 1/4" Phillips Flat-head Screws.
4. Insert the Cable Strain Relief assembly as shown.
The Cable Strain Relief assembly horizontal tabs are inserted into the slot at the end of the mounting brackets. Use the upper slot for a flush-mount installation and the lower slot for an air-gap installation.
5. Attach the other bracket, insert the Cable Strain Relief assembly, and secure the bracket to the platform by repeating steps 2 and 3.
6. Make a template identifying the mounting-hole locations.
7. Use the template and mark the hole locations under the desk. Drilling pilot holes is recommended.
8. Practice fit the Symphony Dispatch Platform under the surface to insure holes line up and secure the platform to the desk.

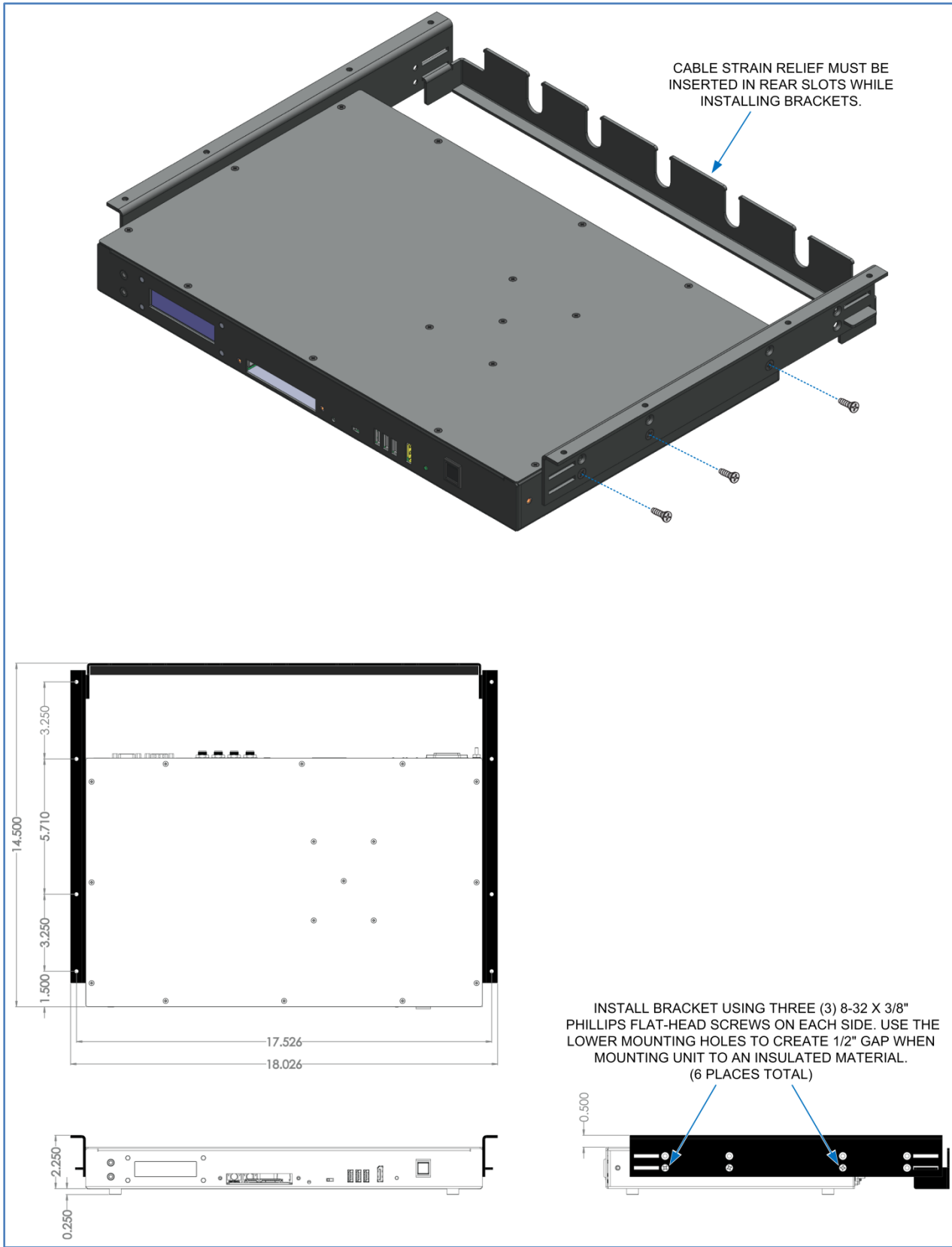


Figure 10-3: Attaching Brackets for Under the Desk Mounting with Air-Gap

11. CONSOLE CABLING



Ensure equipment is powered off before connecting cables. Do not apply power until told to do so. Devices must be powered up in a specific sequence for proper operation.

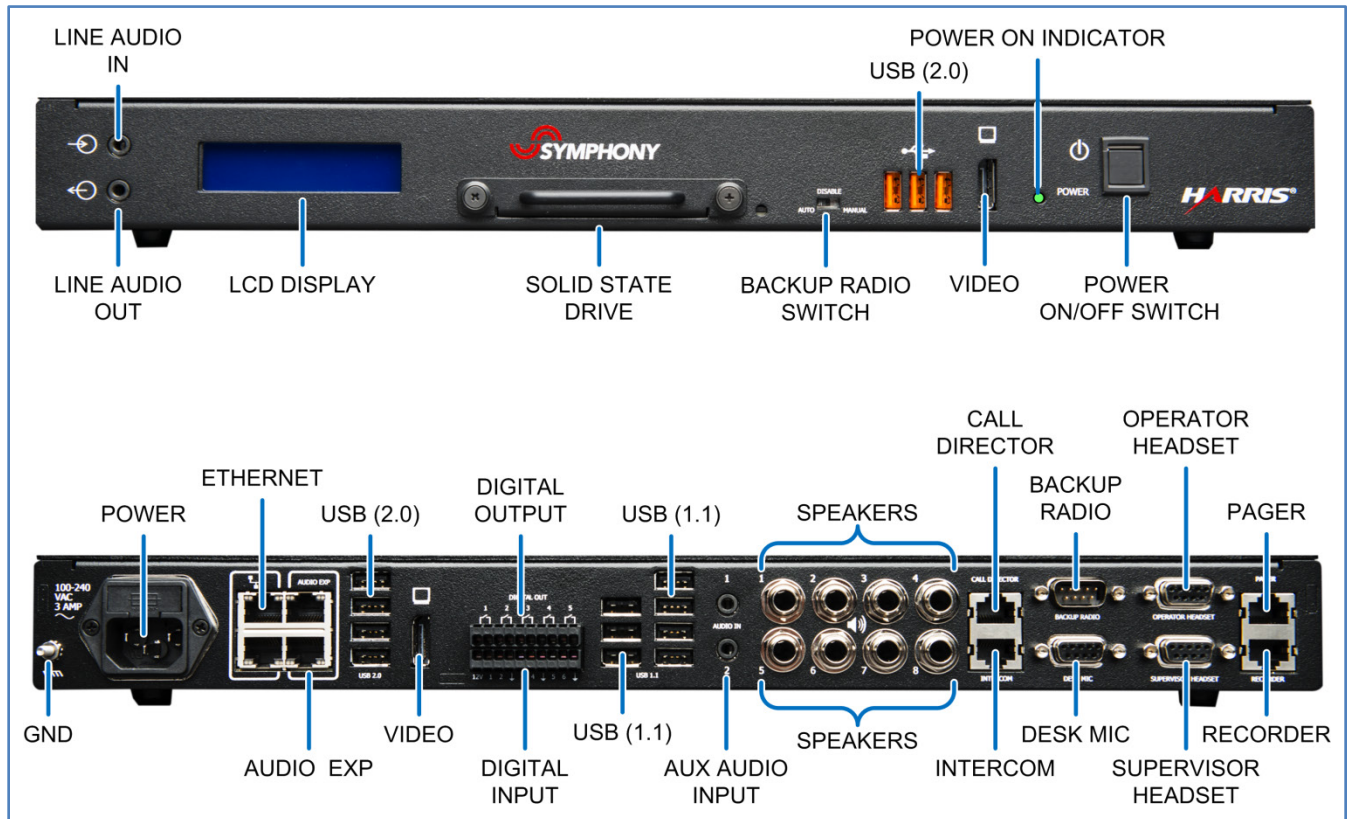


Figure 11-1: Symphony Dispatch Platform Front and Rear View

11.1 EQUIPMENT GROUNDING

Installers should review the recommended grounding procedures in the *Site Grounding and Lightning Protection Guidelines Manual*, AE/LZT 123 4618/1 and ensure a suitable ground is installed between the Symphony Dispatch Platform's grounding post and dispatch furniture ground, as well as between jack boxes and the same furniture ground point. Grounding must also comply with any local and national electrical codes.



To prevent equipment damage, ensure all equipment is connected to a single-point ground system and keep all grounds leads as short as possible. It is also recommended that surge protection be provided.

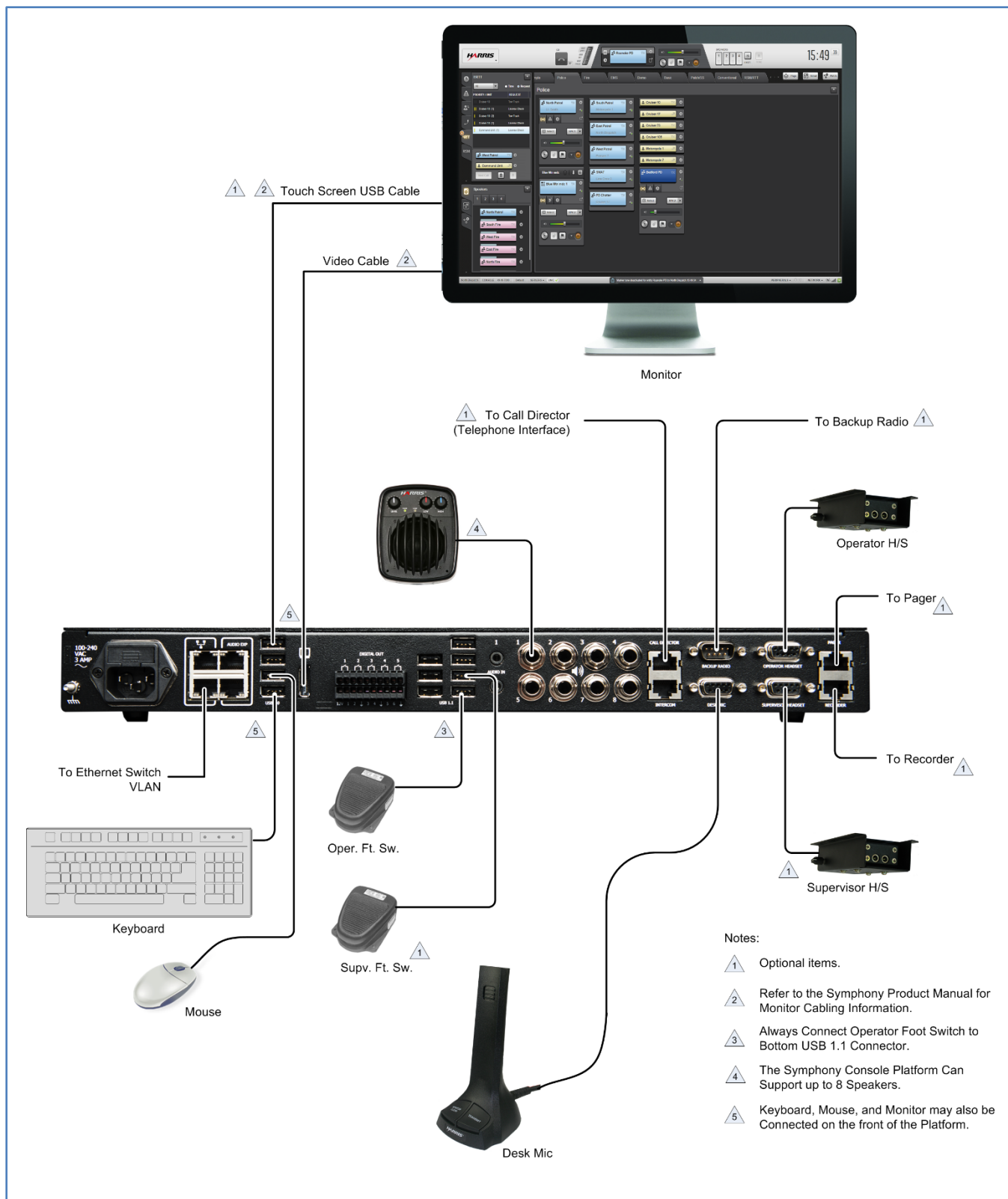


Figure 11-2: Typical Symphony Interconnect Diagram

11.2 NETWORK CONNECTIONS

When the Symphony Dispatch Console is installed as part of a larger system, it may be necessary to interface the Symphony Dispatch Platform with an Ethernet Switch Virtual LAN (VLAN).

Connect a Category 5e or 6 RJ-45 to RJ-45 Ethernet Patch Cable between the Symphony Dispatch Platform's **Ethernet** connector and the designated Ethernet Switch VLAN port. If network teaming is not being used, then either **Ethernet** port can be used. In teamed configurations, connect the second Ethernet to its switch port.

If the installation requires that the Symphony Dispatch Console be connected to two independent IP networks (not typical), the teaming operation must be disabled in the Operating System and independent IP addresses assigned to each **Ethernet** port. See Section 12.2.2 for instructions. Once the teaming feature is disabled and the IP configuration set, connect the **Ethernet** ports to their respective Ethernet Switch ports.

11.3 INSTALLING CONSOLE ACCESSORIES


11.3.1 Connecting the Keyboard, Mouse, and Monitor

1. Connect the keyboard and mouse to the Symphony Dispatch Platform's **USB (2.0)** ports located on the front or rear panel (recommended).



NOTE

In some installations, it may be necessary to connect the Keyboard and/or mouse using the USB ports on the front of the Symphony Dispatch Platform.

2. Connect the Symphony Display Cable between the SDP **VIDEO** connector  (on rear panel) and the monitor's video connector.


The video cable and adapter, if necessary, depend on the monitor selection and whether a digital or analog signal is used. Installers should refer to the *Symphony Dispatch Platform Product Manual*, 14221-7400-6010, to identify the necessary cables and adapters.



NOTE

In some installations, it may be necessary to connect the monitor to the VIDEO port on the front of the Platform.

Resolutions up to and including 1080p (1920x1080) are supported by all L3Harris-supplied cables. Cable runs longer than 15 feet at 1080p resolutions may require active cables (not supplied by L3Harris).

3. For Touchscreen monitors, connect a USB cable between the platform's USB (2.0) port  located on the front or rear panel (recommended) and the monitor's USB port.
4. Connect the power cord to the monitor and then to a properly grounded AC outlet.



NOTE

Make sure that the power cord being used is the correct type. For operation outside the U.S.A., the cord should have the appropriate safety approvals for the country in which the equipment will be installed.

11.3.2 Installing Multiple Monitors

To Connect Two monitors:

There are two options for connecting two monitors:

- Use a DisplayPort splitter (L3Harris does not provide).

This method creates one big desktop screen that stretches across the monitors. The Windows task bar will stretch across monitors too. Windows will show a single monitor with a very wide resolution.

Pros: You can connect everything in the back of the Symphony Dispatch Platform.

Cons:

- If you maximize a Windows application, it will span both monitors.
- Monitors can only be placed side-by-side (not over-under) unless your splitter supports an alternative configuration.
- The second option is to connect one monitor to the rear DisplayPort connector and one monitor to the front DisplayPort connector.

This will create two desktops and the windows control panel will show two monitors. The Windows task bar will be located ONLY on the primary monitor.

Pros: Maximizing an application will constrain it to one monitor (it will not span). You can place the monitors in over-under or side-by-side configuration.

Cons: You must connect to the front DisplayPort.

To Connect Three or Four More Monitors:

To connect three or four monitors, use both DisplayPort connectors and a DisplayPort splitter. Connecting three monitors requires a single splitter and connecting four monitors requires two splitters. Each DisplayPort drives a single "Windows" desktop, and the splitters enable each desktop to span to a second monitor.

11.3.3 Connecting Speakers to Symphony Dispatch Platform

The Symphony Dispatch Platform can support up to eight (8) analog speakers. The eight speaker outputs, located on the Platform rear panel, are balanced with 300 ohm $\pm 10\%$ impedance. The nominal output voltage is +4 dBu².

The Platform uses eight 1/4" Male TRS (tip, ring, and shield) stereo audio jacks for connecting the Select/Unselect speakers to the system. These outputs, described below, are transformer isolated.

- **Select Speaker** – The Select speaker output is available on speaker plug #1.
- **Unselect Speakers** – The Unselect speaker outputs are available on speaker plugs #2 through #8.

² dBu - A logarithmic voltage ratio, relative to 0.775 Vrms, which is the voltage that produces 1 milliwatt when the load resistance is 600 ohms. A line level of +4 dBu is commonly used in professional audio systems.



Figure 11-3: Symphony Dispatch Platform Rear View – Speaker Connections

The speaker recommended for use with the Symphony Console is the optional L3Harris “Nano Speaker for Symphony” (part number 14017-0100-01³), shown in Figure 11-4. This speaker is designed for use anywhere sound reinforcement is needed. Each speaker has a power supply that converts AC power, ranging from 100 to 240 volts AC, 50/60 Hz, to 15 VDC.



Figure 11-4: External Speaker Front and Rear View

The following items are included with the speaker:

- AC-DC Power Supply: Input 100-240 VAC, 50/60 Hz; Output 15 VDC, 1.6A
- Wall Mount Brackets

To install speakers:

1. Mount the speaker in a suitable location. Refer to the speaker user guide (included) for mounting instructions.
2. Plug one end of the audio cable (L3Harris Part 14017-0100-12) into the speaker’s 1/4" Line level input connector and the other end into the desired Symphony Dispatch Platform desired speaker port.
3. Connect the power supply (supplied) between the speaker **12-18 VDC** input power connector and the AC power outlet.

³ Refer to Section D.2 for speaker specifications.

11.3.4 Installing the Desktop or Gooseneck Microphone

11.3.4.1 Gooseneck Microphone Wiring

If using a Gooseneck microphone, install the microphone as instructed by the manufacturer.

The Gooseneck Microphone interface is via the **DESK MIC** connector on the rear panel. The DB-9F interface connector is wired as indicated in the SDP manual. The Gooseneck microphone kit (L3Harris part number CM-22218-0402M) includes the Gooseneck microphone, a DB-9M mating connector, and mounting fixtures. The connector must be attached to the microphone cable as described in the *Symphony Dispatch Platform Product Manual*.



NOTE

The Gooseneck microphone may require wiring a DB-9M mating plug. Wiring details are available in the *Symphony Dispatch Platform Product Manual*, 14221-7400-6010.



NOTE

The Gooseneck microphone is designed for close-talking operation. For best performance, speak as close to the microphone as comfort permits. A distance of 1 to 5 cm (0.4 to 2 inches) provides the greatest discriminations between voice and background noise.

11.3.4.2 Desktop Microphone Wiring

The Symphony Desktop Microphone cable with DB-9M connector does not require any modifications. The analog audio signal is input via pins 9 and 5. The Desktop Microphone has a Monitor and PTT switch which are connected to the platform via the pins 3 and 6, respectively. Both of these signals are digital inputs.

Installation:

Plug the Symphony Desktop Microphone or gooseneck microphone into the **DESK MIC** connector located the Symphony Dispatch Platform rear panel.

The microphone gain may be adjusted using the microphone audio trimmer pot (located on the bottom of the microphone). By default, the pot is set to 275 \pm 25 mV rms at 1000 Hz (94dBa SPL acoustic input at microphone port).



NOTE

Although the microphone gain is adjustable, the microphone is intended to be used relatively close to the talker, about 12 inches. Setting the gain for operation at longer distances makes the microphone more susceptible to picking up background room noise.

11.3.5 Installing Operator and Supervisor Headsets

The headset provides the operator with hands-free, high quality, comfortable, private monitoring, and dispatch capability. The Platform has both Operator and Supervisor Headset interfaces, each consisting of the following lines:

- Headset Sense Switch input
- Ground
- Analog Ground
- Headset PTT
- Headset Speaker output
- Headset Microphone input

Each Headset interfaces with the console by connecting to the Platform's **Operator Headset** or **Supervisor Headset** connector, located on the rear panel.

- Connector Type: DB-9F Receptacle
- Mating Part Number: DB-9M Plug



NOTE

Connector pin-out details for the headset DB-9F interface connectors are available in the *Symphony Dispatch Platform Product Manual*, 14221-7400-6010.

Each headset microphone has a dedicated microphone audio path (i.e., the Operator path is not shared with the Supervisor Microphone interface). The Headset microphone audio input is software-programmable and capable of handling inputs ranging from -27 dBu to -15 dBu. Nominal level is -21.3 dBu.

In addition, the platform can provide a voltage source for the Headset Microphone input, equivalent to a 237-ohm pull-up resistor to 5 V. This is software configurable (on/off) and used to power electronics that are integrated into the Plantronics SHS 1890 or equivalent headset-adaptor. This microphone bias is enabled by default in the Symphony software but may be disabled if another microphone type is used.

The Headset PTT and Headset Sense switches are digital inputs to the platform. The Operator and Supervisor switches are electrically isolated, and accommodate a switch closure to ground as their input signal.

The platform provides line level, single-ended audio output to the Headset earpiece outputs. The nominal output level is -15 dBu, adjustable from -25 dBu to -5 dBu.

11.3.6 Installing the Jackbox and Headset Options

Using headsets that are connected to the platform using a Jackbox enables operators or supervisors to have hands-free mobility. The headsets connect to the jackbox via a wired or wireless PTT adapter that uses a dual pronged PJ-7 style connector to plug into the Jackbox. The Jackbox is hardwired to the platform using separate connection points for the Supervisor and Operator headsets as shown in Figure 11-5.

The Symphony Jack box part number is 14017-0103-01. The older C3 Maestro^{IP} Jack Box, part number CM-22218-000127 is also compatible with the SDP.



The console must be configured to ignore headset PTT signals when 4-wire headsets. See Section 16.2.9 for details on the Disable Headset PTT setting. 4-Wire headset adapters have a single black insulator ring on each connector prong while the 6-wire adapters have 2 on each prong.

1. Mount the Jackbox(es) in the desired location.
2. Connect the Jackbox(es) to the Symphony Dispatch Platform **OPERATOR HEADSET** or **SUPERVISOR HEADSET** connector using the DB-9(M) to DB-9(M) cable supplied with the Jackbox.
3. Connect a grounding cable (supplied) between the Jackbox housing and the same dispatch furniture ground point to which the Symphony Dispatch Platform's grounding post is connected.



Failure to connect the ground wire between the Jackbox and ground could increase the potential effects of **Electro-Static Discharge (ESD)**. This may damage the equipment or application software.

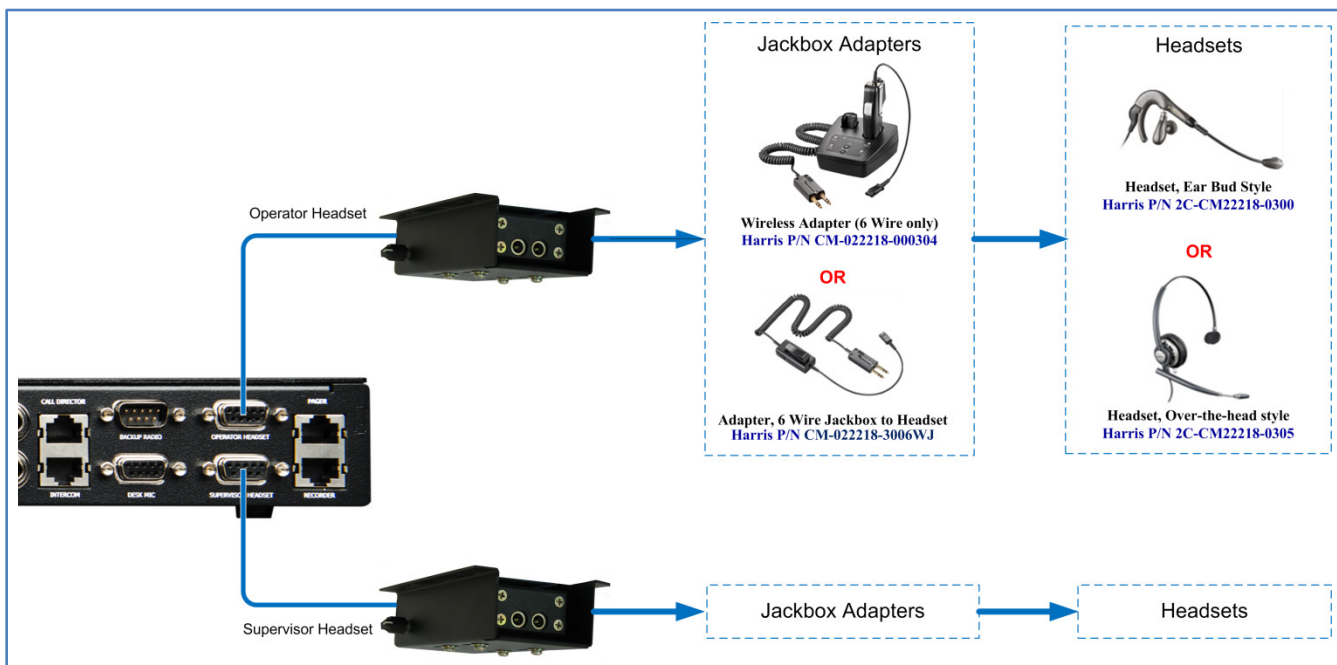


Figure 11-5: Wiring Headset Options

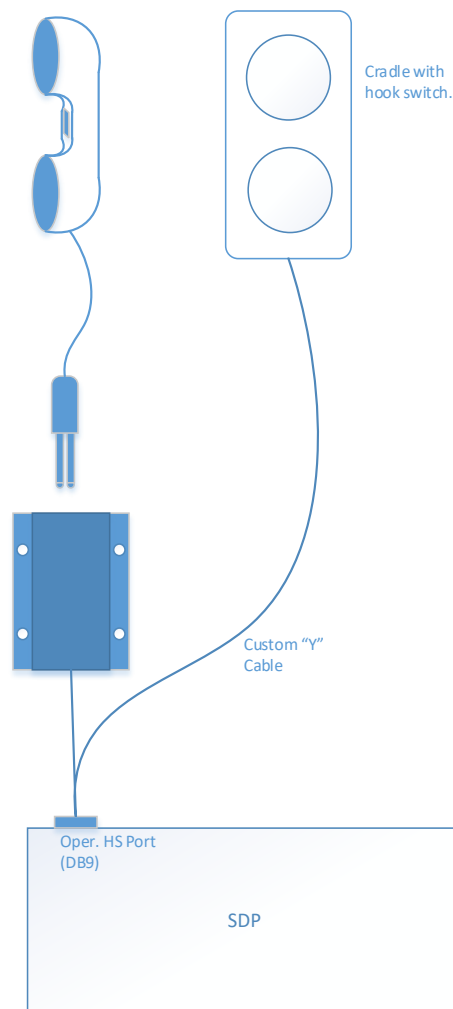
4. The headsets may then be connected to the Jackboxes via the Public Safety PJ-7 style 2-prong connector as shown in Figure 11-5.

11.3.7 Installing Telephony Style Handset

The operator headset can be replaced with a telephony style handset and hook switch. There are two options for headset operations. First, the handset replaces the headset, audio routes to the handset as if it were a headset, and PTTs operate as normal. The hook switch replaces the headset insertion detection so that Symphony routes radio audio to the select speaker if the handset is on the hook. The second option is to use the handset for phone operations only. The Symphony Configuration has a “Handset Only for Phone Audio” setting that enables this mode.

The hardware setup is the same for both modes. Replace the normal jackbox cable with the one provided with the handset. This is a “Y” cable that routes audio to/from the jackbox and the handset sense line from the hook switch.

Do not mix an operator *handset* with a supervisor *headset* when configured for “Handset Only for Phone Audio” mode.



11.3.8 Installing Operator and Supervisor Footswitches

The footswitches are available in single (14017-0201-01) or dual (14017-0201-02) footswitch models. Activating the single footswitch returns a USB scan code of 44 (Space Bar Key). On the dual footswitch, activating the left footswitch acts the same as a single footswitch, activating the right footswitch returns USB scan code of 31 (Backslash “\” Key). Both footswitches have holes for rigid floor mounting, if desired.



Figure 11-6: Single and Dual Footswitches

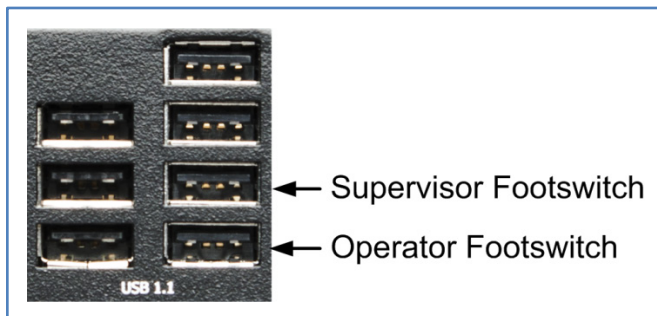
Installing Footswitches:



NOTE

It is recommended that the dispatch centers use some form of anti-static flooring beneath the footswitches.

1. Locate and/or mount the footswitch as desired.
2. Plug the operator's footswitch USB connector into the bottom **USB 1.1** port in right USB port stack located on the back of the platform. (This connects it to the Audio Processor, not the PC.)
3. When installing a supervisor footswitch, plug the USB connector into the second from the bottom **USB 1.1** port in the right USB port stack.





NOTE

When Symphony boots up, it will always identify the lower right USB 1.1 port as the operator footswitch port. Symphony also requires the operator footswitch to be plugged in for the supervisor footswitch to operate. If only the supervisor footswitch is plugged in, it will be interpreted as the operator footswitch. Footswitches should be plugged in when Symphony is not running, or Symphony should be rebooted to ensure the proper mapping of the footswitch plugs.

11.3.9 Auxiliary Audio Input

The Platform includes two stereo auxiliary inputs **Audio In**. Using 3.5 mm jacks, this connection allows inputting auxiliary audio sources which need to be routed to the speakers.

11.3.10 Line Audio In and Line Audio Out

The Line Audio In () and Line Audio Out () connectors on the Platform's front panel send 'PC audio out' at standard PC line level over to the DSP/audio section, so that third-party application audio can be mixed into select or unselect speakers. This is also summed with Audio in from one of the two 3.5 mm Aux input jack. Line Audio IN and Line Audio OUT are brought out to 3.5 mm jacks.

'Line Out' is also resistor summed into the Aux Input 1. As a result, PC and Windows audio that is heard through 'Line Out' can also be heard through the operator and supervisor headset earpieces if the attenuation for Aux Input 1 is set to less than the default 96 dB level. Refer to Section 19.6, Configuring Audio Outputs, for more information.

11.4 BACKUP RADIO

The Backup Radio feature enables the dispatcher to connect the console to a mobile radio in the event the network connection goes down. The PTT and audio signals from the desk microphone, headset, speakers, and footswitch are summed and sent to the radio in backup mode. The three-position Backup Radio switch (Auto, Disable, or Manual) located on the front of the Symphony Dispatch platform enables or disables the backup radio mode.

The Backup Radio Switch selects the Backup Radio mode from the following choices:

- Auto
- Disable
- Manual



Figure 11-7: SDP Backup Radio Control

With a Backup Radio installed:

- In the **DISABLE** mode, the Backup Radio is always disabled.
- In the **MANUAL** mode, the Backup Radio is in a "Bypass Only" state and stays enabled and activated until the mode is changed.
- In the **AUTO** mode, the Backup Radio is engaged when the console is shut down and automatically disengages when the console starts.

The Backup Radio microphone signal output path has sufficient gain and gain adjustability to deliver any output level from -20 to +12 dBu (-22.2 to +9.8 dBVrms) when the input voltage is at nominal line level (-25 dBFS). The Output Impedance is 47 ohms \pm 10%.

The Backup Radio receive audio input signal path has sufficient gain and gain adjustability to deliver nominal line level (-25 dBFS) to the console's digitization input when the receive audio input signal is within the range of -20 to +12 dBu (-22.2 to +9.8 dBVrms).

11.4.1 Backup Radio Interface

The **BACKUP RADIO** DB-9 connector is wired as indicated in the SDP manual.

Backup Radio Interface consists of the following lines:

- Asynchronous serial output (to the Backup Radio)
- Asynchronous serial input (from the Backup Radio)
- Microphone audio (an output to the Backup Radio)
- Speaker audio (an input from the Backup Radio)
- Ground
- Analog Ground
- PTT
- Receive active

11.4.2 Connecting a Backup Radio to the Symphony Dispatch Platform



DO NOT attempt to use the original Enhanced Cabling Enclosure (ECE) backup radio cable to interface between the SDP backup radio connector and the backup radio. Failure to observe this cautionary note will result in damage to the radio. Refer to the *Symphony Dispatch Platform Product Manual*, 14221-7400-6010, for additional details.

To Connect the Backup Radio:

Connecting a radio to the Symphony Dispatch Platform requires one of the following optional cables, depending on the radio being used. The cable diagrams are shown in the *Symphony Dispatch Platform Product Manual*, 14221-7400-6010.

- 14017-0104-01, Backup Radio Interface Cable
- CA-013671-020, DB-9M to DB-9F Serial Cable
- 14002-0174-01, M5300/M7300/XG-75M/XG-100M Standard Option Cable, or
- 14002-0174-08, XG-25M Standard Option Cable
- 14017-0106-01, XL Mobile Backup Radio Interface Cable



The cables for this installation are **not** provided with the Symphony Dispatch Platform and must be ordered separately. The backup radio switch on the front panel must be set to **Disable** if a backup radio is not installed.

Backup Radio Interface Cable 14017-0104-01 connects the SDP Backup Radio connector to the two cables connecting to the radio. This cable connects to the radio via the Option Cable 14002-0174-01 and the Serial Data Cable CA-013671-020.

Serial Data Cable CA-013671-020 is used to transfer data between the SDP and the radio. This is a straight through cable that connects to the radio's 9-pin Serial Port connector.

Option Cable 14002-0174-01 provides audio connections between the radio and the SDP. It connects to the 44-pin I/O connector on the rear of the radio. Although the cable breaks out into several smaller standardized connectors, only the 25-pin connector, P4, is used in the Backup Radio configuration.

Backup Radio Interface Cable 14017-0106-01 connects the 9-pin Backup Radio connector on the rear of the SDP to the 44-pin I/O connector on the rear of the XL Mobile Radio.

1. Connect the Backup Radio Interface Cable DB-9M connector P1 to the Symphony Dispatch Platform **BACKUP RADIO** connector as shown in Figure 11-8.
2. Connect the Interface Cable DB-25M connector J2 to the Standard Option Cable DB-25F connector P4.
3. Connect the Connect the Interface Cable DB-9M connector J1 to the Serial Cable DB-9F connector P1.
4. Connect the Standard Option Cable 44-pin connector to the radio's 44-pin I/O connector.
5. Connect the Serial Cable DB-9M connector to the radio's Serial Port connector.
6. Set the backup radio switch position.

Switch must be set to **Disable** if a backup radio not installed.

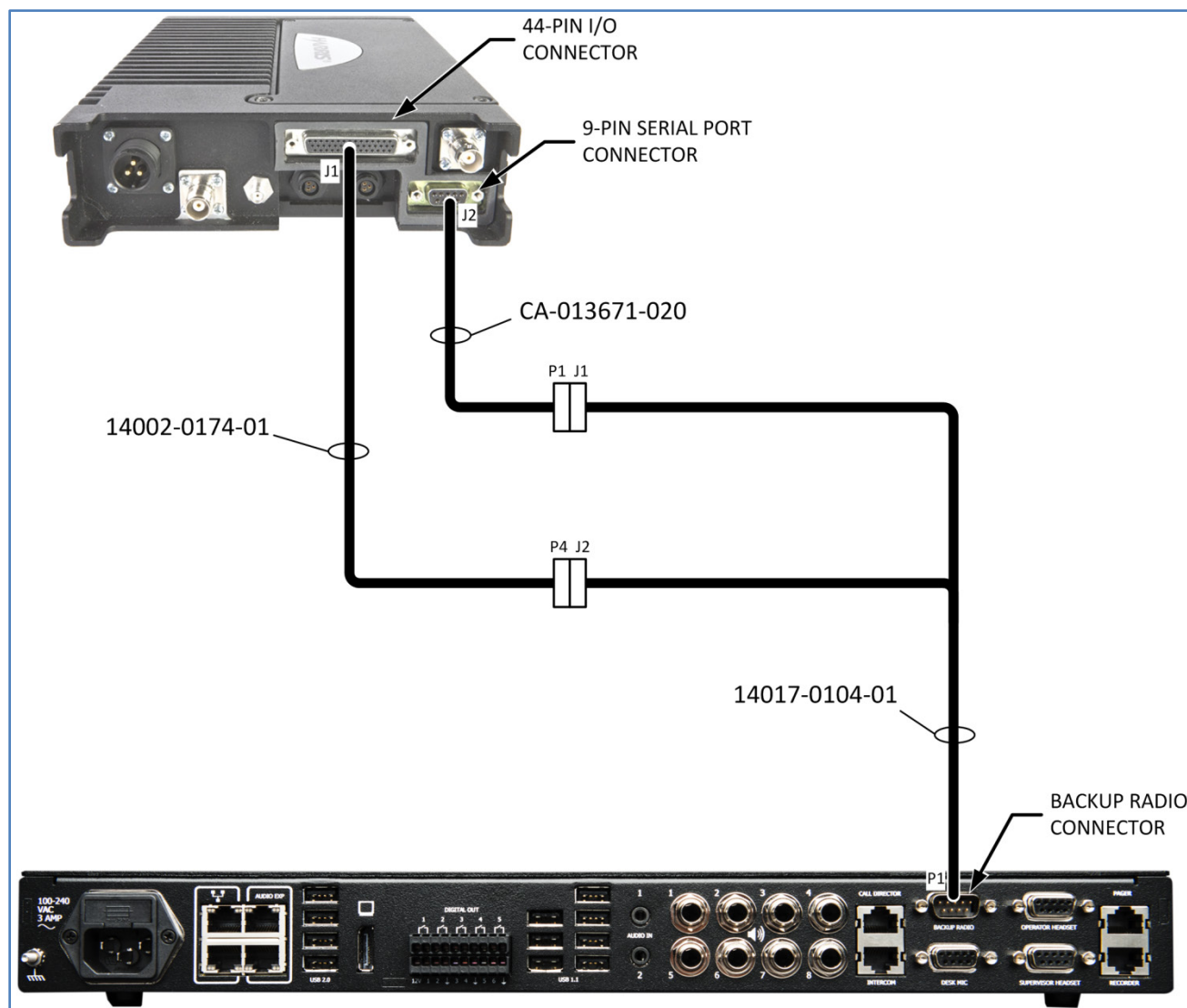


Figure 11-8: Sample Backup Radio Cable Interconnection Diagram (XG-100M shown)

11.4.3 SDP Remote Backup Radio Mode Switch

The Remote Backup Radio Mode Switch enables the dispatcher to change the Backup Radio mode when the Symphony Dispatch Platform is not easily accessible. When the Remote Backup Radio switch is used, the console application ignores the mode switch on the front panel of the Symphony Dispatch Platform and only monitors the Remote Backup Radio Switch setting.

The Remote Backup Radio Mode Switch can be mounted on a desktop or some other location close to the dispatcher. L3Harris does not provide a remote switch or cable for this purpose. It must be purchased or fabricated locally. For instructions on installing the Remote Backup Radio Mode Switch, please refer to the *Symphony Dispatch Platform Product Manual*, 14221-7400-6010.

11.4.4 Configuring XL Mobile Backup Radio to PTT

Use Radio Personality Manager 2 (RPM2) to configure the XL Mobile Radio to issue a digital Push To Talk (PTT) command to the Symphony Dispatch Platform. Open or create a personality file for the XL Mobile Radio you are using as a backup radio, and navigate to **Options** → **External IO Options**. Under **Keypcode**, select PTT from the **Auxiliary Input 1** drop-down. Use RPM2 to write the updated personality to the XL Mobile backup radio.

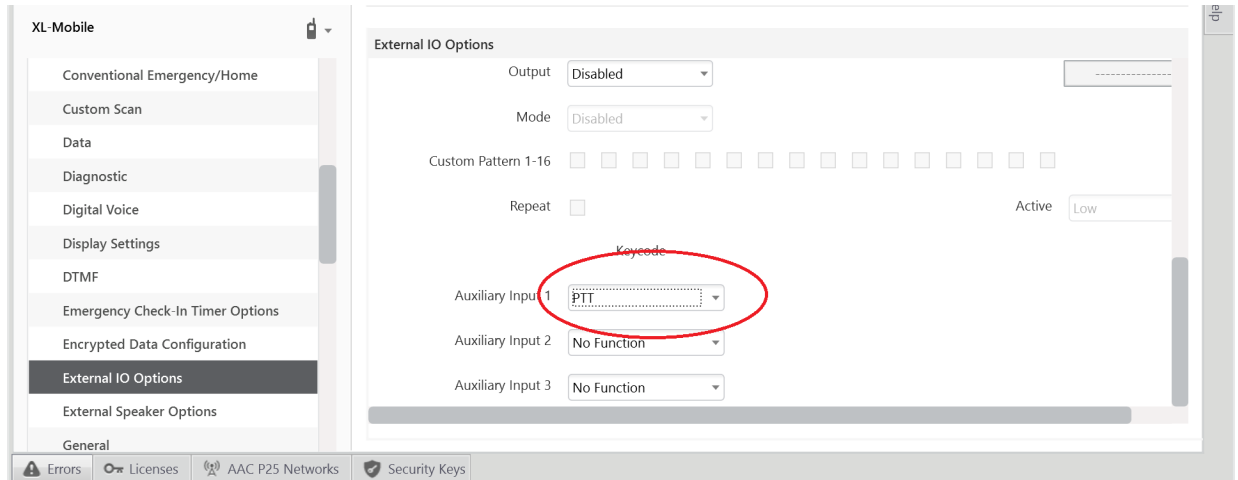


Figure 11-9: Configuring XL Mobile Radio to Send Digital PTT Command

11.4.5 Advanced Backup Radio (ABR) Configuration



CAUTION

Do not remove the ethernet-USB dongle while Symphony is running.

11.4.5.1 ABR Network Configuration

Follow the instructions below to configure the network settings for ABR:

1. Connect the backup radio using the USB-ethernet adapter.
2. Run **cmd.exe** to open the command window.
3. Run the **ipconfig** command and note the IP address details for the USB adapter.

```
C:\Windows\System32\cmd.exe
Windows IP Configuration

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix . : 
    IPv4 Address. . . . . : 192.168.235.132
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.235.129

Ethernet adapter Ethernet 2:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . : cs.myharris.net

Ethernet adapter Ethernet 3:

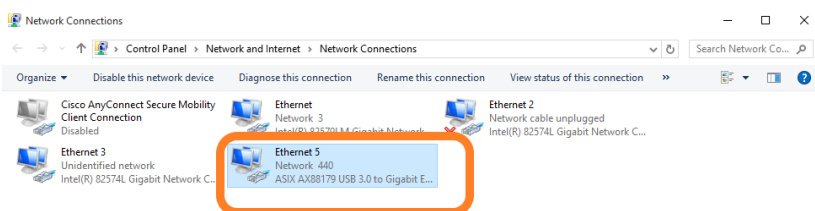
    Connection-specific DNS Suffix . : 
    Autoconfiguration IPv4 Address. . : 169.254.250.188
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : 

Ethernet adapter Ethernet 5:

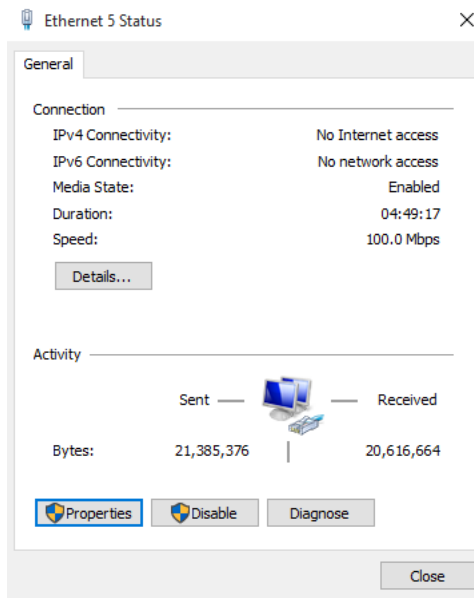
    Connection-specific DNS Suffix . : 
    IPv4 Address. . . . . : 192.168.250.20
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.250.2

C:\Windows\system32>
```

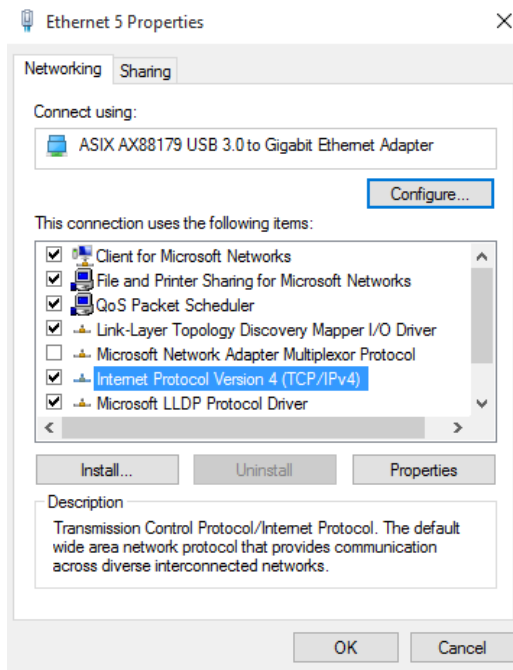
4. Open the network settings and locate the USB to ethernet adapter in the settings.



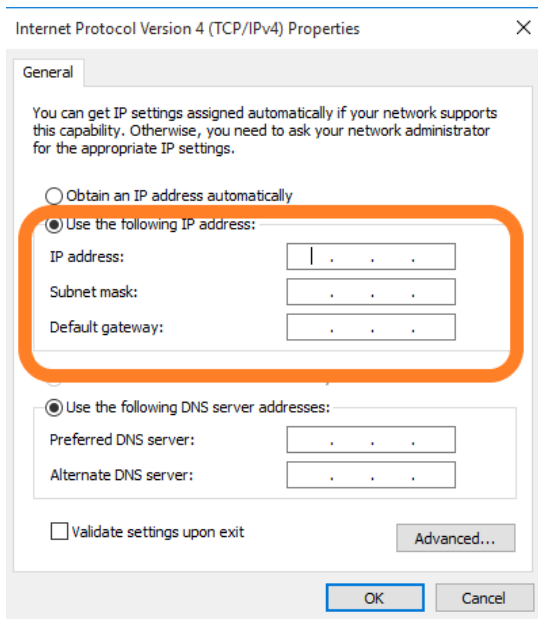
5. Open the adapter setting:



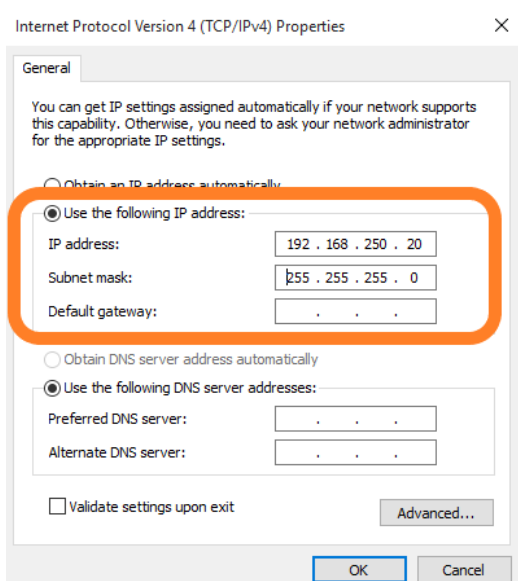
6. Identify the IPV4 setting in the list:



7. Select the “Use the following IP address:” to configure the ABR IP address:



8. Enter the IP address from step 3. Leave the Default Gateway blank.



9. Return to the command window and enter ipconfig. Check that the default gateway is blank.

11.4.5.2 Configure ABR

1. Create a ABR PBX using Telephony Config utility with the following information:

The 'Edit Server' window is divided into several sections:

- Transport:** Server ID (PBX), Type (TCP), Local Address (0.0.0.0), Local SIP Port (5060), Local RTP Start Port (16000), Local RTP End Port (16100), and Advanced Backup Radio (checked).
- Registration:** Registrar URL (192.168.250.2) and Timeout in seconds (60).
- SIP Proxy:** Proxy URL (empty) and SIP Port (5060).
- Voicemail:** Voicemail number (empty).
- Prepend Rules:** A table with columns for Digits, Prepend, and Exclusion, and buttons for Add, Edit, and Delete.

2. Create a Telephony account for ABR with the following details:

The 'Edit Account' window contains the following fields:

- SIP Account:** Account Number (1) and Server ID (PBX).
- Authentication:** Username (1234), Password (masked with ****), and Confirm Password (masked with ****).
- Session Timer:** Enabled (checkbox) and Expiry in seconds (empty).
- Voicemail:** Voicemail number (empty).

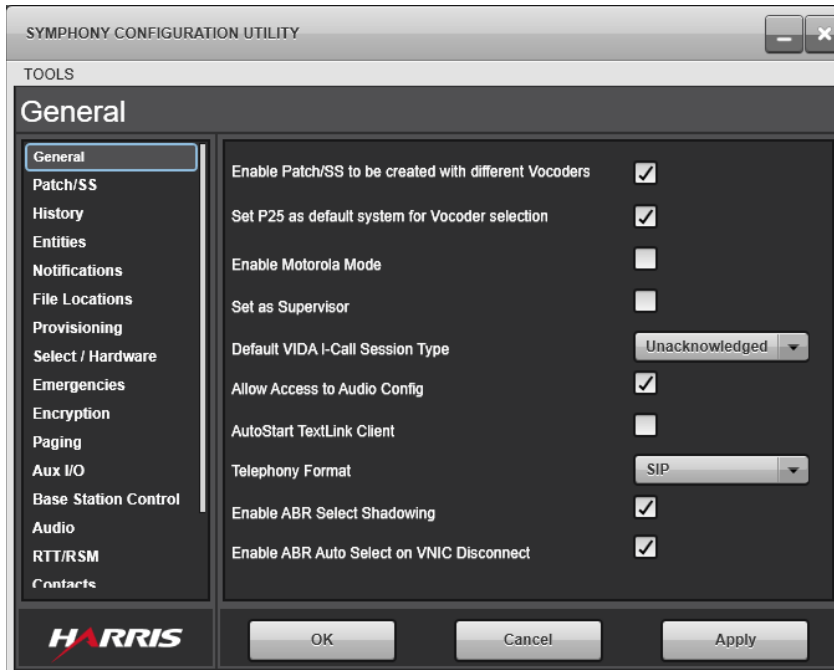
Buttons for Save and Cancel are located at the bottom.



NOTE

Select the ABR PBX created in the previous step as the Server ID. The user name/password can be any valid username/password (e.g., username: 1234 and password: 1234).

- The Telephony format can be SIP or Call director (Config utility).

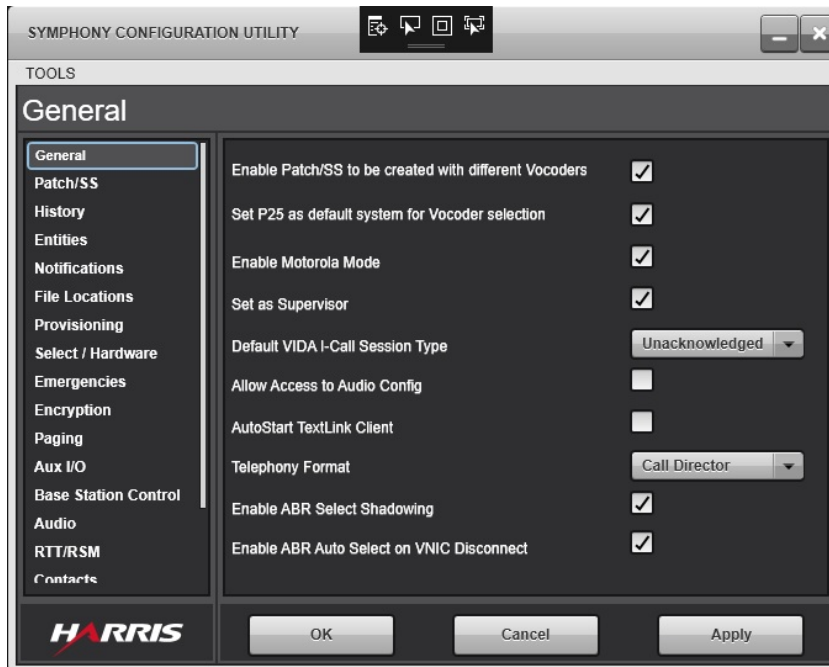


- Start the Symphony application.
- Enter admin mode and add ABR.
- Exit admin mode.

11.4.5.3 ABR Configuration – Symphony Configuration Utility

When the ABR Select Shadowing setting is enabled, the ABR module's monitored group will automatically match the group of the selected Group module if the ABR is programmed with that group. If a Patch is selected, the ABR module's monitored group will automatically match the first programmed group in the patch if the ABR is programmed with any groups in the patch.

When the ABR Auto Select on VNIC Disconnect setting is enabled, the ABR module will automatically be selected when the VNIC is fully disconnected.



11.4.5.4 Radio Configuration

In the ABR's personality:

- Disable Parallel Audio Mode under Audio Settings. If this parameter is enabled, transmit audio is heard on the radio control head.
- Disable Send Emergency Alarm under P25 Trunked Miscellaneous Options. If this parameter is enabled, the ABR declares a Unit Alert when an emergency is declared from the ABR module.
- Enable Declare Emergency and Clear Emergency under Supervisory.



NOTE

The only system type that currently supports the ABR is P25 Trunked.

11.4.5.5 Radio User Configuration

The alias information displayed is the dispatch user alias. However, the WACN and region information is not provided from the radio via Remote Radio Interface (RRi). Therefore, the XL radio must be in the same WACN/region as the dispatch user. If the user information is not available in the provisioning data, the alias is set to "XL200M."

12. CONFIGURE PLATFORM OPERATING SYSTEM



NOTE

Unless otherwise stated, all procedures in this section assume that the console's hardware and software are configured in accordance with factory default settings. Consult with system or dispatch administration personnel for specific details.

12.1 CONFIGURE SDP OPERATING SYSTEM

This section provides instructions for initially setting up the Symphony Dispatch Platform computer.

12.1.1 Changing the Default Password

As shipped from the factory, the Windows Operating system on the SDP contains a single user account that has administrator rights. The account has the following default login:

Username: **xAdministrator**

Password: **!QAZ2wsx#EDC4rfv**

The password should be changed for security purposes. On Windows 8.1 or Windows 10, press **Ctrl+Alt+Del** and select **Change Password**.

12.1.2 Joining the Domain

Joining the Symphony Dispatch Platform to a Windows Domain affords many benefits in managing the Windows Operating system itself, dispatch user accounts, and the Symphony Console application.

To join the Symphony to the Domain:



NOTE

The procedures in this section must be performed using an account that has Administrative privileges.



NOTE

This section covers only basic setup and configuration for Windows networking. Consult your system administrator for required Active Directory or Domain configuration procedures.

Within a particular computer network (Ethernet), each Symphony Dispatch Platform must have a unique "computer name." The Windows installation performed at the factory generates a unique computer name with the format "HARRIS*-*****." It is not required that the name be changed, but it is recommended.

To simplify Symphony Dispatch Platform computer identification, we recommend each Symphony Dispatch Platform be given a descriptive name that identifies, at a minimum, the PSAP ID of the Console.

To Join a Symphony Dispatch Platform Computer to a Windows Domain:

1. Proper domain credentials are required to join a computer to the domain. Ensure that you have such credentials before proceeding.
2. The Windows Domain must end up containing an account for the computer that is to be joined to the Domain. By default, the computer account is created automatically when the computer is joined.

Depending on the administration policy for the domain, the computer account may need to be added manually to the domain before starting the remainder of this procedure. If this is required, do it now.

3. Press the **Windows logo key** **+X** to bring up the advanced context menu and select **System**.

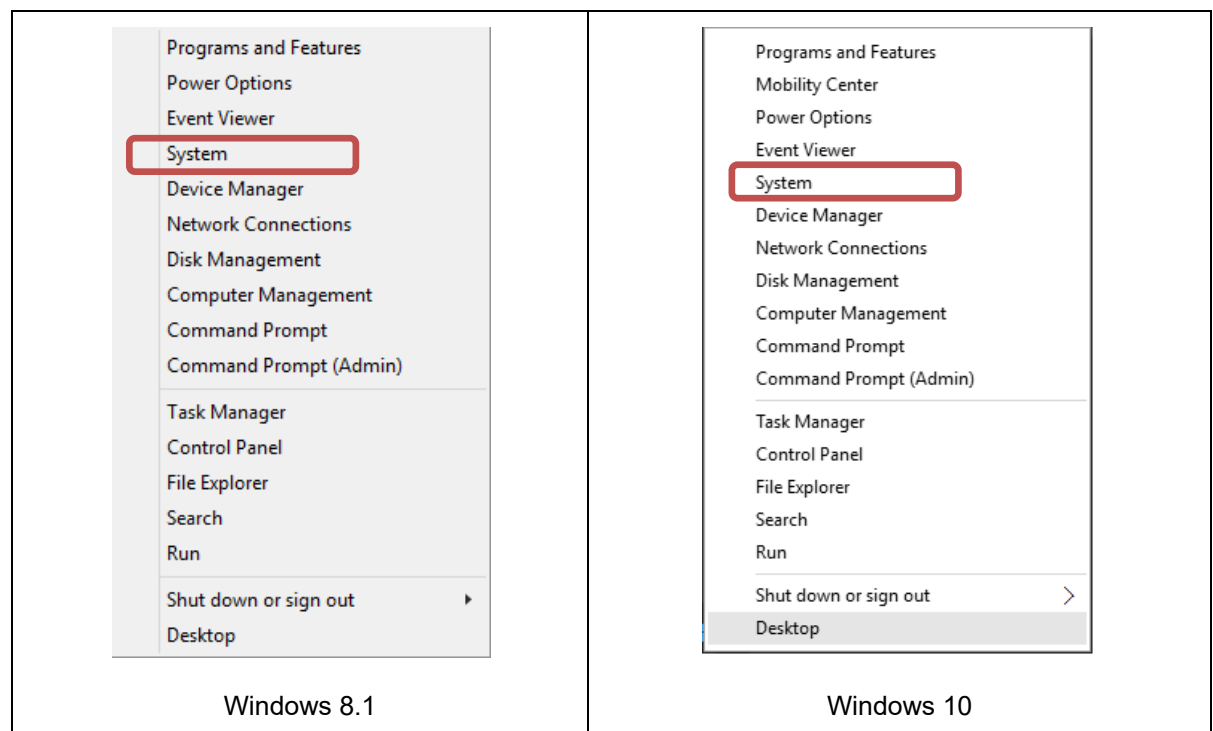


Figure 12-1: Computer System Information Screen

4. In the “**Computer name, domain, and workgroup settings**” section, select **Change Settings**. You may be prompted for the xAdministrator password. If so, enter it and click **Yes**.
5. Select the “**Computer Name**” tab and click **Change**.
6. In the “**Computer Name/Domain Changes**” select **Domain** and enter the domain name. By default, this will be **vida.local**. However, configurations may vary.

7. Enter the new “Computer Name.”

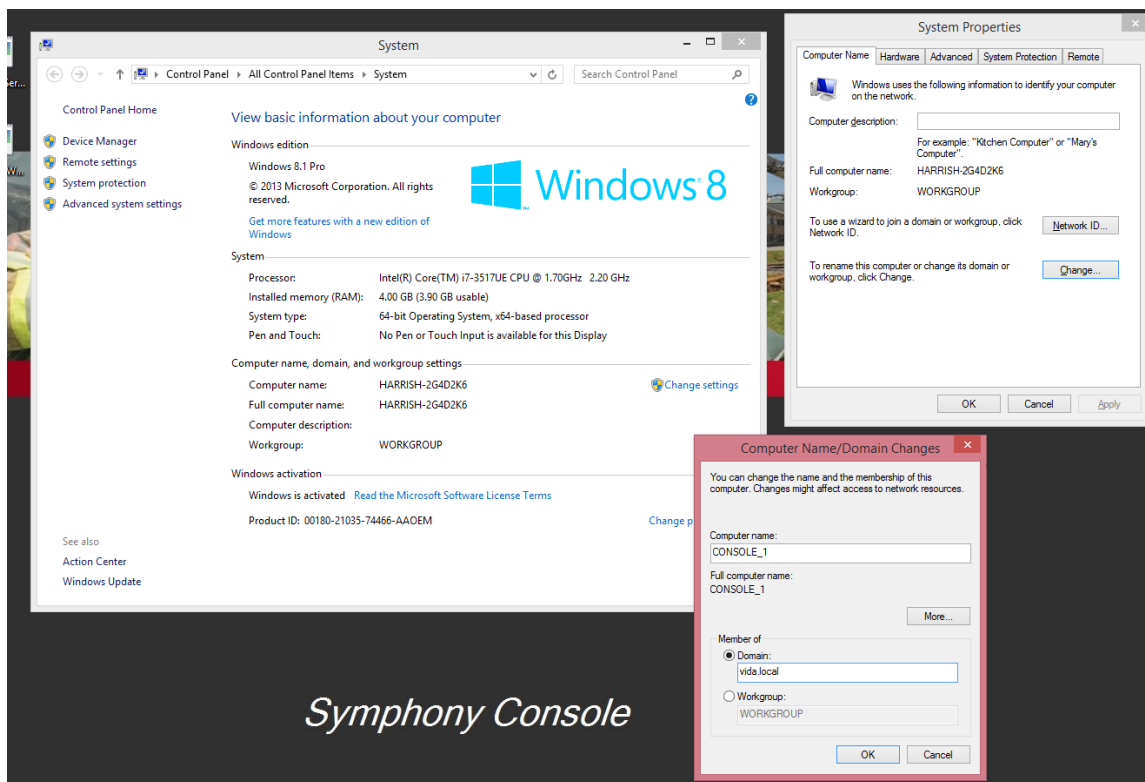


Figure 12-2: Changing Computer Name (Windows 8.1) - Symphony Dispatch Platform 1.0

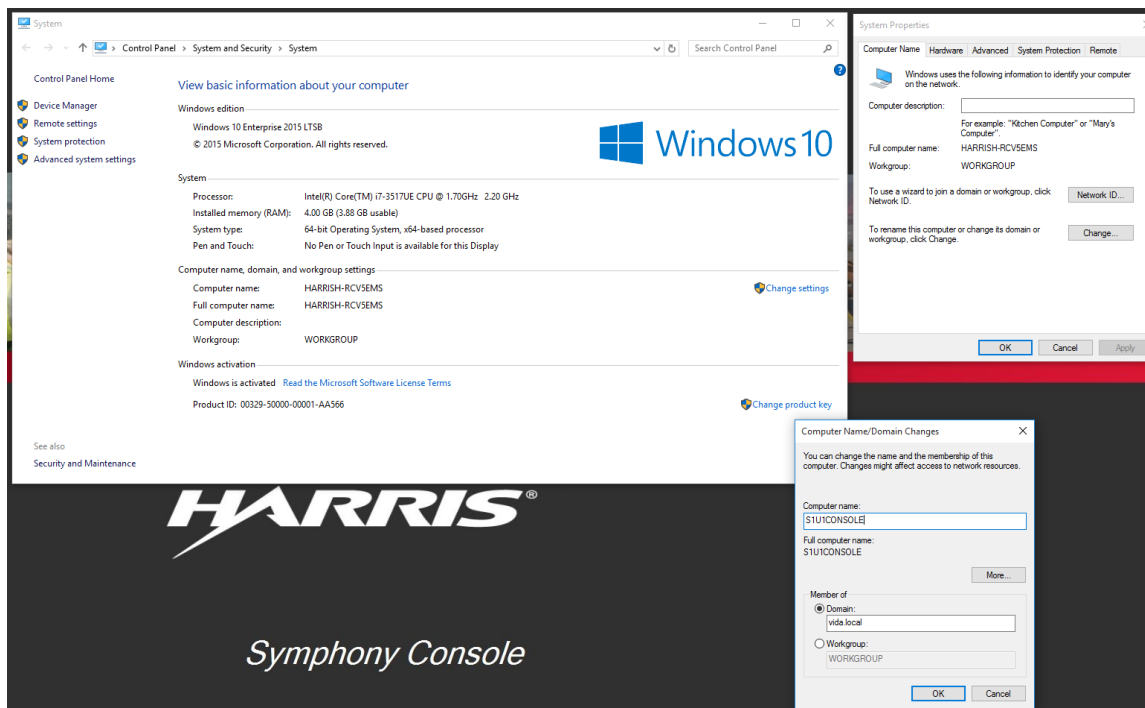


Figure 12-3: Changing Computer Name (Windows 10) - Symphony Dispatch Platform 1.0

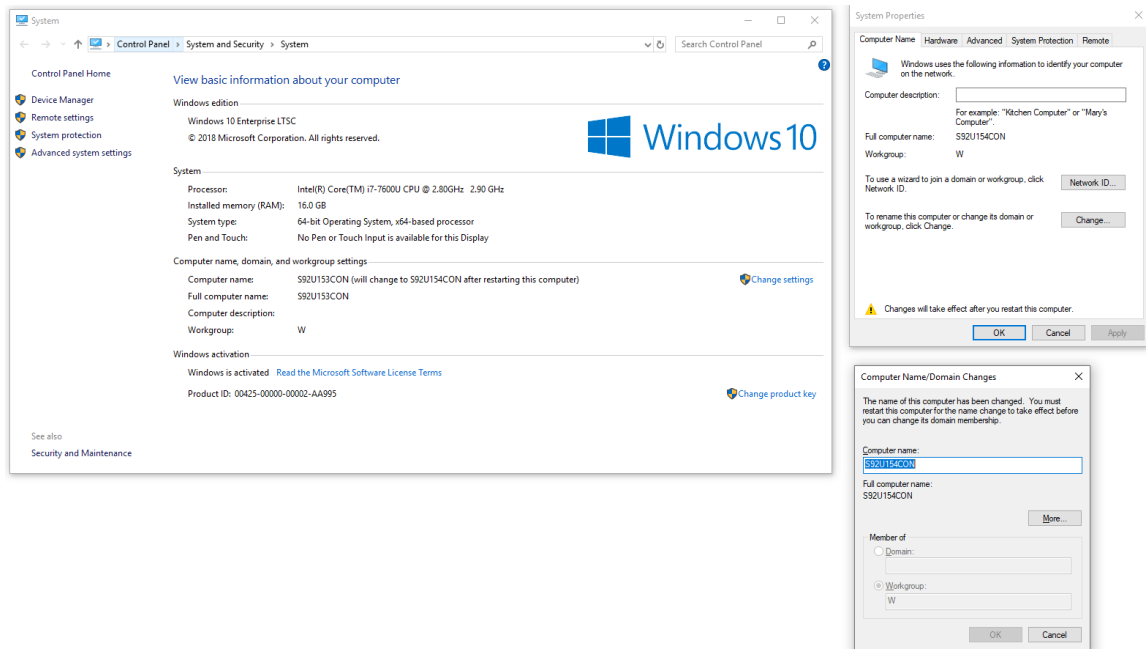
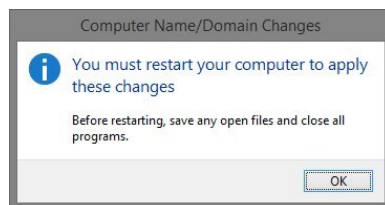
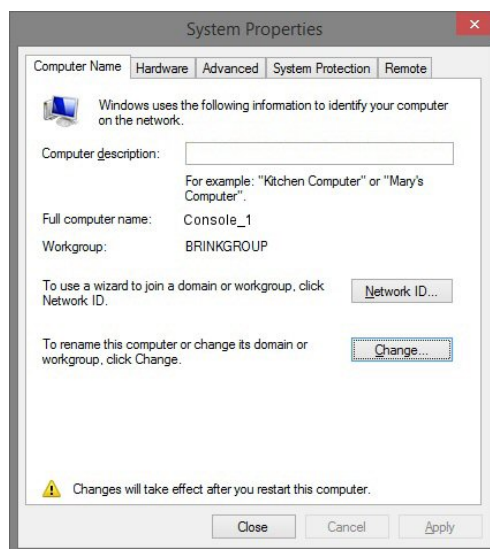


Figure 12-4: Changing Computer Name (Windows 10 - Symphony Dispatch Platform 2.0)

8. Click **OK**.



9. Click **Apply** and **Close** in the **System Properties** dialog.



10. Exit the **“System”** window.




Restart the console to apply the changes.

12.1.3 Managing Windows Sounds

Normal Windows sounds should be disabled on a Symphony computer. Although the Symphony application does not play these sounds during normal operations, other applications (such as Virus Scanners) may cause these sounds to play.

These sounds should be disabled so that they do not distract the dispatcher or appear on logging recorders.

To disable Window's Sounds:

1. On the Symphony Dispatch Platform 1.0, press the **Windows logo key**  **+X** to open the advanced context menu and select **Control Panel**. On the Symphony Dispatch Platform 2.0, Control Panel is not displayed on the Windows 10 advanced context menu. In the Search Windows field to the right of the **Windows logo key** , type **Control Panel** and press **Enter**, or right-click on the **Windows logo key**  to select **Run**, type **Control Panel**, and click **OK**.

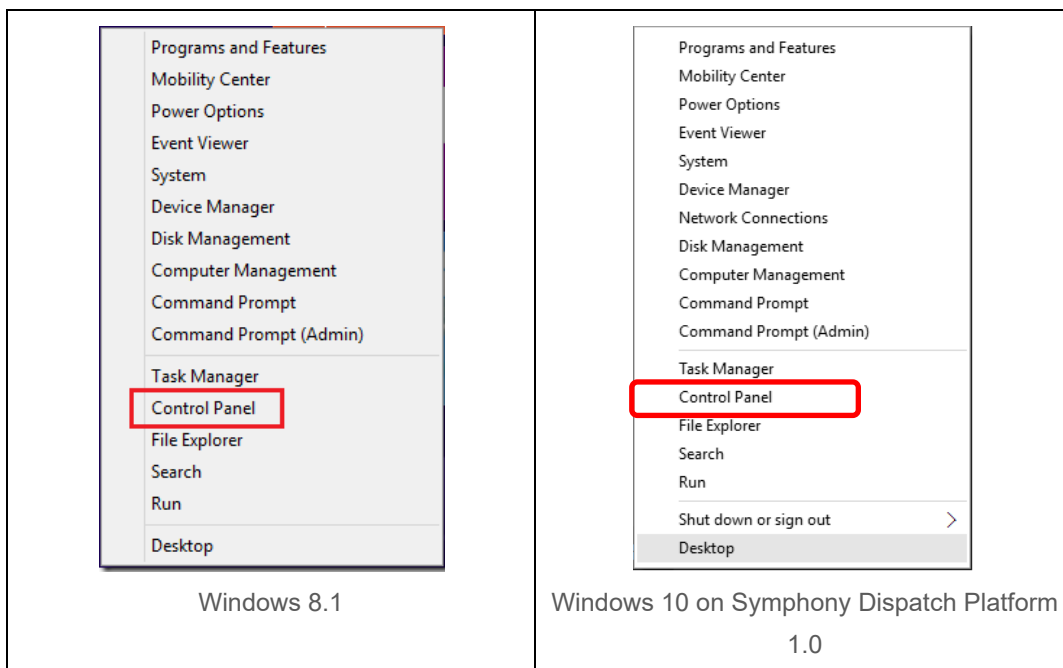


Figure 12-5: Selecting Control Panel

2. Click **Hardware and Sound**.

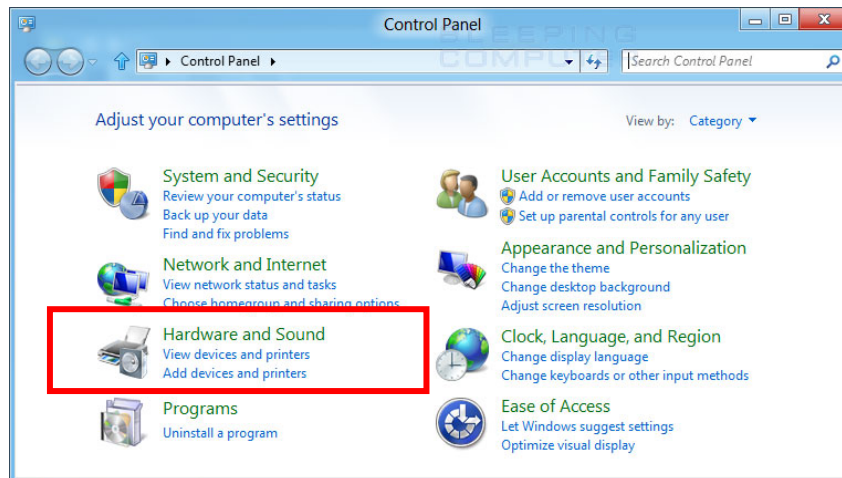


Figure 12-6: Control Panel Screen Windows 8.1 or Windows 10 (SDP 1.0)

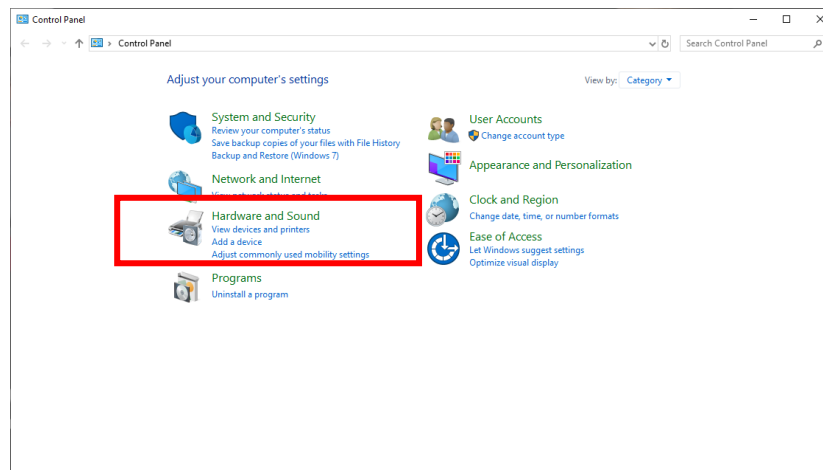


Figure 12-7: Control Panel Screen (SDP 2.0)

3. In the **Sound** section, click **Change system sounds**.

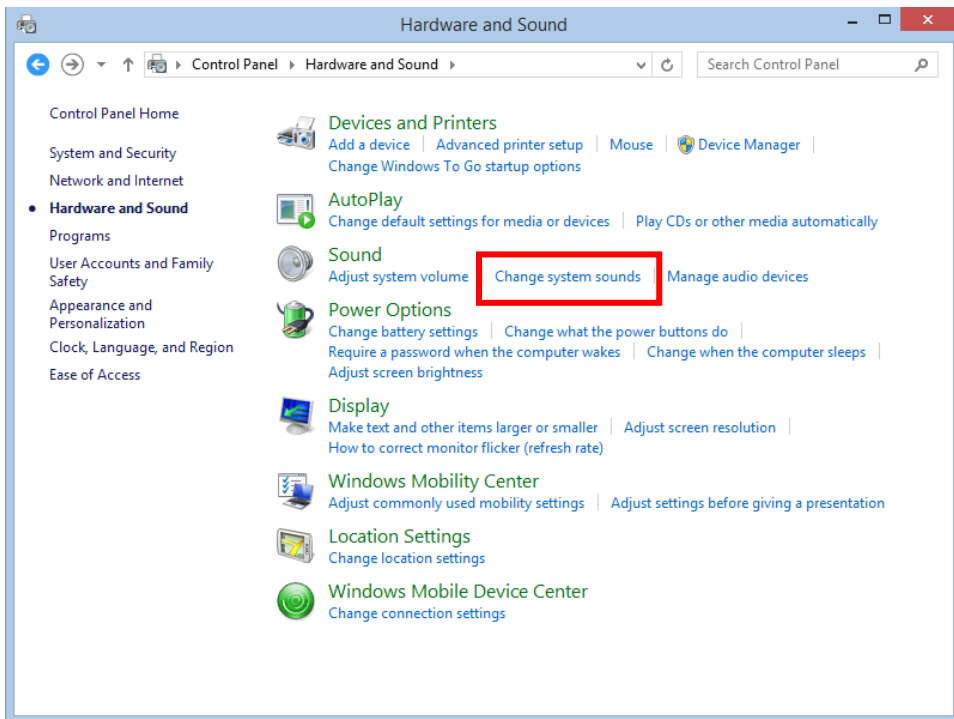


Figure 12-8: Hardware and Sound for Windows 8.1 or Windows 10 (SDP 1.0)

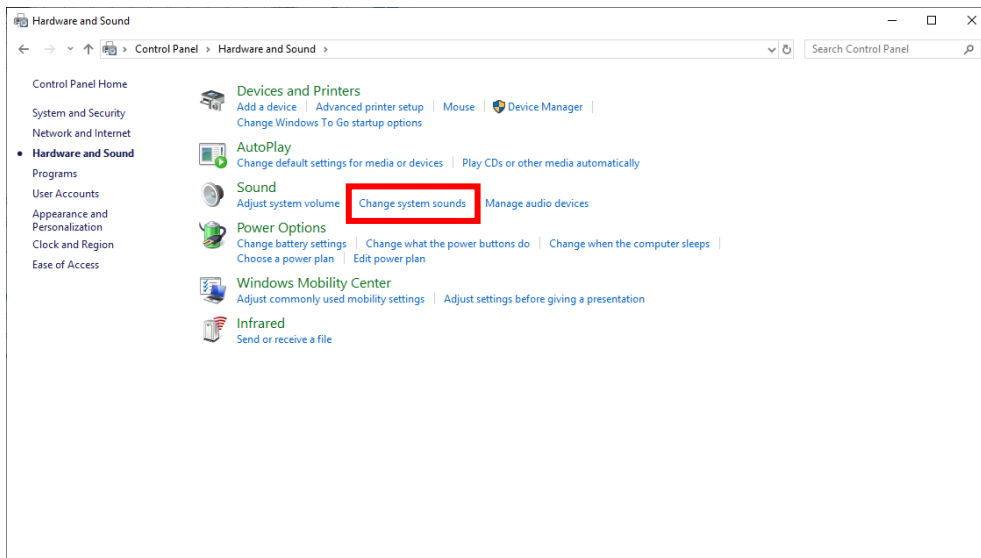
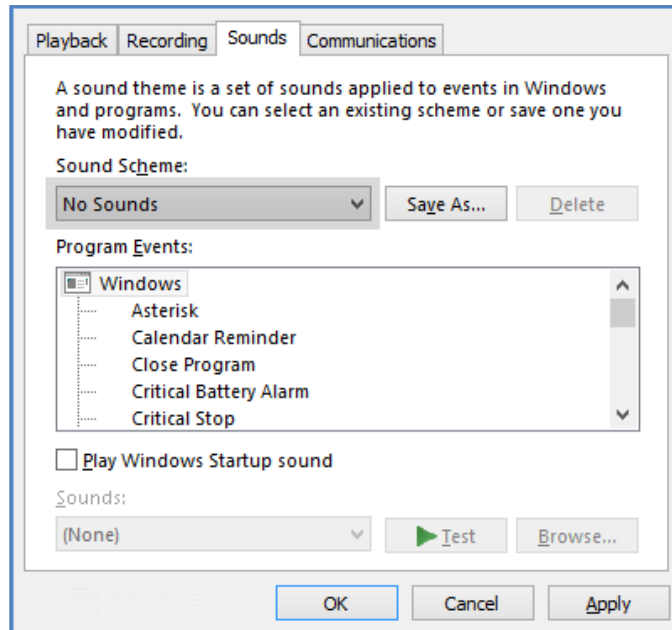


Figure 12-9: Hardware and Sound for SDP 2.0

4. Select **No Sounds** from the “**Sound scheme**” drop-down list.




5. Click **Apply** and then click **OK**.

12.1.4 Disabling User Account Control

Although all Symphony configuration tools are compatible with Windows User Account Control (UAC), the Symphony application software is not compatible with Windows User Account Control (UAC) feature when the user running is in the Administrators security group. Running Symphony from an Administrators' account during normal operations is not recommended; however, to do so, UAC must be disabled.

To Disable the UAC Feature:

1. Open the Windows System Configuration screen:
 - On Windows 8.1, press the **Windows logo key**  to open the Start screen. From the Start screen, type **msconfig** to open the Search charm, and then select **msconfig** from the search results.

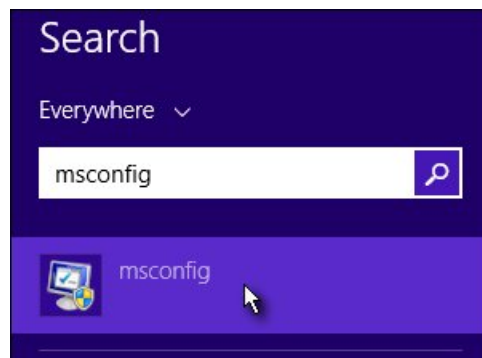






Figure 12-10: Search Panel Screen

- On Windows 10 running on a Symphony Dispatch Platform 1.0, in the Search Windows field to the right of the **Windows logo key** , type **msconfig** and press **Enter** or right-click on the **Windows logo key**  to select **Run**, type **msconfig**, and click **OK**.
- On Windows 10 running on a Symphony Dispatch Platform 2.0, in the Search Windows field to the right of the **Windows logo key**  type **msconfig** and press **Enter** and select **System Configuration** or right-click on the **Windows logo key**  to select **Run**, type **msconfig**, and click **OK**.

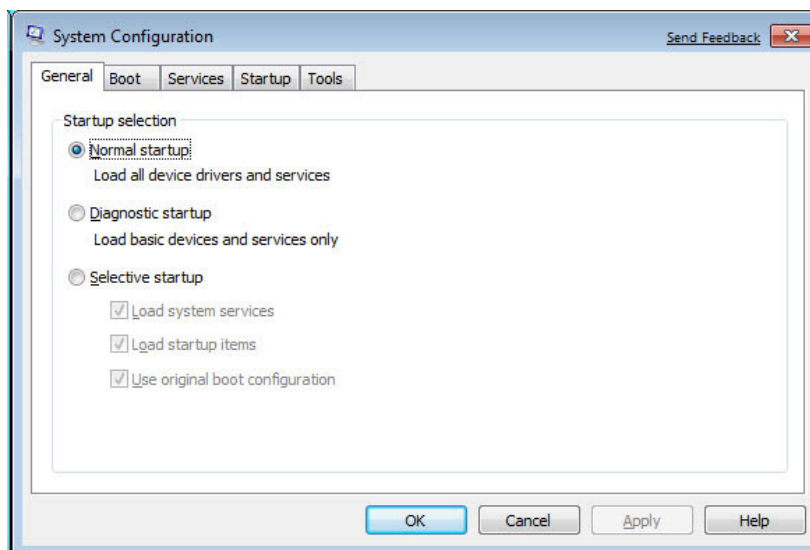


Figure 12-11: Windows System Configuration Screen

2. Click the **Tools** tab.

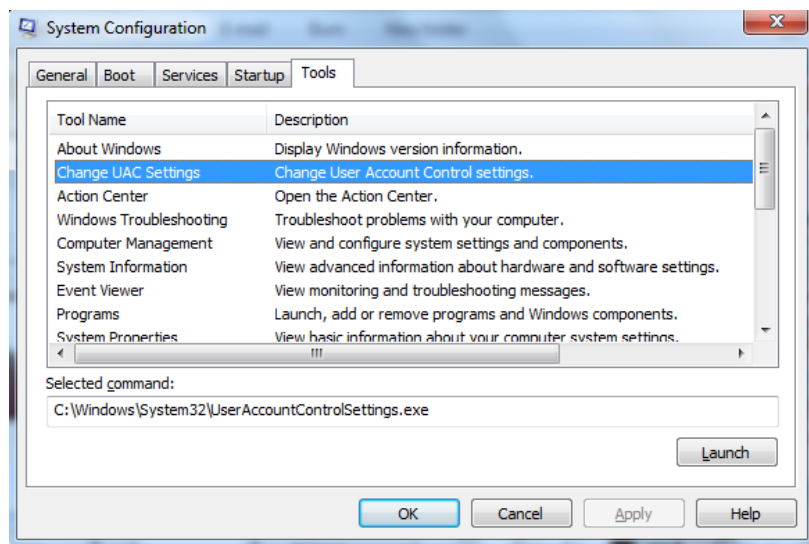


Figure 12-12: Windows System Configuration - Tools Screen

3. Select **Change UAC Settings** from the list and click **Launch**.

4. Move the slide to the bottom option to completely disable UAC.

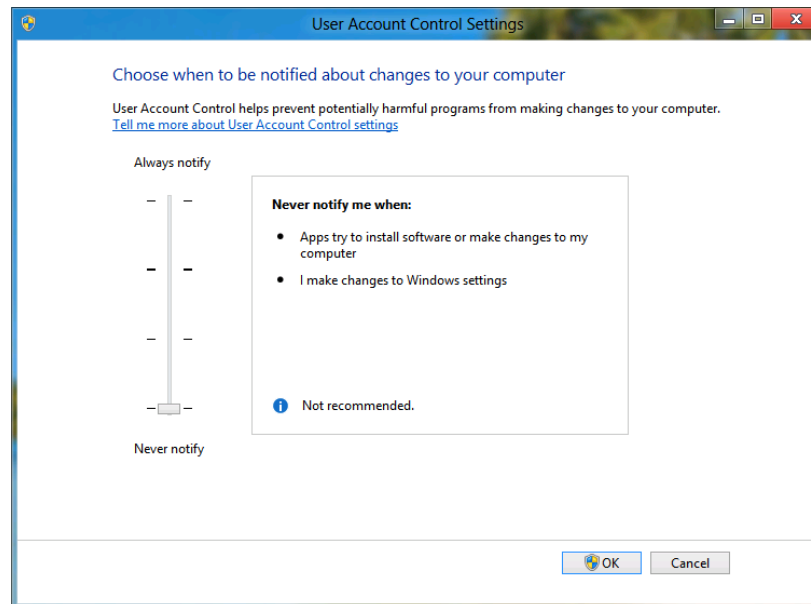



Figure 12-13: Windows System Configuration - Disabling UAC Screen


Alternately, you can get to the same setting by using the following:

1. Change **User Account Settings**:
 - On Windows 8.1, go to the Search charm and type **Change User Account Settings**.
 - On Windows 10, in the Search Windows field to the right of the **Windows logo key**  type **Change User Account Control settings** and press **Enter**.
2. Disable UAC completely by moving the slide to **Never notify**.

12.2 CONFIGURE NETWORKING

The Symphony Dispatch Platform has two Ethernet ports labeled with a  symbol. These ports are attached to the PC. The two ports labeled “**Audio Exp**” are disabled and will be used for future expansion.

To view the status of the network adapters:

1. Press the **Windows logo key** +**X** to show the power menu.
2. Select **Network Connections** from the menu.
3. On the Symphony Dispatch Platform (SDP) 2.0 running Windows 10 Enterprise LTSC, select **Change Adapter Options**.

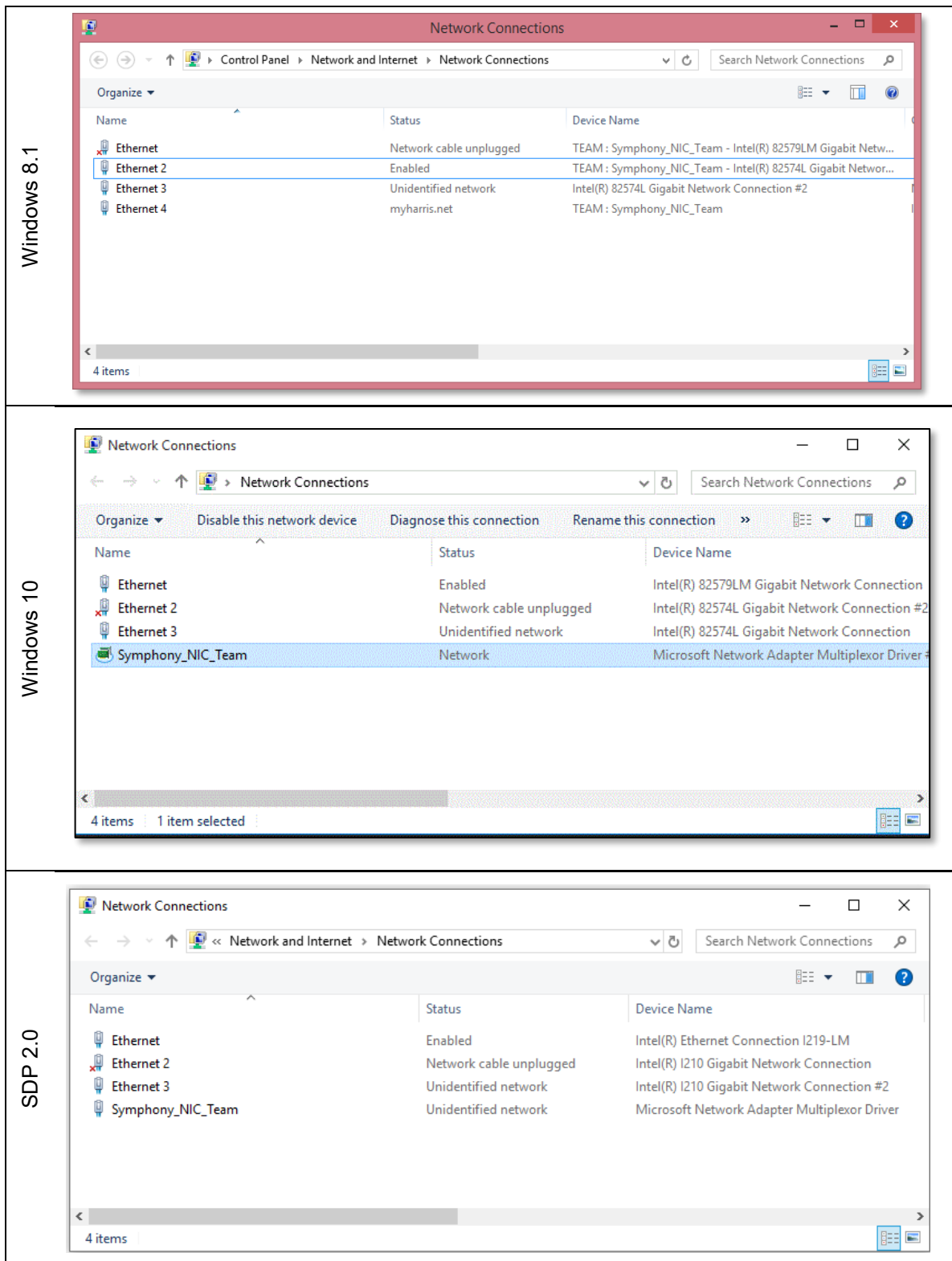



Figure 12-14: Windows System Configuration – Network Connections Screen

Four Ethernet ports are shown in the Network Connections list (Table 12-1). This is the default configuration when shipped from the L3Harris factory.

Table 12-1: Network Connections List

NAME	DESCRIPTION
Ethernet and Ethernet 2	<p>These are the physical Ethernet ports on the back of the Symphony Dispatch Platform.</p> <p>“Ethernet” is the top port and “Ethernet 2” is the bottom port. A red “X” indicates that there is no network cable plugged in. By default, these adapters are teamed to create a virtual adapter (Ethernet 4 on Windows 8.1 or Symphony_NIC_Team on Windows 10). The network settings for these ports should not be changed when they are teamed.</p> <p>Symphony Dispatch Platform 1.0: Network Connections should show Ethernet as the Intel® 82579LM Gigabit adapter that is on PCI Bus 0 and Ethernet 2 as the Intel 82574L Gigabit adapter that is on PCI Bus 1.</p> <p>Symphony Dispatch Platform 2.0: Network Connections should show Ethernet as the Intel I219-LM Gigabit adapter that is on PCI Bus 0 and Ethernet 2 as the Intel I210 Gigabit adapter that is on PCI Bus 1.</p>
Ethernet 3	<p>This is an internal Ethernet port that is used for communication between the PC and the Audio Box.</p> <p>The configuration of this port should not be changed. The correct, and default configuration is “Obtain an IP address automatically” and “Obtain DNS server address automatically.” Incorrect configuration of this network port will result in console malfunction.</p> <p>Symphony Dispatch Platform 1.0: Network Connections should show Ethernet 3 as the Intel 82574L Gigabit adapter that is on PCI Bus 2.</p> <p>Symphony Dispatch Platform 2.0: Network Connections should show Ethernet 3 as the Intel I210 Gigabit adapter that is on PCI Bus 2.</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;">  </div> <p>NOTE Occasionally, the internal Ethernet port gets assigned to Ethernet 2 instead of Ethernet 3, which also affects the interfaces used by the physical ports.</p>
Ethernet 4 (Windows 8.1) or Symphony_NIC_Team (Windows 10)	<p>This is a virtual network adapter created by teaming Ethernet and Ethernet 2.</p> <p>This is the adapter that must be configured when connecting the SDP to an external network.</p> <p>See Section 12.2.5 for instructions on how to verify MAC address for Network Teaming.</p>

12.2.1 Setting the IP Address



For additional details on network interface cards and configurations required when using them, refer to the operating system’s documentation.

This section describes how to set the IP address of the SDP when connecting to a teamed or non-teamed network. The SDP will have a single IP address on the network. See Section 12.2.2 for information about connecting to multiple IP networks.

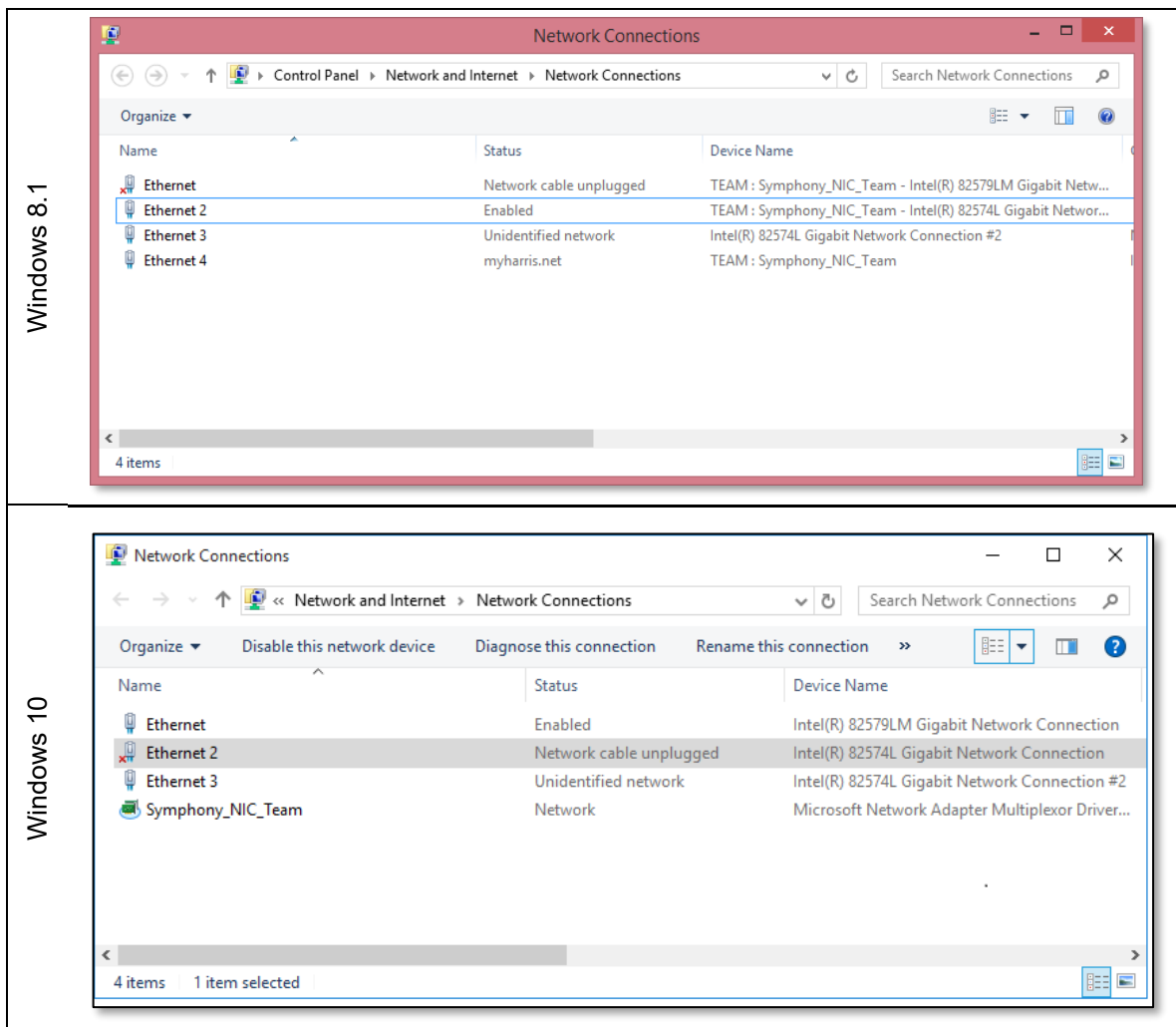


If the network is configured for Dynamic Host Configuration Protocol (DHCP), this procedure is unnecessary. The default SDP configuration from the factory supports DHCP.

To Set Up the Network Address:

1. Connect the network cable to the Symphony Dispatch Platform’s Network Connector and verify the link integrity light is on.
2. On Windows 8.1 or Windows 10, from the Desktop press the **Windows logo key +X**.
3. Click on **Network Connections** to open the dialog.
4. Right-click on “**Ethernet 4**” (Windows 8.1) or “**Symphony_NIC_Team**” (Windows 10) and select **Properties** from the context menu.

Enter the xAdministrator password if prompted and click **Yes**.



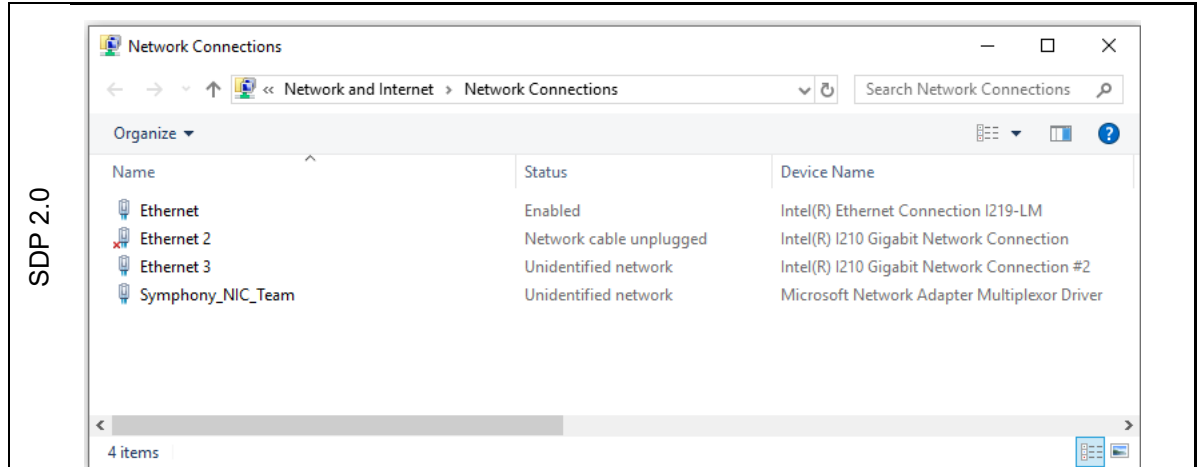


Figure 12-15: Windows System Configuration – Network Connections Screen

5. Select **Internet Protocol Version 4 (TCP/IPv4)**.

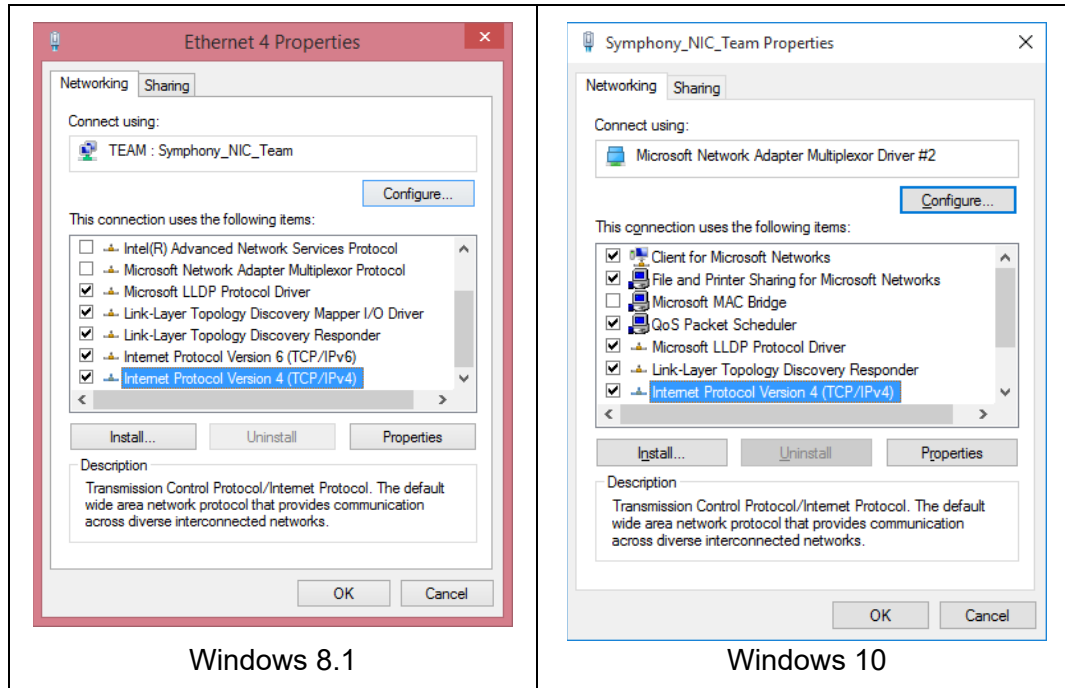


Figure 12-16: Ethernet 4 Properties Dialog

6. Click **Properties**.

7. Select **Use the following IP address:** and enter the IP address, Subnet Mask, and Default Gateway address. The DNS server addresses are optional.

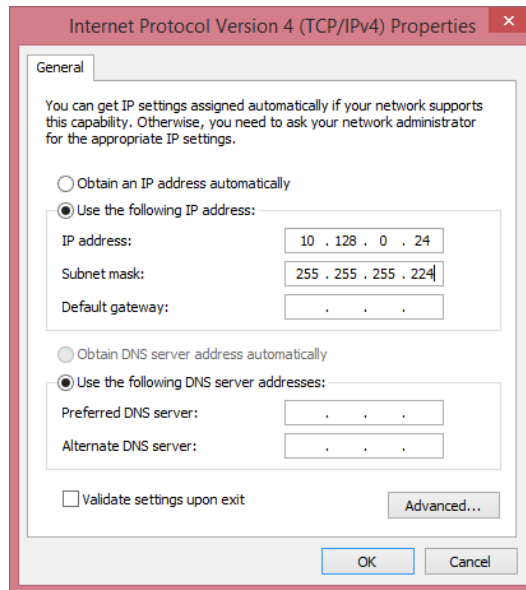


Figure 12-17: Internet Protocol Version 4 (TCP/IPv4) Properties Dialog

8. Click **OK** and click **OK** again in the LAN Properties dialog.
9. When the computer displays the network popup menu, select **Work** as the network type.

12.2.2 Disable Network Adapter Teaming on a Symphony Dispatch Platform 1.0

Disabling the Network Adapter Teaming in the Symphony Dispatch Platform is required **ONLY** when connecting the SDP to two independent IP networks. In this configuration, the SDP is assigned two IP addresses, one for each interface (this is rare).

Network Adapter Teaming should be temporarily disabled and then enabled when a Solid-State Drive (SSD) is installed in a Symphony Dispatch Platform 1.0 that was imaged with the operating system on a different Symphony Dispatch Platform; this will reassign the network adapter MAC addresses.



NOTE

If connecting the SDP to a single IP network, even if not using the teaming feature, *DO NOT follow the procedure in this section*. The teamed adapter operates correctly when only one network cable is connected.

12.2.2.1 Windows 8.1 Procedure on a Symphony Dispatch Platform 1.0

1. From the Desktop press the **Windows logo key** **+X**.
2. Click on **Network Connections** to open the dialog.
3. Right-click on **"Ethernet 4"** and select **Properties** from the context menu. Then click on the **Settings** tab.

If prompted for the xAdministrator password, enter it and click **Yes**.

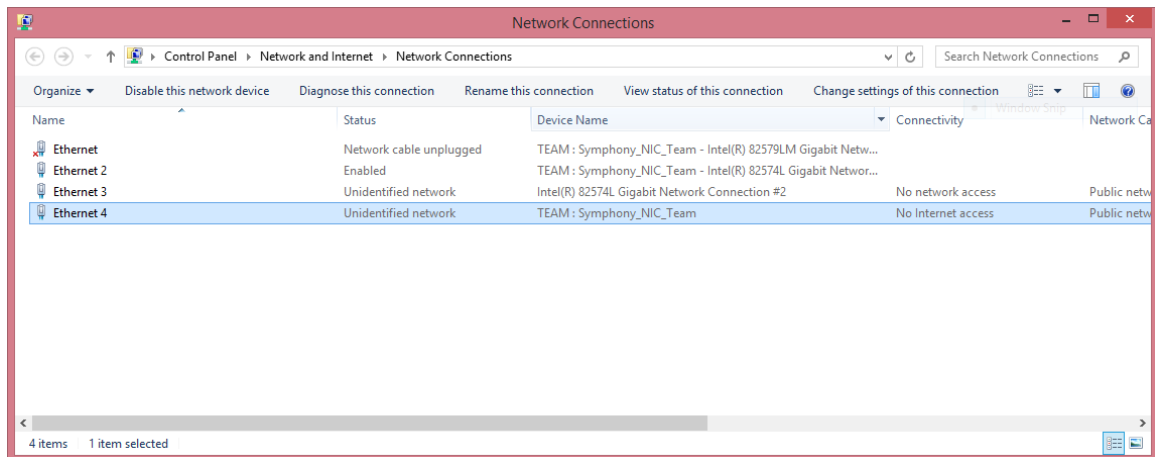
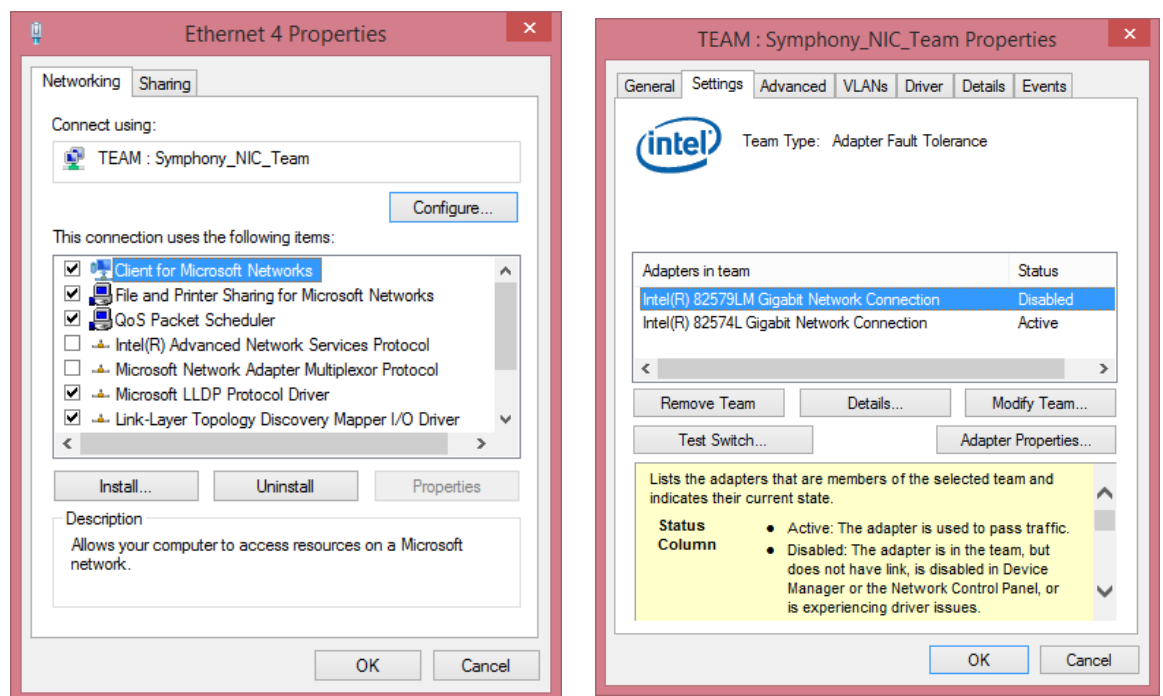


Figure 12-18: Windows System Configuration – Network Connections Screen


- Click the **Configure** button and then select the **Settings** tab.



- Click the **Remove Team** button.
- Click **OK**.
- Once the adapter teaming is disabled, the network IP address configuration must be changed. See Section 12.2.1 setting the appropriate address for each adapter if connecting the SDP to two independent IP networks.

If you are temporarily disabling Network Adapter Teaming because the Solid-State Drive (SSD) was imaged on a different Symphony Dispatch Platform (SDP) 1.0, do not configure each adapter. See Section 12.2.4 to Enable Network Adapter Teaming

12.2.2.2 Windows 10 Procedure on a Symphony Dispatch Platform 1.0

1. Press the **Windows logo key** .
2. Scroll through the alphabetical list and locate **Windows PowerShell**.
3. Click on the **Windows PowerShell** folder to expand it.
4. Right-click on the **Windows PowerShell** shortcut and select **Run as Administrator**.



NOTE


Do not select Windows PowerShell (x86) or Windows PowerShell ISE, or Windows PowerShell ISE (x86).

5. The **Windows PowerShell** command window will display **PS C:\Windows\system32>**.
6. In the **Windows PowerShell** command window, type the following:

```
Remove-NetLbfoTeam -Name "Symphony_NIC_Team"
```

There is a space before the second hyphen and before the first quotation mark.
7. Press the **<Enter>** key.
8. When the **Windows PowerShell** command prompt is displayed, close the **Windows PowerShell** command window.
9. Once the Network Adapter Teaming is disabled, the network IP address configuration must be changed. If connecting the SDP to two independent IP networks, refer to Section 12.2.1 and set the appropriate address for each adapter.
10. If temporarily disabling Network Adapter Teaming because the Solid-State Drive (SSD) was imaged on a different Symphony Dispatch Platform (SDP) 1.0, do not configure each adapter. See Section 12.2.4 to Enable Network Adapter Teaming.

12.2.3 Determine Network Adapter Teaming Status

1. Connect the network cable to the Symphony Dispatch Platform's Network Connector and verify the link integrity light is on.
2. Press the Windows logo key  +X.
3. Click on **Network Connections** to open the dialog.
4. Review the list of connections:
 - Network Adapter Teaming is enabled on Windows 8.1 if Ethernet, Ethernet 2, and Ethernet 4 has **TEAM: Symphony_NIC_Team** as the first part of Network Adapter device name.
Network Adapter Teaming is enabled on Windows 10 if there is a Network Connection listed that has the name of **Symphony_NIC_Team**.
 - Ethernet 3 is an internal Ethernet port used for communication between the PC and the Audio Box.
 - Ensure that none of the connections show a status of **Disabled**. If Ethernet or Ethernet 2 is disabled, this will cause problems if you have to enable Network Adapter Teaming.




NOTE

Occasionally, the internal Ethernet port gets assigned to Ethernet 2 instead of Ethernet 3, which also affects the interfaces used by the physical ports.

12.2.4 Enable Network Adapter Teaming on a Symphony Dispatch Platform 1.0

Sometimes a Solid-State Drive (SSD) is imaged with the Symphony Windows OS using one Symphony Dispatch Platform 1.0 console but is installed in another Symphony Dispatch Platform 1.0 console. This causes the teamed Network Adapters to have an incorrect MAC address. Use one of the following procedures to enable the Network Adapter on the console.


12.2.4.1 Windows 8.1 Procedure on a Symphony Dispatch Platform 1.0

1. Determine the Network Adapter teaming status. Refer to the Section 12.2.3.
If teaming is disabled, skip to the next step; otherwise refer to Section 12.2.2.1 to disable teaming.
2. After teaming is disabled, press the **Windows logo key**  to open the Start Screen.
3. Start typing **PowerShell**.
4. When the available options appear, select **Windows PowerShell**.



NOTE

Do not select Windows PowerShell (x86).

5. Right-click on the **Windows PowerShell** icon and select **Run as administrator**.
6. At the PowerShell command prompt, verify **Windows PowerShell 64-bit** is running by typing:
[Environment]::Is64BitProcess and press the <Enter> key.
Response should be: **True**
7. Type **CD** and press the <Enter> key.
8. Type **CD Preinstall** and press the <Enter> key.
9. Type **PostRun1** and press the **Tab** key to auto complete the filename.
.\PostRun1.bat should be displayed.
10. Press the <Enter> key.
After the batch file runs, the console will shut down and reboot.
11. Log into Windows.
The second part of the batch file will run and the console will shut down and reboot.
12. Log into Windows.
13. From the Desktop press the **Windows logo key**  +**X**.
14. Click on **Network Connections** to open the dialog.
15. Review the list of connections.



Ensure Network Adapter Teaming is enabled by verifying Ethernet, Ethernet 2, and Ethernet 4 have **TEAM: Symphony_NIC_Team** as the first part of Network Adapter device name.

16. To configure Ethernet 4 for networking, refer to Section 12.2.1 and set the IP Address.

12.2.4.2 Windows 10 Procedure on a Symphony Dispatch Platform 1.0

1. Determine the Network Adapter teaming status. Refer to the Section 12.2.3.

If teaming is disabled, skip to the next step; otherwise refer to Section 12.2.2.2 to disable teaming.

2. After teaming is disabled, press the **Windows logo key**  + **X** and select **Network Connections**.
3. If you have two Network connections with the same name (e.g., Ethernet, Ethernet, and Ethernet 2), rename the connections so that Ethernet is the Intel 82579LM Gigabit adapter that is on PCI Bus 0, Ethernet 2 is the Intel 82574L Gigabit adapter that is on PCI Bus 1, and Ethernet 3 is the Intel 82574L Gigabit Network adapter that is on PCI Bus 2).
4. Press the **Windows logo key** .
5. Scroll through the alphabetical list and locate **Windows PowerShell**.
6. Click on the **Windows PowerShell** folder to expand it.
7. Right-click on the **Windows PowerShell** icon and select **Run as administrator**.



NOTE


Do not select Windows PowerShell (x86), Windows PowerShell ISE, or Windows PowerShell ISE (x86).

8. Type **CD** and press the **<Enter>** key.
9. Type **CD Preinstall** and press the **<Enter>** key.
10. Type **Set-ExecutionPolicy unrestricted** and press the **<Enter>** key. For the **Do you want to change the execution** policy prompt type **Y** (No is the default) and press the **<Enter>** key.
11. Type **FixNICTeam** and press the **Tab** key to auto complete the filename.
`.\FixNICTeam.ps1` is displayed.
12. Press the **<Enter>** key.
13. The Members should be **Ethernet** and **Ethernet 2** as shown below:

```
PS C:\Windows\system32> cd\
PS C:\> cd preinstall
PS C:\preinstall> .\FixNICTeam.ps1


Name           : Symphony_NIC_Team
Members        : {Ethernet 2, Ethernet}
TeamNics       : Symphony_NIC_Team
TeamingMode    : SwitchIndependent
LoadBalancingAlgorithm : Dynamic
Status         :

PS C:\preinstall>
```

14. If the members are not **Ethernet** and **Ethernet 2**, disable teaming as per Section 12.2.2.2 and then repeat Steps 10 through 12.
15. Type **SetMTU** and press the **Tab** key to auto complete the filename.
 .**\SetMTU.ps1** is displayed.
16. Press the **<Enter>** key.
17. Type **Set-ExecutionPolicy restricted** and press the **<Enter>** key. For the **Do you want to change the execution** policy prompt type **Y** (No is the default) and press the **<Enter>** key.
18. Close the Windows PowerShell window.
19. Press the **Windows logo key**  +**X**.
20. Click on **Network Connections** to open the dialog.
21. Review the list of connections.

 Network Adapter Teaming is enabled on Windows 10 if there is a Network Connection listed that has the name of **Symphony_NIC_Team**.
22. To configure **Symphony_NIC_TEAM** for networking, refer to Section 12.2.1 and set the IP Address.


12.2.4.3 Windows 10 Procedure on a Symphony Dispatch Platform 2.0

1. Use Windows Explorer to navigate to the **C:\PreInstall** directory.
2. Right-click on "InstallSYM.bat" and select **Run as administrator**.
3. There should be a log file that is produced that can be checked for any errors during the configuration process.
4. Press the Windows logo key  +**X**.
5. Click on **Network Connections** to open the dialog.
6. Review the list of connections.


 Network Adapter Teaming is enabled on Windows 10 if there is a Network Connection listed that has the name of **Symphony_NIC_Team**.
7. To configure **Symphony_NIC_TEAM** for networking, refer to Section 12.2.1 and set the IP Address.

12.2.5 Verify MAC address for Network Teaming

12.2.5.1 Windows 8.1 Procedure

1. From the Desktop, press the **Windows logo key**  +**X**.
2. Click on **Command Prompt** to open the dialog.
3. Type **ipconfig /all** and press the **<Enter>** key.
4. The MAC address displayed for Ethernet 4 should match either the **Ethernet Upper** MAC address or the **Ethernet Lower** MAC address that is printed on the label located on the bottom of the console.
5. Close the Command Prompt dialog.

12.2.5.2 Windows 10 Procedure

1. Press the **Windows logo key**  +**X**.
2. Click on **Command Prompt** to open the dialog on the Symphony Dispatch Platform 1.0. Click on **Windows PowerShell** to open the dialog on the Symphony Dispatch Platform 2.0.
3. Type **ipconfig /all** and press the **<Enter>** key.
4. The MAC address (i.e., Physical Address) displayed for **Symphony_NIC_Team** (description **Microsoft Network Adapter Multiplexor Driver**) should match either the **Ethernet Upper** MAC address or the **Ethernet Lower** MAC address printed on the label located on the bottom of the console.



NOTE

There may be a number at the end of the description.

12.3 CONFIGURING FOR AUTO LOGON

12.3.1 Symphony Dispatch Platform Not Joined To A Domain

1. Login with the User's credentials to be configured for Auto Logon.
2. Open **Run** from the Apps screen, using **WIN+R**, or via the Power User Menu, and then enter the following command in the text box:

netplwiz



NOTE

You can also open a Command Prompt, but using **Run** is probably quicker.

3. If prompted, enter the Administrator credentials.
4. Click **OK**.

This opens the "**User Accounts**" dialog.

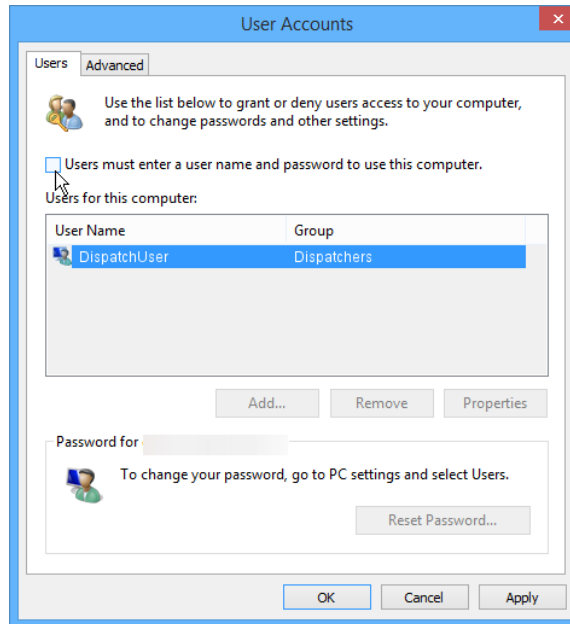


Figure 12-19: User Accounts Dialog

5. On the **Users** tab, check the box next to **Users must enter a user name and password to use this computer**.



NOTE

If the “Users must enter a user name and password to use this computer” box is not available, the Symphony Dispatch Platform is joined to a domain; see Section 12.3.2 for information.

6. Select the User Name to be configured for Auto Logon and then uncheck the box next to **Users must enter a user name and password to use this computer**.
7. Click **Apply** or **OK**.
8. In the **Automatically sign in** dialog, the dialog box displays the user name of the administrator or dispatcher who will automatically log into Windows 8.1.

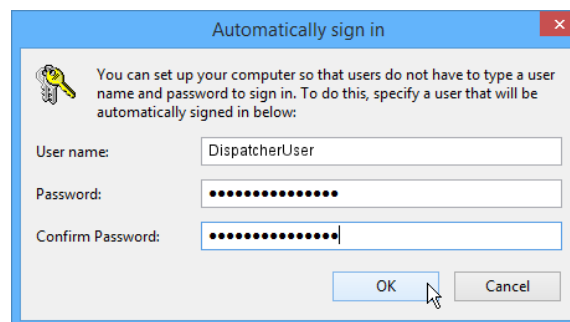


Figure 12-20: Automatically sign in Dialog

9. Enter the user’s password in the Password and Confirm Password fields.
10. Click **OK**.

The **Automatically sign-in** dialog, as well as the **User Accounts** dialog, closes if the Administrator selects **OK** in Step #7; the "User Accounts" dialog remains open if the Administrator selects **Apply** in Step #7.

- Restart the Symphony console and make sure that Windows 8.1 or Windows 10 automatically logs the user in at startup.

12.3.2 Symphony Dispatch Platform Joined to a Domain



NOTE

Proper administrator rights are required to perform this operation. A domain administrator account or one with proper, delegated rights must be used.

- Login to the SMT or Domain Controller desktop.
- Open Group Policy Management.
- Navigate to the appropriate Symphony Consoles OU. Create a new GPO that is linked to this OU.
- Name the GPO.
- While the OU is selected, move the GPO to the top of the link order by using the up arrow on the left.
- Edit this new GPO by adding the following registry entries in **HKEY_LOCAL_MACHINE**:
See [https://technet.microsoft.com/en-us/library/cc753092\(v=ws.11\).aspx](https://technet.microsoft.com/en-us/library/cc753092(v=ws.11).aspx) for more information.

Key path:	SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon
Value name:	AutoAdminLogon
Value type:	REG_SZ
Value data:	1 Note: 1 is enabled.

See <https://technet.microsoft.com/en-us/library/cc939702.aspx> for more information.

Key path:	SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon
Value name:	DefaultDomainName
Value type:	REG_SZ
Value data:	VIDA Note: substitute the specific value for your Domain.

Key path:	SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon
Value name:	DefaultUserName
Value type:	REG_SZ
Value data:	USERNAME Note: substitute the specific value for User Name.

Key path:	SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon
Value name:	DefaultPassword
Value type:	REG_SZ
Value data:	PASSWORD Note: substitute the specific value for User Password.

- Restart the Symphony console and make sure that Windows 8.1 or Windows 10 automatically logs the user in at startup.

12.4 AUTO-LAUNCH SYMPHONY AT LOGIN

The first Symphony application that must be started is the FullScreenApplication.exe:

C:\Program Files\Symphony\FullScreenApplication.exe

To enable the program to start automatically when a user logs in, create a shortcut to it in **C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Startup**.

Create the shortcut by right-clicking on the .exe file, select **Create shortcut**, and click **Yes** for the shortcut to be placed on the Desktop. Then drag the shortcut from the Desktop to the Startup folder and click **Continue**.

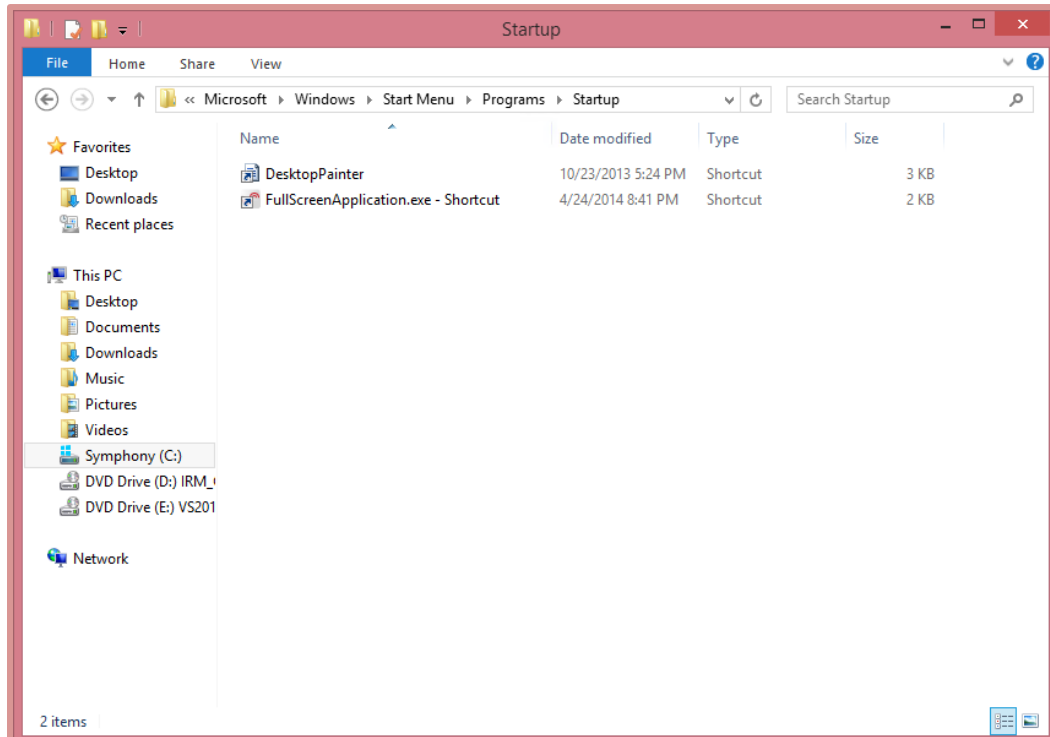


Figure 12-21: Startup Folder – Auto-Launch Symphony at Login

This works if the connection parameters are setup ahead of time, as is typical. When launched from the Start Screen manually, the Connection Manager is started first to check for valid connection settings. If all the connection settings are valid, the Connection Manager immediately starts the FullScreenApplication.exe. If there are invalid settings, then the Connection Manager opens and allows the user to make corrections.

By starting FullScreenApplication.exe directly, the application starts slightly faster, but invalid connection parameters are not flagged. In situations where the connection parameters may not be properly configured, such as when dispatchers are expected to enter their own User IDs and passwords, create a shortcut to **C:\Program Files\Symphony\ConnectionManager.exe**.

12.5 PRE-CONFIGURED OPERATING SYSTEM ITEMS

This section describes the configuration done to the Windows 8.1 operating system at the L3Harris factory. It is provided for your information only. These settings do NOT need to be modified.

12.5.1 Driver Installation

- Network Adapters
- Intel® HD 4000 Graphics Driver
Win64_152820.exe
Version 15.28.20.64.3347
- GE COMe drivers
- Ethernet

12.5.2 Boot to Desktop on Windows 8.1

This procedure enables users to boot to the Desktop.

1. Open the Windows Control Panel (at the Desktop, press the **Windows logo key** +X and click on **Control Panel**) and select **Appearance and Personalization**.



Figure 12-22: Control Panel Screen

2. Select **Taskbar and Navigation**.

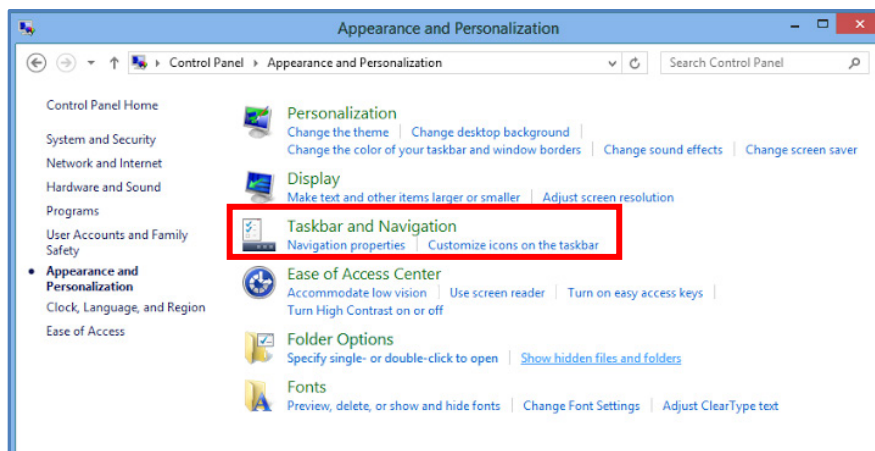


Figure 12-23: Control Panel Screen

3. Select the **Navigation** tab.

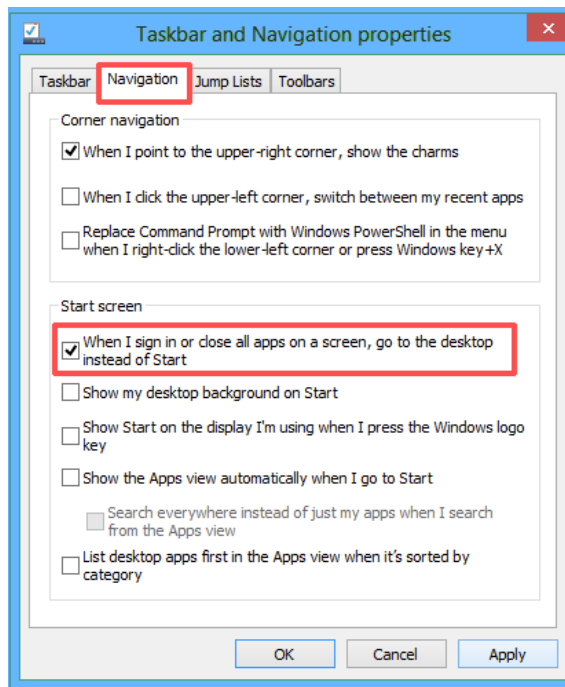


Figure 12-24: Taskbar and Navigation Properties Dialog

4. Check the box next to **When I sign in or close all apps on a screen, go to the desktop instead of Start**.
5. Click **Apply** and **OK**.

12.5.3 Unrestrict PowerShell Scripts

Procedure:

1. Open **PowerShell** as an Administrator.
2. Type “**set-executionpolicy unrestricted**” at the prompt and press the <Enter> key. For the **Do you want to change the execution policy** prompt, type Y (No is the default) and press the <Enter> key.
3. When finished running PowerShell Script(s), type “**set-executionpolicy restricted**” at the prompt and press the <Enter> key. For the **Do you want to change the execution policy** prompt, type Y (No is the default) and press the <Enter> key. This restricts PowerShell Scripts.

12.5.4 Disable Windows’ Power Management and Screen Saver



If the PC power setting is set to Sleep mode, the Audio Box never reconnects after waking up from Windows sleep mode. The Windows Sleep configuration must be set to NEVER. Refer to the procedures outlined in Section 12.5.4 to disable Windows’ Power Management Settings.

In the dispatcher environment, disable Windows' default power management settings for the Symphony Application to function properly. The following procedure will assist in disabling these settings.

To disable Windows' Power Management Settings:

1. On the Symphony Dispatch Platform 1.0, press the **Windows logo key** **+X** to open the advanced context menu, select **Control Panel**, and click **Hardware and Sound**. On the Symphony Dispatch Platform 2.0, Control Panel is not displayed on the Windows 10 advanced context menu. In the Search Windows field to the right of the **Windows logo key**, type **Control Panel** and press **Enter**, or right-click on the **Windows logo key** to select **Run**, type **Control Panel**, and click **OK**. Click **Hardware and Sound**.

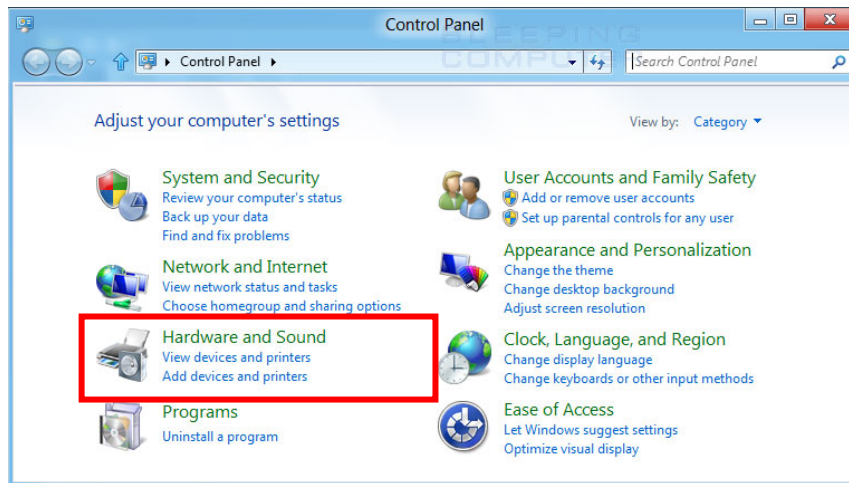


Figure 12-25: Control Panel – Selecting Hardware and Sound

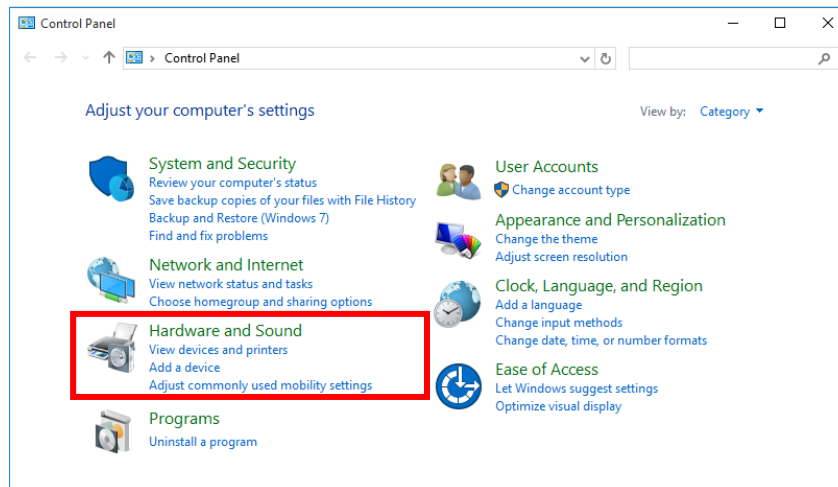


Figure 12-26: SDP 1.0 Control Panel – Selecting Hardware and Sound

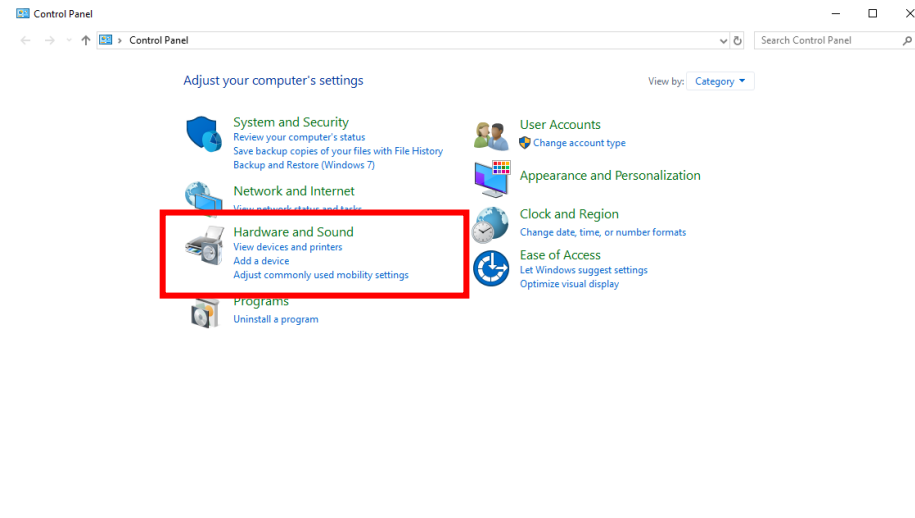


Figure 12-27: SDP 2.0 Control Panel – Selecting Hardware and Sound



NOTE

Control Panel options may vary between Operating Systems.

2. Click on **Power Options**.

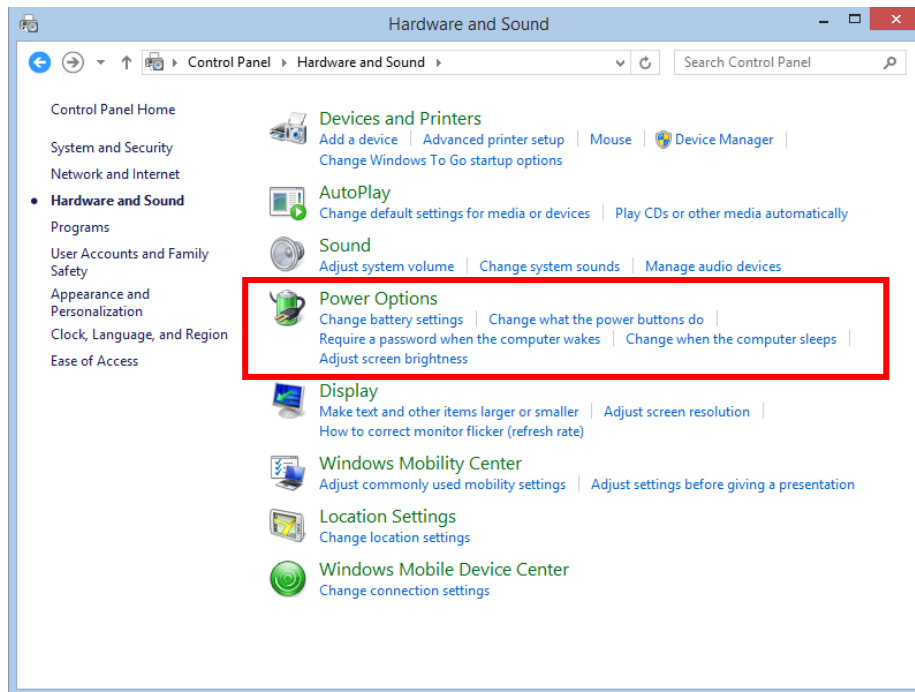


Figure 12-28: Selecting Power Options

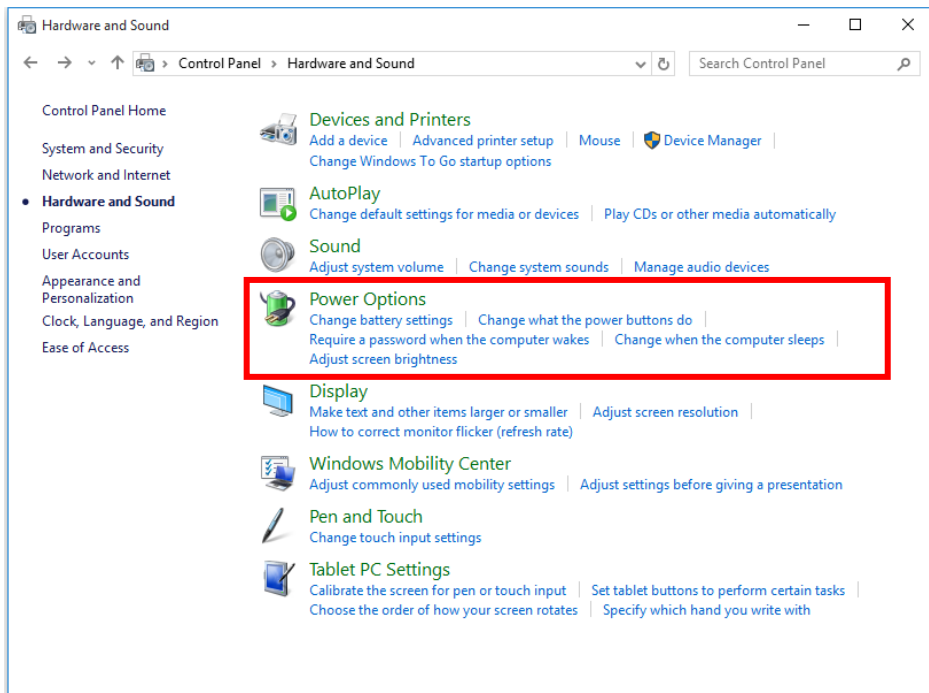


Figure 12-29: SDP 1.0 Selecting Power Options

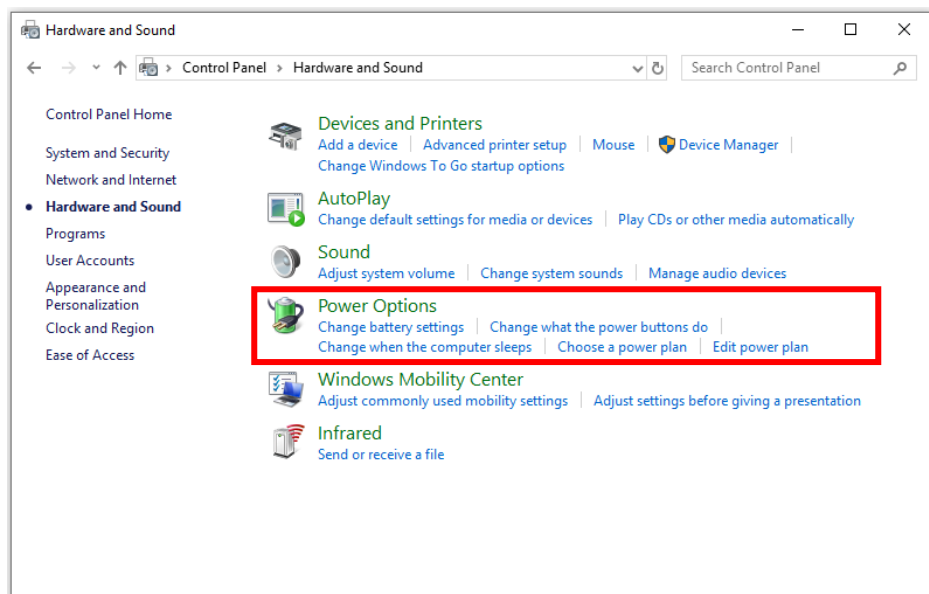


Figure 12-30: SDP 2.0 Selecting Power Options



Hardware and Sound options may vary between Operating Systems.

3. On the left side of the screen, select **Create a power plan** on the SDP 1.0 Windows 8.1 or Windows 10. On the right side of the screen, select **Additional power settings** on the SDP 2.0 and then select **Create a power plan** on the left side of the screen.

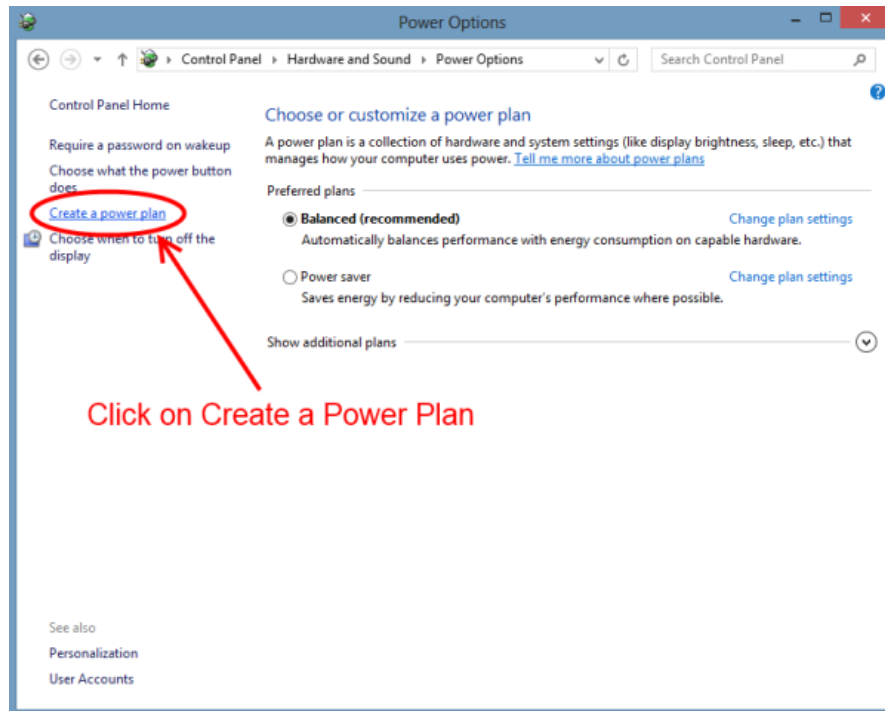


Figure 12-31: SDP 1.0 on Windows 8.1 Creating a Power Option Plan

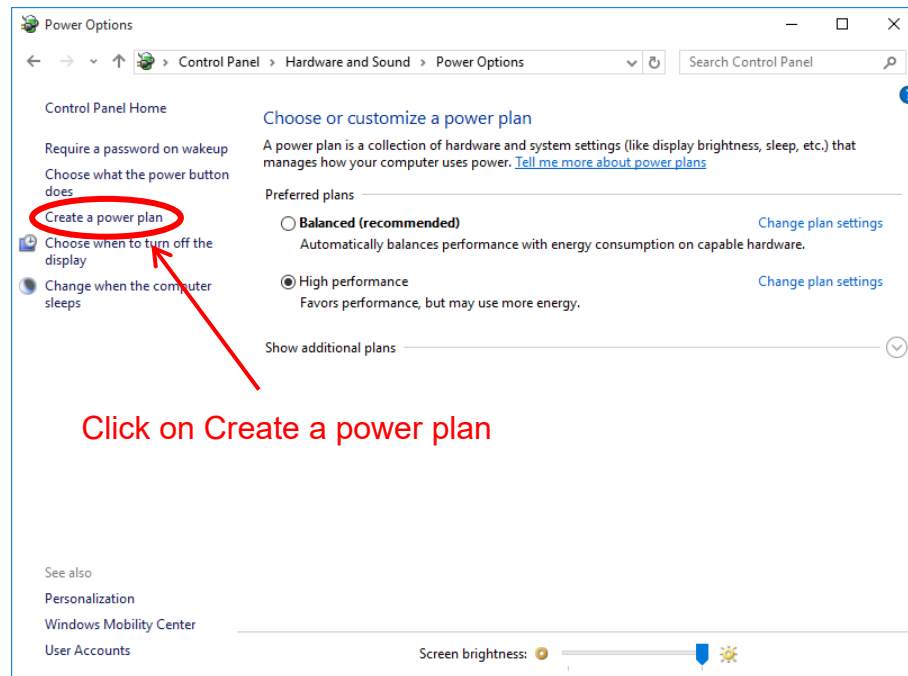


Figure 12-32: SDP 1.0 Power Options on Windows 10

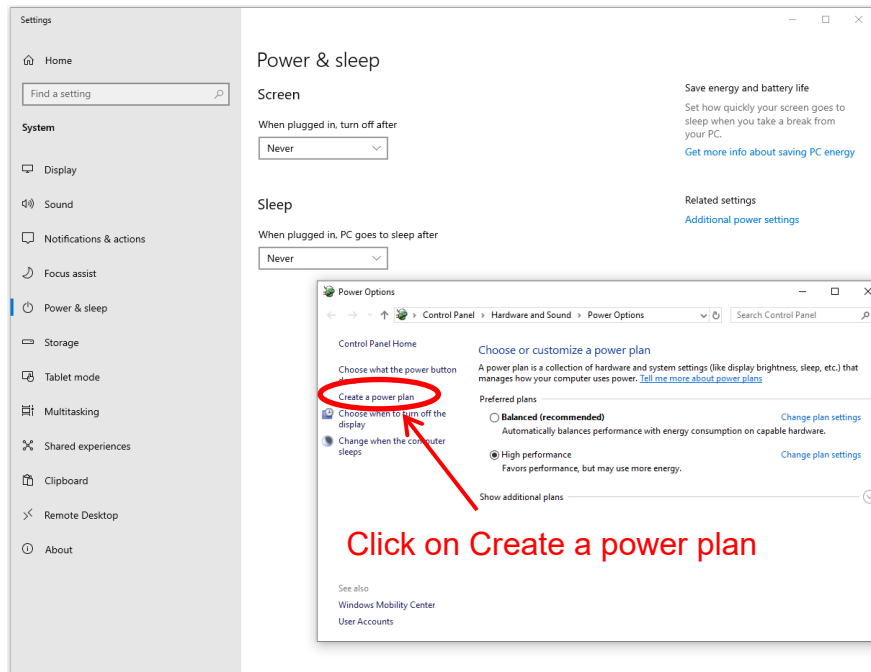


Figure 12-33: SDP 2.0 Power & Sleep

4. Select **High Performance** and give the power plan a name. Click **Next**.

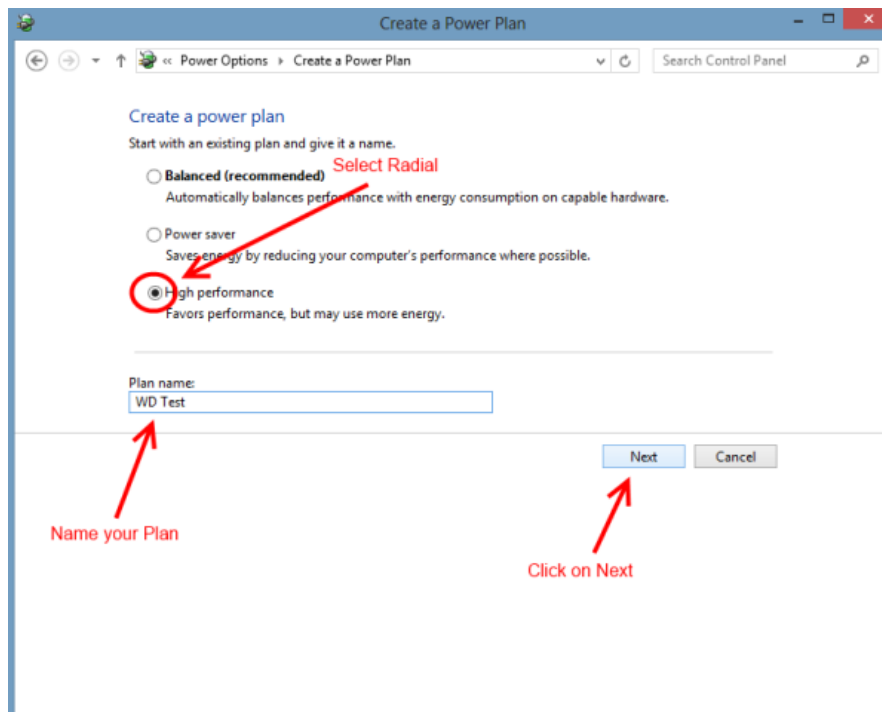


Figure 12-34: Defining the Power Option Plan

5. Select how long the system's display should remain on, and then click **Create** to create the custom plan.

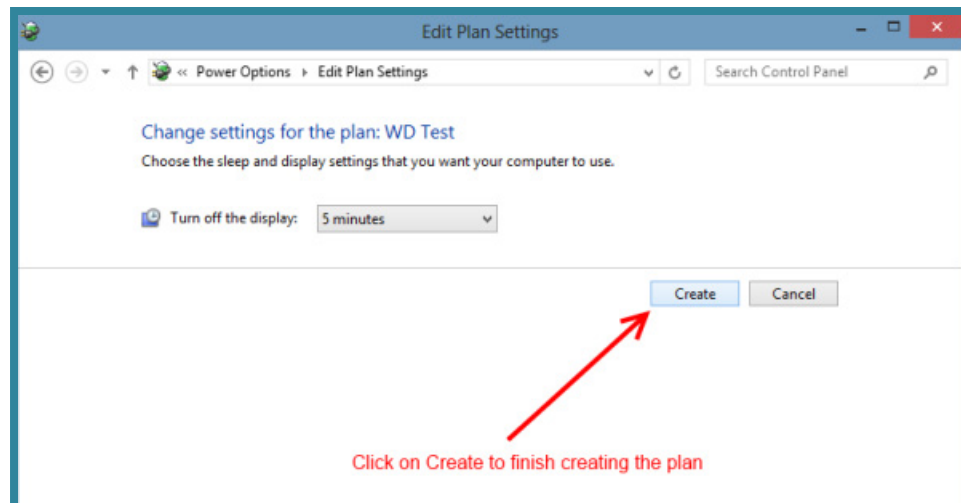


Figure 12-35: Finish Creating the Power Option Plan

6. Once back on the main **Power Options** screen, select **Change Plan Settings**.

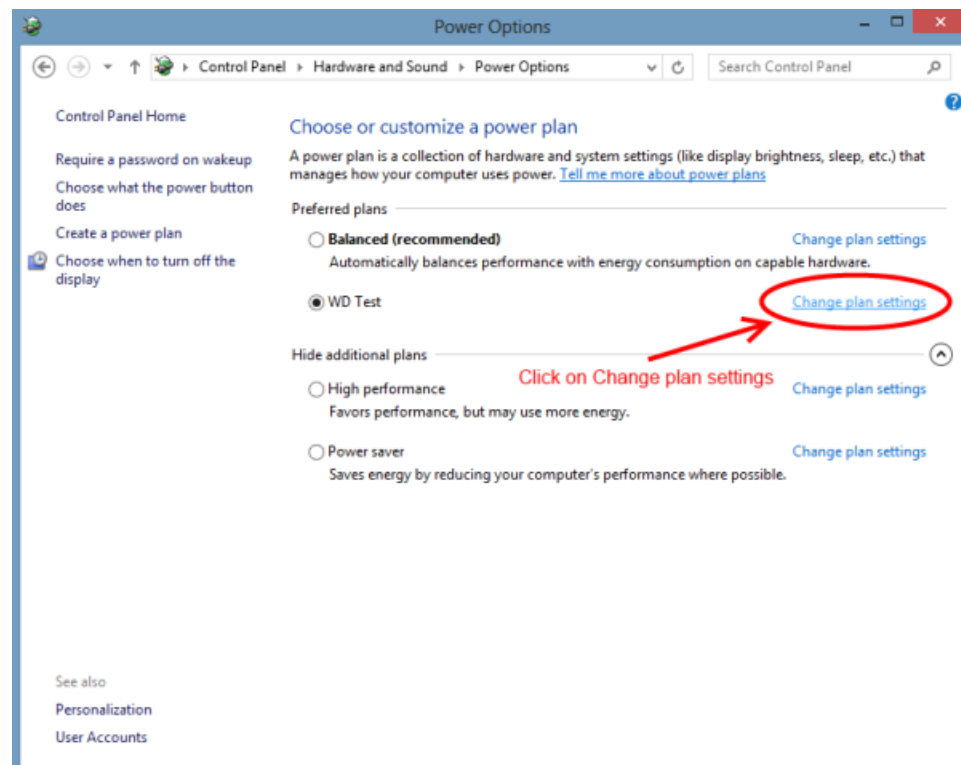


Figure 12-36: Change Power Option Settings

7. Click **Change advanced power settings**.

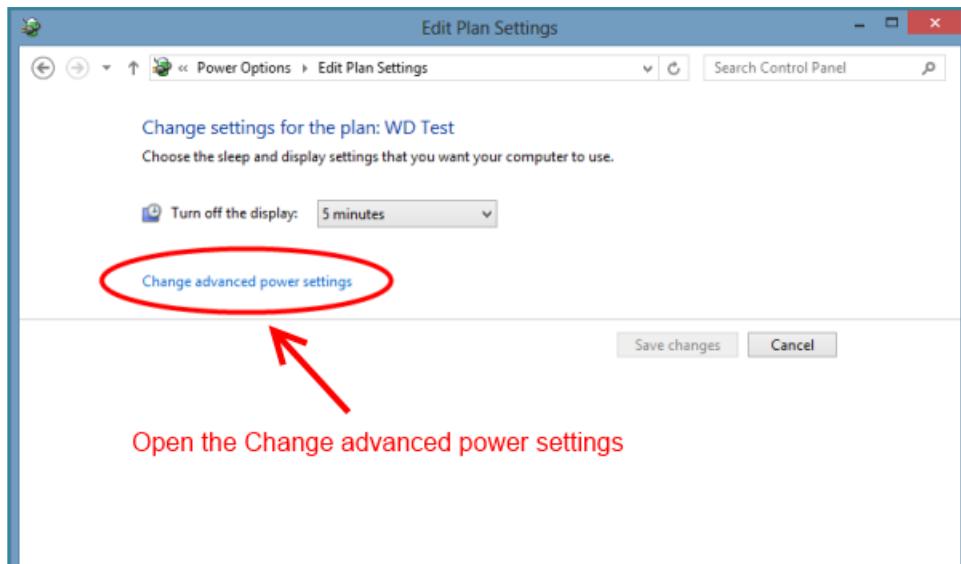


Figure 12-37: Changing Advanced Power Settings

8. Expand the Hard Disk power options by clicking on the + symbol next to **Hard Disk**.

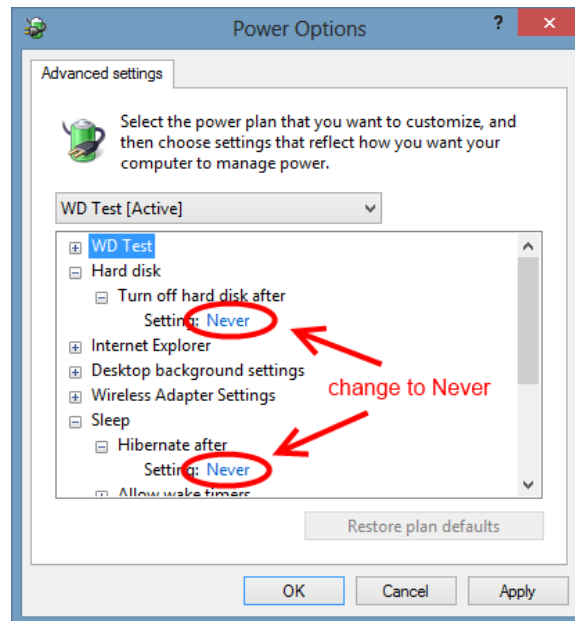


Figure 12-38: Power Options Dialog

9. Change the setting under **Turn off hard disk after** to **Never**.
10. Expand **Sleep** and change the setting under the **Hibernate after** to **Never**.
11. Click **Apply** and then **OK**. Then, close the window.

Power management settings are now disabled.

12.5.5 Setup Touch Screen

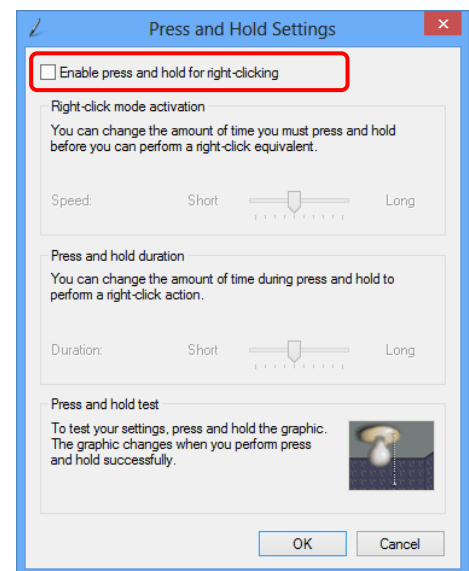
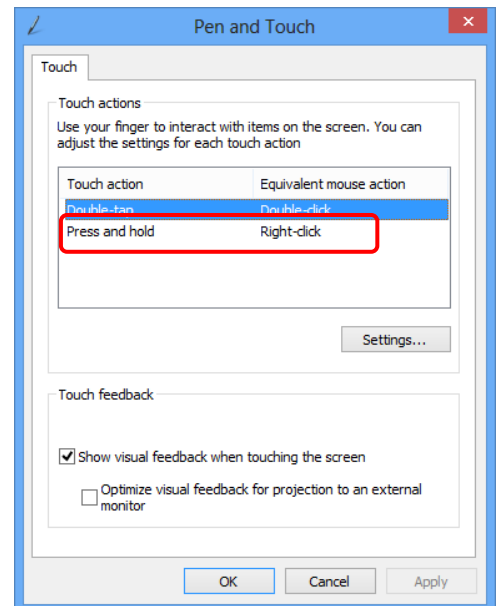


NOTE

On Windows 10, some drivers for L3Harris touchscreens are located in the folder C:\PreInstall\TouchScreen Drivers. Installation information is included in the Readme.txt included in that folder. Driver and installation information may have also been provided with your monitor.

If using a touch screen monitor, verify the following Pen and Touch Setting:

1. Right-click the **Start** button and click **Control Panel**. Click **Hardware and Sound**.
2. Click **Pen and Touch** or type **Pen and Touch** in the Search field in the upper right corner of the Control Panel dialog.
3. Double-click the **Press and hold** setting.
4. Uncheck **Enable press and hold for right-clicking**.
5. Click **OK**.
6. Click **Apply**.



12.6 ACTIVATE WINDOWS

12.6.1 Windows 8.1 Activation


Typically, the L3Harris factory activates Windows 8.1 on the SDP. If you need to activate it yourself, use the following procedure:

1. Obtain the *product key* from the underside of the Symphony Dispatch Platform. Ensure that the Certificate of Authenticity sticker is for the Version and Edition of Windows you are using. For Symphony, this is Windows Embedded 8 Pro.



NOTE

Windows 8.1 installations may be activated with this.

2. Login to Windows using the Administrator credential. You can use the xAdministrator account.
3. At the desktop, press the **Windows logo key**  twice to go to the PC Settings Screen.
4. Click **Activate Windows**.
5. Click the **Enter Key**.

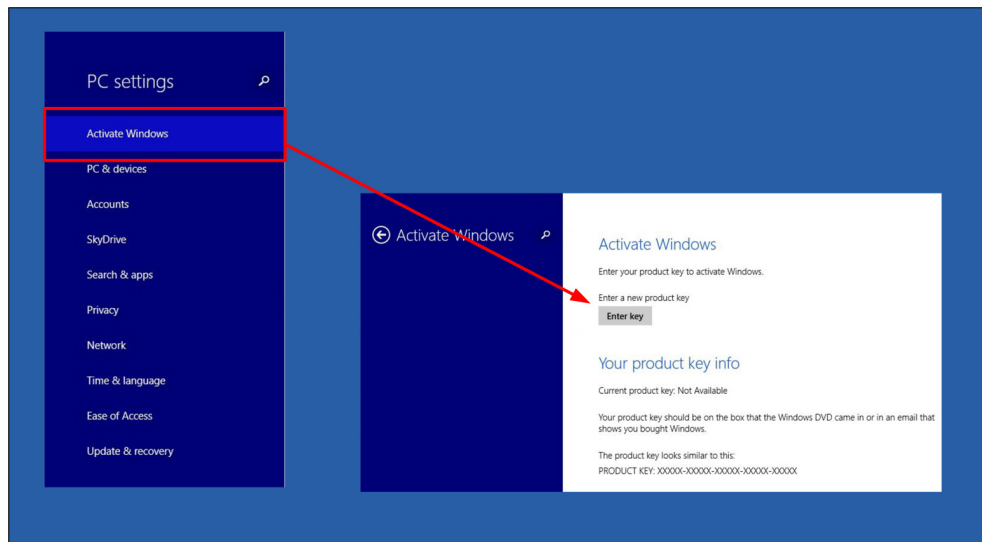


Figure 12-39: Activating Windows

12.6.2 Windows 10 Activation

Typically, the L3Harris factory activates Windows 10 on the SDP. If you need to activate it yourself, use the following procedure:

1. Check the **C:\PreInstall** directory for the application "ActivateWindows.exe." If it is not present, contact L3Harris Software Services to obtain the tool to initiate product activation. Once received, copy the Activation tool to the **C:\PreInstall** directory.
2. Login to Windows using an administrator credential. You can use the xAdministrator account.
3. Locate the Activation executable in the **C:\PreInstall** directory, right-click, and select **Run as Administrator**.
4. The tool will produce a log located in the **C:\PreInstall directory**. If internet access is available to the SDP, the license will self-activate. If internet access is unavailable, you will be presented with a wizard to enable phone activation to Microsoft directly.
5. If you experience any issues, please contact L3Harris TAC.

13. LOAD AND MANAGE ENCRYPTION KEYS

This section describes the process for manually loading keys and bindings for use by the Symphony application. It also describes the process for loading one or more UKEKs (Unique Key Encryption Key) that the Symphony application can use to decrypt keys delivered by the KMF (Key Management Facility) using OTAR (over-the-air rekeying). Finally, it describes the processes for performing local Zeroize via the Manual Key Loader as well as initiating a Zeroize from the UAS via the KMF.

The Zeroize feature is useful if it is determined that currently loaded and active keys have become compromised. The Zeroize option on the Manual Key Loader also can be used to periodically clean up old keys and bindings before loading and activating new ones. The Zeroize capability at the UAS and KMF can be used to completely delete keys and bindings from the entire Crypto Net or from specified members of the Crypto Net. After using this network level feature, use the UAS to tell the KMF to generate new keys then and to push the new keys out to the members of the Crypto Net.



NOTE

This option also generates a new UKEK for each Crypto Net, which must be loaded manually to the Symphony application as outlined later in this section.

All keys, manually loaded and those loaded with OTAR, are stored in the Dispatch User's Windows Profile. The stored keys are encrypted with a key that is generated for that user account by Windows. The Key Loader utility reads the file created by the L3Harris Key Administration utility and places them in an encrypted file located in the user's Windows Profile. They are only accessible by the user account which imported or loaded them. Copying these key files from one user account to another is not supported.

When a user's Windows Profile is configured for roaming, the encryption keys will roam with that user's account.

Manual Keys loaded from a file include Talk Group bindings. These are also placed into the user's Windows Profile by the Key Loader utility and will roam with the keys if that feature is enabled. Bindings for OTAR keys are transmitted to the console from the VNIC when the console first logs in.

When using manual keys, it is also necessary to set the System and All-Call Key ID using the Symphony Configuration Tool for Patch and SimulSelect encryption to work. Keys/Bindings loaded by OTAR automatically configure these IDs for you.

13.1 LOAD MANUAL KEYS AND BINDINGS

Acquire a distribution file, containing manual keys and bindings that have been created by the L3Harris Key Administration utility. Refer to Section 7.3.1.4. This file can be made available to the Symphony application via a USB thumb drive, a mapped network drive, or a local hard drive. You will also need to know the password that was used to generate the distribution file. The Symphony Manual Key Loader uses this file to decrypt and extract keys and bindings from this file.

1. Start the Symphony Manual Key Loader.

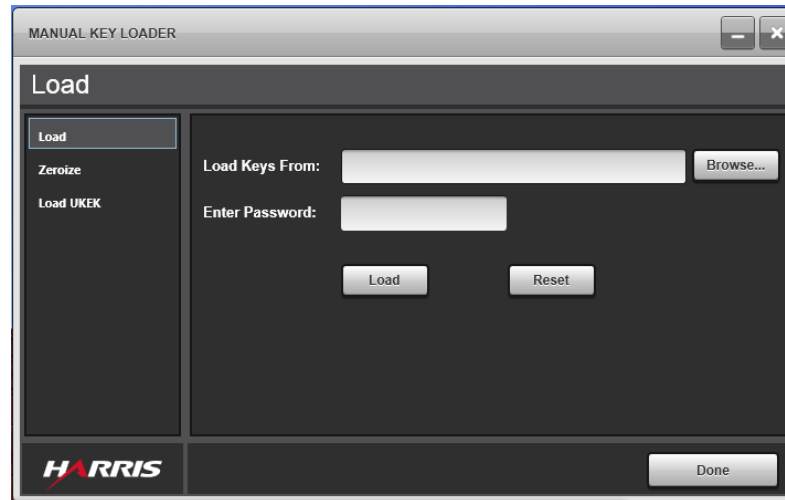


Figure 13-1: Symphony Manual Key Loader Dialog

2. Click the **Browse** key to display the file **Open** dialog.

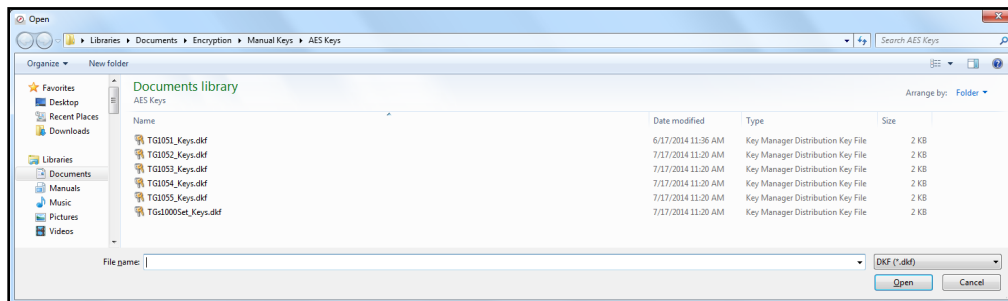


Figure 13-2: Symphony Manual Key Loader - Browse Dialog

3. Navigate to where the distribution file is located.

Distribution file names have a “.dkf” extension (for Distribution Key File).

4. Select the desired distribution file and click **Open**.

The selected file name, with full path, is listed in the **Load Keys From** text box.

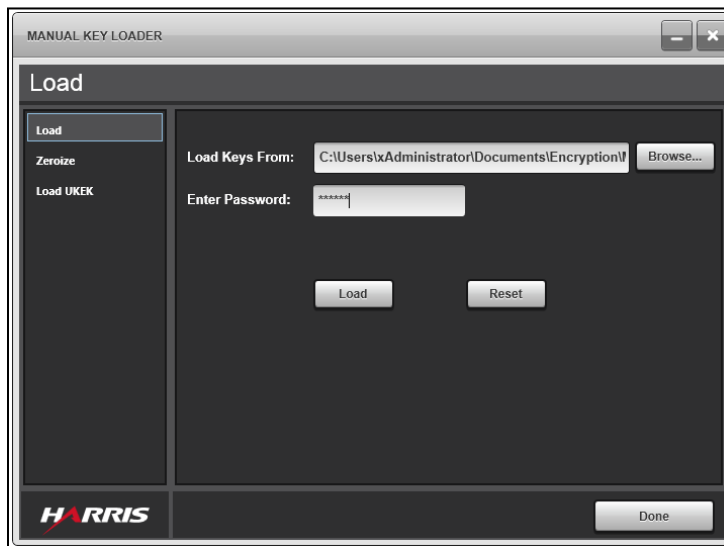


Figure 13-3: Symphony Manual Key Loader Dialog

5. Enter the password.

This is the password that was used by the L3Harris Key Administration utility to encrypt the keys and bindings in the file.

6. Click **Load** to extract the keys and bindings from the file and save them in the current user's Roaming Profile folder.

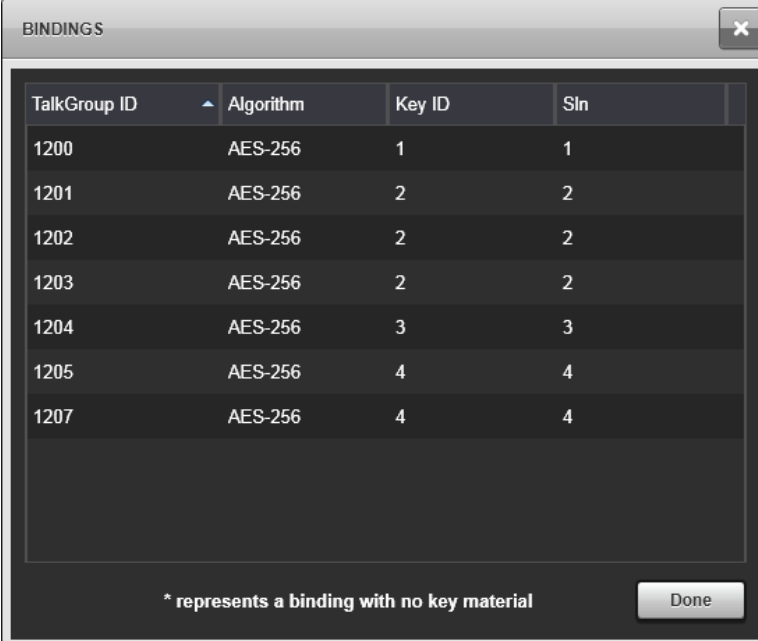
The Symphony Manual Key Loader reports the number of bindings processed.



The Symphony Manual Key Loader encrypts the extracted and formatted keys and bindings using data from this user's Roaming Profile and only this user can use them.

7. To see a listing of keys and bindings that were processed, click **Details** to open the Binding dialog.

The **Bindings** dialog displays a list of Talk Groups, by TalkGroup ID, to which the keys are bound. It also lists each Talk Group's encryption algorithm, Key ID, and the SLN that defines the binding to the Symphony application and system.



The screenshot shows a dialog box titled "BINDINGS" with a close button (X) in the top right corner. Inside the dialog is a table with the following data:

TalkGroup ID	Algorithm	Key ID	Sln
1200	AES-256	1	1
1201	AES-256	2	2
1202	AES-256	2	2
1203	AES-256	2	2
1204	AES-256	3	3
1205	AES-256	4	4
1207	AES-256	4	4

At the bottom of the dialog, there is a note: "* represents a binding with no key material" and a "Done" button.

Figure 13-4: Symphony Manual Key Loader Bindings Dialog

8. Click **Done** to close the Bindings dialog.
9. If finished working with the Symphony Manual Key Loader, click **Done**.

13.2 LOAD UNIQUE KEY ENCRYPTION KEYS (UKEKS)

If using OTAR (over-the-air rekeying) to load keys and bindings from the KMF (Key Management Facility), use the Manual Key Loader to load one or more UKEKs (Unique Key Encryption Keys) to the Symphony application. If the Symphony application is running when the UKEKs are loaded, Symphony will immediately request a warm key load from the KMF. If Symphony is not running at this time, it will request a warm key load from the KMF as soon as it is next restarted.

Acquire a UKEK file containing one or more Unique Key Encryption Keys that have been created at the Network Key Management Facility (KMF). Refer to Section 7.3.1.3. The number of UKEKs depends on how many Crypto Nets to which the current user belongs. The UKEKs file can be made available to the Symphony application via a USB thumb drive, mapped network drive, or a local hard drive. You will also need to know the password that was used to generate the file. The Symphony application uses the UKEKs to decrypt keys loaded by the KMF using the OTAR (over-the-air rekeying) protocol. Refer to Section 7.3.1.2.

1. Start the Manual Key Loader. The Manual Key Loader displays the Load Keys page (Figure 13-5).

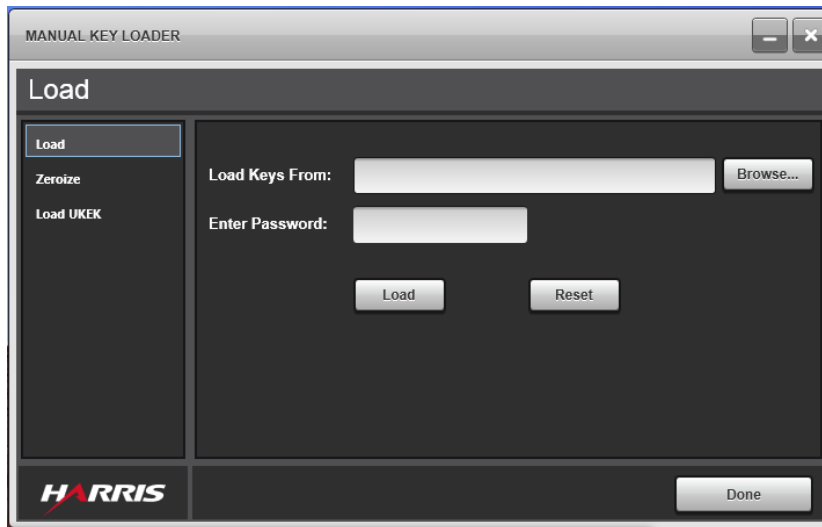


Figure 13-5: Symphony Manual Key Loader Dialog

2. Select **Load UKEK** from the panel on the left side of the dialog. The Manual Key Loader displays the Load UKEK page.

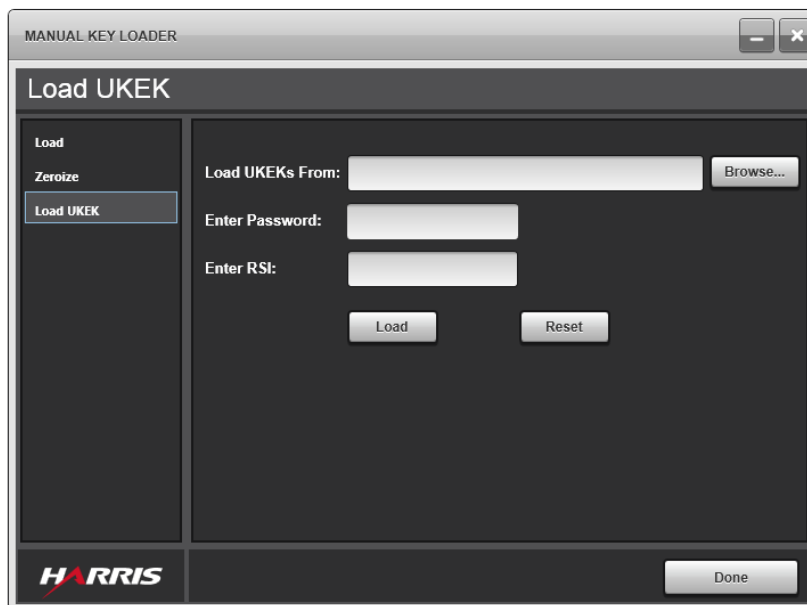


Figure 13-6: Symphony Manual Key Loader – Load UKEK Dialog

- Click **Browse**. A file Open dialog displays (Figure 13-7).

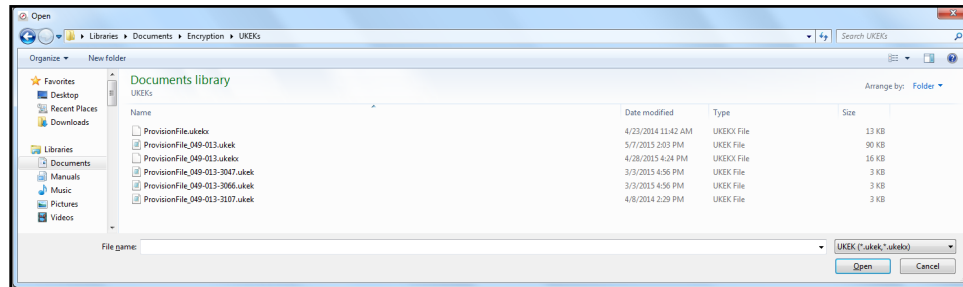


Figure 13-7: Symphony Manual Key Loader – Load UKEK - Browse Dialog

- Navigate to where the UKEK file is located. UKEK file names have a “.ukek” extension (for unencrypted UKEK file) or a “.ukekx” extension (for encrypted UKEKs file).
- Select the desired UKEK file and click **Open**. The file open dialog closes and the selected file name with full path displays in the **Load UKEKs From** text box.
- If the UKEK file is encrypted, enter the password as prompted. Otherwise, go to the next step.
- Enter the Radio Set Identifier (RSI) for the dispatcher. The RSI can be found on the End Users tab of Key Management Facility (KMF).
- Click **Load** to extract the UKEKs from the file and save them under the current user's Roaming Profile folder.

The Manual Key Loader reports the number of UKEKs that it processed as shown in the Figure 13-8.



The Manual Key Loader encrypts the extracted and formatted UKEKs using data from this user's profile and only this user can use them.

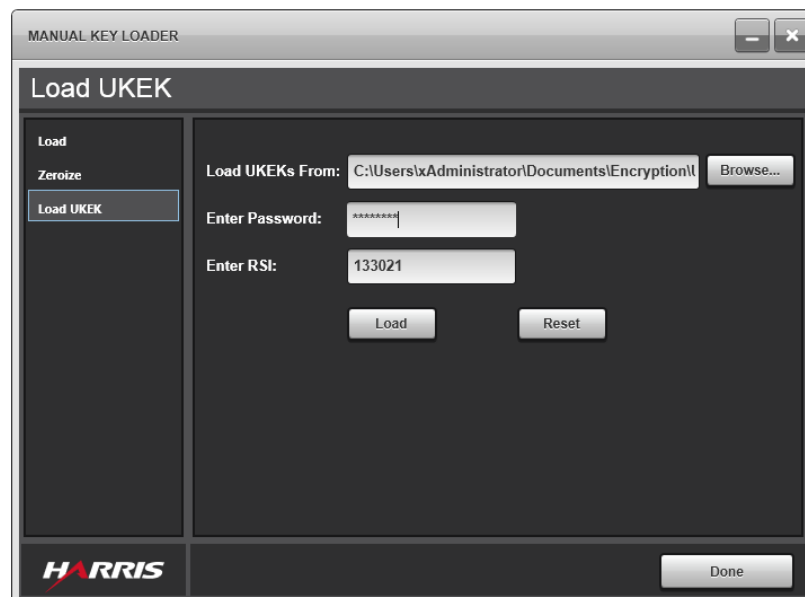


Figure 13-8: Symphony Manual Key Loader - Load Dialog

- If finished working with the Manual Key Loader, click **Done**.

13.3 ZEROIZE ALL KEYS AND BINDINGS

This option deletes all bindings and keys (including UKEKs, if applicable) from the current user's Profile. It also clears all related data from Symphony memory if Symphony is running at the time. The Zeroize function is usually only used when keys have been compromised or in some cases when manually re-keying.



NOTE

This utility also deletes and clears any keys and bindings that have been loaded by the KMF service. These deletions do not affect the system but only the current user and the Symphony application. Other steps are required to zeroize keys from other parts of the system that belong to the Crypto Net, such as radios.

1. Start the Manual Key Loader. The Manual Key Loader opens the Load page.

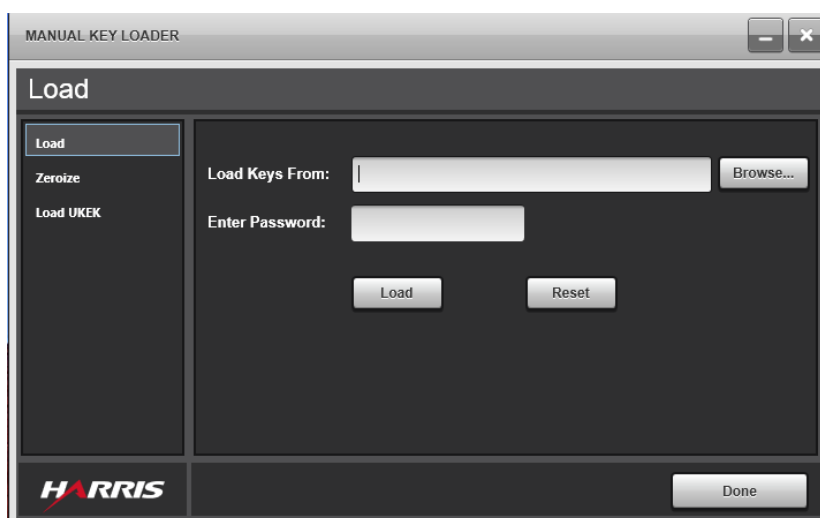


Figure 13-9: Symphony Manual Key Loader Dialog

2. Select **Zeroize** from the panel on the left side of the dialog. The Zeroize page displays.

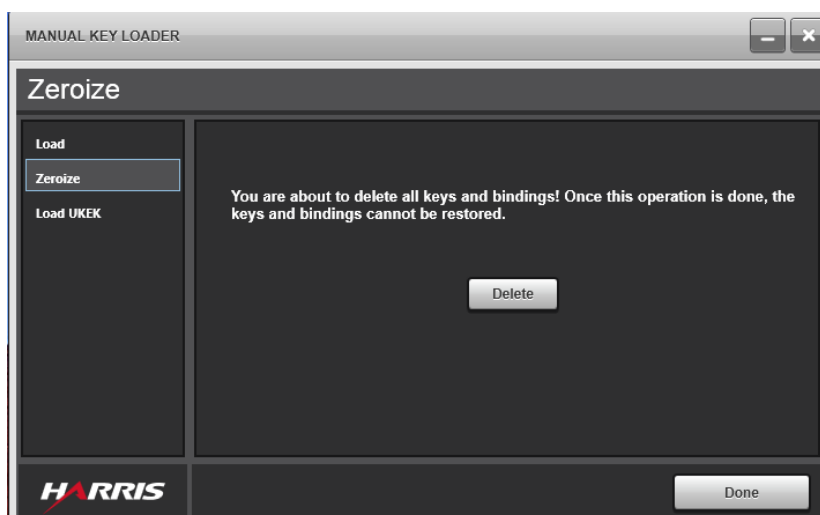


Figure 13-10: Symphony Manual Key Loader - Zeroize Dialog

3. Read the text and make sure you want to delete all keys and bindings from the Symphony application. If yes, click **Delete**.
4. The **Proceed** dialog requests confirmation. Click **No** to cancel. Click **Yes** to continue with the Zeroize operation.

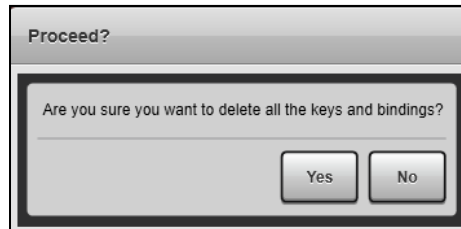


Figure 13-11: Symphony Manual Key Loader – Zeroize Proceed Dialog

5. When the **Zeroize** page opens, click **Delete** to initiate the deletion process. When complete, the message **All Keys and Bindings Removed** is displayed.



The current user must reload keys and bindings to resume encrypted transmit and receive of calls on the Symphony console.

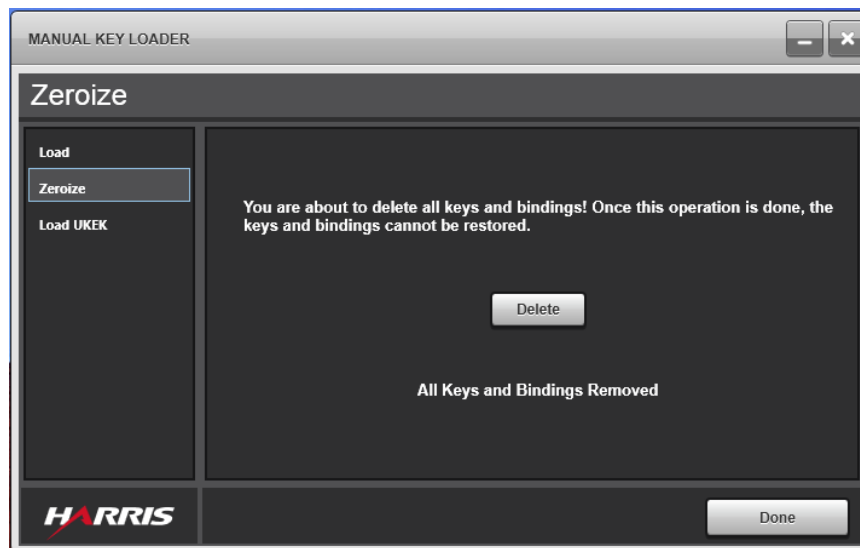


Figure 13-12: Symphony Manual Key Loader – Zeroize Complete Dialog

6. If finished working with the Manual Key Loader, click **Done**.

13.4 KEY LOADER COMMAND LINE INTERFACE



CAUTION

Caution should be used when embedding passwords in script files. The scripts may be read with a text editor and the passwords compromised. Ensure proper security controls are in place to protect key files.

The Key Loader application can be launched from a command line to perform operations from a script.

The application is installed in **C:\Program Files\Symphony**, by default. It is called **ManualKeyLoader.exe**.

Examples:

ManualKeyLoader zeroize

Zeroizes keys for the current Windows user. See Section 13.3.

ManualKeyLoader load <Key File Path> <Password>

Loads the keys and bindings from the specified key file into the User's Key store. See Section 13.1.

ManualKeyLoader loadukek <Key File Path> <RSI> <Password>

Loads the UKEK from the specified key file into the User's Key store. See Section 13.2.

13.5 LOADING KEYS FOR ANOTHER USER (ADMINISTRATORS ONLY)

The Manual Key loader utility loads keys into the current user's roaming profile encrypted, so only that user can read or change them. In some cases, administrators do not want dispatcher users to load their own keys. This section describes how to use the Manual Key Loader to load another user's keys by using the Window **Run as** command. Only Windows Administrators are authorized to do this.

The administrator needs the other user's Windows Account password, the key file, and the password for the key file. To run the utility for another user, do the following:

1. Move or copy the key file to a location where the Dispatch User can access it.

For example: **C:\Users\<Dispatcher Username>.vda\Documents**

2. Login as an administrator (such as xAdministrator).
3. Open PowerShell or cmd.
4. At the command line type:

C:\> cd C:\Program Files\Symphony and press the <Enter> key

C:\Program Files\Symphony> runas /user:<Dispatch Windows Username> ".\ManualKeyLoader.exe" and press the <Enter> key

5. Use the Manual Key Utility as usual. See the previous sections of this manual for details. The Command Line Interface may also be used in this manner.

13.6 RE-KEY CRYPTO NET

Re-keying replaces or changes the keys used by a Crypto Net and all its members. Changing keys periodically is required by many security policies. A re-key is also required after keys are zeroized; for example, if currently active keys become compromised. To re-key, use the following procedure. If you re-key a console user (dispatcher), the KMF generates a new UKEK for that user. You must load this UKEK to the Symphony applications as described earlier.

1. Log on to the UAS as a Crypto Officer (CO) and navigate to Crypto Nets. Click on the + (plus sign) beside the Manage Crypto Nets link. The UAS displays a list of all Crypto Nets in the system.

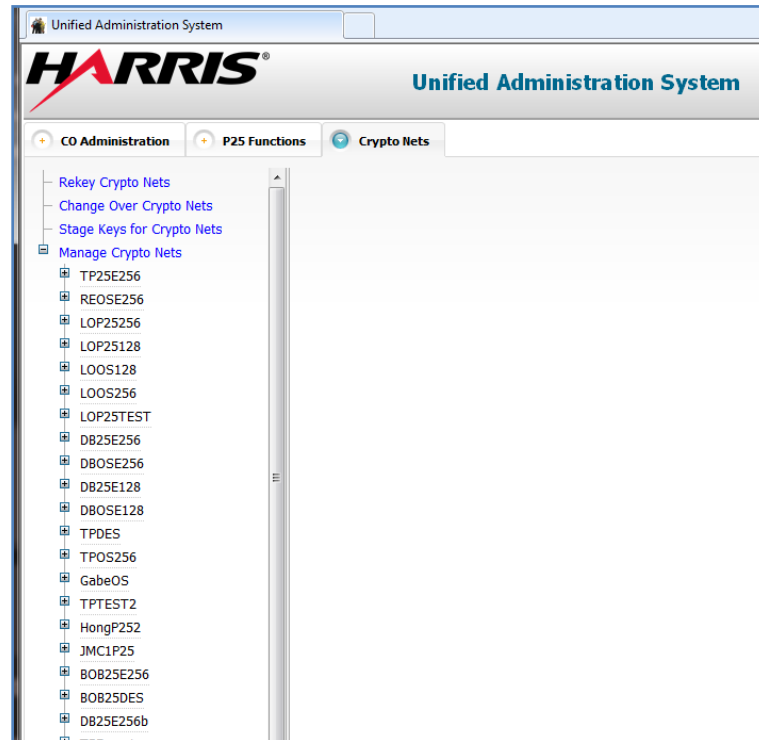


Figure 13-13: Manage Crypto Nets Screen

2. Navigate to the entry for the Crypto Net to re-key. Click on the + (plus sign) beside the name of the Crypto Net, then again on the **Re-Key** option.

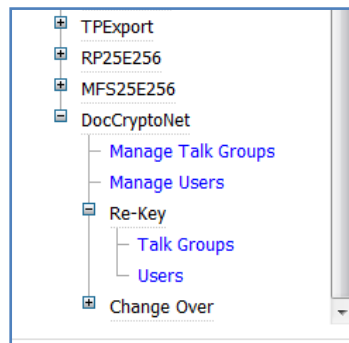


Figure 13-14: Manage Crypto Nets - Re-Key Screen Expanded

- Click the link for **Users**. The Re-Key Users page opens.

<input type="checkbox"/>	Vida UserId	Rekey Status	Rekey Status Time	Delete Key Status	Delete Key Status Time
<input checked="" type="checkbox"/>	0049:0013:3018	Rekey Completed	Jul 10, 2014 1:16:49 PM	Initial State	Jul 10, 2014 10:33:43 AM
<input type="checkbox"/>	0049:0013:3019	Rekey Failed	Jul 10, 2014 10:38:50 AM	Initial State	Jul 10, 2014 10:33:43 AM
<input type="checkbox"/>	0049:0013:3020	Rekey Failed	Jul 10, 2014 10:38:50 AM	Initial State	Jul 10, 2014 10:33:43 AM
<input checked="" type="checkbox"/>	0049:0013:3021	Rekey Completed	Jul 10, 2014 1:18:19 PM	Initial State	Jul 10, 2014 10:33:43 AM

Figure 13-15: Manage Crypto Nets - Re-Key Users Screen

- Check the check box beside each entry for the console users (dispatchers) to re-key, then click **ReKey**. The entries for the selected console users are highlighted.
- Click **Save**. The Rekey Status for the selected entries indicates “ReKeying” is in process. When the console user has been re-keyed, the status changes to “Rekey Completed.”

<input type="checkbox"/>	Vida UserId	Rekey Status	Delete Key Status	Delete Key Status Time
<input type="checkbox"/>	0049:0013:3018	Rekey Completed	Initial State	Apr 23, 2014 11:50:30 AM
<input type="checkbox"/>	0049:0013:3019	Rekey Failed	Initial State	Mar 21, 2014 2:57:57 PM
<input type="checkbox"/>	0049:0013:3020	Rekey Failed	Initial State	Mar 21, 2014 2:57:57 PM
<input type="checkbox"/>	0049:0013:3021	Rekeying	Initial State	Jul 10, 2014 2:11:53 PM

Figure 13-16: Manage Crypto Nets - Manage Users Screen

- To re-key Talk Groups in the Crypto Net, click the link for Talk Groups shown at Step 2. The Re-Key Talk Groups page displays. Rekeying groups does not directly affect the console user, though generally you should re-key all members of the Crypto Net if you re-key any of them.

<input type="checkbox"/>	TG Id/Name
<input type="checkbox"/>	01217 : DBTTIC18
<input checked="" type="checkbox"/>	01218 : DBTTIC19
<input type="checkbox"/>	01234 : DBMT15
<input type="checkbox"/>	01235 : DBMT16
<input checked="" type="checkbox"/>	01236 : DBMT17
<input type="checkbox"/>	01237 : DBMT18
<input checked="" type="checkbox"/>	01238 : DBMT19
<input type="checkbox"/>	01239 : DBMT20

Figure 13-17: Manage Crypto Net Re-Key Talk Groups Screen

- Check the check box beside each entry for the Talk Groups to re-key, then click **ReKey**. The entries for the selected Talk Groups are highlighted.

<input type="checkbox"/>	TG Id/Name
<input type="checkbox"/>	01217 : DBTTIC18
<input checked="" type="checkbox"/>	01218 : DBTTIC19
<input type="checkbox"/>	01234 : DBMT15
<input type="checkbox"/>	01235 : DBMT16
<input checked="" type="checkbox"/>	01236 : DBMT17
<input type="checkbox"/>	01237 : DBMT18
<input checked="" type="checkbox"/>	01238 : DBMT19
<input type="checkbox"/>	01239 : DBMT20

Figure 13-18: Manage Crypto Net Re-Key Talk Groups with Selection Screen

- Click **Save**. The Talk Groups selected is rekeyed.

14. SYMPHONY OPERATION



CAUTION

DO NOT remove or attempt to install the solid-state hard drive with power applied. Failure to observe this precaution will result in damaging the information on the hard drive, or damage system components, or both.

14.1 STARTING SYMPHONY



NOTE

The Symphony application can be configured to launch automatically on PC power-up. Refer to Section 12.4 for instructions on configuring this feature.

Consult with the system or dispatch administration personnel for power-up authorization. Verify that all cabling, power connections, and other system hardware are interconnected as required.

1. Turn on the monitor.
2. Press the Symphony Dispatch Platform **Power On/Off** switch.


A small tri-color LED on the front panel lights up when power is applied. The SDP will initiate its boot up sequence, checking to ensure software previously installed in the machine matches the software on the hard drive.

Table 14-1: Symphony Dispatch Platform LED Description



FRONT PANEL INDICATOR	DESCRIPTION
OFF	No power is applied to the unit.
AMBER	System booting up.
GREEN	System operating normally
RED	System anomaly detected, reboot the Symphony Dispatch Platform or refer to Section 21 for troubleshooting information.

3. Turn on speakers.
4. Launch the Symphony application:

To Launch Symphony on Windows 8.1:

- a. Launch **Symphony** from the Start screen using one of the following methods.
 - Using a Mouse: Click the **Start** button in the bottom-left corner of the screen (or point the mouse in the bottom-left corner of the screen until the **Start** button appears).
 - From the Keyboard: Press the **Windows logo key** .
 - From a Touch screen: Tap the **Start** button in the bottom-left corner of the screen.
- b. After startup, the console's communication modules are programmed based on the most recently saved operational session.

To Launch Symphony on Windows 10:

- a. Launch **Symphony** using one of the following methods.
 - Using a Mouse: On Symphony Dispatch Platform 1.0, click the **Start** button in the bottom-left corner of the screen and then click **All Apps**. Locate **Symphony**, expand the folder and click on the **Symphony** icon. On the Symphony Dispatch Platform 2.0, click the **Start** button in the bottom-left corner of the screen and then locate **Symphony**, expand the folder, and click on the **Symphony** icon.
 - From the Keyboard: On the Symphony Dispatch Platform 1.0, press the **Windows logo key**  and then click **All Apps**. Locate **Symphony**, expand the folder, and click the **Symphony** icon. On the Symphony Dispatch Platform 2.0, press the **Windows logo key**  and then locate **Symphony**; expand the folder and click the **Symphony** icon.
 - From a Touch screen: On the Symphony Dispatch Platform 1.0, tap the **Start** button in the bottom-left corner of the screen. Tap **All Apps**; locate **Symphony**; expand the folder; and tap the **Symphony** icon. On the Symphony Dispatch Platform 2.0, tap the **Start** button in the bottom-left corner of the screen. Locate **Symphony**; expand the folder; and tap the **Symphony** icon.
- b. After startup, the console's communication modules are programmed based on the most recently saved operational session.

14.2 CONNECT TO VNIC

For the Symphony application to function properly, it must maintain a connection with the VNIC. The settings needed to establish a connection with the VNIC are configured through the Connection Manager or centralized configuration. If Symphony is booted and these settings have not been configured, the Symphony Connection Manager is displayed to prompt the user to enter the appropriate settings.



All settings defined in the Symphony Connection Manager must match what is defined in the UAS for the dispatcher. If any settings are incorrect, Symphony will not startup properly. Refer to Section 9.1 for instructions on using the Symphony Connection Manager.

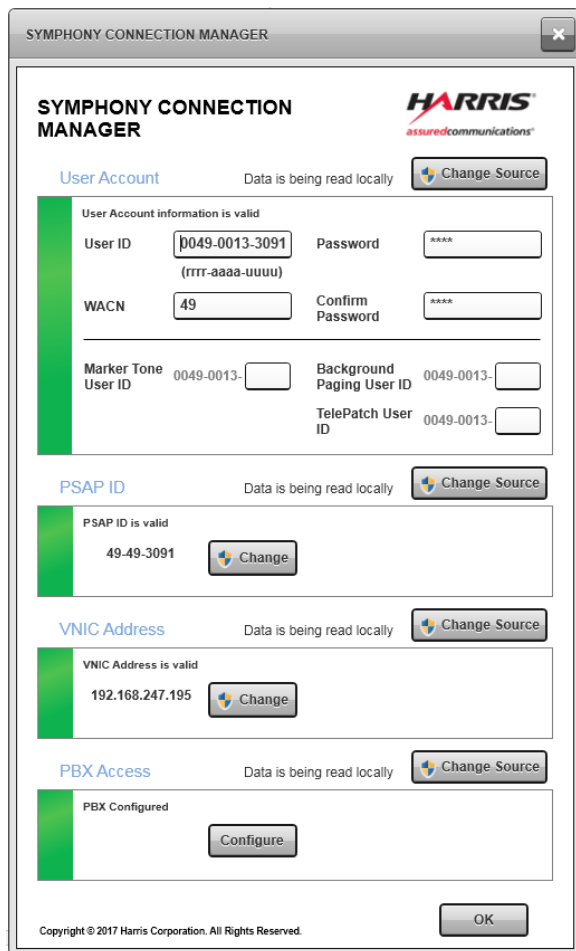


Figure 14-1: Symphony Connection Manager



Symphony must connect to a VNIC to complete the startup process. On initial startup of the Symphony application, a dispatcher cannot access the phone system or the radio system until the VNIC is reachable. The console proceeds with the startup if the PBX is unreachable, but the dispatcher cannot place/receive phone calls. Once started and in operation, Symphony allows phone-only operations should the VNIC fail.

Lack of a proper connection or loss of the connection is indicated by the Symphony displaying a Network Status message in the lower right-hand corner of the display.

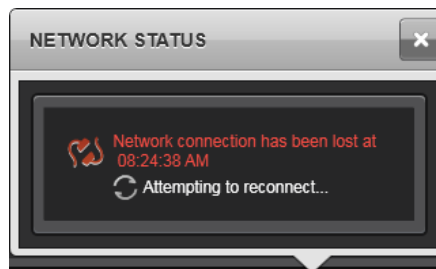


Figure 14-2: Network Status

14.3 LOG ON

If prompted to log into the system, you may need to enter the username/password for any dispatcher accounts that were created. The default username/password is:

User Name: **xAdministrator**

Password: **!QAZ2wsx#EDC4rfv**



Do not start the Console application software until basic configuration is completed.

14.4 SHUTDOWN PROCEDURES

Shutdown of the console equipment may be necessary when a loss of AC power is anticipated and/or the equipment will otherwise remain idle for a long period. The console may be equipped with an optional Uninterruptible Power Supply (UPS), which can supply power to the console from storage batteries. If necessary, consult with the system or dispatch administration personnel when a decision must be made on whether or not to shut down.

When it is determined necessary to power-down the equipment, perform the shutdown in accordance with the following procedure:

1. If the full screen application or Baton is running, click the Harris logo and select **Exit**.

Symphony will display the Shutdown dialog as shown in Figure 14-3. This dialog indicates if there are any important states, like emergencies, that are still active. It also lists features, like Patch, that will be deactivated as part of the Shutdown procedure. To proceed, click **Yes**. Otherwise click **No** to return to the Symphony application.



Figure 14-3: Shutdown Dialog

2. Shutdown operating system:

Using mouse and keyboard:

- a. Move your mouse to the lower left-hand corner of the screen and right-click the **Start** button or press the **Windows logo key** **+X** on your keyboard.

- b. Click **Shut down or sign out** and select **Shut down**.

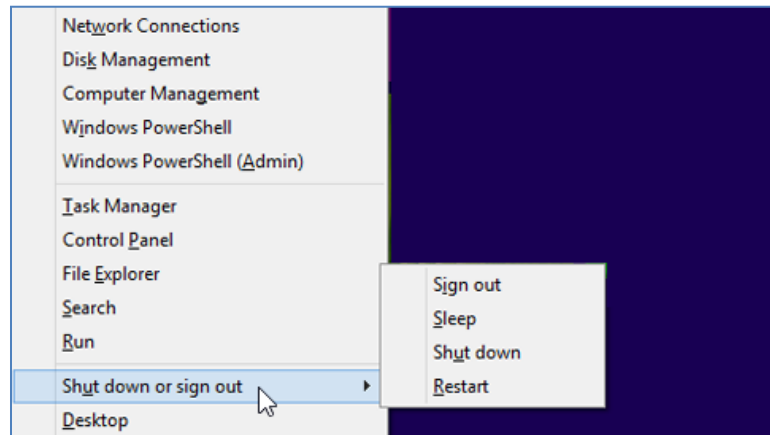


Figure 14-4: Windows Shut down or sign out

Using only touch:

- a. Tap the **Start** button.
- b. Tap **Power**, and then tap **Shut down**.



NOTE

It is possible to initiate the shutdown (SW PC controlled) process by momentarily pressing the SDP power button.

To forcibly cut power, press and hold down the power button. After a few seconds, power will be removed and the SDP will shut down. However, using this method is not recommended, as it can lead to lost data, file system corruption, and other issues.

3. Turn off the monitor with its on/off power switch.
4. Turn off any other externally connected equipment, such as speakers.

14.5 UPGRADING AUDIO BOX FIRMWARE

The Symphony console software is divided into two parts: the portion that runs on Windows and is visible to the user, and the portion that manages the audio processing and I/O (the Audio Box). When Symphony is installed on the Windows section of the platform, it also contains the firmware to be installed on the Audio Box. If the firmware provided with the Symphony install is different than what is currently running on the Audio Box, it must be updated. Symphony will update the firmware automatically when it starts. This update will only happen once after new installs or upgrades.

The process can take a few minutes. When installing a new version on Symphony, it is recommended to start the console and allow the Audio Box firmware to be upgraded to avoid downtime for the dispatcher.

The screen will display a dialog box when upgrading the firmware similar to Figure 14-5. Do not shutdown windows, remove power, or turn off the Symphony console while this screen is up. Symphony will not be available for dispatch until the upgrade has completed.

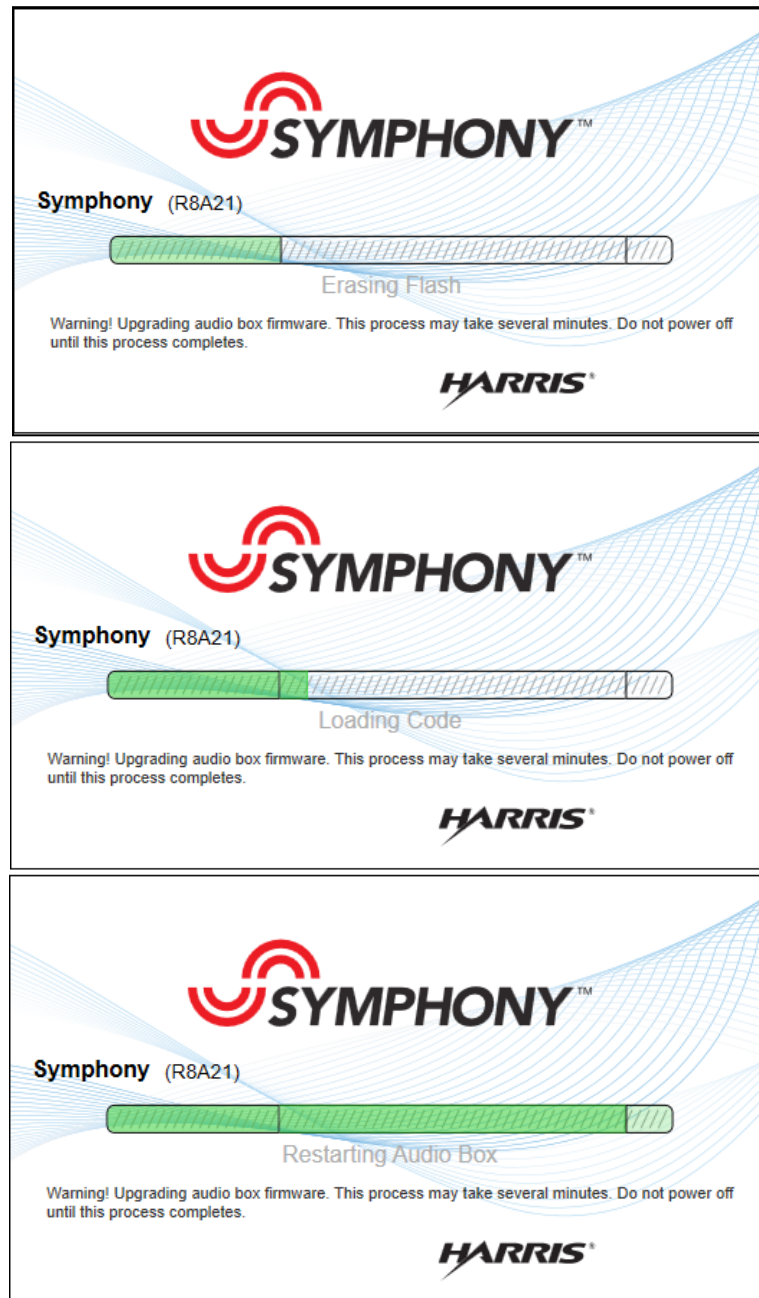



Figure 14-5: Sample Upgrade Process Dialog Box

14.6 VERIFY OPERATION

Verify the following are connected and operating properly.

14.6.1 Server Status

The Server Status displays the server's information dialog and provides a summary area to the right of the toggle button that displays information for servers limited by the user's configuration. Click  to expand the Server Status dialog (Figure 14-6). The Server Status information dialog displays the name and state for all servers in use by the console. The states for the server include: Connected, Disconnected, Poll Failing, Not Licensed, Connecting..., Unknown, and Not Configured.

- VNIC – The server that allows you to talk to the radio system (and have the radios talk back).
- Audio Box – The audio processing and I/O section of the Symphony Dispatch Console.
- Aux I/O Server – This server communicates with all of the I/O points monitored by the Symphony Dispatch Console. Specifically, the server is the Regional Network Manager which communicates with one or more Network Sentries which manage the physical I/O points.
- Key Management Facility – This server provides Symphony with Encryption information including encryption keys and bindings between Talk Groups and keys.

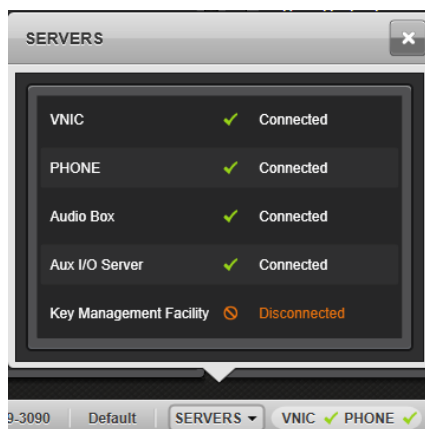



Figure 14-6: Server Status

14.6.2 Peripheral Status

The Peripherals dialog displays the connection status of all peripherals. Click  to expand the Peripherals dialog (Figure 14-7). Verify that peripherals connected to the SDP are recognized and enabled.

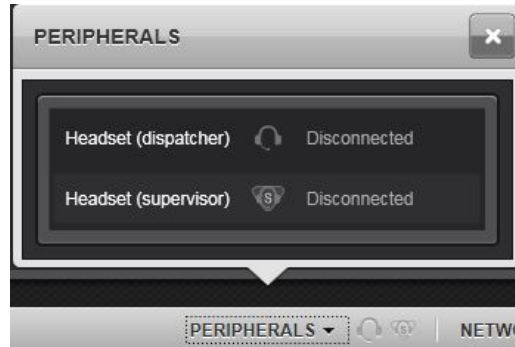



Figure 14-7: Peripherals - Expanded

14.6.3 Network Status

The Network Status dialog shows the current network connection status details. Click  next to **Network Status** to expand the Network Status dialog. Verify the connection is “Normal” and the number of FlexPaths is within the licensed limits.

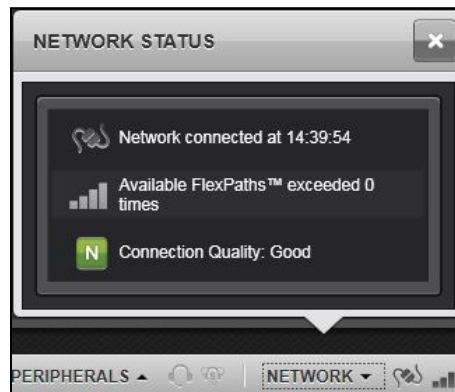



Figure 14-8: Network Status – Expanded

14.6.4 System History

The System History dialog displays information about current background system tasks. The System History appears in the center of the Status Bar; click  to expand the history (Figure 14-9). After the VNIC connects, verify the required provisioning is completed and the Audio Box is connected.

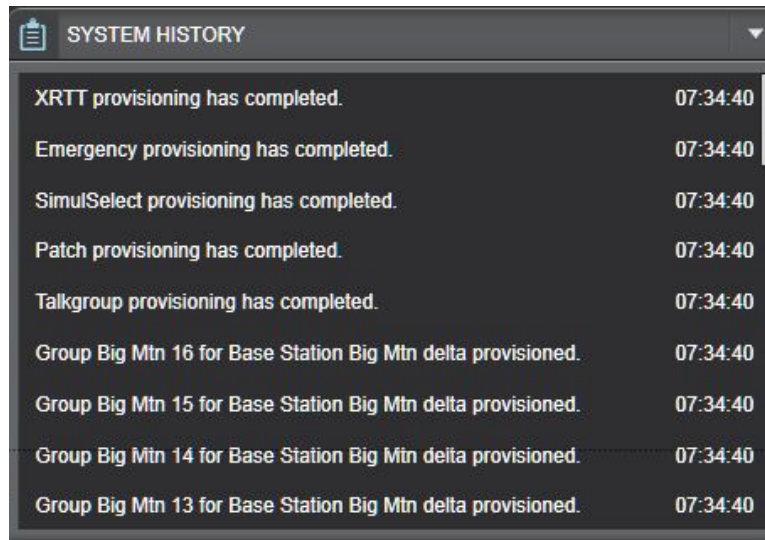


Figure 14-9: System History - Expanded

15. SYMPHONY SOFTWARE LICENSING

This section provides information about Symphony Console licenses. The Symphony console requires a software license and in addition, certain optional features require additional licensing.

Symphony licenses are locked to the Solid-State Drive (SSD) included with Symphony. L3Harris uses a unique “Locking Code,” that is tied to the SSD, to generate the license codes.



NOTE

The licensing information provided in the following subsections is accurate as of this manual’s release; however, license bundles may subsequently change. Consult the current L3Harris catalog for the latest licensing bundles.

15.1 PRE-INSTALLED LICENSES

Symphony Console systems come from the L3Harris factory with licenses pre-installed according to the feature bundle purchased. Table 15-1 and Table 15-2 list the different bundles and the licenses included with each bundle.

Table 15-1: License Bundles for Symphony with Windows 8.1

MAESTRO FEATURE BUNDLE (Option No.: UD-ZN4W)				
FOUNDATION FEATURE BUNDLE (Option No.: UD-ZN4Y)				
PREMIER FEATURE BUNDLE (Option No.: UD-ZN4Z)				
ENTERPRISE FEATURE BUNDLE (Option No.: UD-ZN2A)				
FEATURE DESCRIPTION				
E	X	E	E	Individual Calls (I-Calls)
10	2	16	32	Patch Definitions
6	1	8	16	Patch Activations
4	1	16	32	SimulSelect Definitions
8	8	12	24	FlexPaths
E	E	E	E	Local Baton
X	X	E	E	Remote Baton
E	E	E	E	Local Full Screen
4	2	4	8	Speakers
10	1	4	16	User Set-ups/Screens
16	4	16	16	Workspace Tabs
X	X	X	X	Supervisor Functions – Features/Screen
E	X	E	E	Call Director
X	E	E	E	Embedded Web Browser
E	X	E	E	Dynamic Cross-Mute

E = Enabled

X = Not Enabled

Table 15-2: License Bundles for Symphony with Windows 10

MAESTRO FEATURE BUNDLE (Option No.: UD-ZM1G)				
FOUNDATION FEATURE BUNDLE (Option No.: UD-ZM1F)				
PREMIER FEATURE BUNDLE (Option No.: UD-ZM1E)				
ENTERPRISE FEATURE BUNDLE (Option No.: UD-ZM1D)				
				FEATURE DESCRIPTION
E	X	E	E	Individual Calls (I-Calls)
10	2	16	32	Patch Definitions
6	1	8	16	Patch Activations
4	1	16	32	SimulSelect Definitions
8	8	12	24	FlexPaths
E	E	E	E	Local Baton
X	X	E	E	Remote Baton
E	E	E	E	Local Full Screen
4	2	4	8	Speakers
10	1	4	16	User Set-ups/Screens
16	4	16	16	Workspace Tabs
X	X	X	X	Supervisor Functions – Features/Screen
E	X	E	E	Call Director
X	E	E	E	Embedded Web Browser
E	X	E	E	Dynamic Cross-Mute

E = Enabled

X = Not Enabled

15.2 VIEWING INSTALLED LICENSES

To verify the licenses installed on machine, select the **About** menu item and scroll through the license list.

To Review the License list while running Symphony:

1. Start the Symphony application if necessary.
2. Click the drop-down icon on the Harris logo, in the top left of the display, and then click **About**.

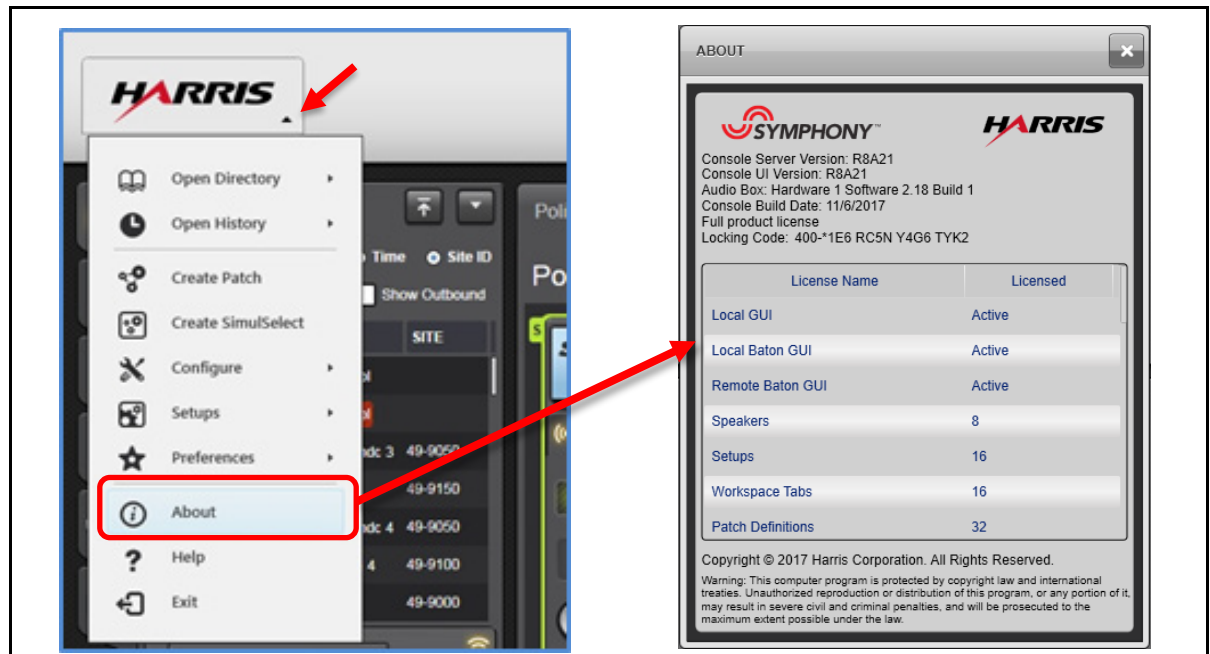





Figure 15-1: Viewing License List

3. Scroll through the list of licenses and observe their status.
4. If the license of interest is not active or does not indicate the desired functionality, it may be necessary to obtain additional licenses. Refer to Section 15.3 for instructions on obtaining licenses.

To Review the License list without running Symphony:

On a Symphony Dispatch Platform 1.0 running Windows 8.1, press the **Windows logo key**  to go to the Windows Start Screen.

On a Symphony Dispatch Platform 1.0 running Windows 10, press the **Windows logo key** . Select **All apps** and scroll through the alphabetical list until you locate the Symphony folder.

On a Symphony Dispatch Platform 2.0 running Windows 10, press the **Windows logo key** . Locate the Symphony folder.

1. Select **Symphony**→**Load Licenses**.



NOTE

Administrator rights are required for this utility.

The Windows desktop will open. If UAC is enabled, you will be prompted for the Administrator password.

The “**Symphony-License Import Utility**” will open and display the “Locking Code” for this machine.

2. Scroll through the list of licenses and observe their status.



Figure 15-2: Symphony – License Import Utility

3. If the license of interest is not active or does not indicate the desired functionality, it may be necessary to obtain additional licenses. Refer to Section 15.3 for instructions on obtaining licenses.

15.3 OBTAINING LICENSES (IF NEEDED)

15.3.1 Orderable Licenses

The licenses for a console are locked to the Solid-State Drive. Therefore, licenses cannot be copied from machine to machine. To obtain additional licenses, contact the L3Harris Customer Care center and provide the Option Number, Feature Description (see Table 15-3), and the machine's "Locking Code."

Table 15-3: Optional Licensed Features

NEW SYSTEM OPTION NUMBER	SYSTEM UPGRADE OPTION NUMBER	FEATURE DESCRIPTION
UD-SG2U	SS-SG2U	License, Individual I-Calls
UD-SG2V	SS-SG2V	License, adds 2 Patch Definitions and 1 Patch Activation
UD-SG2W	SS-SG2W	License, adds 2 SimulSelect Definitions
UD-SG2X	SS-SG2X	License, Local Full Screen and Baton
UD-SH3B	SS-SH3B	License, Remote Baton
UD-SG2Z	SS-SG2Z	License, adds 2 Speakers
UD-SG4P	SS-SG4P	License, adds 2 User Set-ups/Screens
UD-SG4Q	SS-SG4Q	License, adds 4 Workspace Tabs
UD-SG4S	SS-SG4S	License, Call Director
UD-SG4T	SS-SG4T	License, Conventional Station Controls
UD-SG4U	SS-SG4U	License, Paging Capability
UD-SG4V	SS-SG4V	License, Request-to-Talk Features (includes RSM)
UD-SG4W	SS-SG4W	License, AES Level Encryption and DES Level Encryption
UD-SG4Y	SS-SG4Y	License, Remote Aux I/O
UD-SH1W	SS-SH1W	License, Console FlexPaths
UD-SH2L	SS-SH2L	License, Priority Marker Tone, PMT
UD-SH2N	SS-SH2N	License, Call Alert, send only
UD-SH3C	SS-SH3C	License, CAD API SDK
UD-SH3R	SS-SH3R	License, Radio Check
UD-SH4R	SS-SH4R	License, Discreet Listening
UD-SH4U	SS-SH4U	License, Radio Unit Monitor
UD-SH4V	SS-SH4V	License, Base SIP, 4 Extensions, 8 Calls (maximum 1)
UD-SH4W	SS-SH4W	License, SIP, Add 4 Extensions, 8 Calls (maximum 1)
UD-SH5W	SS-SH5W	License, No Subscriber Warning
UD-SH7X	SS-SH7X	License, Embedded Web Browser
UD-SH8K	SS-SH8K	License, Dynamic Cross-Mute
UD-SH8R	SS-SH8R	License, Advanced Paging

15.3.2 Symphony Console Locking Code

The “Locking Code” is an alpha-numeric string used to uniquely identify the Symphony hard drive and associated Symphony software. A locking code from one machine cannot be used on another. The “Locking Code” is listed on the **About** screen and must be provided when ordering additional licenses.

15.4 RECOVERING LICENSES

In most circumstances, you do not need to obtain new licenses for Symphony from L3Harris. Because the license is locked to the SSD, new licenses must be generated if you physically change the SSD. Otherwise, the original licenses can be used.



NOTE

Back-up the license file and record your locking codes so that lost licenses can be easily repaired.

A copy of a lost license file can be provided by L3Harris Customer Care center. They require either the locking code or Activation ID (provided on the license certificate).

Table 15-4: Determine if New Licenses are Required

USE CASE	NEW LICENSE REQUIRED	NOTES
Receive New Symphony	No	Licenses are installed at the factory for the features ordered.
Uninstall/Reinstall Symphony Software	No	The license file remains on the SSD even when the application is uninstalled.
Upgrade Symphony Software	No	The upgrade process maintains the original licenses. You may need to order and load licenses for new features that are available.
Move SSD to another SDP/Replace SDP	No	The licenses are locked to the SSD; they can be freely moved from one SDP to another. Refer to Section 12.2.4 for additional information.
Reinstall Windows	No	The original licenses can be re-loaded. They must have been backed-up or L3Harris Customer Care center can provide a copy.
Replace/Upgrade SSD	Yes	L3Harris Customer Care center can provide new licenses using the new Locking code.

15.5 INSTALLING LICENSES

A new license provided by L3Harris will be in the form of a file which must be saved to an accessible file folder such as the Desktop. The default location for the license file is the **C:\ProgramData\Harris\Symphony\Licenses** folder. To install new licenses, run the Symphony – License Import Utility.



Editing the license file with a text editor is not recommended as it could result in improper operation.

15.5.1 Loading licenses

To load new licenses:

To get to the desktop on Windows 8.1, tap or click the Desktop tile on the Start screen, or press **Windows logo key +D** on your keyboard.

1. On a Symphony Dispatch Platform 1.0 running Windows 8.1, press the Windows logo key to go to the Windows Start Screen.

On a Symphony Dispatch Platform 1.0 running Windows 10, press **Windows logo key**. Select **All apps**, scroll through the alphabetical list to locate the **Symphony** folder, and then expand the folder.

On a Symphony Dispatch Platform 2.0 running Windows 10, press the **Windows logo key**. Locate the **Symphony** folder and then expand the folder.

2. On a Symphony Dispatch Platform 1.0 running Windows 8.1, click on the **Load Licenses** icon in the **Symphony** section. The Windows desktop will open.

On a Symphony Dispatch Platform 1.0 or 2.0 running Windows 10, click on the **Load Licenses** icon.



Administrator rights are required for this utility.

If UAC is enabled, you will be prompted for the Administrator's password.

The **Symphony-License Import Utility** will open and display the “Locking Code” for this machine.

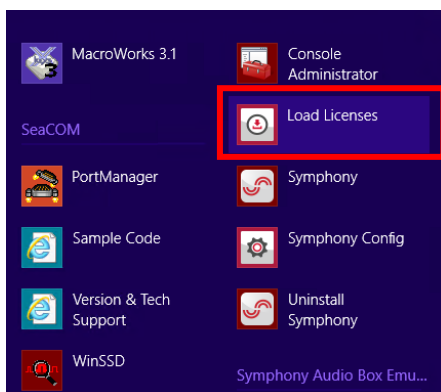


Figure 15-3: Launch Symphony – License Import Utility from Start Screen (Windows 8.1)

3. Select **Import license from file** and browse for the file.

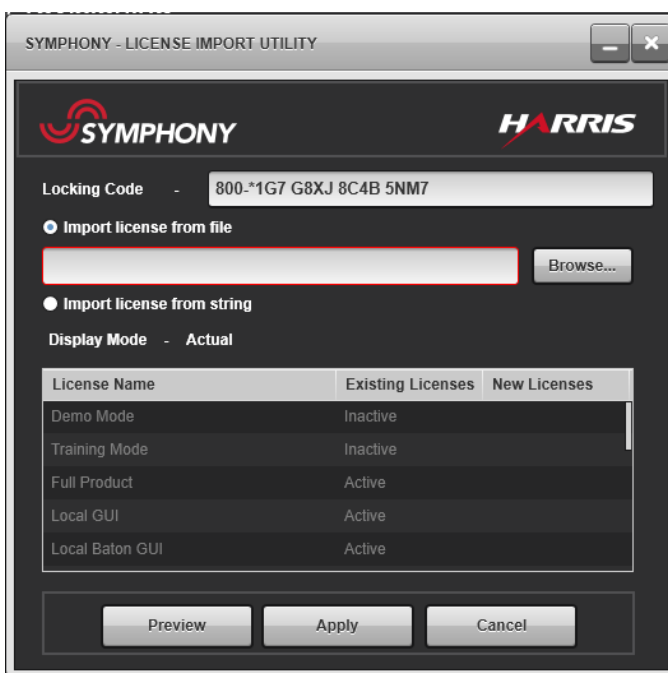


Figure 15-4: License Import Utility – Import license from file

4. Click **Preview**.

The license list will change to show the effect of loading the licenses. Red lines indicate that there will be a loss of function; for example, replacing a four speaker license with a two speaker license.

Green lines mean that the feature will be added or upgraded.

5. Once satisfied with the license import, click **Apply**.

15.5.2 The Demo License

Typically, Symphony software is received from the L3Harris factory with all product and feature licenses pre-installed. If, for some reason, the customer installs a new Symphony, the default license will be installed. This is a demo license that activates a subset of features and lasts only 30 days.

This license should be replaced with a product license using the procedure above.

If you are using the demo mode license and it expires, contact L3Harris Customer Care center to obtain a demo license extension or purchase a product license.

16. SYMPHONY CONFIGURATION

16.1 OVERVIEW

This section describes the tools and processes for customizing Symphony behavior. Symphony offers a variety of options to support a wide range of system configurations and operating procedures.

16.2 USING THE SYMPHONY CONFIGURATION UTILITY



NOTE

Each setting on the General tab must be considered for each installation. The default values are not necessarily safe to run in any system configuration. Review the following descriptions and ensure that your system is properly configured before starting dispatch operations.



NOTE

Symphony and the Baton (if applicable) must be restarted for changes made in this utility to be applied.

Most of the administrative settings for the console are managed with the Symphony Configuration Utility. This tool is organized by categories of settings as shown in Figure 16-1. Changes do not take effect while the Symphony is running; restart Symphony for the changes to take effect.

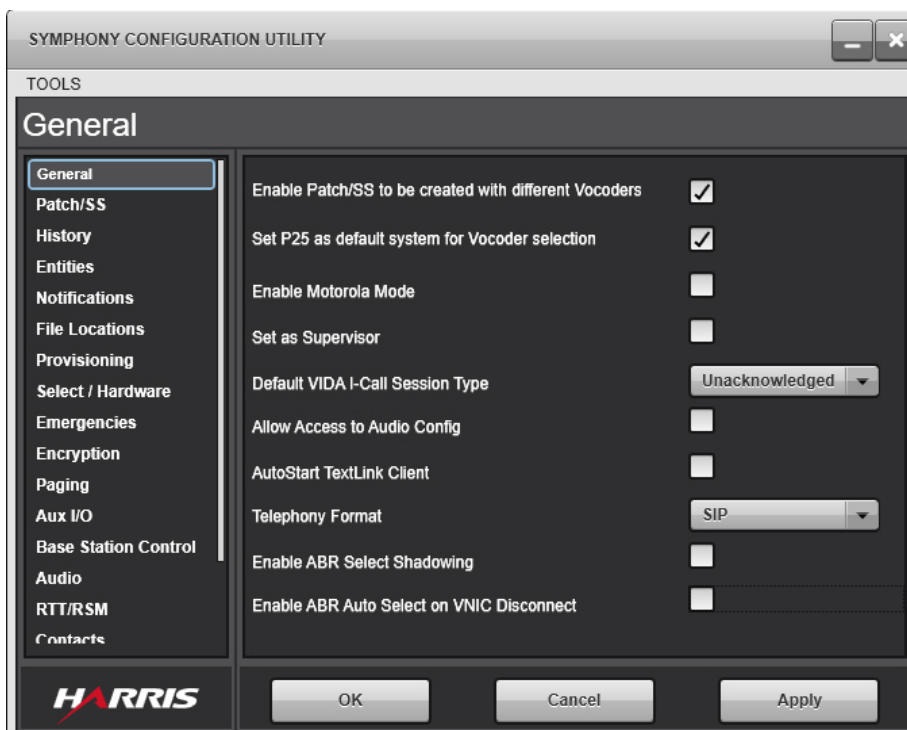



Figure 16-1: System Configuration Utility


The utility must be executed with Windows administrator rights. It is designed to work with Windows operating system's User Account Control (UAC) feature. This means that if an unprivileged user, such as a dispatcher runs the tool, the user is prompted for the Administrator password. This allows administrators to make changes to the Symphony configuration without logging out of the dispatcher account.

If the UAC feature is disabled, the utility must be executed from an administrator account. If it is executed from a non-administrator account, the tool shows the current configuration, but changes are not saved.

To Launch the Symphony Configuration Utility:

1. On a Symphony Dispatch Platform 1.0 running Windows 8.1, press the **Windows logo key** to go to the Windows Start Screen.

On a Symphony Dispatch Platform 1.0 running Windows 10, press the **Windows logo key** . Select **All apps**, scroll through the alphabetical list to locate the **Symphony** folder, and then click to expand the folder.

On a Symphony Dispatch Platform 2.0 running Windows 10, press the **Windows logo key** . Locate the **Symphony** folder, and then click to expand the folder.

2. On Windows 8.1, select **Symphony**→**Symphony Config**.

On Windows 10, click the **Symphony Config** icon.

With UAC enabled, you are either prompted for the Windows administrator password, or asked to allow this program to make changes to this computer. Enter the password and click **Yes**.

3. Select the desired tab and make the necessary changes.
4. Click **Apply** to save the changes for that tab.
5. Click **OK** to save the changes and close the application, or click **Cancel** to cancel your changes, and shutdown the configuration utility.

16.2.1 Tools Menu

The Tools menu is available in the application's menu bar and contains one item: Configure Provision Service. Configuring this service allows the Symphony Configuration Utility to download the latest group and unit information, if supported by the system, and makes it available via combo boxes in the utility's various Tools tabs, similar to the combo box shown in Figure 16-2. This allows the user to choose groups and units from a list rather than entering data by hand. The combo box also allows the user to enter data manually, if downloaded data is unavailable.

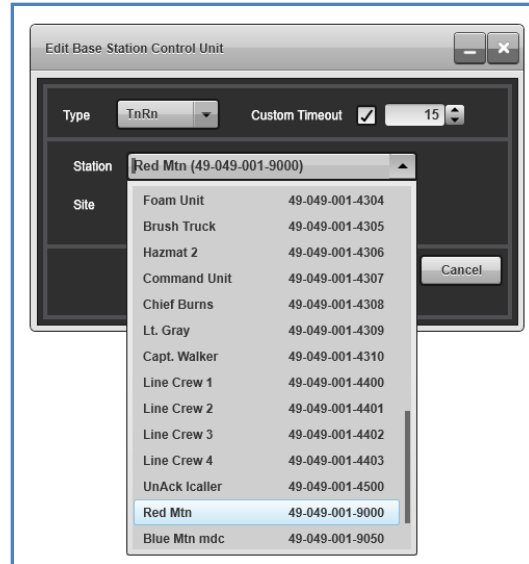


Figure 16-2: VIDA Edit Base Station Control Combo Box

The information is collected from a web service provided by Site Manager Services (SMS). The Tools Menu opens the **VIDA Provision Service Configuration** dialog shown in Figure 16-3, which configures and tests the connection to the SMS. The web service is only available on system releases SR10A.1 or later. Consult your System Administrator for the appropriate Service URL if available. Enter the **Service URL** and click the **Apply** to connect. The Service Status is indicated on the dialog.

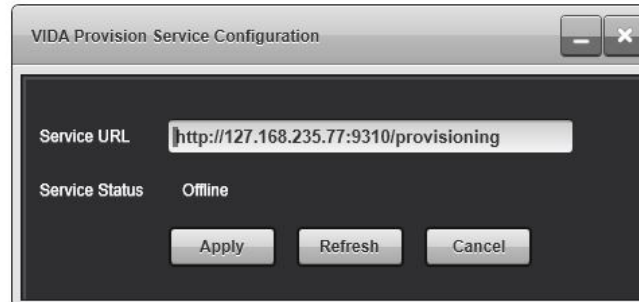


Figure 16-3: VIDA Provision Service Configuration Dialog

The Configuration Tool does not update data from the web service each time it is started. Manually refresh this data anytime by clicking **Refresh** in the **VIDA Provision Service Configuration Dialog**. Data from the web service is saved locally so group and/or unit information is available even if the web service is temporarily offline.

Depending on UAS and Symphony configuration, the list of group and unit IDs provided by the web service may be a superset of the group and unit IDs supported by the console at runtime. Therefore, it is possible to configure a destination entity that is not available at runtime. This discrepancy can only be detected at runtime when it will be flagged to the user.

Manually entered IDs are accepted with only limited range checking to allow configuration when the cached data is out of date. Make sure the numbers you manually enter are correct to prevent runtime errors.

16.2.2 General Tab

The General tab contains the settings that **MUST** be set appropriately based on the system setup. If these are not set properly, Symphony will not function properly.



Some of these settings are repeated in the later tabs. They are the same setting, just listed here for convenience.

Enable Patch/SS to be created with different Vocoders: When enabled, Symphony will allow Patches and SimulSelects to be created with talkgroups that have different vocoders. If disabled, Symphony will not allow dispatchers to build Patches or SimulSelects with different vocoders.

If the console already contains definitions for patches or SimulSelects that contain multiple vocoders and this setting is unchecked, Symphony will not allow those definitions to be activated (an error message will be shown). These definitions must be edited to comply with this policy.



If the VIDA system contains a transcoder, this setting may be checked. If there is no transcoder, then this setting must be unchecked to ensure that all radios can communicate when Patches and SimulSelects are activated.

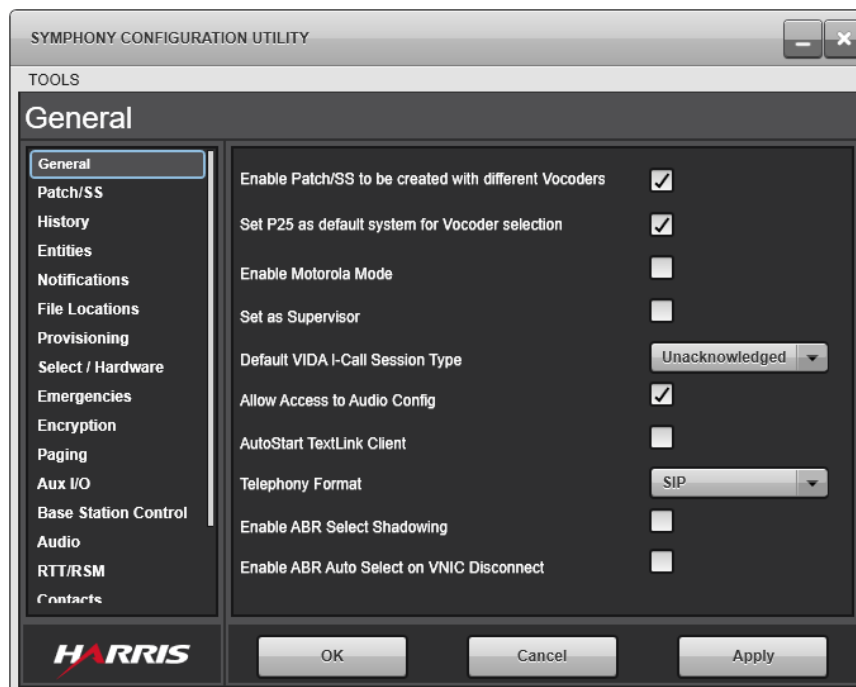


Figure 16-4: General Tab

Set P25 as default system for Vocoder selection: This setting controls which vocoder is selected when Patches and SimulSelects containing both P25 and OpenSky vocoders are activated. This setting is not used when “Enable Patch/SS to be created with different Vocoders” is unchecked.

Operations when Patching or SimulSelecting groups with like vocoders are not effected by this setting. It is only used when groups containing dissimilar vocoders are used.

When enabled, the P25 vocoder will be used as default when building Patches and SimulSelects. Symphony will favor the P25 vocoders over the OpenSky vocoders.

The purpose of this setting is to minimize the load on the transcoder. If your system has more OpenSky radios than P25 radios, then this should be unchecked.

Enable Motorola Mode: Enable this setting if Motorola P25 radios will be used on this VIDA system.



This setting MUST match the setting in the P25 Site Personality. Failure to ensure that ALL sites and consoles contain the same setting will result in unpredictable behavior including the inability to communicate with radios when they declare emergencies.

This controls two behaviors. First, it controls how Talkgroup emergencies and Patches interact in the VIDA system. Motorola radios do not operate properly when an emergency is declared on a Patch. This setting also controls the number of entities allowed in a SimulSelect and whether units are allowed in the SimulSelect. Motorola radios, unlike L3Harris radios, cannot be SimulSelected.

When enabled, only six entities can be added to a SimulSelect, however units cannot be added. If this setting is changed after a SimulSelect is defined with more than six entities, Symphony will not activate that SimulSelect and will show an error message. The entity limit is required for Motorola radios to operate properly on a VIDA system. When disabled, up to fifteen entities including units can be SimulSelected.

Also, when enabled, Symphony will not allow dispatchers to declare an emergency on an active patch. Instead the dispatcher must either deactivate the patch (recommended) and then declare the emergency or declare the emergency on a Talkgroup module within the patch.

When the dispatcher declares an emergency on a Talkgroup in an active patch, Symphony will automatically remove that Talkgroup from the patch. There is a possibility that the patch will be completely deactivated instead, or lose more than the single Talkgroup. This can be caused by other consoles activating/deactivate patches while the original Patch is being modified. Dispatchers should be trained to deal with these possibilities.

Set as Supervisor: When enabled, Symphony will behave as a supervisor with regards to call priority and some settings.

Default VIDA I-Call Session Type: This is the default Individual Call (I-Call) type that will be used for I-Calls.

The two options are “Acknowledged” and “Unacknowledged.” Acknowledged I-Calls behave similar to a telephone. First the caller rings the other party. The other party must then answer and the call is established. After that, the parties may talk. On the VIDA system, the callers talk using the PTT buttons.

Unacknowledged I-Calls behave similar to calls on Talkgroups. The caller PTTs and talks - if the callee hears the call, the callee may PTT back.

On the VIDA system, it is possible to have multiple radio and site types, each using a different I-Call type. Symphony is not provisioned for the expected I-Call type of each unit/user. Instead, it uses this value for all newly provisioned units/users.

Symphony indicates its expected I-Call type for a unit with an icon on the unit's Smart Button. An arrow indicates that the console will attempt an Acknowledged call, while a TX icon means it will attempt an Unacknowledged call. It is possible that the expected I-Call type does not match the actual type. If that is the case, then Symphony will automatically switch to the actual I-Call type for that unit when an I-Call is received. The I-Call type for the unit is saved, effectively learning the correct type.

When a dispatcher calls a unit that is expected to be Acknowledged (arrow icon) and it turns out to be unacknowledged, the call will not go out, but the icon will change to a TX. The dispatcher can then press the button to place an Unacknowledged I-Call. If a dispatcher calls a unit expected to use an Unacknowledged call (TX icon) and it turns out to be Acknowledged, the icon will change to "ringing" and the remote radio will start to ring. The call then proceeds as a normal Acknowledged I-Call.

By choosing this setting properly, the administrator can minimize the times when the incorrect I-Call type is indicated and make the dispatcher experience easier. Most systems use a single I-Call type and the setting should correspond to that. Since this is a setting that affects usability, it should be set to match the most likely I-Call type the dispatcher will use when multiple types are supported by a system.

Table 16-1 shows systems and their corresponding I-Call types.

Table 16-1: Recommended Default VIDA I-Call Settings

TYPE	RECOMMENDED SETTING (ACKNOWLEDGED OR UNACKNOWLEDGED)
OpenSky	Acknowledged
P25 Conventional	Unacknowledged
P25 Trunked	P25T supports both. Check the site configuration.

Allow Access to Audio Config: When this is enabled, dispatchers can launch the Audio Box configuration dialog and make changes to the audio settings. When disabled, only accounts with administrator privileges can make changes to the audio settings.

Enable ABR Select Shadowing: When enabled, the ABR module's monitored group will automatically match the group of the selected Group module if the ABR is programmed with that group. If a Patch is selected, the ABR module's monitored group will automatically match the first programmed group in the patch if the ABR is programmed with any groups in the patch.

Enable ABR Auto Select on VNIC Disconnect: When enabled, the ABR module will automatically be selected when Symphony has fully disconnected from the VNIC.

Telephony Format: Selects the Telephony Format between SIP Telephony Mode or Call Director Mode. SIP Telephony is a Licensed Feature. If an appropriate SIP Telephony License is not applied to the console, the Symphony Console will revert to Call Director Mode.



You cannot use SIP and a phone connected to the Call Director port simultaneously. There can only be one type of phone used at a time. Changing between SIP and Call Director requires an immediate restart of the application.

16.2.3 Patch/SS Tab

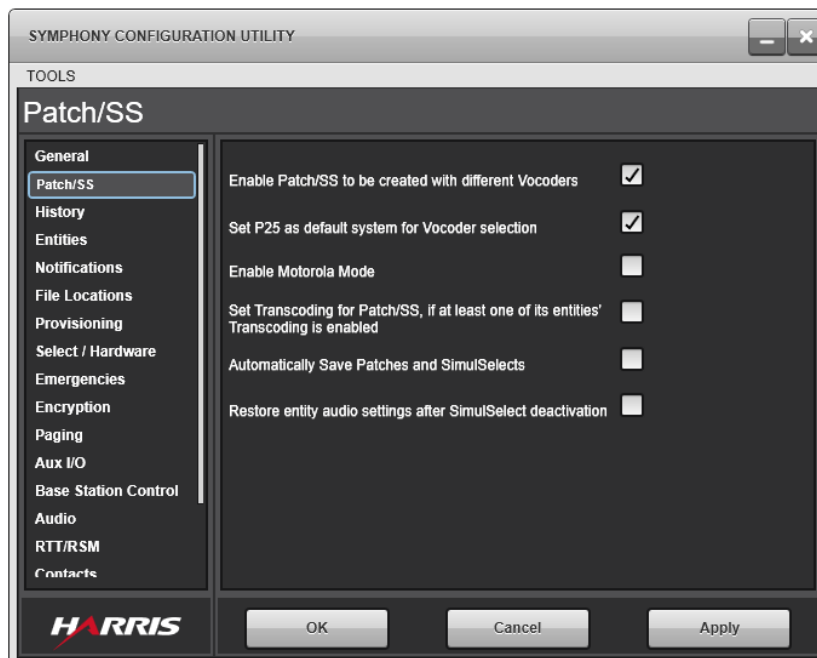


Figure 16-5: Patch/SimulSelect Tab

Enable Patch/SS to be created with different Vocoders: See the **General** tab in Section 16.2.2.

Set P25 as default system for Vocoder selection: See the **General** tab in Section 16.2.2.

Enable Motorola Mode: See the **General** tab in Section 16.2.2.

Set Transcoding for Patch/SS, if at least one of its entities' Transcoding is enabled: When enabled, Symphony allows transcoding on built Patches if at least one entity of the Patch allows transcoding. When disabled, Symphony requires all entities to have transcoding allowed before it allows transcoding on a Patch.

Automatically Save Patches and SimulSelects: When enabled, all Patches and SimulSelects are automatically saved upon creation and modification. AdHoc Patches and SimulSelects are retained upon deactivation if the license limit has not been exceeded for saved Patches/SimulSelects.

Restore entity audio settings after SimulSelect deactivation: Entities belonging to an active SimulSelect are unmuted. After the SimulSelect is deactivated, all the previous member entities remain unmuted by default. If this setting is enabled, entities that were muted before the SimulSelect was activated will be re-muted when the SimulSelect is deactivated.

16.2.4 History Tab

Maximum age of a history entry in minutes: The amount of time in minutes that Symphony maintains history entries. After a history entry times out, it is removed from the system's memory. The valid range is 15 to 1440 minutes. The default is 480 minutes. Legacy Symphony users (R4 and earlier) will find this new default takes effect as long as they have not customized this setting previously. To reinstate the previous default – 1440 minutes – the administrator should set this setting to the preferred value. Additional user-controlled settings in the Symphony GUI can be used to further limit the number of history entries shown in the History panels. If setting the Maximum age of a history entry to large retention times, it may be necessary to also increase the Maximum WAV file folder size to preserve older calls for the entire duration.

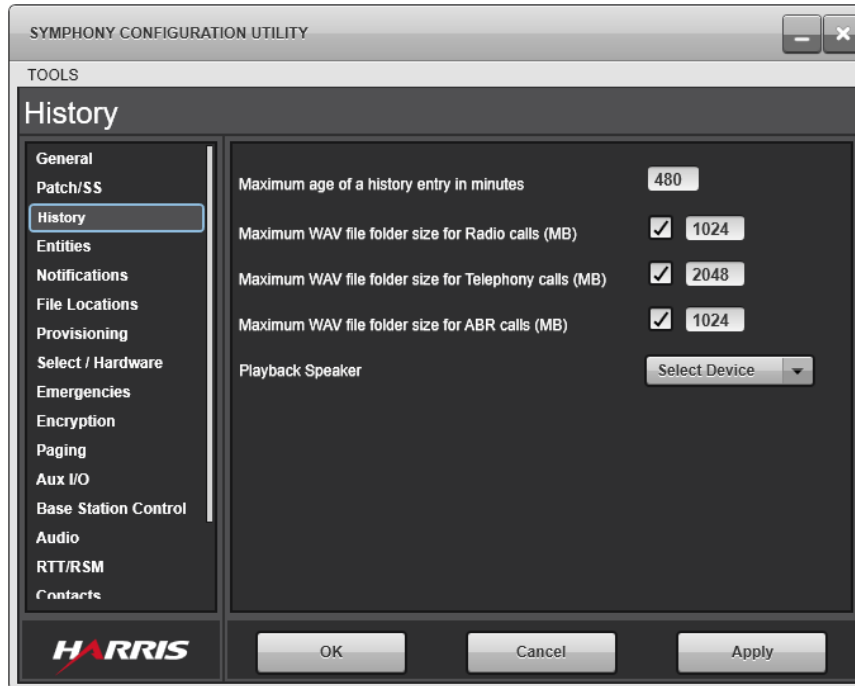


Figure 16-6: History Tab

Maximum WAV file folder size for Radio calls (MB): This is the amount of disk space reserved for Radio Call History replay files. The valid range for this control is 1024 - 20480 MB. This sets the maximum number of Megabytes of Radio Call audio files that are available for Call History playback. If the Radio Call audio files exceeds this maximum limit, Symphony purges the oldest calls to remain under this limit. If a call replay file is purged, you cannot replay the call from the Call History. Symphony is not a voice archival system or logging recorder. These WAV files are stored for purposes of providing tactical, short-term, playback capability. This setting should be chosen to provide enough storage for all required operational procedures and no more. Setting this to an extremely large value can slow the system down.

Maximum WAV file folder size for Telephony calls (MB): This is the amount of disk space reserved for Call Director or SIP Call History replay files. The valid range for this control is 2048 - 20480 MB. This sets the maximum number of Megabytes of Phone Call audio files that are available for Call History playback. If the Phone Call audio files exceed this maximum limit, Symphony purges the oldest calls to remain under this limit. If a call replay file is purged, you cannot replay the call from the Call History. Symphony is not a voice archival system or logging recorder. These WAV files are stored for purposes of providing tactical, short term, playback capability. This value should be set to provide enough storage space for all required operational procedures and no more. Setting this to an extremely large value can slow the system down.

Maximum WAV file folder size for ABR calls (MB): This is the amount of disk space reserved for ABR Call History replay files. The valid range for this control is 1024 - 20480 MB. This sets the maximum number of Megabytes of ABR Call audio files that are available for Call History playback. If the ABR Call audio files exceed this maximum limit, Symphony purges the oldest calls to remain under this limit. If a call replay file is purged, you cannot replay the call from the Call History. Symphony is not a voice archival system or logging recorder. These WAV files are stored for purposes of providing tactical, short-term, playback capability. This setting should be chosen to provide enough storage for all required operational procedures and no more. Setting this to an extremely large value can slow the system down.

Playback Speaker: This is the speaker or device used when a dispatcher plays a call back from the instant recall recorder/history. By default, this audio is played out the current select device. Typically, this is the headset or select speaker (if no headset is inserted). Any unselect speaker can be chosen instead of the select device. If the chosen speaker is not inserted, then playback audio goes to the highest number unselect speaker.



NOTE

Telephony call WAV files are stored in one (1) minute segments. A typical Telephony call will have multiple one (1) minute WAV files. Symphony can save as many as 480 of these segments for a total of eight hours of call playback. If the call continues after the 480-segment maximum is reached, Symphony starts deleting the oldest segments to maintain the 480-segment maximum.

16.2.5 Entities Tab

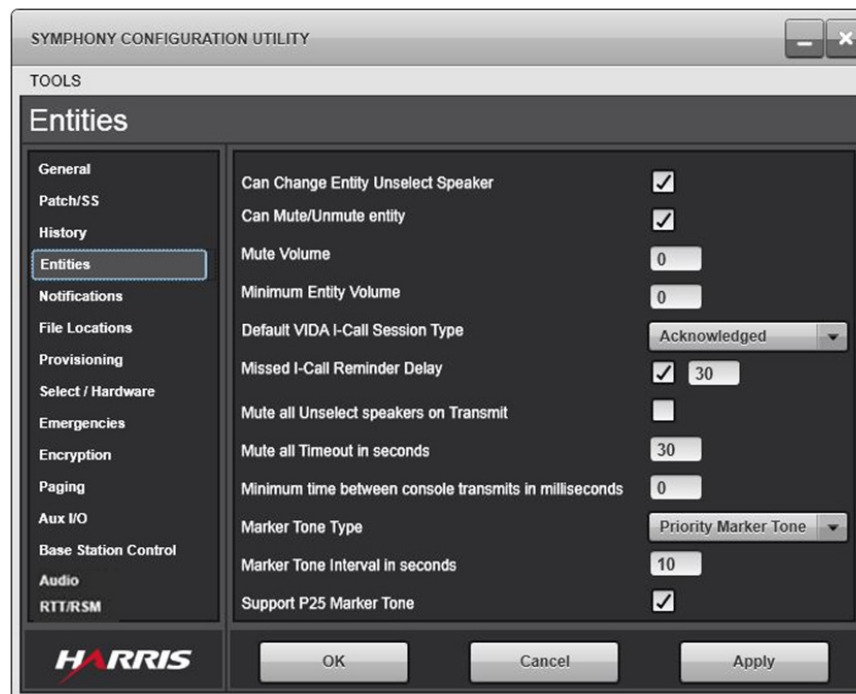


Figure 16-7: Entities Tab

Can Change Entity Unselect Speaker: When enabled, the dispatcher can change the unselect speaker setting for each entity at runtime.

Can Mute/Unmute entity: When enabled, the dispatcher can mute or unmute an entity at runtime.

Mute Volume: This is the volume applied when an entity is muted. When non-zero, the mute function lowers the volume to that level. Valid range is 0 to 120. This overrides the Minimum Entity Volume when an entity is muted (it is possible to have a higher mute volume than the minimum entity volume).

Minimum Entity Volume: This is the minimum volume policy for entities. When non-zero, Symphony does not allow the volume of an entity to be set lower than the given volume (except for mute). Valid range is 0 to 120.

Default VIDA I-Call Session Type: See the **General** tab in Section 16.2.2.

Missed I-Call Reminder Delay: When enabled, Symphony plays a tone for a preconfigured duration. This reminds the dispatcher of the missed acknowledged I-Call. If the dispatcher does not respond to an I-Call from a user, Symphony plays the tone until the dispatcher acknowledges it. When this box is checked, an additional field appears, to the right of the checkbox, for the timeout value. The valid range is 30 to 600 seconds. Un-checking the box disables this feature and the reminder tone is never played.

Mute all Unselect speakers on Transmit: When enabled, all unselect entities are muted when the dispatcher transmits. This can prevent audio from incoming unselect calls from being picked up by the microphone. Typically, this is not necessary when using headsets. However, this setting does not take effect, i.e., unselect entities are not muted, during outgoing marker, page, or alert tones.

Mute all timeout in seconds: The time in seconds that the Mute All feature remains muted. When the Mute All button is pressed, the timeout starts. If the timeout expires before the Mute All feature is disabled, then the Mute All feature is disabled automatically. This timeout ensures that the unselect speakers do not remain muted for an extended period should the dispatcher forget to disable Mute All. The valid range for this control is 10 - 60 seconds.

Minimum time between console transmits in milliseconds: This parameter controls the minimum time between console transmissions to ensure the system signaling of one call completes before a new call begins. The valid range for this control is 1 – 1000 milliseconds.

Marker Tone Type: A Marker Tone (MT) is an audio tone that is sent over an RF channel (i.e., a talkgroup, patch, or conventional channel) periodically to indicate an emergency condition on that channel. Typically, this is a short duration tone intended to be heard by mobile units. Symphony supports two types of Marker Tones. The Priority Marker Tone (PMT) is sent after a period of inactivity on the channel. The Signal Tone (also called Channel Marker or Code Red) is sent at regular intervals on the channel. Select the Tone type from the drop-down box.

Symphony provides a default marker tone of approximately 700 Hz for 200 milliseconds. You can replace this tone with a custom WAV file by replacing C:\ProgramData\Harris\Symphony\Default Settings\SoundFiles\MarkerTone.wav with your own WAV file of the same name. See Appendix B for details.

Marker Tones use a special ID that must be configured in the UAS (see Section 7.2) and in the connection manager (see Section 9.1).

Marker Tone Interval: Sets the period of inactivity for Priority Marker Tones or repeat period for Signal Tones. Enter the time in seconds. The valid range of this control is 10 - 600 seconds.

Support P25 Marker Tone: Uses the MES/PSTN talker class when checked/unchecked, respectively. The MES talker class is required for any system including one or more P25 sites. This setting prevents field units from transmitting while the Marker Tone is being transmitted. The PSTN talker Class can be used for conventional or OpenSky systems that do not have P25 sites. The PSTN setting allows field units to transmit (i.e., pre-empt) marker tones.

16.2.6 Notifications Tab

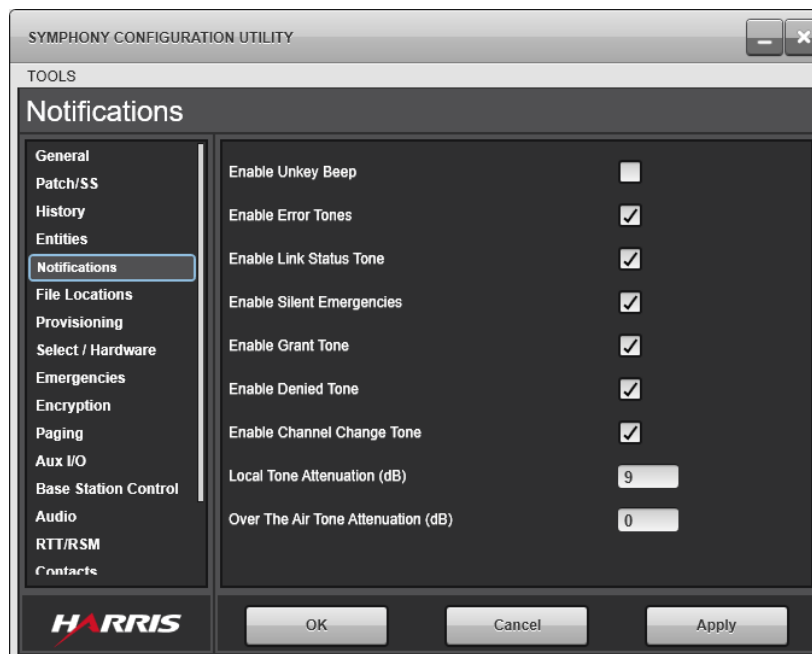


Figure 16-8: Notifications Tab

Enable Unkey Beep: If enabled, the Unkey Beep feature generates a tone when the local console, a remote console, or a radio unkeys after transmitting on an un-muted, selected entity. This provides an audible indication to the console operator that a console-originated transmission can be initiated without causing a console preempt. This feature is especially useful for dispatchers that are new to digital systems, but have experience on analog systems.

Enable Error Tones: When enabled, Symphony plays the error tone when an error occurs. It is recommended that this be enabled; otherwise, dispatchers that are not actively looking at the screen do not know that an error has occurred.

Enable Link Status Tone: When enabled, Symphony plays the link status tone when Symphony disconnects or reconnects to the VNIC. It is recommended that this be enabled; otherwise, dispatchers that are not actively looking at the screen do not know the status of the communications system.

Enable Silent Emergencies: When enabled, Symphony does not play the emergency tone or unmute the Talkgroup if an emergency is declared on a muted Talkgroup. However, if **Mute All Unselect Speakers on Transmit** is enabled and an unselect Talkgroup is muted due to an outgoing transmission on Symphony, Symphony plays the emergency tone and unmutes the Talkgroup if an emergency is declared on it. When this is disabled, Talkgroup emergency declarations automatically unmute their Talkgroup.

Enable Grant Tone: When enabled, Symphony plays the grant tone after the dispatcher PTTs and the VIDA system grants access to the communication channel signaling it is time to start speaking. It is *highly recommended* that this be enabled. When this is disabled, dispatchers who are not looking at the screen receive no indication when there is a problem with transmission, such as a long confirmation time.

Enable Denied Tone: When enabled, Symphony plays the denied tone when a transmission is denied. It is highly recommended that this be enabled. When this is disabled, dispatchers that are not looking at the screen receive no indication when there is a problem with a transmission, such as a busy channel.

Enable Channel Change Tone: When enabled, Symphony plays a tone whenever the current channel on a conventional station is changed. This can be used to notify dispatchers of changes made by other consoles.

Local Tone Attenuation (dB): The amount of attenuation to apply (in decibels) to local tones played at the console. The range is zero (0) to 96. This applies to all local tones including:

- Tones played to the Speaker/Headsets while an alert tone is being transmitted.
- Error Tones.
- Grant/Deny Tones.
- I-Call Tones.

Over-The-Air Tone Attenuation (dB): The amount of attenuation to apply (in decibels) to tones played over the radio system. The range is zero (0) to 96. This setting applies to alert tones.

16.2.7 File Locations Tab

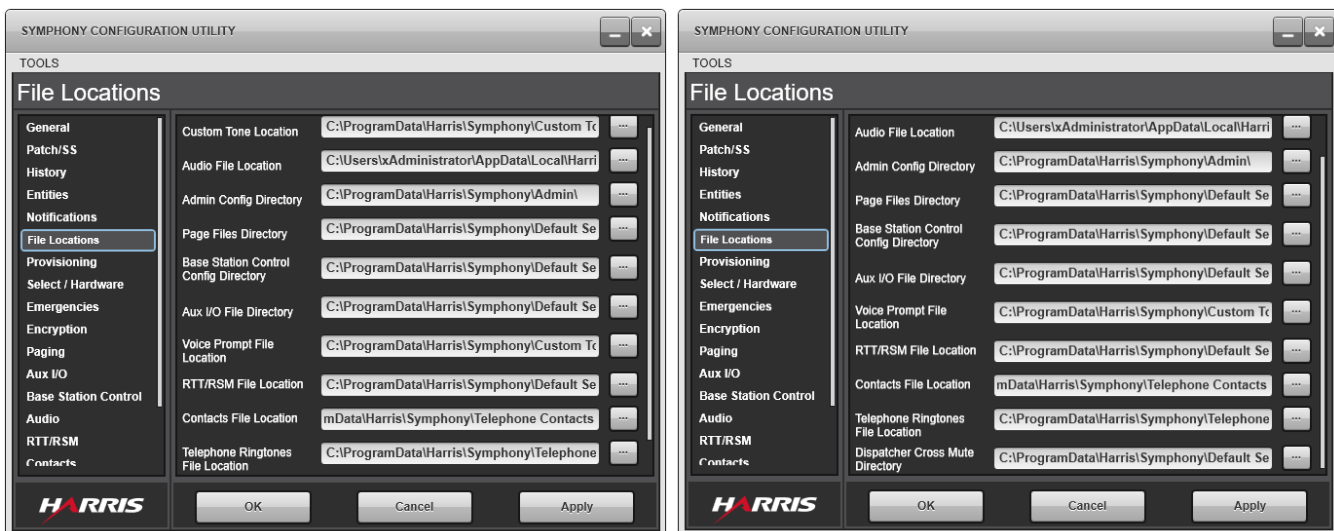


Figure 16-9: File Locations Tab

Custom Tone Location: This is the folder location of the tone files. If desired, this can point to a shared drive to store all the tone files in a common location. By default, this location is:

C:\ProgramData\Harris\Symphony\Custom Tones

Symphony identifies the files in this directory by name. If a tone file is found in this custom tone directory, then Symphony loads that file for use. If no tone file is available in this directory, then Symphony loads that file from default sound file directory.

C:\ProgramData\Harris\Symphony\Default Settings\SoundFiles

These files must be single channel 16-bit PCM with an 8 kHz sample rate.

Table 16-2: Tone WAV Files

FILE NAME	DESCRIPTION
AuxIOInputAlarmTone.wav	Tone is played when an acknowledged Aux I/O point becomes active.
BaseStationChangeTG.wav	Played when the current channel on a conventional station is changed. This feature can be enabled or disabled from the Notifications tab in the Symphony Configuration Utility; see Section 16.2.6.
BusyRingTone.wav	Tone is played when the line is busy for the outgoing SIP Telephony call recipient.
BusyTone.wav	Played when the dispatcher attempts to key on a Talkgroup or channel, but a higher priority call is already in progress.
GrantTone.wav	Played to the dispatcher when a transmit is successfully established. This indicates that the dispatcher should start speaking.
DefaultRingTone.wav	Tone that can be selected as a default for a SIP Telephony Contact. This tone is played when the contact calls the console.
DeniedTone.wav	Indicates that a call could not be made because it was not allowed by the system.
Dtmf0.wav	This DTMF tone is played when the 0 key is pressed on the Overdial dialpad during an active SIP Telephony call. The DTMF tones mentioned in this table provide additional call control such as navigating through Interactive Voice Response menus in a voicemail system.
Dtmf1.wav	This DTMF tone is played when the 1 key is pressed on the Overdial dialpad during an active SIP Telephony call.
Dtmf2.wav	This DTMF tone is played when the 2 key is pressed on the Overdial dialpad during an active SIP Telephony call.
Dtmf3.wav	This DTMF tone is played when the 3 key is pressed on the Overdial dialpad during an active SIP Telephony call.
Dtmf4.wav	This DTMF tone is played when the 4 key is pressed on the Overdial dialpad during an active SIP Telephony call.
Dtmf5.wav	This DTMF tone is played when the 5 key is pressed on the Overdial dialpad during an active SIP Telephony call.
Dtmf6.wav	This DTMF tone is played when the 6 key is pressed on the Overdial dialpad during an active SIP Telephony call.
Dtmf7.wav	This DTMF tone is played when the 7 key is pressed on the Overdial dialpad during an active SIP Telephony call.
Dtmf8.wav	This DTMF tone is played when the 8 key is pressed on the Overdial dialpad during an active SIP Telephony call.
Dtmf9.wav	This DTMF tone is played when the 9 key is pressed on the Overdial dialpad during an active SIP Telephony call.
DtmfPound.wav	This DTMF tone is played when the # key is pressed on the Overdial dialpad during an active SIP Telephony call.
DtmfStar.wav	This DTMF tone is played when the * key is pressed on the Overdial dialpad during an active SIP Telephony call.

FILE NAME	DESCRIPTION
EmerTone.wav	Played when a Talkgroup emergency is declared. This tone is repeated until the emergency is acknowledged.
ErrorTone.wav	Played when an action fails.
LinkStatusDown.wav	Indicates that the connection to the VNIC has entered "Poll Failing" state.
LinkStatusUp.wav	Indicates that the connection to the VNIC has been recovered.
LocalAlertTone.wav	This tone is played to the speaker or headset while the dispatcher holds the alert button. It indicates that the alert tone is being transmitted.
LocalPulseTone.wav	This tone is played to the speaker or headset while the dispatcher holds the pulse button. It indicates that the pulse tone is being transmitted.
LocalCustom1Tone.wav	This tone is played to the speaker or headset while the dispatcher holds the Custom1 button. It indicates that the Custom1 tone is being transmitted.
LocalCustom2Tone.wav	This tone is played to the speaker or headset while the dispatcher holds the Custom2 button. It indicates that the Custom2 tone is being transmitted.
LocalRxRingTone.wav	The ringing tone that is played when a unit or another console makes an Acknowledged I-Call to the console.
LocalTxRingTone.wav	The tone that is played when Symphony dials a radio. It indicates that the radio is ringing.
LocalWarbleTone.wav	This tone is played to the speaker or headset while the dispatcher holds the warble button. It indicates that the warble tone is being transmitted.
MarkerTone.wav	This tone is periodically played to the speaker or headset when Marker Tone is active.
NoSubscriberTone.wav	This tone is played when there are no subscribers available to listen to the call.
OverTheAirAlertTone.wav	This tone is transmitted while the dispatcher holds the alert button. The LocalAlertTone.wav file contains the sidetone that accompanies this, but is played to the console speakers/headsets.
OverTheAirPulseTone.wav	This tone is transmitted while the dispatcher holds the pulse button. The LocalPulseTone.wav file contains the sidetone that accompanies this, but is played to the console speakers/headsets.

FILE NAME	DESCRIPTION
OverTheAirCustom1Tone.wav	This tone is transmitted while the dispatcher holds the Custom1 button. The LocalCustom1Tone.wav file contains the sidetone that accompanies this, but is played to the console speakers/headsets.
OverTheAirCustom2Tone.wav	This tone is transmitted while the dispatcher holds the Custom2 button. The LocalCustom2Tone.wav file contains the sidetone that accompanies this, but is played to the console speakers/headsets.
OverTheAirWarbleTone.wav	This tone is transmitted while the dispatcher holds the warble button. The LocalWarbleTone.wav file contains the sidetone that accompanies this, but is played to the console speakers/headsets.
PageFailed.wav	Played when a page operation fails. By default, this tone is slightly different from the normal error tone so that it is easier to hear next to paging sidetones.
PendingSessionReminderTone.wav	Indicates that there was an inbound I-Call that the dispatcher has not acknowledged or responded to. The "Missed I-Call reminder Delay" configuration item controls when and if this tone is played.
RTTHighPriorityTone.wav	Played when a High Priority RTT message is received at the console on a group. The RTT Alarm State is configured in the RTT/RSM tab in the Symphony Configuration Utility. The RTT Priority level for each group is configured in the Directory.
RTTLowPriorityTone.wav	Played when a Normal Priority RTT message is received at the console on a group. The RTT Alarm State is configured in the RTT/RSM tab in the Symphony Configuration Utility. The RTT Priority level for each group is configured in the Directory.
SoftRingTone.wav	Tone that can be selected as a default for a SIP Telephony Contact. This tone will be played when the contact calls the console.
Startup.wav	Played immediately after the console has started.
UnitAlertTone.wav	Played when a unit emergency is declared. This tone is repeated until the emergency is acknowledged.
UnkeyBeep.wav	Tone that is played when the select Talkgroup becomes available.

It is possible to customize Symphony tones by replacing Symphony default WAV files with user generated WAV files. See Appendix B for details.

Audio File Location: This is the storage location for audio files used for call replay. This must be set to a location on the local disk drive.

Admin Config Directory: This is the folder to put configuration files for some runtime admin changes. This includes adding/deleting modules to the workspace, adding tabs, creating/modifying setups, changing Baton layout, etc.

For more information about managing the Admin directory, see Section 9.3.2.



NOTE

If the user running the console has write access to this folder, the user can modify the settings.

If the user does not have write access, the user cannot change any of these settings.

Page Files Directory: This is the location of Symphony's paging configuration. This includes XML files that describe the sequences, stacks, and alert tones as well as WAV files containing the paging sequences. This item can be set to a local or network drive. Using a network drive allows multiple consoles to share the paging configuration without copying files. The page files directory should be set before defining page sequences on the *Paging* tab. If you wish to change the location of the page files directory and pages have already been defined, manually copy the existing directory to the new location.

Base Station Control Config Directory: This is the location of Symphony's Base Station configuration. This directory includes XML files that describe the UACs in the VIDA network that the console will communicate with. This item can be set to a local or network drive. Using a network drive allows multiple consoles to share the Base Station configuration without copying files. The base station configuration directory should be set before defining Base Stations on the *Base Station Control* tab. If you wish to change the location of the base station configuration directory and base stations have already been defined, manually copy the existing directory to the new location.

Aux I/O File Directory: This is the location of Symphony's Aux I/O configuration. This directory includes XML files that describe the Aux I/O devices and points that Symphony will communicate with. This item can be set to a local or network drive. Using a network drive allows multiple consoles to share the Aux I/O configuration without copying files. The Aux I/O config directory should be set before defining Aux I/Os on the *Aux I/O* tab. If you wish to change the location of the Aux I/O config directory and Aux I/O devices and the points have already been defined, manually copy the existing directory to the new location.

Voice Prompt File Directory: This is the location of Symphony's Voice Prompt File directory.

RTT/RSM File Directory: This is the location of Symphony's RTT/RSM configuration. This directory includes XML files that describe the RTT/RSM message codes as well as behavioral preferences. This item can be set to a local or network drive. Using a network drive allows multiple consoles to share the Aux I/O configuration without copying files. The RTT/RSM config directory should be set before configuring the RTT/RSM tab. If you wish to change the location of the RTT/RSM config directory and RTT/RSM parameters have already been configured, manually copy the existing directory to the new location.

Contacts File Directory: This is the location of Symphony's Admin Contacts and speed dial XML files. This directory includes XML files that contain information of the Admin Contacts and Admin Speed Dials.

Telephone Ringtones File Directory: This is the location where all custom ringtones wave files are stored. The wave files stored in this directory are available for selection when configuring contacts. The Telephone Ringtones file directory should be set prior to configuring contacts for the custom ringtones to be available for selection. If the file directory has been modified to point to a different directory, Symphony Configuration Utility must be restarted before configuring Admin contacts.

It is possible to customize Symphony ringtones by replacing Symphony default WAV files with user-generated WAV files. See Appendix B for details.

Dispatcher Cross Mute Directory File Directory: This is the location of Symphony's Dynamic Cross-Mute configuration file. This file, *CrossMuteAliases.xml*, contains the PSAP ID and Alias for each console that the dispatcher can dynamically cross-mute audio at runtime.

16.2.8 Provisioning Tab

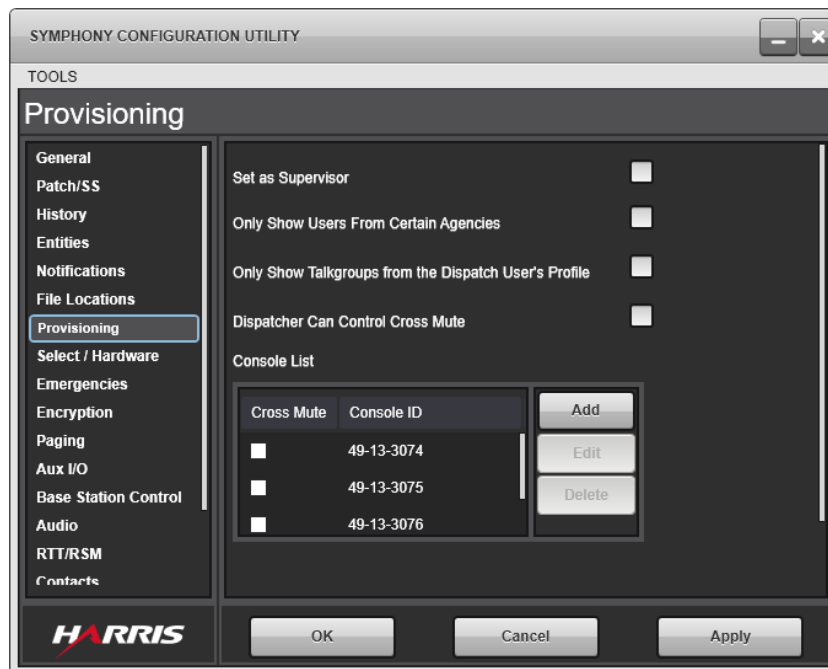


Figure 16-10: Provisioning Tab

Set as Supervisor: When enabled, this console will have supervisory privileges, including elevated call priority and access to supervisory features. To be a supervisor, this console must also be licensed to be a supervisor.

Only Show Users from Certain Agencies: When enabled, Symphony filters the user list by including only the defined agencies. The user list always includes those units from Symphony's own agency – they cannot be filtered. Ensure the agencies specified are valid Agency IDs.

Symphony does not receive unit alerts from filtered units.

If one of the filtered units calls Symphony on a group, the call history record contains a console-generated alias that contains the numeric unit ID.

Only Show Talkgroups from the Dispatch User's Profile: When enabled, Symphony filters the Talkgroup list by only including the Talkgroups in the dispatcher's personality (defined in the UAS).



CAUTION

If the current dispatcher's profile is changed at the UAS while Symphony is running, Symphony must be rebooted to reflect the change.

Call and Emergencies on filtered Talkgroups are not shown on the console.

When enabled, this setting overrides the "Route Unprogrammed Emergencies" setting (in the **Emergencies** tab) and emergencies on groups not in the dispatcher's profile are NOT displayed.

Unit alerts may be received that contain one of the filtered groups as the callback group. If this happens, the call back group in the emergency tab will be shown as "Unavailable."

Dispatcher Can Control Cross Mute: If the Dynamic Cross-Mute feature is licensed, checking the box enables the dispatcher to dynamically cross-mute audio from other consoles at runtime, using the Dynamic Cross Mute Sidebar Panel on Symphony. The Console List panel for Dynamic Mode will display as shown in Figure 16-12.

If the feature is not licensed and/or the box is not checked, only the administrator can statically determine which consoles are cross-muted using the Console List panel shown in Figure 16-10: Provisioning Tab.

When a console is cross-muted, any calls from that position are not played out on any speaker or headset of a local console. However, the call is recorded and may be played back. The “Mute Volume” setting is not applicable to Cross Mute; live cross-muted calls are always zero (0) volume. Unlike the C3 Maestro^{IP}, where Cross Mute is specified by User ID, Symphony specifies Cross Mute by position (PSAP).

Console List (Static Mode): This list, as shown in Figure 16-11, should be edited to include all consoles in the system. It enables the administrator to selectively cross-mute by checking the box in the right column beside its PSAP. When adding a new console to the list, enter a valid WACN, Region, and PSAP ID. This list can contain both Symphony and C3 Maestro^{IP} consoles.

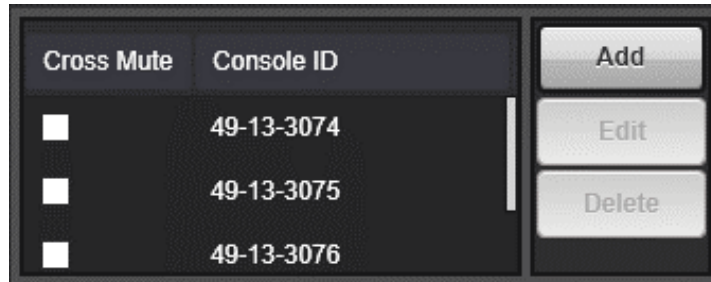


Figure 16-11: Console List Panel (Static Mode)

Console List (Dynamic Mode): This list, as shown in Figure 16-12, should be edited to include all consoles in the System that dispatchers can cross-mute dynamically. If the feature is licensed and ‘Dispatcher Can Control Cross Mute’ is checked, these consoles will be listed on the Dynamic Cross Mute Sidebar Panel, and the dispatcher can cross-mute and unmute identified consoles at runtime. When adding a new console to the list, enter a valid WACN, Region, and PSAP ID. Also add an alias string of up to 11 alphanumeric characters including space. The dispatcher can dynamically select whether the listed consoles are identified by PSAP or alias.

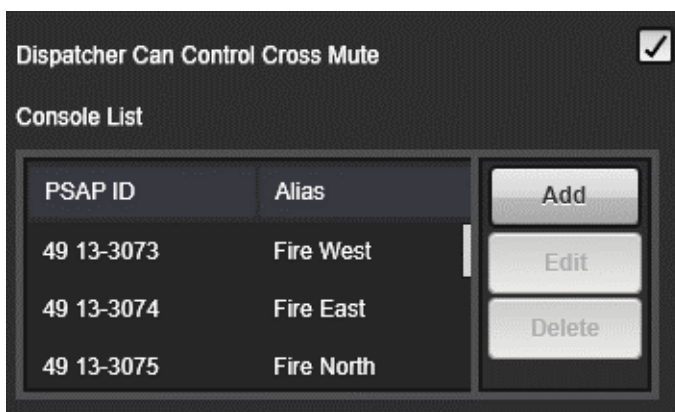


Figure 16-12: Console List Panel (Dynamic Mode)



The static and dynamic console lists replace the C3 Maestro^{IP} “console discovery” mechanism. Symphony does not support console discovery. C3 Maestro^{IP} consoles cannot cross-mute Symphony consoles. However, a Symphony can cross-mute C3 Maestro^{IP} consoles.

16.2.9 Select/Hardware Tab

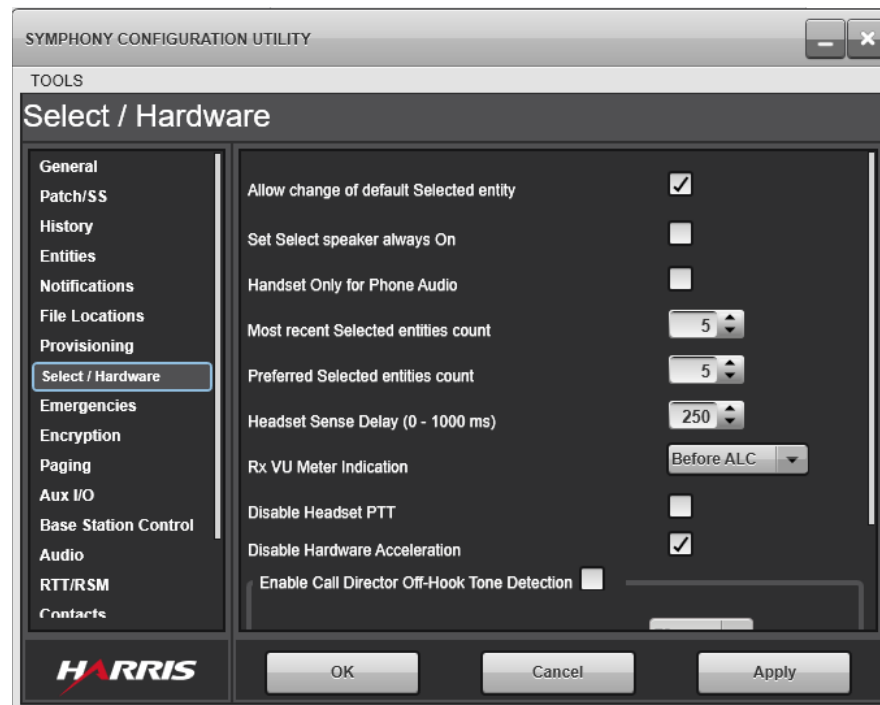


Figure 16-13: Select/Hardware Tab

Allow change of default Selected entity: When enabled, the dispatcher can change the Default Select Entity (DSE) at runtime.

The default select entity is the entity that is selected when Symphony is started or the setup is changed. Each setup has its own default select entity. The DSE is also used in cases where no other selection is possible or the current selection is invalidated. For example, if the currently selected group is deleted from the system, the DSE will be selected.

Set Select Speaker always On: When enabled, Symphony always plays select and priority audio to the select speaker, regardless of whether a headset is plugged in. When it is disabled, plugging in a headset sends all select and priority group audio to the headset only. This feature is not compatible with backup radio. If this is enabled and the console switches to backup radio mode, the audio routing reverts to the default with radio audio going to the headset only.

Handset Only for Phone Audio: This option is intended to support the use of an optional telephony style handset instead of an operator headset. This option is only available when using SIP telephony and is disabled when “Call Director” is selected on the “General” tab. The “Set Select Speaker Always On” setting is unavailable when this is enabled. When enabled, select radio audio is routed to the select speaker if the handset is off hook and the dispatcher is in an active SIP call. Select radio audio is routed to the handset if the handset is off hook and the dispatcher is not in an active SIP call. All PTT sources, except for the one on the handset itself, turn on the Desk Mic and not the handset. When there is an active phone call, the handset is full duplex when off hook. This feature does not work when using a Backup Radio. If this feature is enabled and the console is switched to backup radio mode, the handset acts like a headset and backup radio audio is routed to it as usual.

Most recent Selected entities count: The count of the maximum amount of entities in the most recently selected entity list. Symphony places these entities on the Select menu for ease of access. Valid range is 1 to 10.

Preferred Selected entities count: The count of the maximum amount of entities in the preferred selected entity list. Valid range is 1 to 10. The dispatcher can set the preferred selected entities in the directory dialog. These entities are always present on the Select menu for ease of access.

Headset Sense Delay: This setting defines the time in milliseconds when the PTT line will be ignored after a headset insertion is detected. Due to the mechanical design of the headset jackbox, the PTT line is shorted when the dual prong jack is inserted. This will key the console for a short period of time, creating a call on the radio system. Ignoring the PTT line until the headset sense is “steered” alleviates this problem. Setting this value higher allows for slower insertion of the headset dual prong adapter.

RX VU Meter Indication: This setting defines whether the RX VU meter indicates the audio level before or after Automatic Level Control. If ALC is disabled, this setting has no effect.

Disable Headset PTT: This setting disables the headset PTT function. The primary purpose of this setting is to allow 4-wire a headset to be used by Symphony. When a 4-wire headset is used, the headset PTT MUST be disabled, otherwise, the console will continuously key while the headset is inserted. The reason is a 4-wire headset shorts the PTT lines in the 6-wire jack boxes that Symphony ships with. This option can also be used to disable the PTT button on 6-wire headsets if that is desired.

Disable Hardware Acceleration: This setting disables Symphony’s use of the graphics hardware for drawing, or rendering the Symphony GUI. When this box is checked (the default), Symphony will use software emulation and the CPU to compose and draw the screen. When unchecked, Symphony will take advantage of the graphics processor (GPU) in the Symphony Dispatch Platform. Disabling use of the graphics hardware can alleviate stability problems with some graphics drivers. L3Harris recommends leaving this checked unless GPU hardware is required for performance reasons.

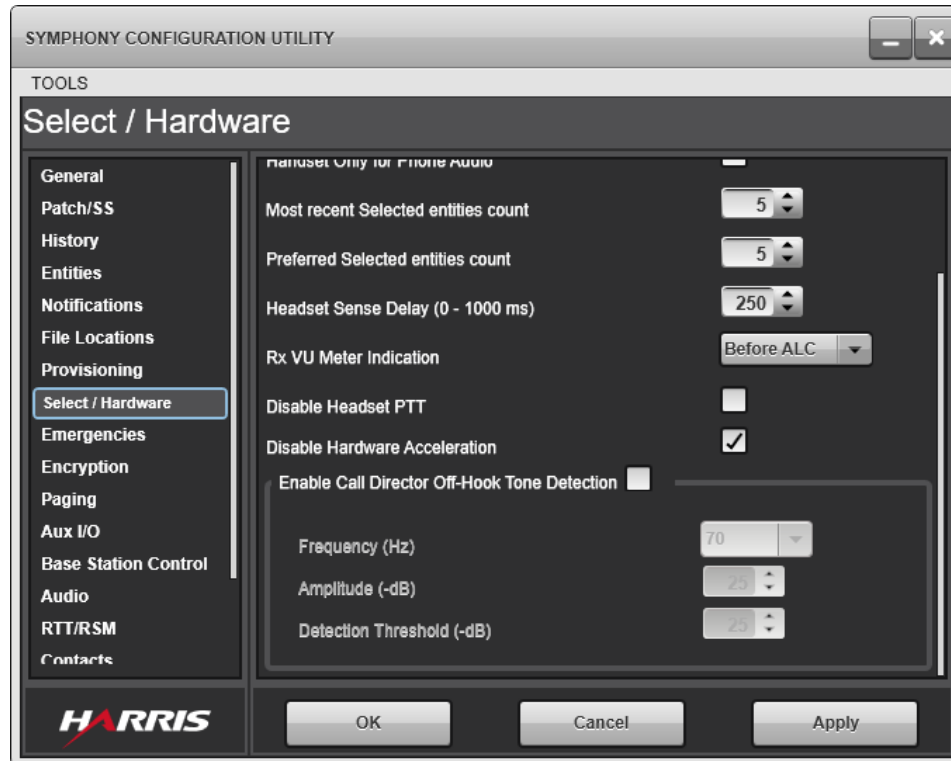


Figure 16-14: Select/Hardware Tab (2)

Enable Call Director Off Hook Tone Detection: Checking this box enables auto detection of the Call Director Off Hook condition. This feature generates a low-level tone on the phone microphone line and looks for the tone to be looped back on the phone earpiece line. This feature depends on the phone looping the signal back via sidetone when it is Off Hook. If Call Director is used without this feature, the PBX must provide an I/O line to signal the Off Hook condition.

The feature must be calibrated for each phone system as defined in Section E.3. The following parameters are used to calibrate the tone detection algorithm:

- **Frequency:** Select from a list of predefined tone frequencies in Hertz.
- **Amplitude:** Select the tone amplitude specified in –dB. The tone amplitude must be high enough for detection, but low enough to not interfere with the phone audio. The valid range for this control is zero (0) - 96.
- **Detection Threshold:** The threshold at which the tone will be detected in –dB. The valid range for this control is zero (0) - 96.

16.2.10 Emergencies Tab



Figure 16-15: Emergencies Tab

Ack before Clear: When enabled, the dispatcher must acknowledge an emergency before it may be cleared.

When disabled, the emergency panel and module emergency tabs show the **Clear** button immediately and the dispatcher is not required to Acknowledge.

This setting applies to Unit alerts and group emergencies.

Minimum Emergency Volume: This is the minimum volume for a Talkgroup or patch when it is in an emergency. Valid values are between 0 and 120.

When an emergency is declared on a patch or Talk Group and the volume is less than this, Symphony changes the volume to this value, otherwise it is left alone. While the entity is in emergency, the dispatcher is not allowed to set the volume below this level.

Route Unprogrammed Emergency: When enabled, Symphony monitors and displays emergencies from all provisioned Talkgroups, even if they are not monitored or programmed.

If “Only Show Talkgroups from the Dispatch User’s Profile” setting on the **Provisioning** tab is enabled, this applies, but only to groups in the User’s Profile.

16.2.11 Encryption Tab

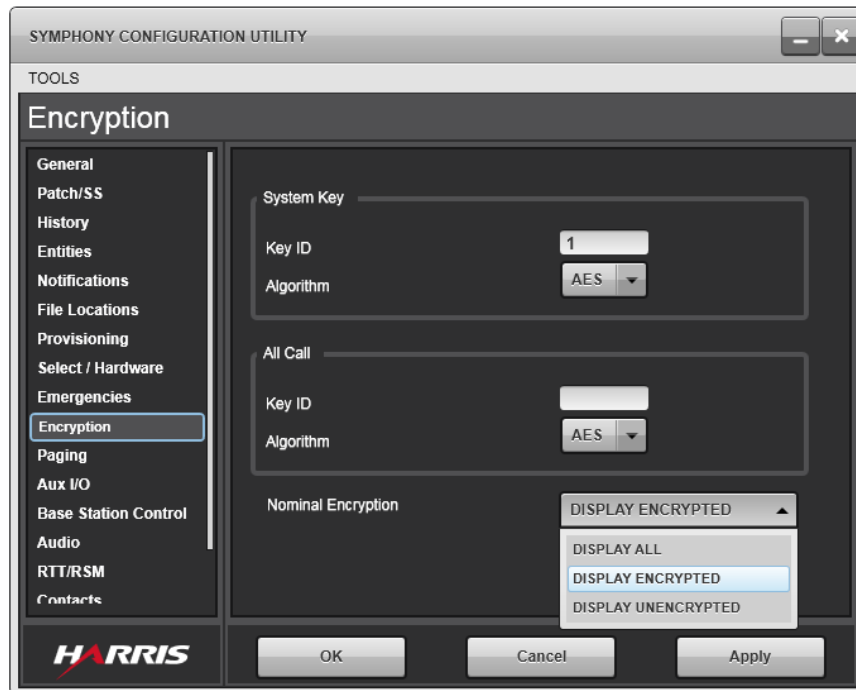


Figure 16-16: Encryption Tab

The Encryption tab shown in Figure 16-16 configures the Symphony encryption parameters for keys and bindings. These parameters comprise:

- **System Key:** This is the Key ID and algorithm for the unbound system key that will be used to encrypt SimulSelects, patches, and I-Calls when using manually loaded keys and bindings.
- **All Call Key:** This is the Key ID and algorithm for the unbound system key that will be used to encrypt All-Calls when using manually loaded keys.



The system currently only supports using AES encryption for Unbound System or All Call keys.

See Section 7.3.2 for details on defining keys and bindings for manual keying.

- **Nominal Encryption:** This setting controls how Symphony displays encryption badges on modules. Options include:
 - **Display Encrypted:** This option causes Symphony to display the “encrypted” badge on modules when the Encryption button is depressed. Symphony is set to transmit encrypted calls to the entity programmed on the module.



Figure 16-17: Module with Encrypted Badge

- **Display Unencrypted:** This option causes Symphony to display the “unencrypted” badge on modules when the Encryption button is not depressed. Symphony is set to transmit unencrypted calls to the entity programmed on the module.



Figure 16-18: Module with Unencrypted Badge

- **Display All:** This option causes Symphony to display the “encrypted” badge on modules when their Encryption button is depressed, and the “unencrypted” badge on modules when their Encryption button is not depressed, and their programmed entities are set to transmit encrypted and unencrypted calls, respectively.



Figure 16-19: Module with Encrypted and Unencrypted Badges

16.2.12 Paging Tab

The Paging Tab provides sub-tabs to define paging sequences, alert tones, and stacks as shown in Figure 16-20. A paging sequence is a sequence of tones sent to a single group, conventional channel, or unit. The sequence is designed to only set off a select set of pagers such as a fire station or a collection of volunteer firemen.

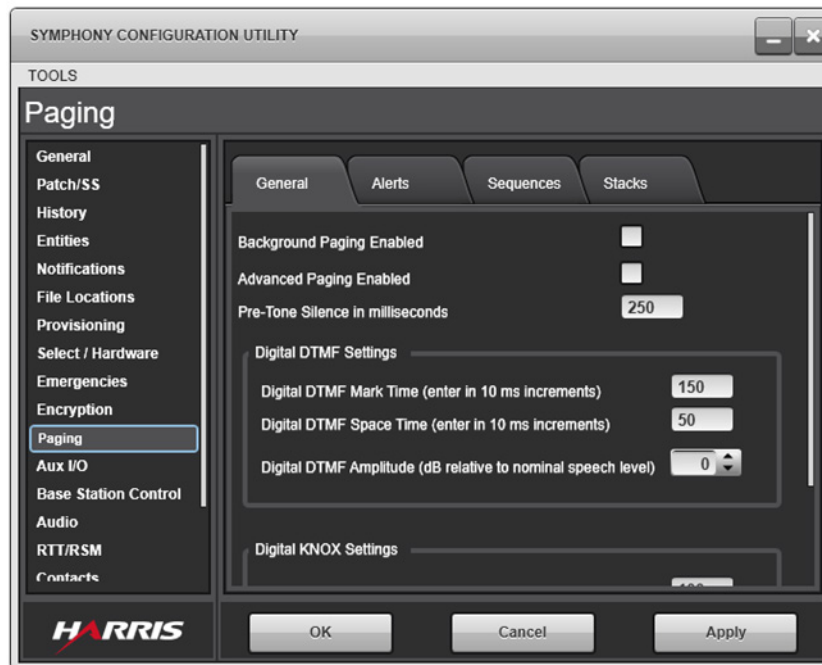


Figure 16-20: Paging Tab, General Sub-Tab

A paging stack is a collection of related paging sequences that are issued together from a single paging module. An Alert Tone is a user-defined distinctive tone sent on a SimulSelect comprising all the page destinations after all the pages have been sent. The “One Touch” paging feature allows the operator to send a page or stacked page, open a SimulSelect (Auto Select), and send an optional alert tone with one touch of the paging module.

To define pages, use the following high-level process:

1. Define alert tones in the Alerts sub-tab. Alert tones can be added to sequences and stacks, so they need to be defined first.
2. Define sequences in the Sequences sub-tab and thoroughly test each sequence to ensure the tones and destinations were configured properly. Once a sequence is added to a stack, it cannot be edited until it is removed from all stacks. So, it is important to verify sequences before building stacks to eliminate potential rework.
3. Define stacks using the Stacks Sub-Tab and thoroughly test.



NOTE

All paging and alert tone frequencies support a tenth of a hertz precision (e.g., 107.4 Hz).

The Symphony analog paging feature performs single tone, two tone, and DTMF paging by placing a normal radio call and then inserting the audio from a pre-generated WAV file into the call. The audio is sent using the target entity's preferred vocoder. For talkgroups, units, and base stations, the Symphony directory can be used to determine what this value is. It is configurable in the Unified Administration System (UAS).

Standard DTMF paging will be encoded properly by any vocoder supported by Symphony with no appreciable fidelity loss.

The vocoder used determines the fidelity of Single and Two-Tone pages as received at the end device. ADPCM is capable of nearly lossless transmission over the network and is highly recommended for paging applications where a decoding device needs accurate frequencies and timing.

The P25 Phase 1 and Phase 2 vocoders encode frequencies by measuring the input signal and encoding it as the closest multiple of 31.25 Hz. For example, if a page consisted of a 524.6 Hz tone, the P25 Vocoders would encode it as 531.25 Hz (17 x 31.25). In addition, the P25 vocoder tone detect and encoding works on 20 ms samples. So, tone lengths will always be a multiple of 20 ms. Many decoding devices will not trigger properly when a P25 vocoder is used to encode the tone. However, this encoding will allow radio users to hear the tones tell which station was paged.

Paging to devices using a P25 radio can be accomplished in two ways. The first option is to use DTMF. The second option is to configure the decoders to trigger on frequencies that are multiples of 31.25 Hz. For example, $18 \times 31.25 = 562.5$ Hz and $33 \times 31.25 = 1031.25$ Hz. This may not be possible in some cases because of the cost, and because these frequencies are not the traditional frequencies used for two tone paging plans.

If paging to analog conventional radios, use an ADPCM talkgroup to send the tone to the UAC/Base station. In many cases, P25 users will also want to hear the page sequence go out so they can tell which stations were paged and be alerted to the upcoming voice. There are several ways to accomplish this. Using a transcoder and programming the ADPCM talkgroup into the radio either as the select group or on a scan list will allow users to hear the page as it goes out. The P25 users will hear the page encoded with the P25 rules, explained previously, but the decoding equipment will receive full fidelity page audio.

A second approach is to setup stack pages containing two (2) identical sequences. The first sequence is configured to go out over the ADPCM group to the analog conventional station. The second sequence is configured to go out over the P25 talkgroup for the P25 users to hear. At the end of the sequence, an auto SimulSelect may be added to make sending the voice announcement to both talkgroups easier.

Digital DTMF paging allows the console to use a Digital, control channel message to send certain types of pages. The advantage of this type of page is that they are quicker since the console does not need to make a call to send them and they do not require a working channel resource.

Digital DTMF pages may only be sent to individual P25 units and may be either standard DTMF (Digital DTMF) or a variation of DTMF that is compatible with some KNOX™ devices (Digital KNOX). Digital DTMF page modules are similar to analog page modules on the Symphony user interface. These pages may be included in stacks or composite pages. Including an alert with them is supported, but not recommended as the dispatcher will not know when the radios have finished playing the DTMF tones and the alert may not be successful.

When a digital DTMF page has an AutoSelect or Alert, Symphony pauses to give the radio time to complete playing the tone. The pause is based on the expected time to complete the tone; the radios do not send a confirmation that the playout is completed. Delaying the AutoSelect and Alert like this prevents the alert or dispatcher announcement from playing before the tone stops in most circumstances, but is not 100% reliable. Delays in delivery of the command or processing of it by the radio can cause a collision of the DTMF tone and the announcement/alert. When a digital DTMF tone is included in a stack, the console pauses enough to allow the DTMF tone(s) to complete before creating the AutoSelect or playing the alert. It is recommended to schedule any digital pages first in the stack so they may play in parallel with the Analog pages in the stack. This minimizes the amount of overall wait time.

Do not create stacks that include Analog and Digital pages that go to the same destination unit. For example, a digital DTMF page that goes to a unit followed by an analog group page that goes to the same unit's select talk group. One or more pages may not succeed especially if no AutoSelect or alert is used. The digital command and group call could be in parallel the radio will play only one (typically the group call).

The administrator can configure the Mark and Space time for each type of DTMF separately from the Symphony Configuration Utility.

DTMF Sequences of up to 14 digits are supported.

This feature is compatible with the following radios:

- XG-75 Mobile
- XG-75 Portable
- XG-25 Mobile
- XG-25 Portable
- Unity® XG-100M Mobile
- XL Portable
- XL Mobile

Digital DTMF messages are delivered to the target in a 3-step process. First, Symphony sends the message to the VNIC, which delivers it to the P25 site. The P25 site then delivers it to the radio. Errors may occur along the way. If the radio is not registered with the site, or is busy on the working channel, the console indicates a failed DTMF page. However, if the site sends the DTMF message and the radio does not process it (or misses it) the page may not indicate a failure. On systems with SR10A.3 sites, additional error checking is available which causes the console to indicate if there is a problem in this last leg of delivery. Systems with SR10A.3 and later Active Directory contain GPOs that enable this additional error checking automatically.

Manually enable it by creating the DWORD registry setting:

HKLM\SOFTWARE\Policies\Harris\Symphony\Paging\WaitForDigitalDtmfReceipt and set it to 1.

When setting up an analog page with a unit as a target, or a Digital page with an alert, be aware of the radio's "Who Called" feature. It is enabled by default. This feature causes the radio to ring until the user acknowledges the missed I-Call. This feature should be disabled for radios that are installed without user access.

Sending analog pages, alerts, and announcements using Acknowledged I-Calls is not supported. If a page is configured in such a way that it requires placing an I-Call, the page may become invalidated when the console starts if the console determines that one of the I-Calls is to a unit which requires the acknowledged call type. This may happen if an analog call is sent directly to a unit, or the alert and announcement for a stack page is sent directly to a unit.

Digital DTMF pages can be sent to acknowledged units because they do not require a call. However, the alert and announcement cannot be used because they require placing an Acknowledged I-Call.

16.2.12.1 General Sub-Tab

The General sub-tab configures global paging parameters that apply to all pages. General parameters include:

- **Background Paging Enabled:** When checked, this parameter enables the dispatcher to transmit voice and alert tones while simultaneously paging. See the *Operator's Manual* for details on Foreground paging versus background paging. Enabling this feature requires configuration of a background paging ID in the UAS (see Section 7.2) and in the connection manager (see Section 9.1).
- **Advanced Paging Enabled:** When checked AND when the Advanced Paging feature is licensed, Symphony attempts to send all requested pages (sequences and stacks of sequences), indicating which pages succeeded and failed, and indicating the reasons why some pages failed. When not checked OR when the Advanced Paging feature is not licensed, Symphony is configured for standard paging. In either case, all of the following configuration information applies to each.
- **Pre-Tone Silence:** This parameter sets the delay before each sequence is sent. The delay ensures that the call carrying the page is set up before the paging tones are sent so that packets are not sent before the system is ready to accept them. The range for Pre-Tone Silence is a value of 0 or values in between 20 and 10000 milliseconds. The default is 250 ms.
- **Digital DTMF Settings:** These parameters control the timing of digital DTMF pages.
 - **Digital DTMF Mark Time:** This parameter defines the number of milliseconds the DTMF tone is sounded in 10 millisecond increments. The range is 10 to 2550 milliseconds with a default of 150 milliseconds.
 - **Digital DTMF Space Time:** This parameter defines the number of milliseconds of silence between each DTMF tone in 10 millisecond increments. The range is 10 to 2550 milliseconds with a default of 50 milliseconds.
 - **Digital DTMF Amplitude:** This parameter defines the amplitude of the DTMF tone in dB relative to the normal speech level.
- **Digital KNOX Settings:** These parameters control the timing of digital KNOX pages.
 - **Digital KNOX Mark Time:** This parameter defines the number of milliseconds the KNOX tone is sounded in 10 millisecond increments. The range is 10 to 2550 milliseconds with a default of 100 milliseconds.
 - **Digital KNOX Space Time:** This parameter defines the number of milliseconds of silence between each KNOX tone in 10 millisecond increments. The range is 10 to 2550 milliseconds with a default of 100 milliseconds.

- **Digital KNOX Amplitude:** This parameter defines the amplitude of the KNOX tone in dB relative to the normal speech level.

16.2.12.2 Alerts Sub-Tab

The Alerts sub-tab lists the defined Alert Tones as shown in Figure 16-21. Alert tones alternate between two frequencies for a specified number of repeats.

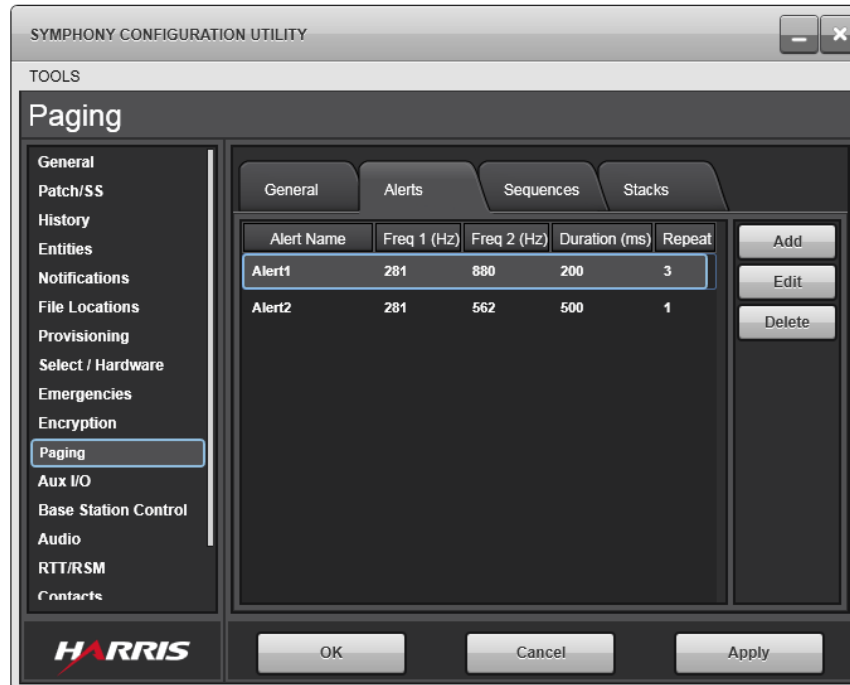


Figure 16-21: Alerts Sub-Tab

Alert Tone parameters include:

- **Alert Name:** Unique name of alert tone.
- **Freq 1 (Hz):** Frequency of first tone. The range of this control is 281.0 to 3825.0 Hz.
- **Freq 2 (Hz):** Frequency of second tone. The range of this control is 281.0 to 3825.0 Hz.
- **Duration (ms):** Total duration of the alert tones, including all repeats. The total duration must not exceed 60000 ms.

Example: To send Freq 1 and 2 for 100 ms each with one repeat, the duration will be 400 ms (Freq 1-100 ms, Freq 2-100 ms, Freq 1-100 ms, Freq 2-100 ms = 400 ms).

- **Repeat:** Number of repeats. Zero (0) means Freq 1 and Freq 2 will be sent one time with no repeats. This value cannot exceed 100.

To Add an Alert Tone:

1. Click **Add**.

The data entry fields are made available as shown in Figure 16-22.

2. Enter Alert Tone data in the fields provided and click **Save** to keep the Alert Tone or **Cancel** (on right side of dialog, not bottom Cancel) to ignore the entry.

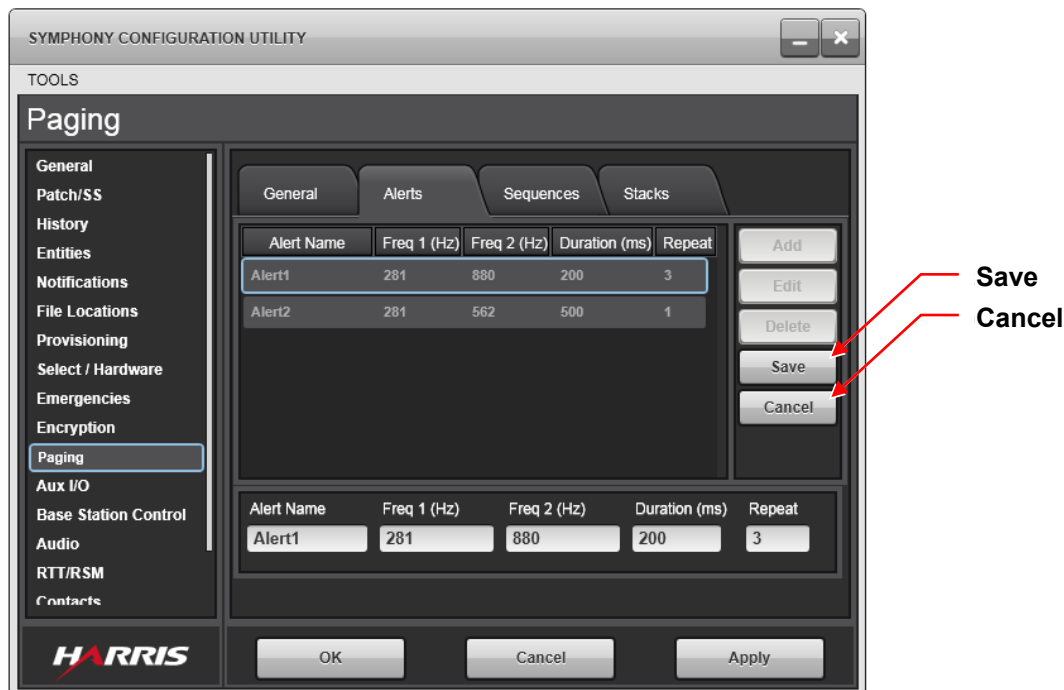


Figure 16-22: Add/Edit Alerts

To Edit an Alert Tone:

1. Select an Alert Tone.
2. Click **Edit**.

The data entry fields are populated with the Alert Tone's data, as shown in Figure 16-22.

3. Enter the Alert Tone data being changed and click **Save** to keep the Alert Tone or **Cancel** to ignore the changes.

16.2.12.3 Sequences Sub-Tab

The Sequences sub-tab lists the defined paging sequences as shown in Figure 16-23.



Figure 16-23: Sequence Sub-Tab

To Add or Edit a Sequence:

Click the **Add** or **Edit** button, respectively, to open the Paging Sequence Editor as shown in Figure 16-24. The top portion of the dialog configures the following sequence parameters:

- **Sequence Name:** Name of sequence.
- **Alert:** Alert to be sent with the sequence.
The drop-down list contains the alerts defined in the Alerts sub-tab. Auto Select must be set for Alerts to be sent; selecting an Alert automatically checks the Auto Select box.
- **Auto Select:** Symphony selects the destination associated with this sequence if the Auto Select box is checked. This applies to a page containing just this sequence or to a composite page containing this sequence. That is, if the sequence is programmed in a module, the destination is selected when the page is complete. If the sequence is selected as part of a composite page, the destination is included in the composite page AutoSelect if the composite page Simul option is selected.



NOTE

Unchecking this box automatically sets the alert to "None" since alerts cannot be sent if Auto Select is not enabled.

- **Destination Entity:** Set the destination entity by selecting one of the following options:
 - Unit ID: Send the page to a specific unit using unacknowledged I-Call. (The unit must be configured for unacknowledged I-Calls or the page to this unit will not be attempted. Pages to OpenSky radios are not supported.)
 - Group ID: Send the page to the specified group.
 - Select Entity (i.e., use the entity that is selected when the sequence is initiated).

When Unit or Group ID is selected, a combo box is provided to enter the ID directly or select the ID from a drop-down list. The Symphony Config Tool attempts to contact a VIDA web service to access the latest list of group and unit IDs for the combo box. Data from the web service is saved locally so group and/or unit information is available even if the web service is not available.



Figure 16-24: Paging Sequence Editor

The bottom portion of the Paging Sequence Editor defines the sequence. A drop-down control defines the sequence type including: **N-Tone**, **DTMF** (Dual-Tone Multi-Frequency), Digital DTMF, and Digital KNOX sequences. The N-Tone sequences comprise a list of user-defined tones specified by frequency and duration. DTMF sequences comprise a string of DTMF digits such as “126B5.” DTMF sequences are analog and are sent through VIDA like voice audio. Digital DTMF sequences comprise a string of DTMF digits which are sent through VIDA as a data message. The radio plays the analog DTMF tones based on instructions in the digital message. Digital KNOX is similar to Digital DTMF except that different tone pairs are used for each digit.

To Add or Edit an N-Tone Sequence:

Click the **Add** or **Edit** button, respectively. The following fields are provided as shown in Figure 16-25:

- **Frequency (Hz):** Tone frequency in Hertz. The valid range for this control is 281.0 to 3825.0 Hz.
This field is surrounded by a red box if the value is invalid. The field is automatically set to zero (0) if the **Silence** checkbox is checked.
- **Duration (ms):** Duration of the tone or silence in milliseconds.
- **Silence Checkbox:** Check this box when defining a silence gap between tones.

Enter the data and click **Save** to save the sequence or close the dialog to cancel the edit. Once the sequence elements are defined, change their position in the list with the up or down arrow buttons. The sequence tone list is played from top to bottom.

The screenshot shows the 'Paging Sequence Editor' dialog box. At the top, there are three fields: 'Sequence Name' with the value 'Company 3', 'Alert' with a dropdown menu set to 'None', and 'Auto Select' with a checked checkbox. Below these are three radio buttons: 'Unit ID', 'Group ID', and 'Select Entity'. The 'Select Entity' radio button is selected, and its corresponding dropdown menu shows 'Red Mtn 1 (59000)'. In the center, there is a table with two columns: 'Frequency (Hz)' and 'Duration (ms)'. The table contains two rows of data: the first row has '440' and '501', and the second row has '880' and '200'. To the right of the table is a vertical stack of buttons: 'Add', 'Edit', 'Delete', up and down arrow buttons, 'Save', and 'Cancel'.

Figure 16-25: Paging Sequence Editor – Add N-Tone

To Add or Edit a DTMF, Digital DTMF, or Digital KNOX Sequence:

1. Select the appropriate type.
A DTMF keypad appears as shown in Figure 16-26.
2. Enter the DTMF digits by clicking the keypad or entering the digits directly from the keyboard.
3. Click **Save** to save the sequence or close the dialog to cancel the edit.



Figure 16-26: Paging Sequence Editor – Add DTMF

It is possible to replace Symphony-generated pages with user-generated WAV files. This is an advanced procedure and should only be done if the Symphony Configuration Tool cannot create a page sequence.

1. Define a dummy sequence with the desired parameters for the WAV file. All the parameters in the Paging Sequence Editor apply except the tones which will be replaced by the WAV file.
2. Select the **File Locations** tab in the Symphony Config Tool. Use Windows Explorer to navigate to the directory defined for the Page Files Directory.
3. The Page Files Directory contains a WAV file for each sequence defined in the Symphony Config Tool. Replace the desired WAV file with the user-generated WAV file.
4. Do not edit the dummy sequence again as this will generate a new WAV file that will overwrite the user-generated file.

Refer to Appendix B for additional details.

16.2.12.4 Stacks Sub-Tab

The Stacks sub-tab lists the defined stacks as shown in Figure 16-27. Before building a stack, test all the sequences that comprise the stack. Once a sequence is added to a stack, it cannot be edited without removing it from all stacks.

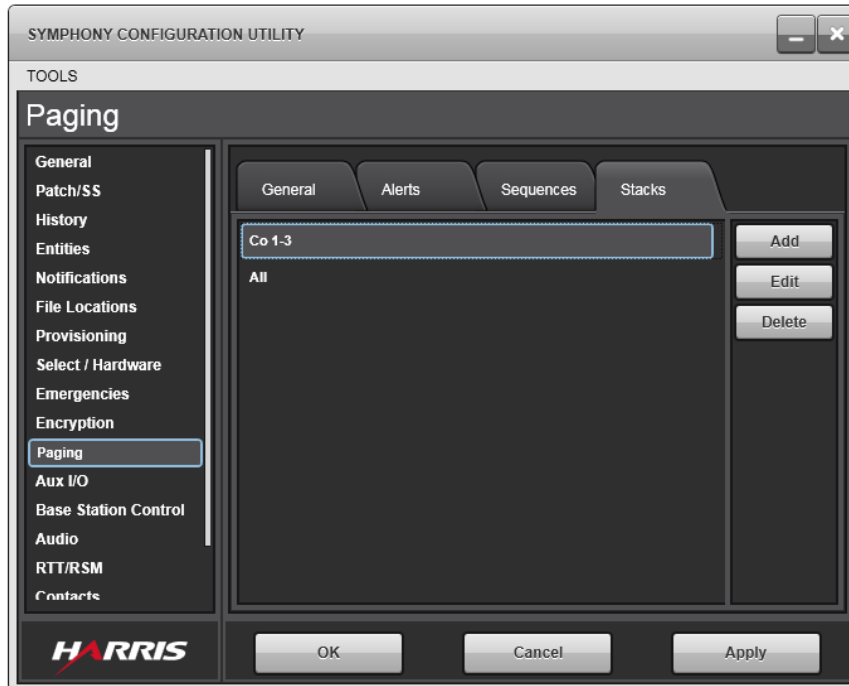


Figure 16-27: Stacks Sub-Tab

To Add or Edit a Stack:

Click the **Add** or **Edit** button, respectively, to open the Paging Stack Editor as shown in Figure 16-28.

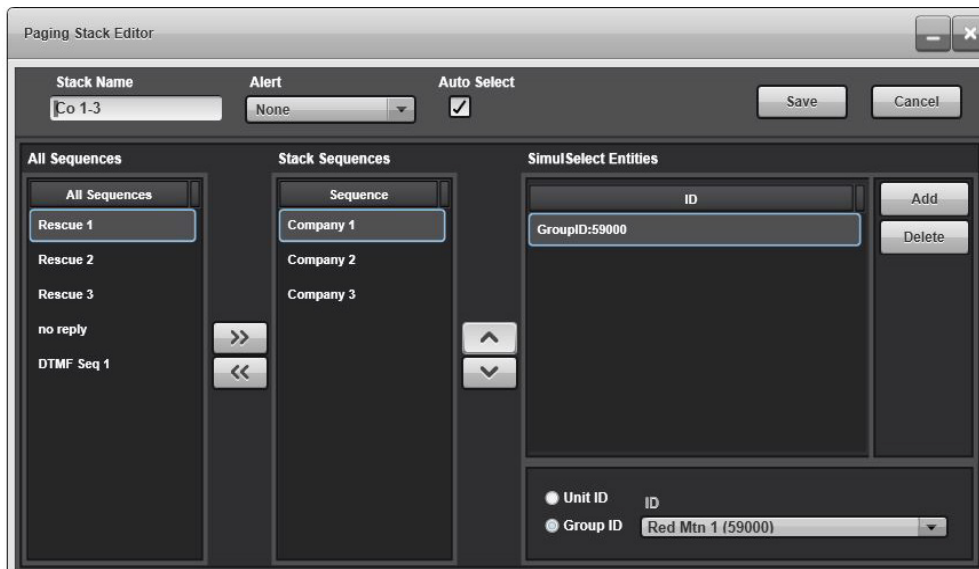


Figure 16-28: Paging Stack Editor

The Paging Stack Editor provides the following configuration parameters:

- **Stack Name:** Unique name of the stack.
- **Alert:** Alert to be sent with the stack.

The drop-down list contains the alerts defined in the Alerts sub-tab. Auto Select must be checked for an Alert to be sent. Selecting an Alert automatically checks the Auto Select box. The alert specified in the stack overrides any alert(s) defined in constituent sequences.

- **Auto Select:** Symphony selects the SimulSelect Entities defined for the stack if the Auto Select box is checked. Unchecking this box automatically sets the Alert to “None” since alerts cannot be sent if Auto Select is not enabled.
- **All Sequences:** The list of defined sequences from the Sequences sub-tab from which the stack can be built.
- **Stack Sequences:** The list of sequences that comprise the stack. Use the “>>” or “<<” buttons to add or remove sequences to or from the stack, respectively. Use the up or down arrow buttons to change the position of a sequence in the stack. The Stack Sequences list is played from top to bottom.
- **SimulSelect Entities:** The list of entities that will be included in the Auto Select when the stack completes. The Symphony Configuration Tool automatically adds unique entities from each sequence to the stack. Entities can be added to or removed from the list with the **Add** or **Delete** button, respectively. Click **Add** to add an entity. Select the entity type (Unit ID or Group ID) and enter or select the entity in the combo box. To delete an entity, highlight the entity and click **Delete**.

16.2.13 Aux I/O Tab

The Aux I/O tab, shown in Figure 16-29, allows you to configure local and remote Aux I/O points. Local I/O points are controlled by the Symphony Dispatch Platform (i.e., the local console hardware) and can be used for local dispatch center functions such as unlocking doors or driving light poles. Remote I/O points are connected to Network Sentries (NWS) throughout the VIDA system. NWSs are typically located at sites, but can be anywhere in the system. The Regional Network Manager (RNM) controls the NWSs, so Symphony communicates directly with the RNM to reach the NWSs. The RNM relays outputs from Symphony to the appropriate NWS and inputs from NWSs to Symphony.

This manual assumes the RNM and NWSs are properly configured. Configuring these devices is beyond the scope of this document. Within the Aux I/O tab, the Devices sub-tab provides Symphony with the information needed to communicate with the RNM and control remote I/O points on the NWSs. The Points sub-tab configures the local and remote I/O points of interest to Symphony by naming each point and defining its type.



Figure 16-29: Aux I/O – General Sub-Tab

16.2.13.1 General Sub-Tab

The general sub-tab contains the following configuration parameters:

Aux I/O Input Alarm Speaker Number: Select the speaker on which the Aux I/O alarm will be played whenever an acknowledged point becomes active.

Aux I/O Input Alarm Agency: Aux I/O Input Alarm agency list is used to configure the agencies that need to be notified when an Aux I/O Input alarm is acknowledged. Symphony's own agency will always be notified – it cannot be filtered. Ensure the agencies specified are valid Agency IDs.

16.2.13.2 Devices Sub-Tab



Figure 16-30: Aux I/O – Devices Sub-Tab

The Devices sub-tab contains the following configuration parameters:

Connect to Aux I/O Server (RNM) using DNS: Check this box for Symphony to automatically connect to the RNM using DNS. This box is checked by default.

IP Address: If the DNS box is not checked, manually enter the IP address of the RNM. Consult your system administrator for this information.

Port: If the DNS box is not checked, manually enter the UDP Port of the RNM. This is typically 9090. However, always consult the system administrator for the actual value.

Aux I/O Device: This section lists the Network Sentries containing I/O points of interest to Symphony. Each entry lists the NWS Name, IP Address, and SNMP Community string. Consult your system administrator for this information.

To Add a New NWS:

1. Click **Add**
2. Fill in the requested data and click **Save**.

To Change an Existing NWS:

1. Select the NWS to change and click **Edit**.
2. Change the desired data and click **Save**.

Once the local or remote I/O points are defined, they appear in the **Add Module** dialog as shown in Figure 16-31. Aux I/O modules are added to the workspace like any other communications module as defined in Section 18.2.



Outputs driven by system events are not available on the workspace.

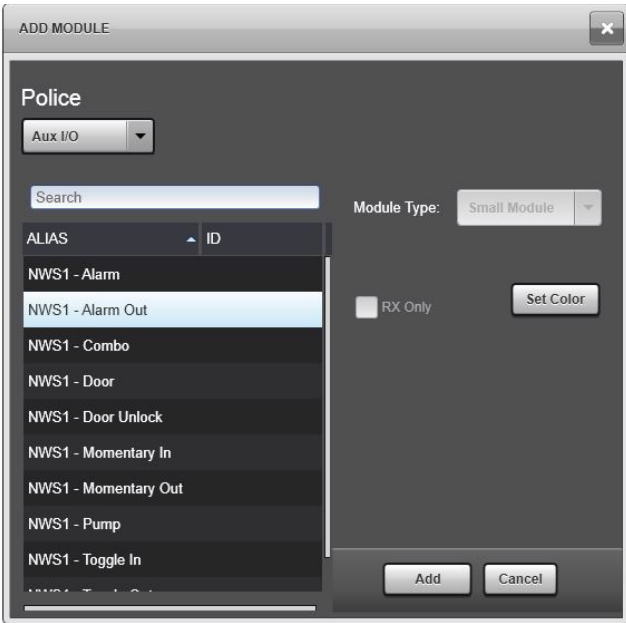


Figure 16-31: Add Module Dialog

16.2.13.3 Points Sub-Tab



Figure 16-32: Aux I/O – Points Sub-Tab

The Points sub-tab contains the following configuration parameters:

Aux I/O Device: Select Local Aux I/O or the NWS for which the Point List will apply. The selection box shows the current selection. Click the down arrow to get a list of all NWS that were configured on the Devices sub-tab as well as the Local Aux I/O.

Points List: The Points List shows all configured I/O points for the selected device (Local Aux or NWS). Parameters specified for each I/O point vary depending on the type of I/O point. The complete parameter list comprises:

- **Alias:** Name given to the I/O point. The alias will appear on the Aux I/O module and should clearly identify the function of the I/O point.



NOTE

The number of characters is limited to 14. Choose names for all I/O points first to ensure you have unique names for each point that will fit in the space allowed.

- **Point Number:** Based on the event type, this parameter indicates the Input or Output point number on the NWS or SDP corresponding to the desired physical input point. The SDP supports six inputs (1-6) and five outputs (1-5). The NWS supports 120 inputs (1-120) and 96 outputs (1-96). Consult your system administrator for this information.
- **Point Type:** Specifies whether the point is an Input or Output.
- **Event Type:** For inputs, this can be Input or Acknowledged. Points configured as Input provide monitoring functions for the respective auxiliary inputs. Points configured as Acknowledged require a dispatcher to acknowledge an inactive-to active state change.

For outputs, this can be Toggled, Momentary, or System Event. Toggled outputs remain in the active state until the user initiates a change to the inactive state. Momentary outputs only stay in the active state while the user is initiating the activation control (i.e., pressing the output activation button). System Event indicates the output are driven by an internal Symphony event as defined in the next bullet.

- **System Event:** Internal Symphony events can be used to drive outputs connected to a Light Pole. The outputs are active while the event is active. Events include:
 - **Console On Air:** Active when dispatcher is transmitting voice in the foreground. This does not include pages or alert tones.
 - **Console On Phone:** Active when the Call Director is Off Hook.
 - **Emergency On Talkgroup:** Active when there is an emergency on any talkgroup monitored by the console.
 - **Receiving Voice On Select Speaker:** Active when the console is receiving a call on the select speaker.
 - **Receiving Voice on Unselect Speaker:** Active when the console is receiving at least one call on an unselect speaker.

To add a new I/O point:

Click **Add** to open the Aux I/O Point Editor shown in Figure 16-33, fill in the requested data via drop-down list or by entering text, then click **Save**.

- **Active Text:** The text that will appear when the point is in the active state.
- **Inactive Text:** The text that will appear when the point is in the inactive state. Review the following note.



The choice of active or inactive state is arbitrary. However, the Symphony user interface is designed to draw your attention to I/O points in the active state. Therefore, it is recommended to configure the inactive state (0) as the state that the point will be in most of the time and the active state (1) as the exception state. This may require changing the polarity of I/O points in the NWS.

Aux I/O Point	
Alias	Pump
Point Type	Input
Event Type	Input
Device Point Number	6
Active Text	Pump On
Inactive Text	Pump Off
Save Cancel	

Figure 16-33: Aux I/O Point Editor

To change an existing point:

1. Select the point to change and click **Edit**.
2. Make the desired changes and click **Save**.

16.2.14 Base Station Control Tab



NOTE

Conventional base stations in VIDA using station control require that groups mapped to conventional channels only have demand from one base station and consoles. Other base stations and radios must not program these groups. Failure to follow this rule can lead to a significant degradation of communications. Use NetworkFirst if radios and base stations must be on the same group. In this case, conventional control is not supported on the NetworkFirst base station.

Before configuring base stations, understand how base stations interact with VIDA. Base stations (also referred to as conventional stations) connect to VIDA through an Interoperability Gateway containing Unified Audio Cards (UACs). The UAC handles the conversion of VIDA digital-IP protocols to traditional analog base station controls. It makes the base station look like a trunked site to the VIDA system and it makes VIDA look like a tone controller to the base station.

The UAC also provides a proxy for each base station. The proxy has a unit ID like any radio. The proxy acts like a radio on the base station site to create demand for base station channels and to place calls for base stations not configured for MDC-1200. The proxy also exchanges base station control information with Symphony.

Each channel on the base station is mapped to a group in VIDA. Channels may be different frequencies or just different configuration settings such as the Continuous Tone-Coded Squelch System (CTCSS) value. Calls on a channel look like calls on a trunked group. Therefore, conventional calls to and from a base station are basically handled by VIDA like calls to and from a trunked site except for Vocoder differences. Calls from the base station are initiated from the proxy if MDC-1200 is not enabled or from the mapped VIDA user ID corresponding to the MDC-1200 ID when MDC-1200 is enabled. Call history will include the site ID associated with the base station.

The Base Station Control tab shown in Figure 16-34 lists the base stations of interest to Symphony. The Base Station Control parameters include:

- **Type:** Symphony currently supports the most common TnRn type base station. This type of base station supports one transmit/receive channel pair at a time but can switch between “n” channel pairs where “n” is a number up to and including 16.
- **Station ID:** This is the user ID of the Base Station Proxy in the Interoperability Gateway (UAC).
- **Site ID:** This is the ID of the site assigned to the base station.
- **Monitor:** This parameter is the number of seconds the monitor feature remains active before Symphony automatically turns monitor off. If zero (0), the function is completely manual. The monitor control allows the dispatcher to hear any traffic on the base station regardless of filtering such as CTCSS that may be enabled. Monitor is used to ensure the channel is not busy before transmitting.



Figure 16-34: Base Station Control Tab

To add a new or edit an existing base station, click **Add** or **Edit**, respectively, to open the Edit Base Station Control Unit dialog as shown in Figure 16-35. Consult your System Administrator for the appropriate information and enter the data in the fields provided. Click **OK** to save the configuration data.

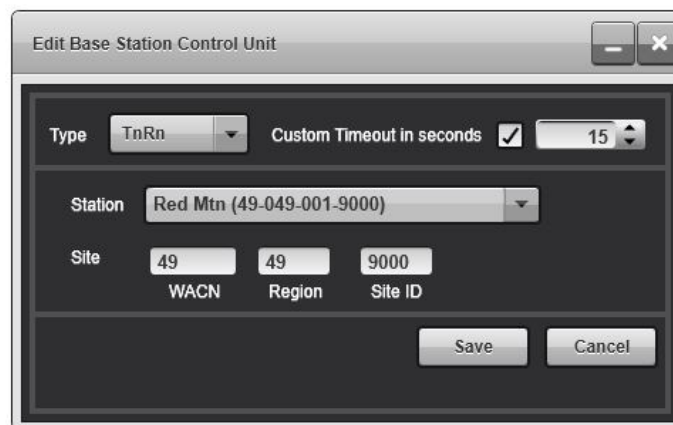


Figure 16-35: Edit Base Station Control Dialog

To delete a base station, select the desired base station and click **Delete**.



NOTE

To set up encryption on a base station and any of its channels, represented to the VIDA system as trunked groups, satisfy these requirements:

- Symphony supports AES encryption ONLY on base stations.
- All channels (trunked groups) must be in an AES crypto net that includes the Symphony dispatcher. Encryption is disabled if any of the channels (trunked groups) are in a DES crypto net or are not included in an AES crypto net.

16.2.15 Audio Tab



NOTE

Changes to these settings may result in poor or degraded audio quality. Appropriate consideration and testing should be completed prior to implementing these settings.

The **Audio** tab allows configuration of the Automatic Level Control (ALC) algorithm. ALC is a software algorithm in Symphony that adjusts the output level of all incoming audio before it is sent to the speaker. This enables Symphony to automatically adapt to changes in source audio levels. For example, when enabled, ALC raises the audio output level for weak sources (e.g., users speaking softly into their radios) and lowers the audio output level for loud sources.

Receive Audio Level Control, or ALC, attempts to bring all receive radio traffic to the same or similar level. It does this by looking at the incoming level and attenuating it if it is too high and adding gain if it is too low. This adjustment is applied before the volume slider. This makes up for varied audio levels caused by speakers talking at different volumes and distance from the radio microphones, differences in radio manufacturers, varied radio configurations, differences in radio systems, etc.

L3Harris recommends ALC be enabled in all systems. In addition, a target level of -30 dB should be used for most applications. Sensitivity and Attach Time should be kept at 250 ms.

Setting the Target Level higher (-25 dB for example) results in louder radio audio, but can also increase the potential for distortion. This is because the Target Level is achieved prior to applying the volume to the audio. ALC and volume are calculated using digital processing techniques. When too much gain is applied to the audio, clipping can occur. Clipping is distortion caused when the level of an audio sample exceeds the size of the variable used to store the sample. With the Target Level set above -30 dB, and the Volume slider near the maximum, clipping will occur on typical signals and users may perceive distorted or “muddy” audio.

To boost the audio overall, boost the signal going to the speakers or headsets.

The Audio tab shown in Figure 16-36 lists the algorithm variables of interest to Symphony. The ALC algorithm variables include:

- **Enable RX Audio Level Control:** When checked, the ALC algorithm is enabled for incoming audio. RX Audio Level control is disabled by default.
- **Target Level (dB):** This is the audio level the ALC algorithm attempts to maintain. This setting is disabled if **Enable RX Audio Level Control** is disabled. If **Enable RX Audio Level Control** is enabled, the default value is -20 dB. The valid range is -30 to -10 dB.
- **Sensitivity Time (ms):** The amount of time a signal is out of target before the algorithm begins to compensate. This setting is disabled if **Enable RX Audio Level Control** is disabled. If **Enable RX Audio Level Control** is enabled, the default value is 250 ms. The valid range is 100 to 1000 ms.

- **Attack Time (ms):** This is the time, in milliseconds, allowed for the algorithm to complete its compression or expansion of the signal to get to the desired **Target Level**. This setting is disabled if **Enable RX Audio Level Control** is disabled. If **Enable RX Audio Level Control** is enabled, the default value is 250 ms. The valid range is 71 to 500 ms.
- **Reset Defaults:** Click to reset the ALC settings to their factory default settings.

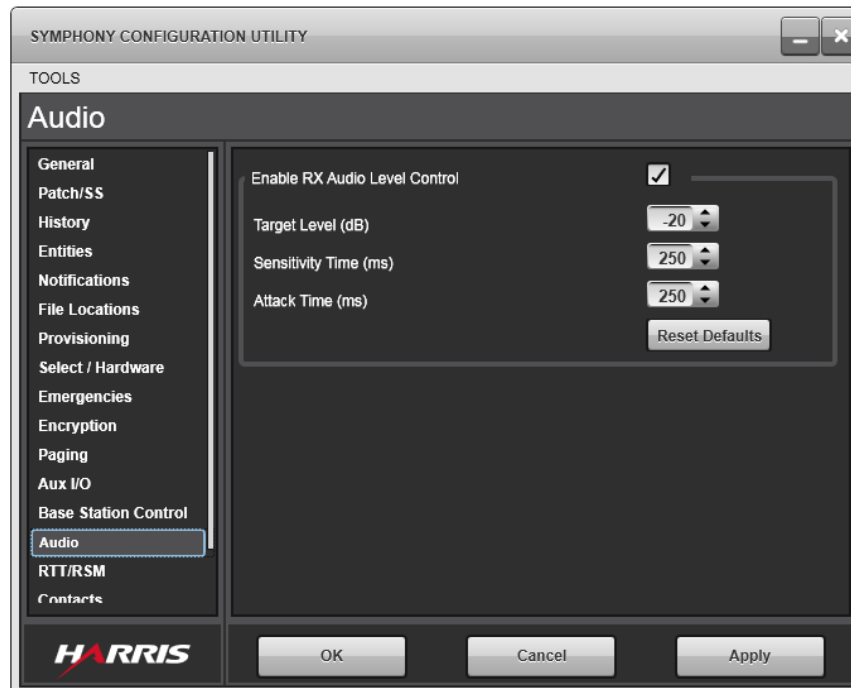


Figure 16-36: RX Audio Level Control Tab

To change the ALC settings, click the up and down arrows on the corresponding item control or type directly into the item control if desired. Consult your System Administrator for the appropriate values and enter the data in the fields provided. Click **OK** to save the configuration data.

To reset the ALC configuration to the default factory settings, click **Reset Defaults**.

16.2.16 RTT/RSM Tab

The RTT/RSM tab configures the Request-to-Talk (RTT) and Radio Status Message (RSM) features. The RTT feature has several variants, so the tab is generically labeled RTT to cover all future variants. The Enhanced RTT (ERTT) feature is the only variant currently supported. The term RTT refers to the generic Request-to-talk feature while the term ERTT refers to the specific Enhanced RTT feature.

The RTT and RSM features use short messages to convey information about a radio unit. RSM tracks the unit status (i.e., On Duty, In Pursuit, etc.) while ERTT tracks requests for service (i.e., Request License Check). A radio can only have one RSM status at a time, but can have multiple RTTs at once, depending on configuration. Both features can be used simultaneously.

RSM and RTT use different messages to convey unit information, but they share a pool of 247 unique codes. For example, codes 21-30 could be used for RTT requests while codes 31 through 40 could be used for RSM states. A code can only be assigned to one feature RTT or RSM.

Since the messages only carry a short code, radios and consoles must be configured to interpret the codes and assign user-readable aliases. To continue the example, code 22 could be configured as an RTT in the consoles and radios with the alias “License Check” and code 32 could be configured as an RSM in the consoles and radios with the alias “In pursuit.”

It is imperative that radios and consoles be configured properly. For example, if a radio sends code 22 in an RTT message, but the console is configured to interpret code 22 as an RSM, the feature will not function properly.



NOTE

RSM/RTT codes 1-12 are reserved by the system for the XRTT feature.

For new systems, it is recommended to use codes above 20 for ERTT and RSM.

In existing systems, codes 1-12 should not be used for RSM. Symphony handles codes 1-12 for RSM and ERTT to support fielded radios already using these codes.

However, using codes 1-12 will not allow Symphony to interoperate with C3 Maestro^{IP} consoles using the XRTT feature. In addition, future Symphony upgrades to the XRTT feature will not work properly when using these codes for RTT and RSM.

If codes 1-12 are used for XRTT, then XRTT remote agency filtering should be enabled, and the filtering list must be limited to nine or ten agencies.

16.2.16.1 Codes Sub-Tab

The RTT/RSM Codes sub-tab, Figure 16-37, is used to assign message codes 1-247 to RTT or RSM and set the associated text description. The tab lists the currently defined RTT/RSM codes and provides buttons to add new codes or edit and delete existing codes.



Figure 16-37: RTT/RSM Codes Tab

- **Code:** The Code field defines the code associated with the RTT or RSM. Valid values are 1-247 and a code can only be used once for RTT or RSM, but not both.
- **Type:** The Type field specifies the feature assigned to the code: RTT or RSM.

- **Message:** The Message field contains the alias for the message code.

To add a new RTT or RSM code:

1. Click **Add** to open the **Message Code Editor**.

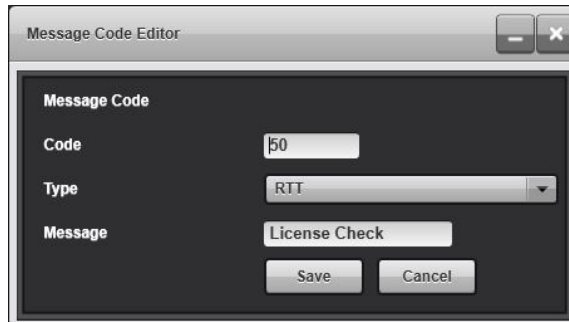


Figure 16-38: RTT/RSM Message Code Editor Dialog

2. Enter the code number.
3. Select the code type **RSM** or **RTT**.
4. Enter the message alias in the **Message** field.
5. Click **Save**. The dialog will close if the entered data is valid.

If data is missing or invalid, the offending fields are marked with a red border. Correct the entries and click **Save** again.

To edit existing codes:

1. Click **Edit**.
2. Modify fields as described for adding a new code.
3. Click **Save**.

To delete an existing code:

1. Click **Delete**.
2. When prompted to confirm the deletion, click **Yes** or **No** to complete or cancel the deletion process.

16.2.16.2 Settings Sub-Tab

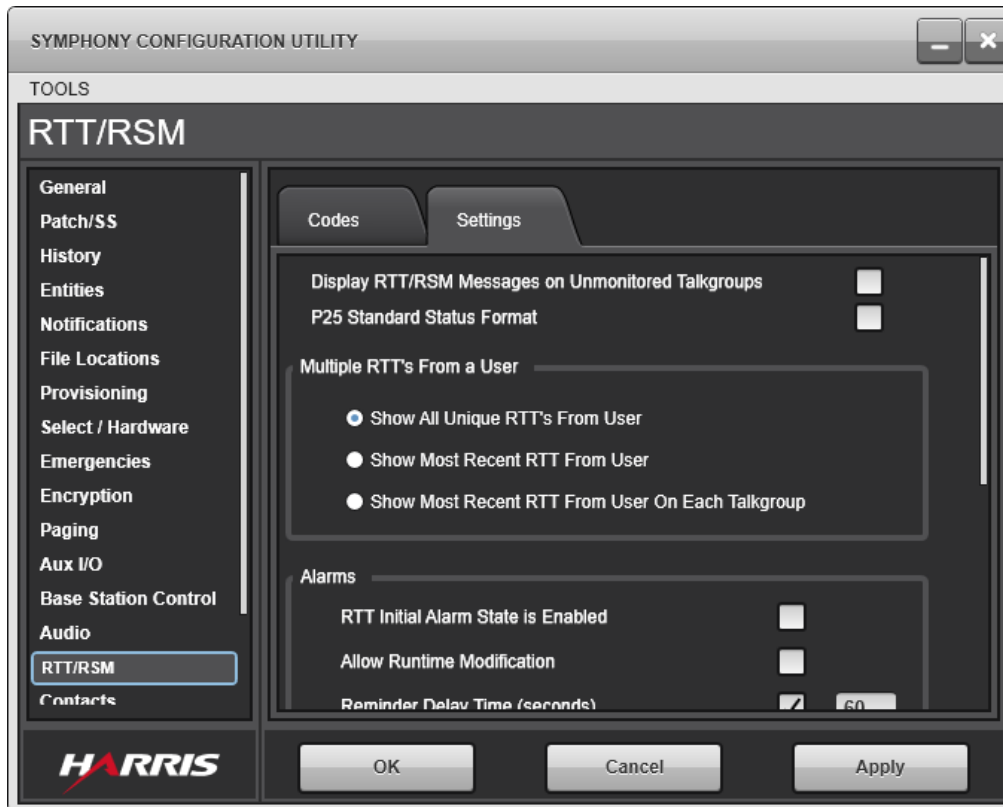


Figure 16-39: RTT/RSM Setting Tab

The RTT/RSM Settings sub-tab, Figure 16-39, contains all the RTT/RSM configuration settings.

- **Display RTT/RSM Messages on Un-monitored Talkgroups:** If checked, all RTT and RSM messages are routed to the user interface and/or CAD interface, whether the Talkgroup is monitored or not.

If not checked, only RTT/RSM messages for monitored Talkgroups are routed to the User interface, unless there is no module to receive this information.



NOTE

When RTT or RSM messages from unmonitored Talkgroups are displayed, the corresponding mini-module for that Talkgroup is displayed on the module. Since it is unmonitored, the dispatcher does not receive radio traffic on this group. Dispatchers should expect this behavior and be trained to handle it properly.

- **P25 Standard Status Format:** If checked, Symphony accepts Radio Status Messages that are sent using the P25 standard formatting. Checking this box is required to interoperate correctly with other vendors' radios. Checking it is also recommended for all new system installations. When this box is checked and you are using L3Harris radios, the radios must be configured with their "P25 Standard Status Format" enabled in Radio Personality Manger (RPM). Leaving this unchecked is appropriate for existing systems already deploying L3Harris radios using the proprietary message format. The default is unchecked.

- **Multiple RTTs from User Settings:** This parameter defines how Symphony handles multiple active RTTs from the same user. An active RTT is defined as an RTT that has not been deleted and is therefore still in an ERTT module.

Depending on system configuration, RTTs from a user can have different RTT codes and/or different associated Talkgroups. RTTs with the same RTT code and Talkgroup (known as duplicates) update the count associated with the current entry. However, unique RTTs with a different code or Talkgroup can lead to multiple entries and therefore require special handling controlled by the parameter.

The parameter supports one of the following values.

- **Show All Unique RTTs From User:** Symphony accepts all unique RTTs from the user and displays them accordingly. This can lead to multiple entries in the same ERTT module (i.e., same code with different Talkgroups) or different RTTs in different ERTT modules (i.e., same Talkgroup with different codes). For users upgrading from Maestro^{IP}, this is equivalent to having the “Auto-Delete RTT Entries” unchecked in the Maestro^{IP} MConfig program.
- **Show Most Recent RTT from User:** Symphony only allows the latest unique RTT from a user. The previous different RTT from that user is deleted. For Maestro^{IP} users, this setting is equivalent to the “Delete by Unit Info” mode in the Maestro^{IP} MConfig program.
- **Show Most Recent RTT from User on Each Talkgroup:** Symphony deletes the previous RTT from a user if it has the same talkgroup as the new RTT from that user. This allows a user to have multiple RTTs, but only one per talkgroup. For Maestro^{IP} users, this setting is equivalent to “Delete by Group Info” in the Maestro^{IP} MConfig tool.
- **Alarms Settings:** RTT alarms are controlled by the **RTT Alarm Initial State** and **Allow Runtime Modification** parameters. The **RTT Alarm Initial State** controls whether RTT Alarms are initially enabled or disabled. The **Allow Runtime Modification** controls whether the dispatcher can modify the initial state.

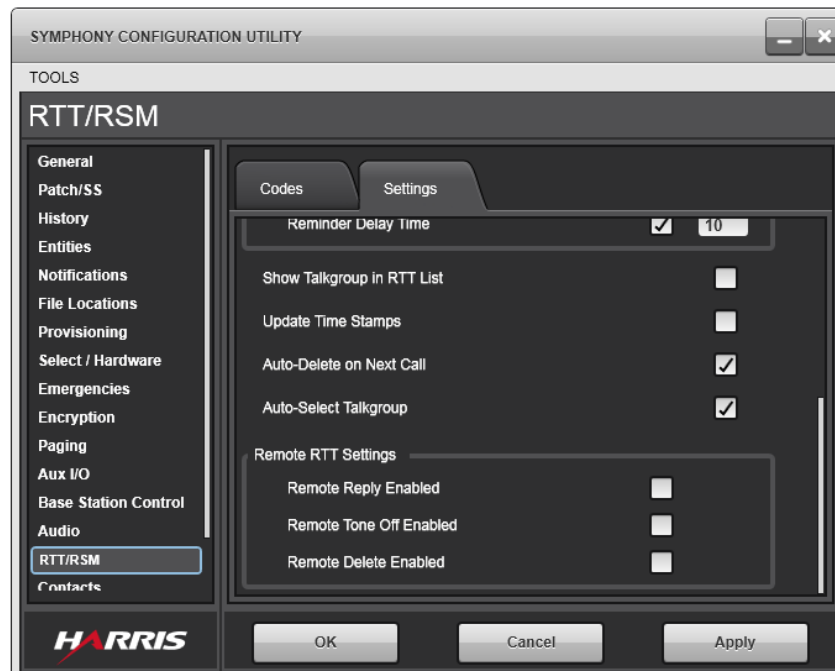


Figure 16-40: RTT/RSM Setting Tab... continued

- **RTT Initial Alarm State is Enabled:** The RTT Alarm Initial State parameter sets the initial state of the RTT Alarm feature. If checked, alarms are enabled (On) when the console boots up or changes setups. If left unchecked (disabled), alarms are Off.
- **Allow Runtime Modification:** The Allow Runtime Modification parameter controls whether or not the dispatcher can enable or disable RTT Alarms. If checked, the dispatcher can enable or disable RTT Alarms when the console is operational. The specific menu item is **Preferences** → **Disable Global RTT Alarms** or **Enable Global RTT Alarms** to turn the alarms on and off respectively.
- **Reminder Delay Time:** This control allows the user to define a time, in seconds, to suppress the RTT alarms after the dispatcher has answered one. When enabled, the dispatcher keys the reply button on an RTT module, the RTT alarms are muted. The RTT alarms (if any) resume following the given number of seconds after keying. The maximum time allowed is 100 seconds. The Default is 60 seconds. This allows the dispatcher time to handle RTTs without the RTT Alarm playing.

Table 16-3 summarizes the possible behaviors:

Table 16-3: Alarm Settings

BEHAVIOR	INIT STATE	ALLOW MOD
Alarms are always off.	Off	No
Alarms are off initially, but the dispatcher can turn them on and off.	Off	Yes
Alarms are always on.	On	No
Alarms are on initially, but the dispatcher can turn them on and off.	On	Yes

- **Show Talkgroup in RTT List:**

If checked, the talkgroup alias is used in the list of RTTs in the RTT module instead of the default unit alias.

- **Update Time Stamps:**

If checked, the time stamp of an RTT's entry is changed to the current time if the same entry is updated in the RTT module. The order of the entry in the RTT list remains unchanged.

- **Auto-Delete on Next Call:**

If checked, the highlighted entry is automatically deleted from the RTT Module when the **Next Call** button is pressed, and the entry was answered (entry is grayed out after a reply).

If the Auto-Select Talkgroup option is also checked, the **Next Call** button highlights and selects the next highest priority unanswered RTT associated group. This causes the newly selected RTT item to become answered (entry is grayed out as if after a reply). The following press of the **Next Call** button deletes the RTT item. Unanswered RTTs are not auto-deleted.

- **Auto-Select Talkgroup:**

If checked, the group associated with the RTT chosen by the **Next Call** function is automatically selected. This also applies if the operator manually chooses an entry and replies with the RTT group module. The associated group is automatically selected before the reply transmission begins. This setting does not override a selected SimulSelect. That is, if a SimulSelect is selected, it is not replaced with the auto-select group.

Once all RTTs in the module have been answered, **Next Call** chooses the oldest-highest priority entry when pressed, but it does not auto-select the associated group. However, using an RTT mini module to reply to an answered RTT, the group is auto-selected.

- **Remote RTT Settings:**

- **Remote Reply Enabled:** If this control is enabled, the console processes RTT Reply messages from other consoles. The console treats this message as if the local dispatcher had replied using the mini modules on the RTT module. The corresponding RTT entry is set to answered.
- **Remote Tone Off Enabled:** If this control is enabled, the console processes RTT Remote Tone Off messages from other consoles. This disables the local RTT Alarm tone for the corresponding module.
- **Remote Delete Enabled:** If this control is enabled, the console processes RTT Delete messages from other consoles. The console treats this message as if the local dispatcher pressed the delete button on the RTT module. The corresponding RTT entry is deleted from the list. If the deleted entry was highlighted by the dispatcher, the oldest highest priority entry is highlighted.

16.2.17 Contacts Tab

The Contacts Tab allows the administrator to manage Contact Lists and Speed Dial Lists. Contacts and Speed Dial Lists created using the Symphony Configuration Utility and cannot be modified by dispatchers.

16.2.17.1 Contacts Sub-Tab

The Contacts Sub-Tab lets the Administrator manage the Admin Contacts List.

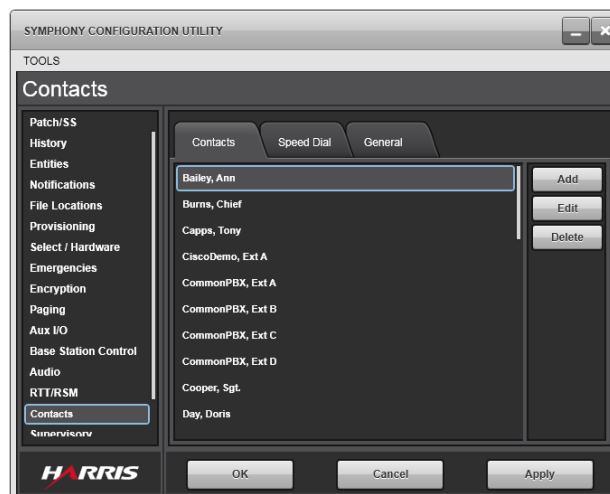


Figure 16-41: Contacts Tab

Dispatchers cannot edit or delete contacts in the Admin Contacts List. Administrators can perform the following:

- Add new contacts
- Update existing contacts
- Delete existing contacts

To Add/Edit Contacts Dialog:

The Add/Edit Contacts Dialog allows the Administrator to enter the details of a new contact or edit an existing contact.

The screenshot shows a dialog box titled "Edit Contact" with the following fields and options:

- Contact Name:** First: Jane, Last: Doe, Affiliation: (empty)
- Work Number:** Phone number: 4000, Primary: (selected), Ringtone: Ring 1
- Mobile Number:** Phone number: 5751768888, Primary: (selected), Ringtone: Ring 2
- Home Number:** Phone number: 5551234, Primary: (selected), Ringtone: Ring 3
- Other Number:** Phone number: 5000, Primary: (selected), Ringtone: Ring 4

Buttons: Update, Cancel

- **First:** First name of the contact.
- **Last:** Last name of the contact (Mandatory).
- **Affiliation:** The affiliation of the contact.
- **Work Number:** Work phone number of the contact.
- **Work Ringtone:** The selected ringtone played when a call is received from the Work number.
- **Mobile Number:** Mobile phone number of the contact.
- **Mobile Ringtone:** The selected ringtone played when a call is received from the mobile number.
- **Home Number:** Home phone number of the contact.
- **Home Ringtone:** The selected ringtone played when a call is received from the home number.
- **Other Number:** Other phone number of the contact.

- **Other Ringtone:** The selected ringtone played when a call is received from the other number.
- **Primary:** Selects the primary phone number. The selected primary number becomes a mandatory parameter.

The phone numbers specified in a Contact can be configured to automatically provide Overdial (DTMF) digits. Pause “,” characters can be added after a phone number followed by the Overdial digits to automatically send Overdial digits once a call is established. A Pause “,” character symbolizes 1 second of delay before Overdial digits are sent.

Example: Other Number: 5551234,,5793,1

With this example, a call will be performed to 5551234. Once a call is established, the console waits for 3 seconds, since there are three pause characters, then send overdial 5, 7, 9, and 3, wait for 1 more second, and then send overdial 1.

This can be used by dispatchers to call their voicemail mailbox and automatically send the mailbox PIN number without the dispatcher manually dialing the PIN when retrieving voicemail messages.



NOTE

Custom ringtones are stored in **C:\ProgramData\Harris\Symphony\Telephone Ringtones** folder by default. If the Custom ringtone folder does not contain any wave files, the console automatically uses the default ringtone for incoming calls.

16.2.17.2 Speed Dial Sub-Tab

The Speed Dial Sub-Tab lets the Administrator manage the Speed Dial Lists.

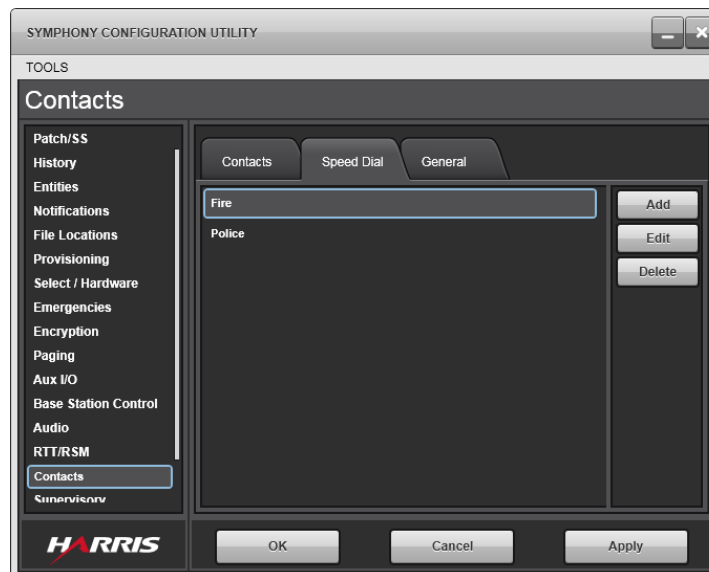


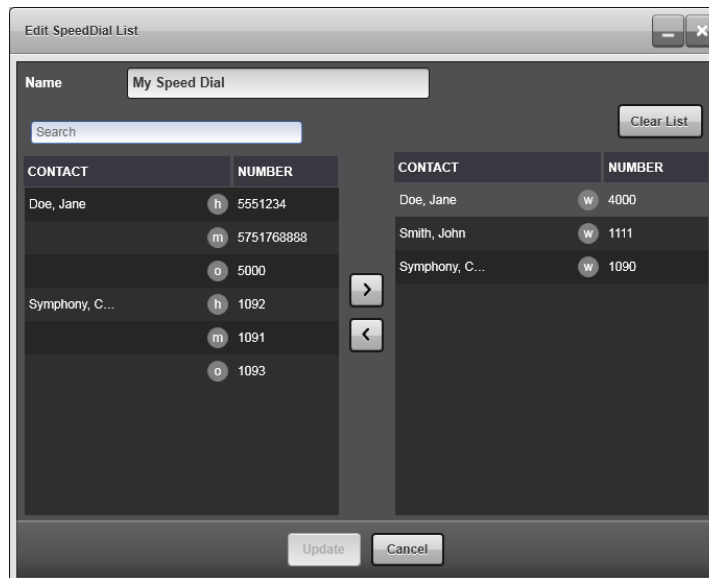
Figure 16-42: Contacts Tab – Speed Dial sub-tab

Administrators can perform the following:

- Add new Speed Dial List
- Update existing Speed Dial List
- Delete existing Speed Dial List

Speed Dial List Dialog:

This dialog allows the Administrator to enter the details of a new Speed Dial List or edit an existing Speed Dial List.



- **Name:** The title of the Speed Dial list (mandatory).
- **Search:** Search function to locate entries currently in the contact list.
- **Contact List:** The left-hand column - shows the full contact list not currently selected as part of the Speed Dial list.
- **Speed Dials:** The right-hand column - shows the contacts selected to be part of the Speed Dial list.
- **Right Arrow:** Adds the selected contact to the speed dial list.
- **Left Arrow:** Removes a contact from the speed dial list.
- **Clear List:** Removes all contacts from the speed dial list.

16.2.17.3 General Sub-Tab

The General tab contains additional Contacts parameters to control the overall behavior of the Telephony feature of the Symphony Application.



Figure 16-43: Contacts Tab-General Sub-Tab

- **Enable Contact Modification:** Enable/disable the dispatcher's ability to add, modify, and delete Local contacts and Local speed dials.



NOTE

Admin Contacts and Admin Speed Dials cannot be modified by the Symphony Application. Only contacts and speed dials created using the Symphony Application can be added or modified if **Enable Contact Modification** is enabled.

- **Speed Dial Hotkeys:** Allocation of which contact is assigned to a specific Speed Dial Hotkey. Dispatchers can use the keyboard to initiate outgoing Telephony Calls by selecting ALT+Numpad Number on the keyboard.

16.2.18 Supervisory Tab

The Supervisory Tab allows the administrator to enable and configure the Discreet Listening and Radio Unit Monitor (RUM) features. Both features are licensed independently.

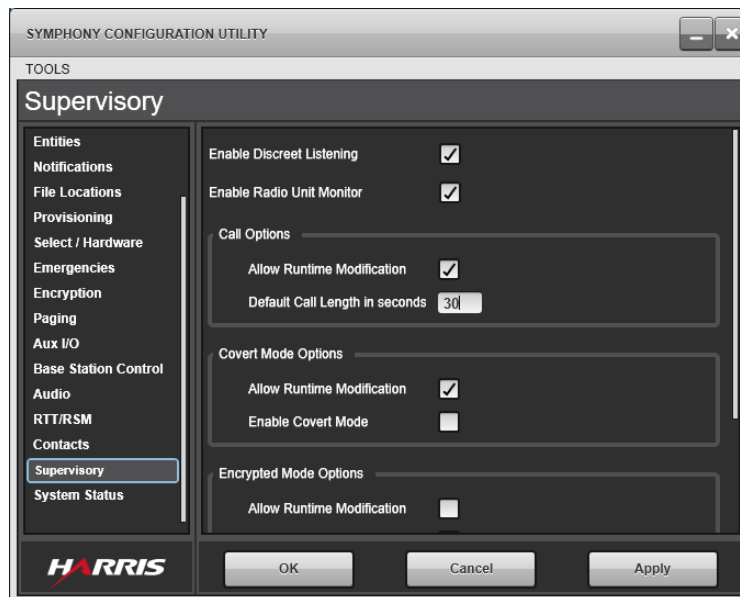
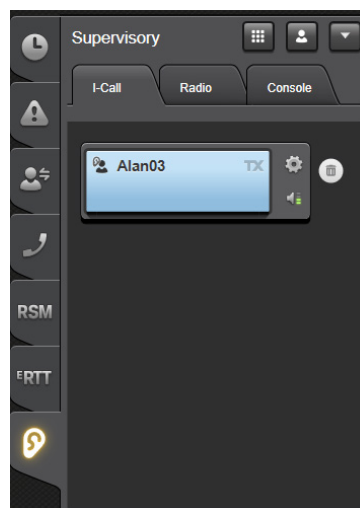


Figure 16-44: Supervisory Tab

- **Enable Discreet Listening:** When licensed and enabled (checked), the dispatcher can listen to VIDA I-Call conversations between two other units. This is a receive-only feature. If disabled (unchecked), then the Symphony Supervisory Sidebar Panel shows that the feature is not enabled.



- **Enable Radio Unit Monitoring (RUM):** When licensed and enabled (checked), the dispatcher can request that a unit make a VIDA I-Call or Group call to the Symphony console. In this mode, the Symphony only receives audio from the unit and cannot transmit to it. This is a licensed feature. If disabled (unchecked), then the Symphony Supervisory Sidebar Panel shows that the feature is not enabled.

If all the console positions are licensed for Radio Unit Monitoring, but only **some** are authorized to initiate a RUM call, the administrator control should be used to enforce this. Consoles that are not authorized for RUM do not display the Radio tab on the GUI. Consoles and radios should be configured based on organization policy regarding who is authorized to hear audio from RUM calls and what manufacturer's radios are used. See Section 16.2.18.4 for configuration considerations.



NOTE

I-Call Radio Unit Monitor is not supported for Motorola radios.



NOTE

If both the Discreet Listening and the Radio Unit Monitor feature are not licensed, then the Supervisory Sidebar Panel is missing unless the console is configured to use the Console Enable/Disable feature.

16.2.18.1 Call Options

These configuration items control the Radio Unit Monitor Call Length setting. Call Length is the time in seconds that the Radio Unit Monitor call will last.

- **Allow Runtime Modification Checkbox:** Checking this box enables the dispatcher to change the default Call Length value when configuring a Radio Unit Monitor call. Unchecking the box prevents the dispatcher from making changes to the field and therefore forces all RUM calls to use the default Call Length.
- **Default Call Length in seconds Textbox:** The Default Call Length defines how long the RUM call will be by default. The range of valid values is from 1 to 255 seconds. When setting this value, be sure that it is less than the smallest value for the conversation time limit(s) configured for the sites in your system. If you allow runtime modification, dispatchers should be trained to not exceed the conversation time limit.



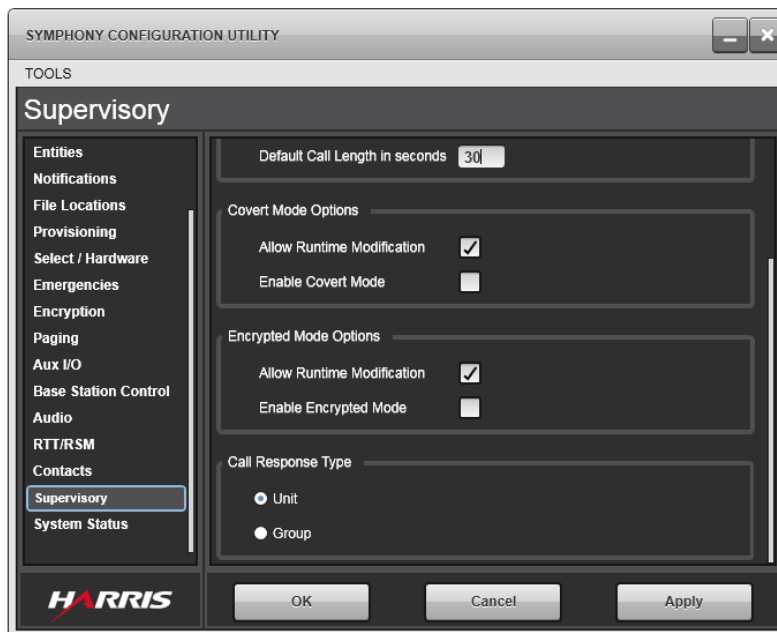
CAUTION

Failure to limit this value appropriately could result in the site dropping the RUM call without the radio's knowledge. This results in the radio continuing to transmit with no audio received at the console and no ability communicate with the radio.

16.2.18.2 Covert Mode Options

These configuration items control the Radio Unit Monitor Covert setting. Covert Mode determines whether or not the radio user receives any audio or visual indications when a Radio Unit Monitor call is started. If Covert Mode is checked, the radio does not provide the user with audio or visual indications when the call starts.

- **Allow Runtime Modification Checkbox:** Checking this box enables the dispatcher to change the default Covert Mode value when configuring a Radio Unit Monitor call. Unchecking the box prevents the dispatcher from making changes to the field and therefore forces all RUM calls to use the default Covert Mode.
- **Enable Covert Mode Checkbox:** When checked, Covert Mode is enabled by default.



16.2.18.3 Encrypted Mode Options

These configuration items control the Encrypted checkbox on the Radio tab in the Supervisory Sidebar Panel. Encrypted Mode determines whether the Radio Unit Monitor call will be encrypted or not.

- **Allow Runtime Modification Checkbox:** Checking this box enables the dispatcher to change the default Encrypted Mode value when configuring a Radio Unit Monitor call. Unchecking the box prevents the dispatcher from making changes to the field and forces all RUM calls to use the default Encrypted Mode.
- **Enable Encrypted Mode Checkbox:** When checked, RUM calls are encrypted by default if valid keys are available.

If a valid key is not available, the RUM call is unencrypted.

16.2.18.4 Call Response Type

This setting controls the type of Radio Unit Monitor call the radio will make to the console when activated. A Radio Unit Monitor call, when activated on a radio, calls back to the console as either an I-Call, a Group call, or if the Group selected is in an active Patch, then it is a Patch call.

Consider the following when configuring the Call Response Type options:

Who is allowed to hear RUM audio?

- Initiating console only – either Call Response Type can be used.

If **Unit** is selected, the radio will place an I-Call back only to the initiating console in response to the RUM request. I-Call callback is not supported by all radio manufacturers such as Motorola; this option works with L3Harris radios.

If **Group** is selected, create a dedicated group in the system for each console. Each dedicated group:

- Should NOT be programmed into radios or field units.
 - Should be set to RX Only on the console to prevent the dispatcher from keying on the group especially when a RUM call is in progress.
 - Does not have to be programmed on the workspace.
- Initiating console and some other consoles – the **Call Response Type** should be **Group**. A single dedicated group can be created in the system for all consoles in the dispatch center or for a subset of consoles that should hear the RUM call audio (e.g., all consoles in an agency). The dedicated group:
 - Should NOT be programmed into radios or field units.
 - Should be set to RX Only on the consoles that should hear the RUM call audio. This prevents dispatcher(s) from keying on the group especially when a RUM call is in progress.
 - Must be programmed on the workspace or Monitored in the directory on the consoles that need to hear the RUM call audio.



NOTE

Dedicated groups should be used for RUM. Using normal, operational groups for RUM response calls blocks field units on that group from transmitting. RUM response calls cannot be stopped or cancelled remotely. Once started, they continue to completion of the configured call length (or if the RUMed radio goes out of coverage or the battery is removed). Since the RUM response call is like all other calls on a group, other radio units cannot preempt it.

- Initiating console and some dedicated field units – the Call Response Type should be Group. A dedicated group(s) should be created in the system. The dedicated group:
 - Must be programmed into radios or field units that are authorized to hear RUM response audio.
 - Should NEVER be selected by radio users.

- Should be configured on the radios or field units such that transmit capability be DISABLED. This prevents the radio unit from blocking a RUM target from transmitting and prevents a RUM call from blocking transmissions. The group(s) can be placed on a radio scan list, which allows the unit to hear RUM audio while still maintaining communications if needed. Radio users can opt-out of hearing a RUM call by stopping the scan list the group is on or moving to another scan list.
- Initiating console and units that have not been specifically programmed to receive them – the **Call Response Type** should be **Group**. Consoles can patch groups used for RUM responses with other groups to direct RUM audio to other field units. If possible, patch to a group the radio units normally scan, but do not normally have selected. The patch must be created *before* initiating the RUM request. Patching during the RUM response call does NOT move the RUM audio to the patch.



CAUTION

Caution should be taken when using a group that is included in an active patch, The RUM call blocks all other field units from transmitting on any of the patched groups. For this reason, patching the RUM groups to operational groups is NOT recommended.

Configure the Call Response Type as either Unit or Group. If selecting **Unit**, the **Group** dropdown is not displayed and the call is always an I-Call.

Call Response Type

Unit

Group

If selecting **Group**, then select one group on which that the radio will make the call. When the Radio Unit Monitor call is activated, the radio places the call on the selected Group.



NOTE

It is recommended that this group be reserved for Radio Unit Monitor calls so that other consoles cannot preempt it inadvertently. It may be advantageous if each console dispatcher has their own assigned group. It is also recommended that this group is configured in the console(s) as receive-only. See the *Operator's Manual* for more on how to configure talkgroups as receive-only.

Call Response Type

Unit

Group

16.2.19 System Status Tab

The System Status Tab controls which elements are reported in the System Status Panel. This tab contains a list of filters. If an element matches any of the filters, it is reported. Up to 50 filters can be configured with varying degrees of granularity. By default, the **All Elements** filter is applied which reports all supported elements in the System Status Tab.

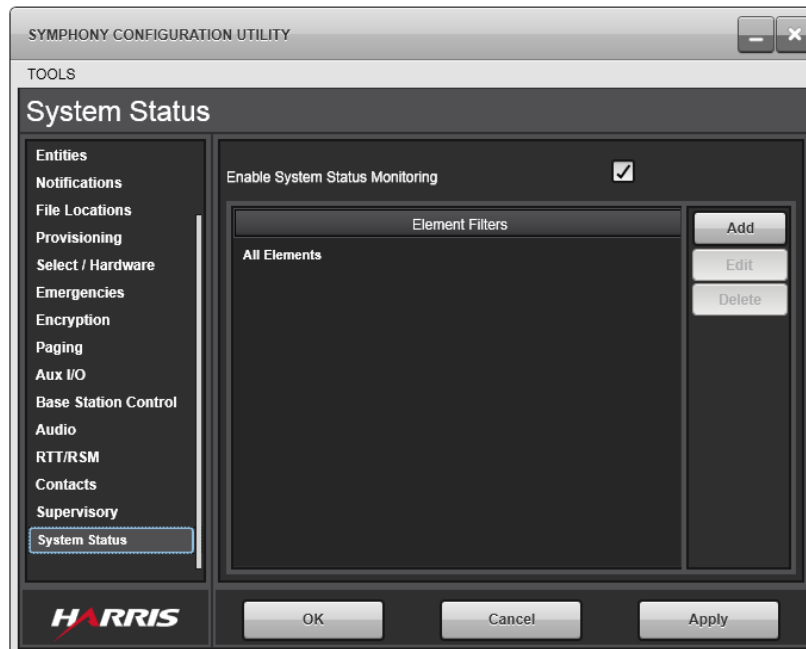
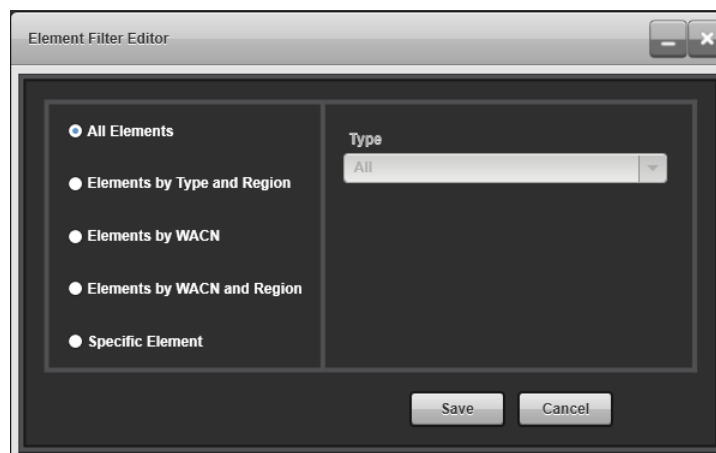


Figure 16-45: System Status

- **Enable System Status Monitoring:** Unchecking this box removes the System Status Sidebar Panel from the user interface. The default is checked.
- **Edit Buttons:** Use the following buttons to manage site filters:
 - **Add:** Adds a new filter
 - **Edit:** Edits the highlighted filter
 - **Delete:** Deletes the highlighted filter

The **Add** and **Edit** buttons open the Site Filter Editor shown below.



Choose the type of filter and the appropriate fields will appear to the right. Click **Save** to accept the filter changes or **Cancel** to disregard them. The following filter types are provided:

- **All Elements:** Select All Elements to monitor all supported elements. This is the default setting.
- **Elements Filtered by Type and Region:** Select this option to monitor all elements of the specified type in the specified region. The drop-down menu offers the following element types:
 - OpenSky
 - P25 Trunked
 - P25 Conventional
 - BeOn LAP
 - NetworkFirst Conventional
 - Advanced Conventional Station Control
- **Elements Filtered by WACN:** Select this option to monitor all supported elements in the specified WACN.
- **Elements Filtered by WACN and Region:** Select this option to monitor all supported elements in the specified region of the specified WACN.
- **Specific Element:** Select this option to monitor a specific element. When this option is used, Symphony reports the element as down if the VNIC does not provision a status report for the element. Symphony only reports status on elements the VNIC has explicitly reported unless this option is used for the element. For example, if the VNIC boots up and element A is not online, the VNIC does not report status for element A until it comes on line the first time. If element A is specifically filtered with this option, Symphony reports element A as down even though the VNIC did not send an explicit status report.

16.3 BATON CONFIGURATION

The Baton is a small toolbar-like Graphical User Interface (GUI) used to control the Symphony from a different machine (such as a CAD). The Baton relies on connecting to a Host Symphony Dispatch Platform. All audio and I/O is driven from the Host Symphony Dispatch Platform rather than the machine on which the Baton is running.



The Baton will not work without a properly functioning Host Symphony Dispatch Platform.

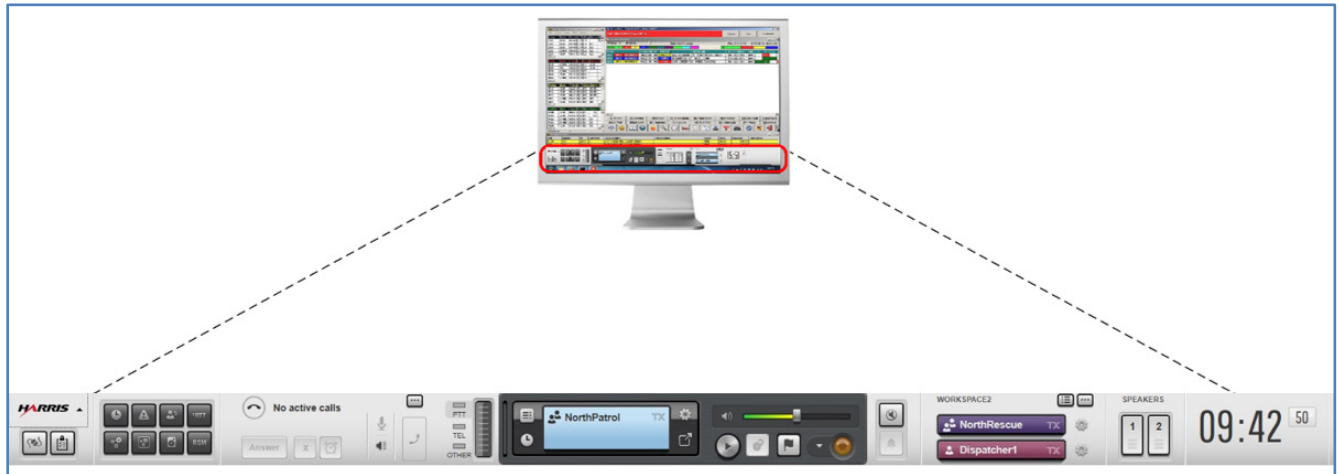


Figure 16-46: Symphony Baton

16.3.1 Supported Operating Systems

The Baton can run on a computer using any of the following operating systems:

- Windows 7 (32 and 64 bit)
- Windows 8 and 8.1 (32 and 64 bit)
- Windows 10 (64 bit)

16.3.2 Ports and Firewalls

For the Baton to communicate with the host Symphony Dispatch Platform, the following TCP ports must be open. The host Symphony Dispatch Platform will bind to these ports on startup, listening for Baton connections.

- 8000 – TCP
- 8001 – TCP

16.3.3 Baton Connection Manager

The Baton Connection Manager is where the address of the host Symphony Dispatch Platform must be defined. It can be launched via the Start Menu or will launch automatically if no host Symphony Dispatch Platform has been defined when attempting to launch the Baton.

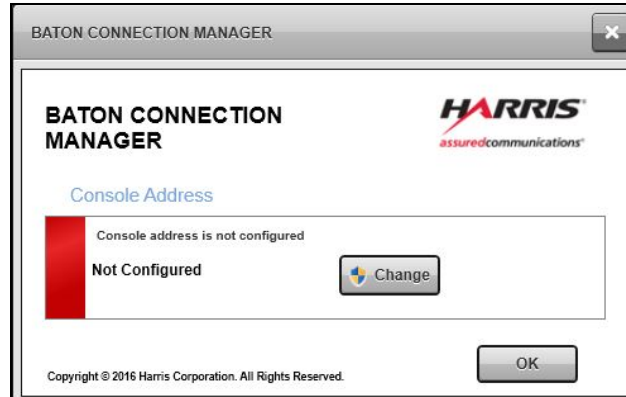


Figure 16-47: Symphony Baton Connection Manager

Click **Change** to change the IP Address of the host Symphony Dispatch Platform. If the Windows User that is logged in is not an administrator, the system will ask for the administrator's credentials to change this setting. The following screen is then displayed:

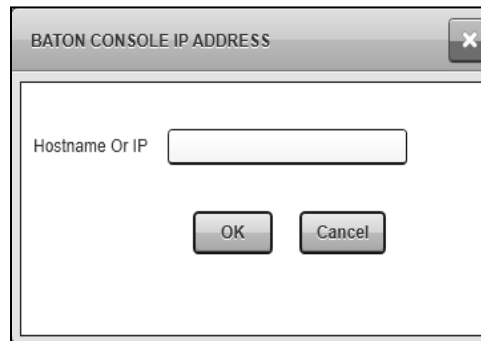


Figure 16-48: Symphony Baton Console IP Address Dialog

Hostname Or IP – Enter the hostname or IP Address of the host Symphony Dispatch Platform.

16.3.4 Login (Domain and Non-Domain)

If both the Baton machine and the Host Symphony Dispatch Platform are on the same Windows domain, the Windows login credentials of the user on the Baton machine should be used to automatically login to the Host Symphony Dispatch Platform.

However, if the machines are on different domains (or no domain at all) the Baton prompts for login credentials to the host Symphony Dispatch Platform. It is necessary to enter valid credentials into the dialog box for the Baton to connect properly. Checking the “Remember My Password” box causes the Baton to remember the password so that it does not need to be entered on the next startup.

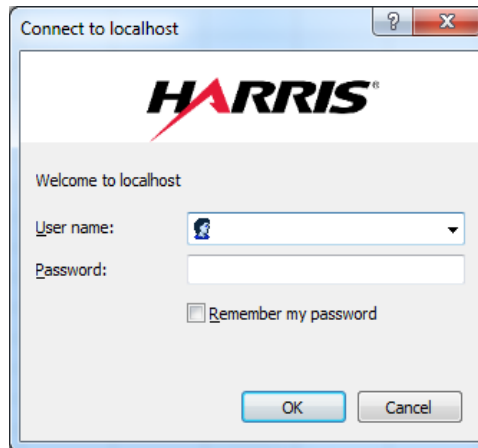


Figure 16-49: Symphony Baton Connect Dialog

16.3.5 Baton User Permissions

The user account used to access the Host Symphony Dispatch Platform must be granted the Windows right called “Access this computer from the network.” Refer to Microsoft TechNet for information about configuring this User Right. [https://technet.microsoft.com/en-us/library/cc740196\(v=ws.10\).aspx](https://technet.microsoft.com/en-us/library/cc740196(v=ws.10).aspx)

16.3.6 Baton Licenses and Versions

To view the Baton licenses and version:

1. Start the Symphony Baton if necessary.
2. Click the drop-down icon on the Harris logo, in the top left of the display, and then click **About**.

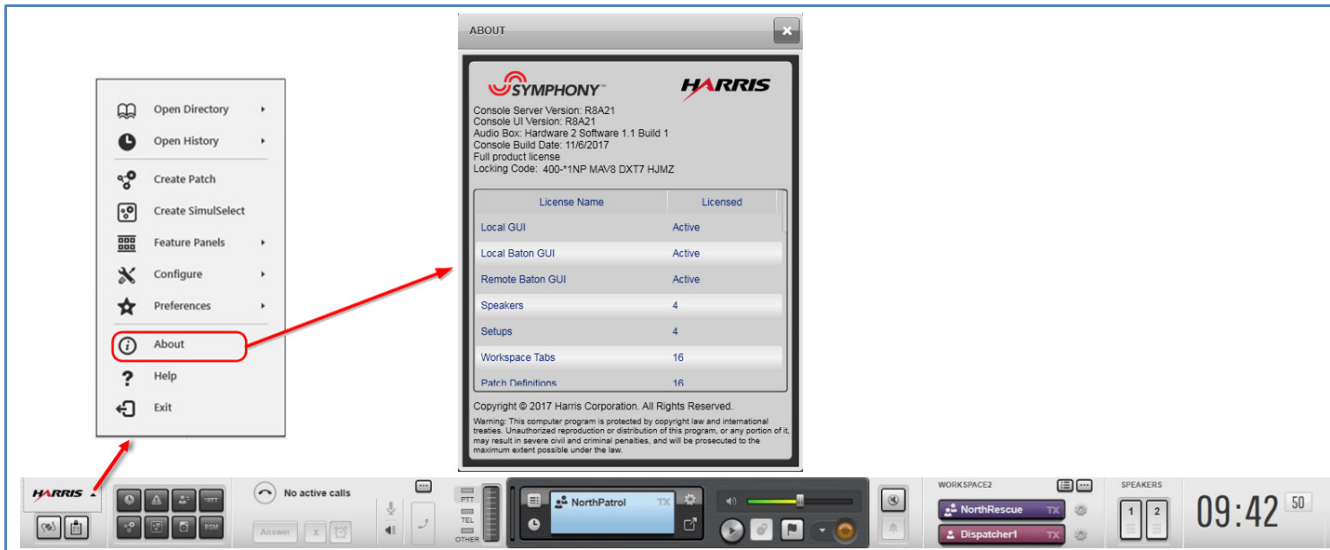


Figure 16-50: About Symphony Baton

16.4 CONFIGURATION THROUGH WINDOWS REGISTRY

A limited number of features are configured directly in the Windows registry rather than through the Symphony Configuration Utility or the Connection Manager.

16.4.1 Console Enable/Disable

Symphony now includes the ability to disable and re-enable other Symphony and C3Maestro^{IP} consoles. This function is restricted by the dispatch administrator via configuration.

16.4.1.1 Compatibility

Symphony can disable other R8A and later Symphony consoles, as well as all C3Maestro^{IP} console versions. C3Maestro^{IP} consoles cannot disable Symphony consoles.

Since only Symphony consoles can re-enable another console, it is recommended that at least two positions be given rights to disable and re-enable a position. This provides operational redundancy.

16.4.1.2 Security

Authorizing a Symphony position to disable/re-enable other positions means placing an authorization list in the Windows registry. This is a list of User IDs that can be disabled by the console. If the list is absent (default), empty, or invalid, Symphony does not display the Disable/Enable user interface elements. If there is at least one console's User ID (other than itself) in the list, then a "Console" tab is added to the Supervisory tab (and the Supervisory tab is added, if needed). The dispatcher can use this tab to disable and re-enable remote consoles.

It is not the console position itself that is disabled; it is the User ID of the remote console that is disabled. This User ID corresponds to the Windows user account that the dispatcher logs into. The fact that the dispatcher is disabled is stored in the Windows user profile. This means if the disabled dispatcher logs out and a non-disabled dispatcher logs in, then the console works for the non-disabled dispatch user. Also, if it is desired that the disabled dispatch user remains disabled if he/she logs into another position, then Windows Roaming profiles must be enabled.

16.4.1.3 Disabled Console Behavior

A disabled console greys-out (disables) almost all user-interface controls. The exceptions are the dispatcher can still exit the application and access online help. All speaker and headset audio is muted.

The console maintains its connection with the VNIC, so the RNM will not report the console as failed or disconnected. While disabled, the console continues to process and record inbound calls and display system activity such as patches and emergencies. This enables the console to be re-enabled quickly without loss of history. Once re-enabled, the dispatcher can access the recordings of calls that occurred while the console was disabled. The console's analog logging recorder outputs continue to function while it is disabled, so any analog recorder will not miss data.

The following remain active after a console is disabled:

- PMT or ST tones being generated by the disabled console. Another console must disable these.
- Active Patch or SimulSelects. The RNM should be used to disable these, if desired.
- Any active I-Call eavesdrop sessions.
- Any active SIP calls will continue. The remote side of the call must hang up to terminate the call. The dispatcher cannot hear the caller. This includes telepatches. The radios continue to hear the phone caller, but not the dispatcher.

The following features continue to operate after the console is disabled.

- The console Acknowledges receipt of RTT/RSM messages from the system. The dispatcher cannot acknowledge or handle the RTTs. It is recommended that another Symphony can take over handing RTT responses.
- Hardware-based call director remains active. If it is desired that the phone access be shutoff, then separate arrangements must be made.
- Backup radio operations are still available. A dispatcher can switch to backup radio mode using the Auto/Disable/Manual switch. If desired, the UAS can be used to disable the backup radio itself.
- Radio TextLink (if used) is not disabled.

Symphony must be running to be disabled or re-enabled. If the user/position is not running it cannot receive the message.

16.4.1.4 Configuration

Configuration for this feature is to set up the list of consoles that can be disabled by a dispatcher user ID (typically the supervisor). This information follows the user, so a supervisor can use multiple machines and retain the console disable target list.

The first option is to have an administrator directly create and edit the registry setting for the appropriate users. If the installation is larger and there are many users which must have this setting, then Active Directory group policy may be used to distribute it.

The console list is stored in the registry value of type REG_SZ. The location is **HKCU\SOFTWARE\Policies\Harris\Symphony\Supervisory\DispatcherDisableList**.

The format of the value is:

```
DispatcherDisableList:= null | 'UserID:' Wacn ':' Region ':' Agency ':' UnitID [ ';' DispatcherDisableList]
```

Wacn: = String Representation of WACN

Region: = String Representation of Region

Agency: = String Representation of Agency

UnitID: = String Representation of UnitID

For example, to allow a console to disable the consoles with unit IDs 12345-49-13-1234, 12345-49-13-9999, and 12345-49-22-1234, then set the Registry Value data to:

```
"UserID:12345:49:13:1234;UserID:12345:49:13:9999;UserID:12345:49:22:1234"
```

Symphony treats it as empty if the entry value is not present in the registry (default), or the contents are an invalid format. An entry is written to the application log file if the data is the wrong format.

The console contains no tool to create this list. The Administrator uses the Windows AD Server Group Policy Tool to populate this list and distribute it to the consoles. It is also possible for an administrator to create this registry entry locally (with regedit or a similar tool).

Even though this value exists in the HKCU (current user's) hive, with default Windows OS security, the user only has read-access. This section of the registry (HKCU\SOFTWARE\Policies) is intended for per-user settings that are controlled by the administrator.

17. MANAGING CONSOLE SETUPS

The Symphony Dispatch Console can store up to 16 setups. Each setup can be unique in terms of communication module programming, as well as various other settings and parameters. Setups allow you to customize the console for different situations and different dispatch operators.

Each Windows account can have up to 16 setups. The number and names of the setups are controlled by the Symphony Administrator via the Admin mode.

Any Setup, except for “Default,” can be protected with a password. The dispatcher must correctly enter the password to switch to a password protected setup. This allows a single Windows user account to be shared by multiple dispatchers while protecting preferences from changes by unauthorized users. The Setup password provides lightweight protection for setups. If the installation has specific information assurance requirements, Setup passwords should not be used. Instead, each dispatcher should have a Windows user account for running the Symphony.

If the console is shut down while a password protected setup is loaded, the Default setup will be active upon the next startup.

17.1 CREATE NEW SETUPS

To create a new setup:

1. Click the Harris logo in the top left of the display.

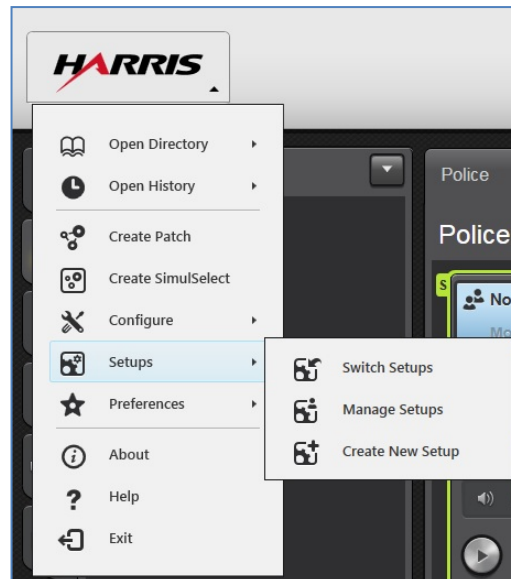


Figure 17-1: Setup Menu

2. Select **Setups** → **Create New Setup**. The **Create New Setup** dialog opens.

3. Enter a setup name (up to 14 alpha-numeric characters).
 - To require a password to access the setup, check **Password Protect** and enter the password.
 - For the new setup to open after creation, check **Switch to new setup after creating**.

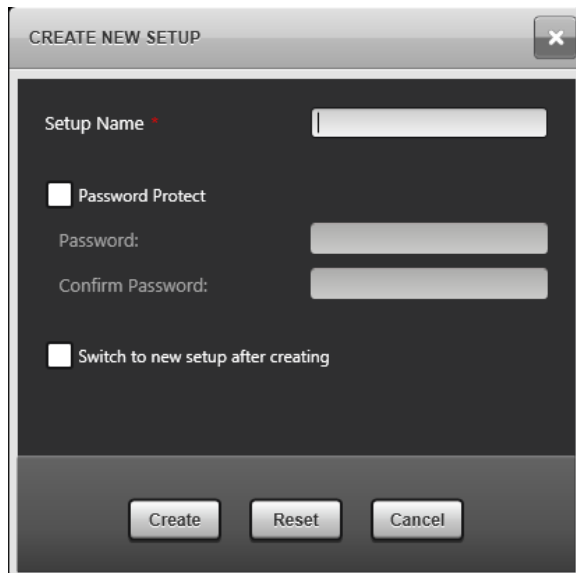


Figure 17-2: Create New Setup Dialog

4. Click **Create**.

17.2 SWITCHING SETUPS

To Switch to a New Setup:

1. Click the Harris logo in the top left of the display.
2. Select **Setups** → **Switch Setups**.

The **Switch Setups** dialog opens.

3. Select the desired setup from the list.



NOTE

If the setup is password protected, an **Enter Password** field is displayed on the **SWITCH SETUPS** dialog. The correct password must be entered before switching to this setup.

4. Click **Switch**.



Figure 17-3: Switch Setups Dialog

17.3 DELETE SETUPS

1. Click the Harris logo in the top left of the display.
2. Select **Setups → Manage Setups**.

The **Manage Setups** dialog opens.

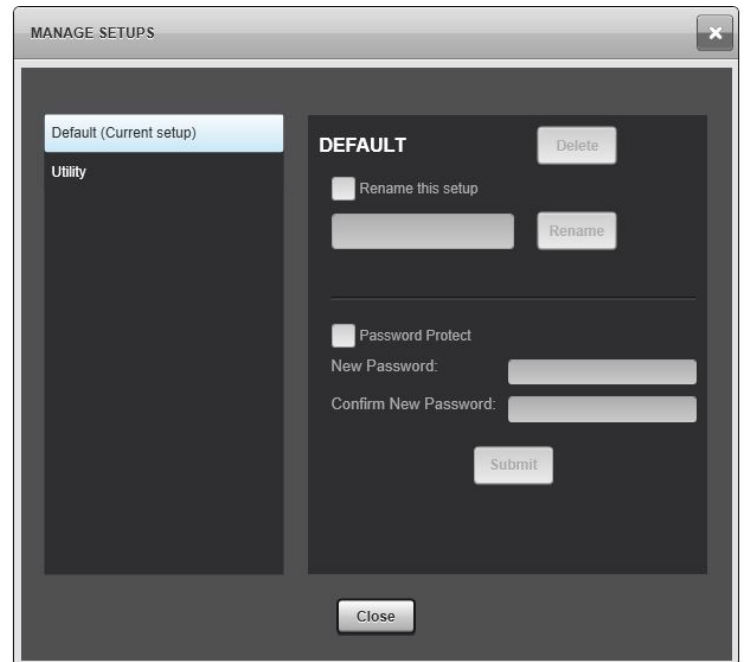


Figure 17-4: Manage Setups Dialog

3. Select the setup to delete from the list on the left of the **MANAGE SETUPS** dialog.
4. Click **Delete**.

To Rename Setups:

1. Click the Harris logo in the top left of the display.
2. Select **Setups → Manage Setups**.

The **Manage Setups** dialog opens.

3. Select the setup to rename from the list on the left of the **Manage Setups** dialog.
4. Check the **Rename this setup** box.
5. Enter the new name in the text box provided.
6. Click **Rename**.

17.4 PASSWORD PROTECT SETUP

1. Select the setup from the list on the left of the **Manage Setups** dialog.
2. Check the **Password Protect** box.
3. Enter and confirm the new password.

If the setup is already password protected and you want to change the existing password, enter and confirm the new password.

4. Click **Submit**.

18. CUSTOMIZING THE USER INTERFACE

The console must be in Configuration Mode to add, rename, or delete Workspace Tabs, or to add, delete, or modify Communication Modules. Many of the procedures in this section end with exiting Configuration Mode; however, this is only required when all editing has been completed.



NOTE

While in Configuration mode, the console continues to receive calls and processes other messages from the system such as emergencies. This functionality is for convenience only. Mission-critical dispatch should not occur in this mode.

18.1 MANAGING WORKSPACE TABS

Workspace Tabs, similar to those shown in Figure 18-2, make it easy to organize and browse multiple departments that contain different communication modules. The administrator can add additional tabs, rename the tabs, or delete the tabs as required.



NOTE

The number of workspace tabs that the console administrator can add is determined by licensing, which also determines if one of these workspaces can be configured for embedded web browsing.

18.1.1 Placing the Console in Configuration Mode

To Put the Console into Configuration Mode:

1. Click the drop-down arrow in the Harris logo, in the top left corner of the screen.
2. Select **Configure** → **Admin Mode**.

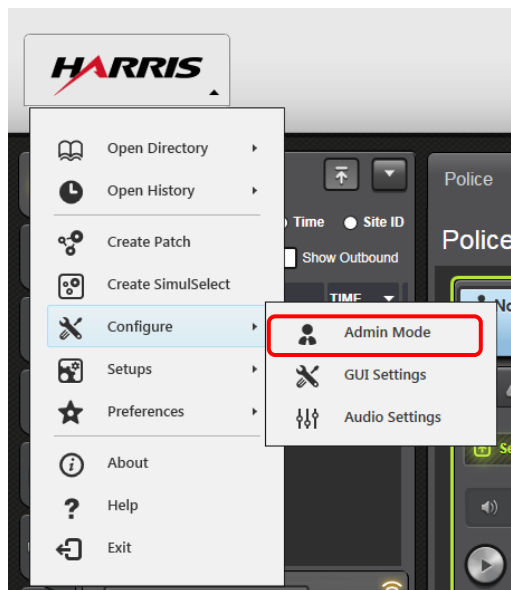


Figure 18-1: L3Harris Configure Menu – Admin Mode

3. The top of the workspace indicates the Symphony is in the **CONFIGURATION MODE** as shown in Figure 18-2.

18.1.2 Adding a New Workspace Tab

To Add a Workspace Tab:


1. Click **Configure** → **Admin Mode** to place the console in the Configuration Mode.
2. Click the drop-down arrow  in the top right corner of the workspace to open the drop-down menu.
3. From the drop-down menu, select **Add New Tab**.



Figure 18-2: Workspace Tab Example

4. In the **ADD WORKSPACE TAB** dialog window, enter a name for the new tab.

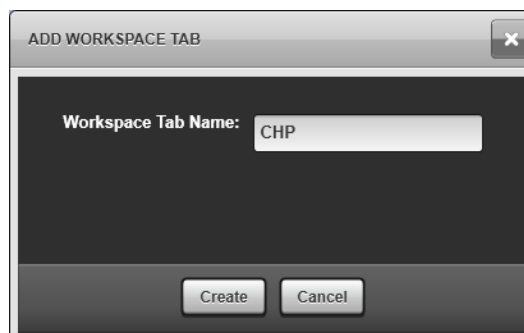


Figure 18-3: Naming the Workspace Tab

5. If licensed for the embedded browser feature, use the checkbox to select whether to create a standard workspace or a single web browser workspace. To create a standard workspace, uncheck the checkbox if it is displayed.
6. Click **Create**.

- When finished, select **Configure** → **Exit Configuration** from the Harris logo drop-down menu or remain in Configuration Mode to continue editing.




Figure 18-4: Workspace New Tab Example



Figure 18-4 shows a populated Module workspace. Procedures for adding, renaming, and deleting a Web Browser workspace are very similar. Refer to Section 18.3 for more information about differences and how to populate a Web Browser workspace.

18.1.3 Renaming a Workspace Tab

To Rename a Workspace Tab:

- Click **Configure** → **Admin Mode** and place the console into the Configuration Mode.
- Select the tab being renamed.
- Click the drop-down arrow  in the top right corner of the workspace to open the drop-down menu.
- From the drop-down menu, select **Rename Current Tab**.

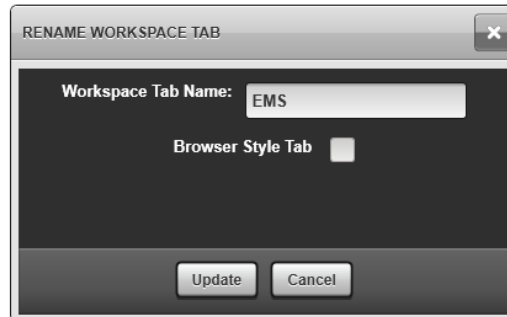


Figure 18-5: Workspace Tab Rename Example


5. The **RENAME WORKSPACE TAB** dialog displays. If licensed for the embedded web browser feature, the checkbox is checked if the current workspace is for web browsing. If the checkbox is not checked, the current workspace is a modules workspace.
6. Enter the new name and click **Update**.
7. When finished, select **Configure → Exit Configuration** from the Harris logo drop-down menu.

18.1.4 Deleting a Workspace Tab



If a workspace tab is deleted, it cannot be restored. It must be recreated.

To Delete a Workspace Tab:

1. Click **Configure → Admin Mode** and place the console into the Configuration Mode.
2. Select the tab being deleted.
3. Click the drop-down arrow  in the top right corner of the workspace to open the drop-down menu.
4. From the drop-down menu, select **Delete Current Tab**. If the workspace has at least one module of any kind, the **Confirm Delete Operation** dialog displays

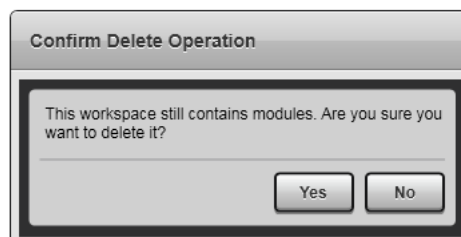


Figure 18-6: Confirm Delete Operation Dialog

5. Click **Yes** to confirm the deletion or **No** to cancel the deletion. If you confirm the deletion, the workspace, and all communication modules associated with it, are deleted immediately. The last modules Workspace Tab (if only one tab is left) cannot be deleted.
6. When finished, select **Configure → Exit Configuration** from the Harris logo drop-down menu.

18.2 MANAGING COMMUNICATION MODULES

Each Workspace Tab holds a collection of Communications Modules. The term Communications Module includes all modules that can be placed on the Workspace including Group, User, Patch, SimulSelect, Aux I/O, Base Station, and Paging modules.

Groups that are added to a workspace are automatically set to 'monitor' or receive calls and emergencies. When the setup changes, 'monitoring' on that group follows the new setup.

The number of communication modules that can be added to the workspace is limited by the size of your monitor. If you attempt to add more modules than can be displayed on the monitor, you receive a message stating "**Cannot add/resize/reprogram modules! There is not enough space available.**"

If the Workspace area shrinks after the modules are added (for example the screen resolution is changed by the user), Symphony shows scroll bars allowing the user to access to all modules. The administrator should re-configure the console to eliminate the scrolling as soon as possible.

18.2.1 Adding Modules



Do not add an ABR user module to the workspace when the ABR backup radio module has already been added.

To add modules to the selected workspace tab:

1. Click **Configure** → **Admin Mode** and place the console into the Configuration Mode.
2. Click the button in the top right corner of the workspace.

An **ADD MODULE** dialog opens displaying the available entities.

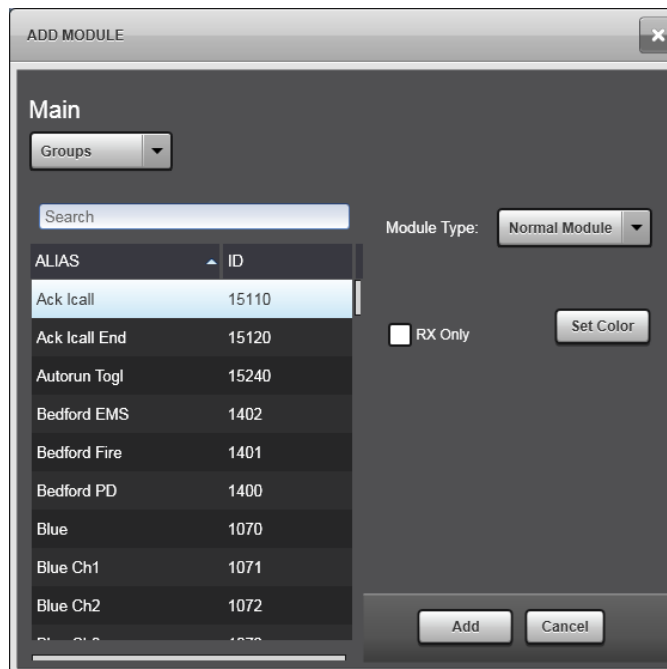


Figure 18-7: Add Module Example

- From the drop-down in the upper left, select which entities to display (Groups, Users, Patches, SimulSelects, Pages, Aux I/Os, Base Stations, RTTs, or RSMs). Select the desired entity from the list.

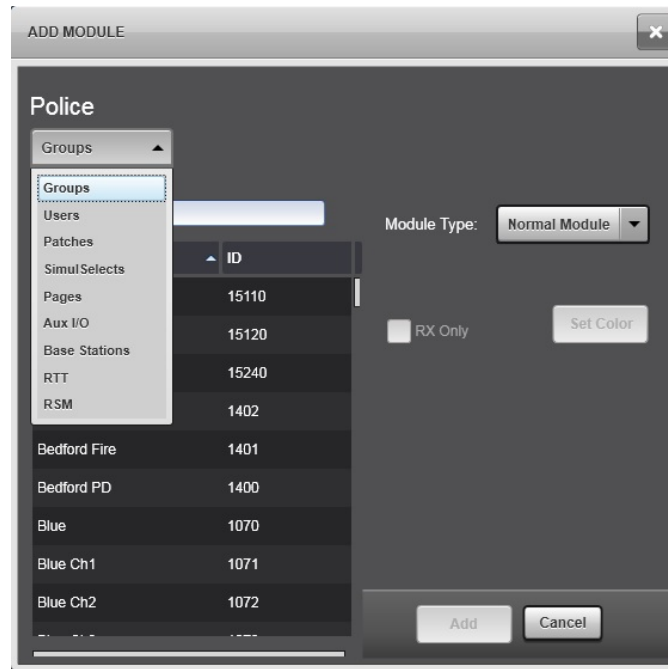

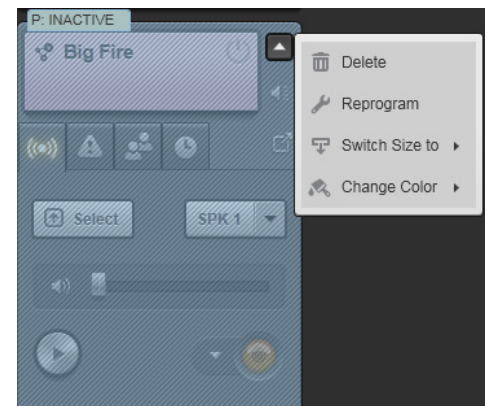


Figure 18-8: Add Module Drop-Down Menu


- Select the **Module Type** from the drop-down (Normal, Small, or Mini).
- Click **Add**. After adding a module to the workspace, click and drag it to the desired location.
The Add Module dialog adds modules to the tab that was active when the dialog was opened. To prevent confusion, the **ADD MODULE** dialog automatically closes when changing tabs. Reopen the dialog in the new tab to add modules to the new tab.

18.2.2 Deleting Modules

- After placing the console in Configuration Mode, click the  button on the module.
- Select **Delete**.
- The module is deleted unless the entity is selected and there is an incoming call on it or the entity is in an emergency.



18.2.3 Modifying Modules

- After placing the console in Configuration Mode, click the  button on the module to modify.
- Select **Reprogram** to change the entity assigned to the module or select **Change Color** to change the color of the Smart Button.
- The module is modified unless the entity is selected and there is an incoming call on it, or the entity is in an emergency.

18.2.4 Moving a Module

After placing the console in Configuration Mode, click and drag the module to the desired location.

18.2.5 Change Sidebar Panel Layout

While in Configuration Mode, click and drag the Sidebar Panel to the desired location.

18.3 MANAGING WEB BROWSER WORKSPACE

A single web browser workspace can be licensed and configured to enable a dispatcher to access VIDA Components, such as the Unified Administration System (UAS) and the Regional Network Manager (RNM) from the Symphony full screen application. Once licensed, this web browser feature can be configured by a user logged on with administrative privileges.


18.3.1 Adding a Web Browser Workspace Tab

To add a Web Browser Workspace Tab:

1. Click **Configure** → **Admin Mode** to place the console in the Configuration Mode.



Figure 18-9: Workspace Tab Example

2. Click the drop-down arrow  in the top right corner of the workspace to open the drop-down menu.
3. From the drop-down menu, select **Add New Tab**.
4. On the **Add Workspace Tab** dialog, enter a name for the new tab in the **Workspace Tab Name** text box, and check the **Browser Style Tab** checkbox.



Symphony only supports one Browser Workspace Tab per setup. If one has already been defined for the current setup, the checkbox is disabled.

The current Symphony release only supports two URLs for VIDA components: UAS and RNM.

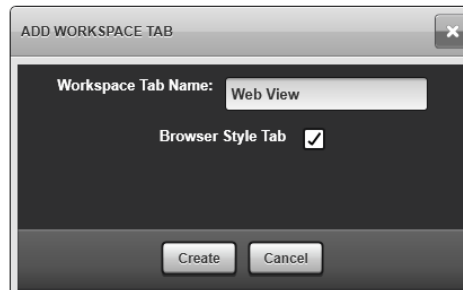


Figure 18-10: Naming the Workspace Tab

5. Click **Create**. The new Browser Workspace is added.
6. When finished, select **Configure** → **Exit Configuration** from the Harris logo drop-down menu or remain in Configuration Mode to continue editing.

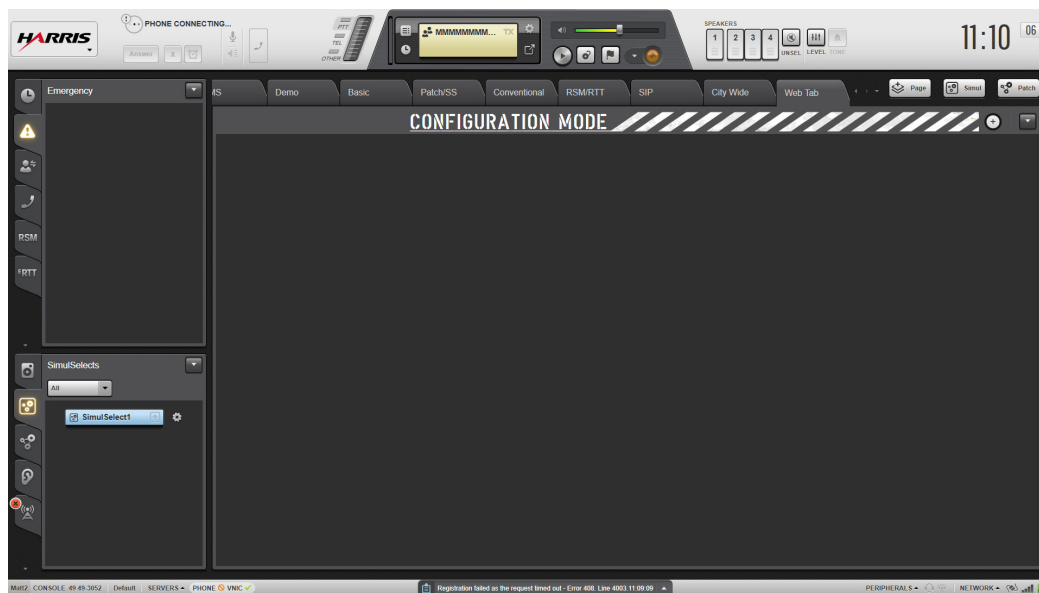



Figure 18-11: Workspace New Tab Example


18.3.2 Adding Web Browser Sub-Tabs to Browser Workspace

To add Web Browser sub-tabs to the selected Workspace Tab:

1. Click **Configure** → **Admin Mode** and place the console into the Configuration Mode.
2. With the Web Browser Workspace tab active, click the  button in the top right corner of the workspace.

An **ADD BROWSER** dialog opens.



Symphony only supports one Browser Workspace per setup, with a maximum of four browser sub-tabs. If four sub-tabs have already been defined for the current setup, the  button is disabled. The current Symphony release only supports two URLs for VIDA components: UAS and RNM.

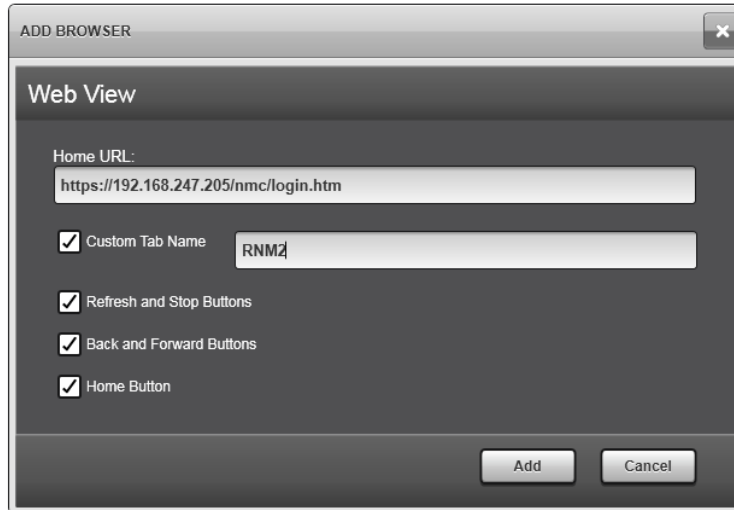


Figure 18-12: ADD BROWSER Dialog

3. Enter the URL for the target web page.
4. If the **Custom Tab Name** checkbox is checked, enter a name to appear as the sub-tab name. If the checkbox is not checked, Symphony will use the site name supplied by the specified service or provide a default.
5. Check the **Refresh and Stop Buttons** checkbox to display these buttons and make them available on the new browser sub-tab. Uncheck to hide these buttons.
6. Check the **Back and Forward Buttons** checkbox to display these buttons and make them available on the new browser sub-tab. Uncheck to hide these buttons.
7. Check the **Home Button** checkbox to display this button and make it available on the new browser sub-tab. Uncheck to hide this button.
8. Click the **Add** button to add the sub-tab to the Browser workspace. The **ADD BROWSER** dialog closes.
9. Repeat Steps 2-8 to create a maximum of four sub-tabs for four web services.
10. When finished adding sub-tabs, click **Cancel** to close the **ADD BROWSER** dialog if it is displayed.

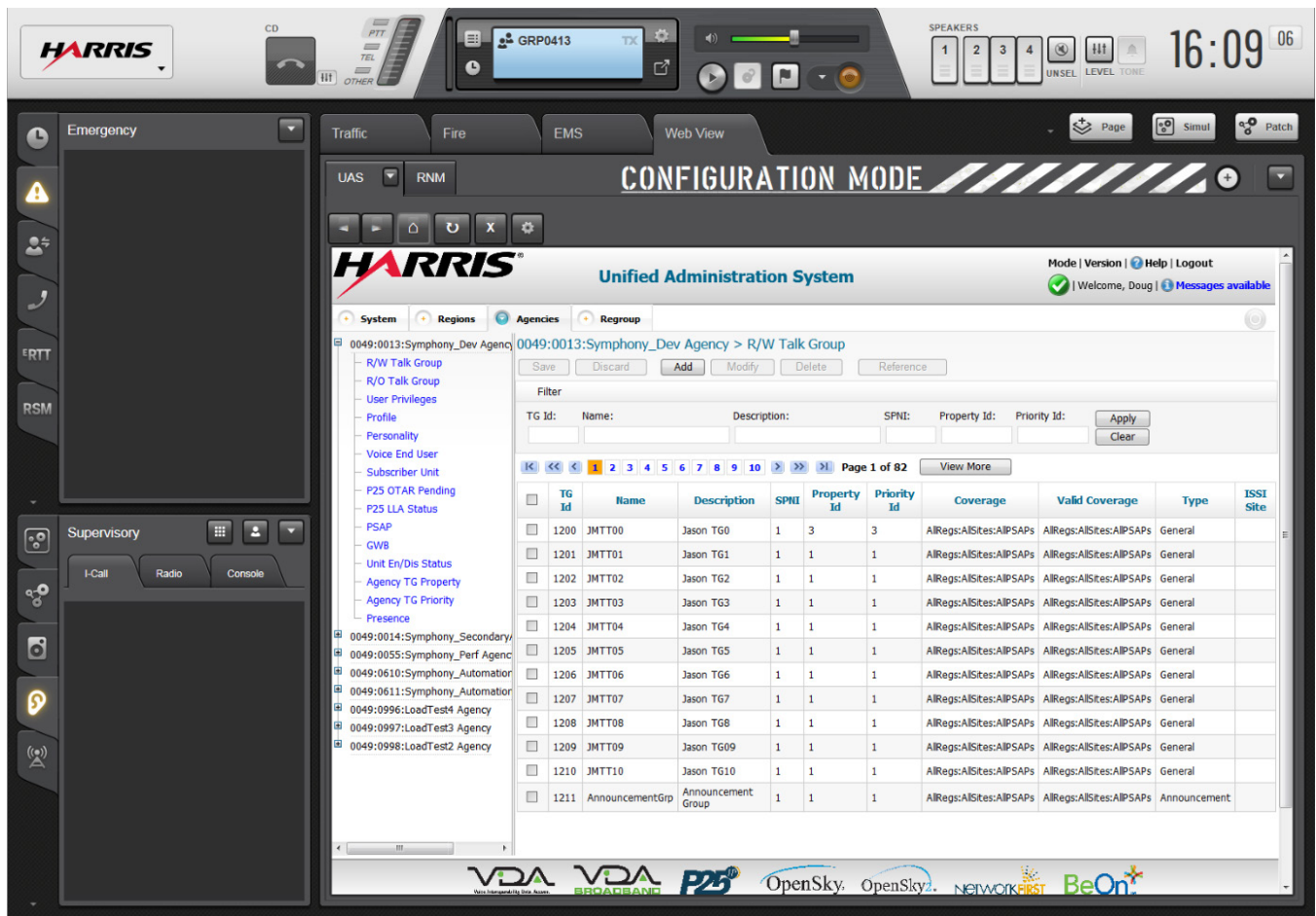



Figure 18-13: Web Browser Workspace with Browser Sub-Tabs

18.3.3 Editing a Web Browser Sub-Tab

To Edit a Web Browser Sub-Tab:

1. Click **Configure** → **Admin Mode** to place the console in the Configuration Mode.
2. Click the drop-down chevron  in the tab of the sub-tab to edit. This opens a drop-down menu.

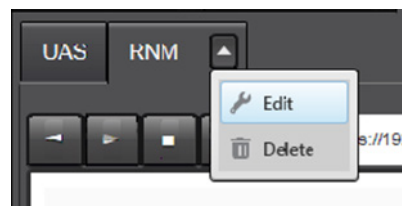


Figure 18-14: Edit/Delete Menu Dialog

3. Click **Edit** to display the **EDIT BROWSER** dialog.

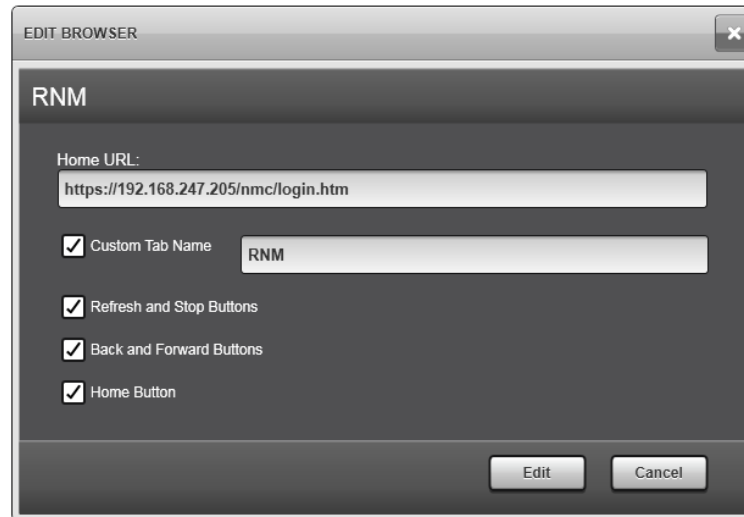



Figure 18-15: Edit Browser Dialog

4. Edit the URL for the web service that will be designated as the home page for the current Web Browser sub-tab.
5. To accept a service-provided page name (or a default generated automatically by Symphony) for the sub-tab, leave the **Custom Tab Name** check box unchecked. To manually assign a custom sub-tab name, check the check box. If the check box is checked, enter a custom sub-tab name (14-character maximum).
6. Check the **Refresh and Stop Buttons** checkbox to display these buttons and make them available on the new browser sub-tab. Uncheck to hide these buttons.
7. Check the **Back and Forward Buttons** checkbox to display these buttons and make them available on the new browser sub-tab. Uncheck to hide these buttons.
8. Check the **Home Button** checkbox to display this button and make it available on the new browser sub-tab. Uncheck to hide this button.
9. Click **EDIT** to commit the changes or **CANCEL** to retain the original values. The **EDIT BROWSER** dialog closes.

18.3.4 Deleting a Web Browser Sub-Tab

To Delete a Web Browser Sub-Tab:

1. Click **Configure** → **Admin Mode** to place the console in the Configuration Mode.
2. Click the drop-down arrow  in the tab of the sub-tab you want to edit to open the Edit/Delete drop-down menu.

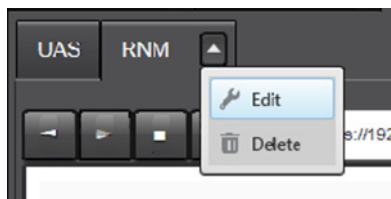


Figure 18-16: Edit/Delete Menu Dialog

- Click **Delete**. The menu dialog closes and the **Confirm Delete Operation** dialog displays.

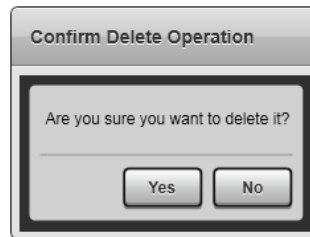


Figure 18-17: Confirm Delete Operation Dialog

- Click **Yes** to complete the deletion of the sub-tab or **No** to cancel the deletion. The dialog closes. If the Delete operation was confirmed, the deleted sub-tab is removed from the workspace.

18.3.5 Renaming and Deleting the Web Browser Workspace

To rename the Web Browser Workspace, refer to Section 18.1.3.

To delete the Web Browser Workspace, refer to Section 18.1.4.

18.3.6 Web Browser Workspace Audio on Headset

To Listen to audio from a web service on a headset:

- Open the **Symphony Configuration Utility** and navigate to the **General** page (requires Administrator permissions).

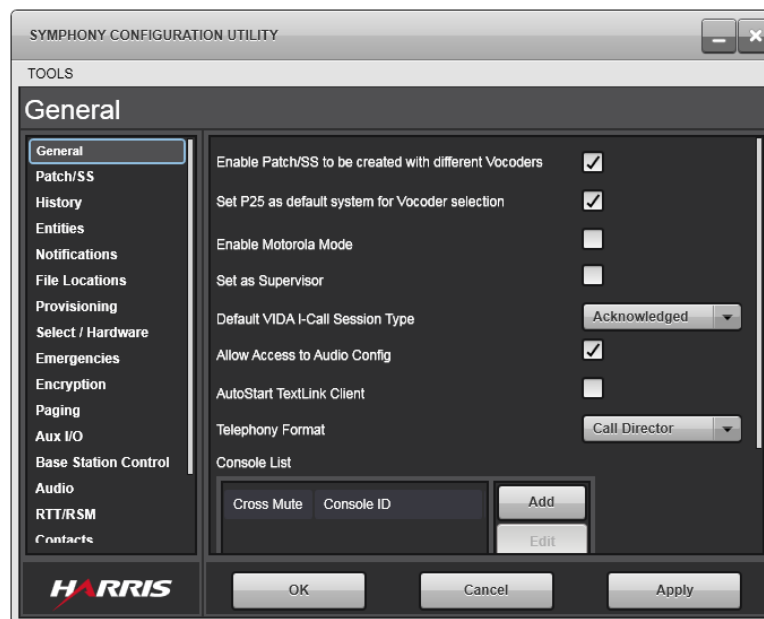


Figure 18-18: Symphony Configuration Utility, General Page

- Make sure the checkbox for **Allow Access to Audio Config** is checked, then click **Apply** and **OK** to commit the setting and close the Symphony Configuration Utility.
- If Symphony is already running, exit and restart Symphony to load the setting.

- On Symphony click **Configure** → **Audio Settings** to display the Audio Box Configuration dialog, then click the **Outputs** tab.

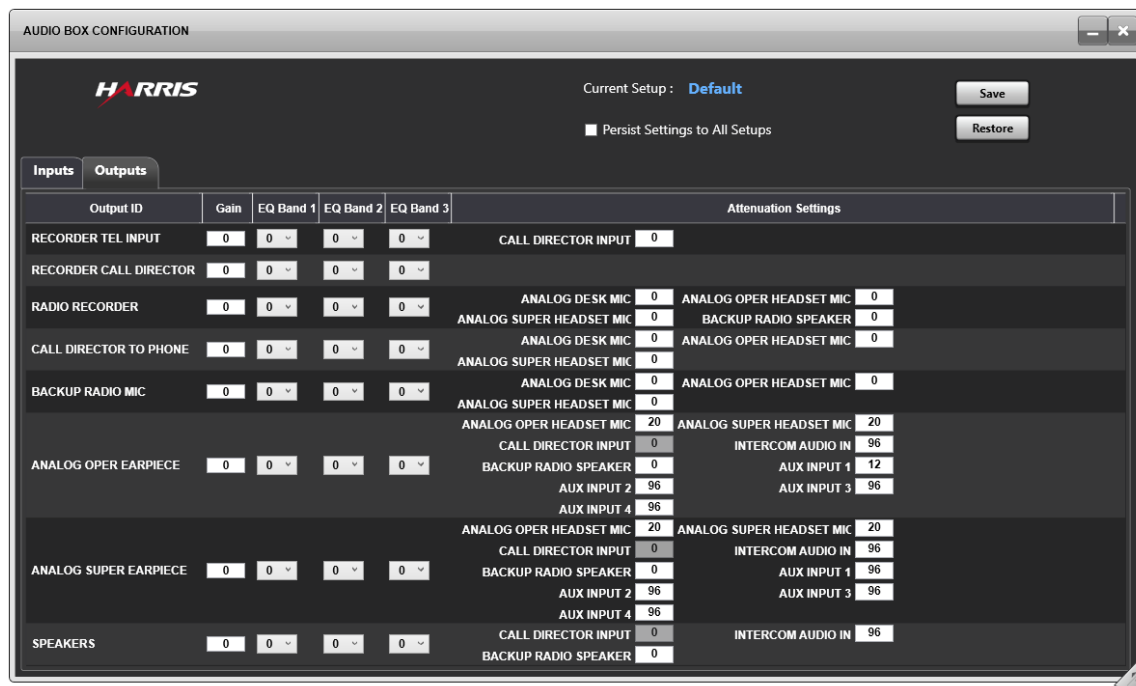


Figure 18-19: Audio Box Configuration, Outputs Tab

- To hear Audio from any active web browser on the analog operator or supervisor headset, set the attenuation for Aux Input 1 to less than 96 dB (attenuation at 96 dB mutes the audio from Aux Input 1).

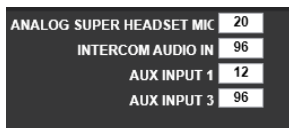


Figure 18-20: Attenuation Setting for Aux Input 1

- Click **Save**. Test level and adjust as needed, clicking **Save** after each adjustment. These settings take effect immediately.
- Exit the Audio Box Configuration dialog when finished with adjusting attenuation.
- To mute or silence web audio in the headsets, repeat the previous steps but set attenuation back to 96 dB for Aux Input 1 at Steps 5 and 6.

18.4 CONFIGURE GUI SETTINGS

1. Click the Harris logo in the top left corner.
2. Select **Configure** → **GUI Settings**. The **EDIT GUI SETTINGS** dialog opens (Figure 18-22).

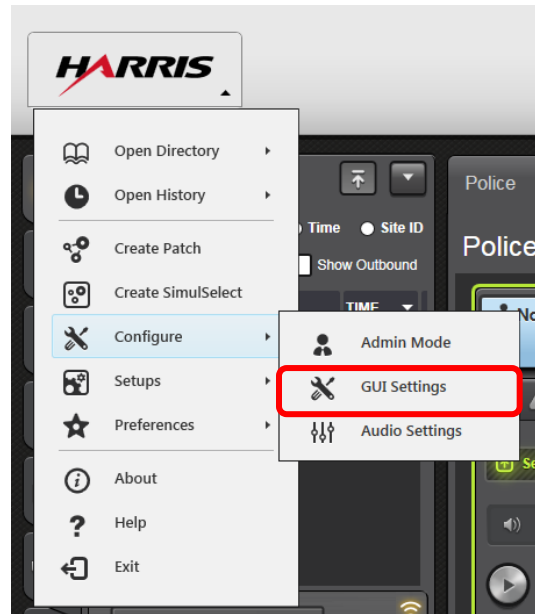


Figure 18-21: L3Harris Configure Menu – Configure GUI Settings

From here:

- Specify the number of entries that are listed in the speaker call history, select call history, sidebar call history, event bar system history.
- Specify to show only received calls in communication modules' call history tab.
- Specify whether to display the time in 24 or 12-hour format.
- Specify whether or not to show the alias or ID for all entities.
- Specify whether the Full Screen should take up the full screen or be placed in a window.
- Specify how long the caller ID will alternate with the group name on a mini module after a call ends.
- Specify which call types to hide from all call history by default. Calls that can be hidden include Marker Tones, Pages and Alert Tones. The hidden calls can only be unhidden in the Extended Call History Dialog by checking the **Show Hidden Calls** checkbox in that dialog. Check the call types that should be hidden in the GUI Settings Dialog. By default, Marker Tones are hidden since they are generated on a regular basis and are very low priority.

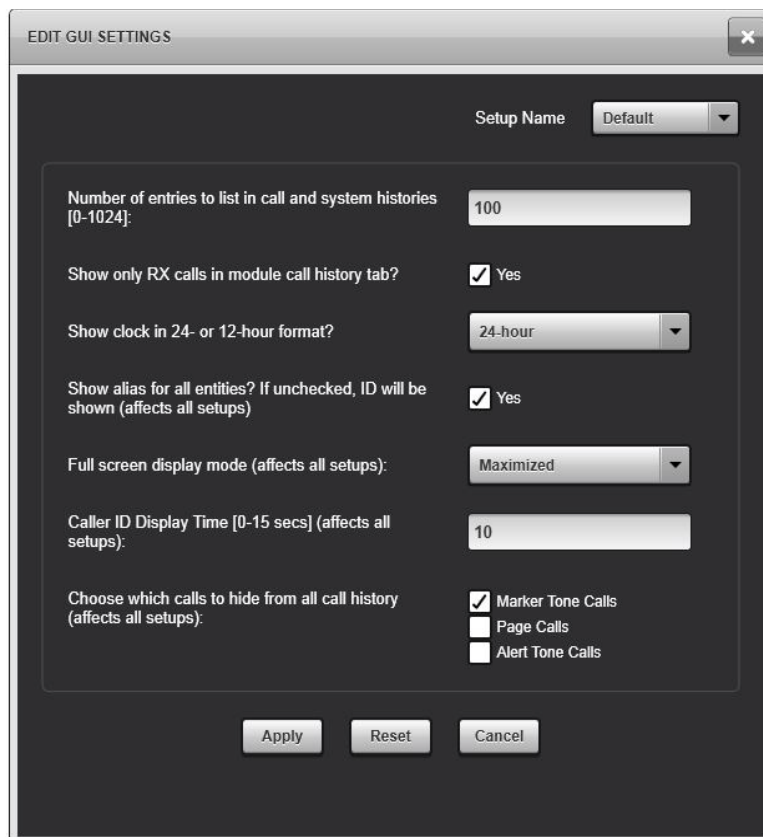


Figure 18-22: Edit GUI Settings

3. Select the name of the Setup to edit. Edit settings as desired and click **Apply**. Click **Reset** to return to default selections.

18.5 MANAGING BATON WIDGETS

Since the Baton is a compact version of the Full Screen Display, it only contains configuration tools specific to the Baton layout. The GUI and audio configuration must be done in the full screen. For example, modules must be placed on a workspace tab in the full screen to show up on the Baton.

The Baton allows the administrator to add or delete extra controls on the Baton, such as the Speaker Buttons and the workspace tabs. The number of Workspace tabs you can add is limited by the size/resolution of your monitor.

To add or delete widgets:

1. Start the Symphony Baton.
2. Click the drop-down icon on the Harris logo, in the top left of the display, and then click **Configure → Manage Widgets**.
3. Select or unselect the desired Widgets by clicking on the **Plus** or **Minus** icons.

Widgets are added to the panel, in order, from left to right. To change the order, click the **Minus** icon to remove the widgets that are out of order and then click the **Plus** icons in the desired widget order.

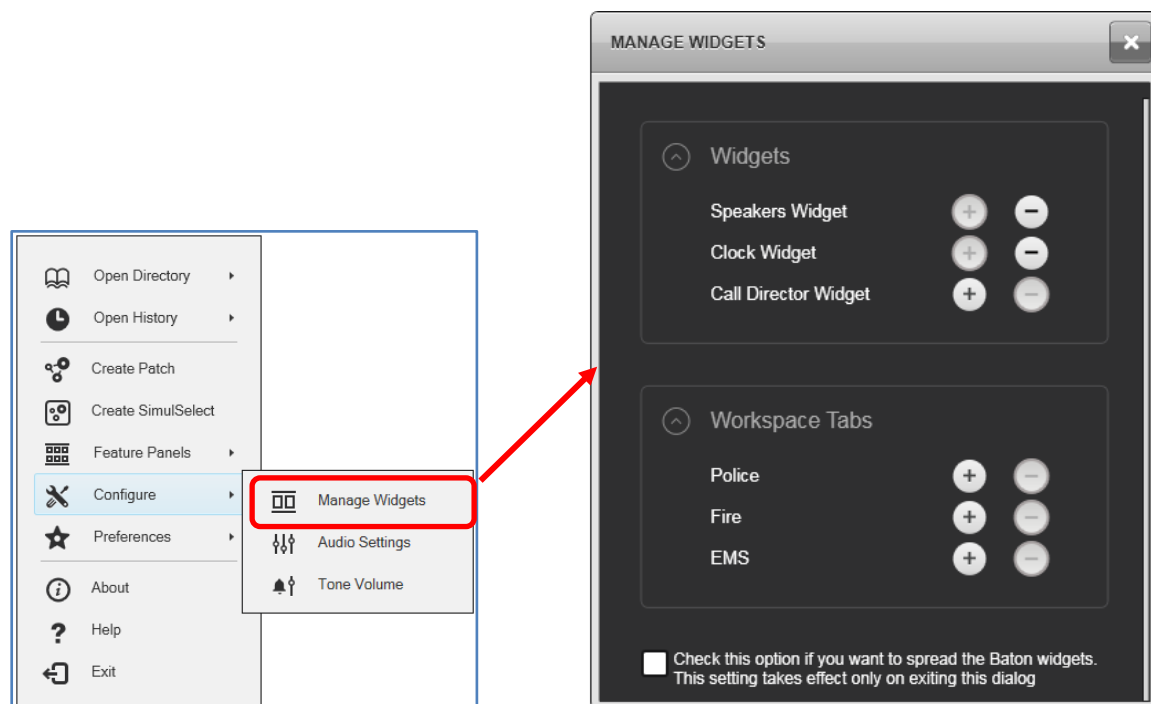


Figure 18-23: Setting Baton Widgets

4. Once all the widgets are placed on the Baton, there may be space left on the far right. To evenly spread out the widgets on the Baton, scroll to the bottom of the Manage Widgets dialog and click the checkbox.



NOTE

If there is insufficient space on the Baton for additional widgets, the Widget Manager will display the “Error – No more space on this screen for this widget.”

18.6 MODIFYING RADIO TYPE DISPLAY STRINGS (VIDA ID-ENABLED SYSTEMS)

When multiple user alerts are declared on the same User ID, it is desirable to distinguish between them by indicating which radio was the originator of each. This is accomplished by prepending a short descriptor onto the user alias in the Symphony UI (e.g., in the Emergency Sidebar Panel). By default, the descriptors register whether the device on which the alert was declared is a Portable Radio ("P"), Mobile Radio ("M"), or a Cellular Device ("C"). These designators are mapped to each device (along with a longer description of the device) via its manufacturer defined Electronic Serial Number or ESN in a file which is installed with the Symphony application called ESNMap.xml.

There may be times when an end-user may wish to change the re-assigned designators to ones which better fit their individual use cases. For example, an organization may have all of its mobile devices mounted in fire trucks and therefore may wish to refer to all mobile devices with the designator "T" to indicate a user alert is coming from the fire truck rather than the individual carrying a handheld device. This can be accomplished by making modifications to the ESNMap.xml file using the following procedure:

1. On the Symphony console machine, navigate to **C:\Program Data\Harris\Symphony\Default Settings\ESNMap** and open the ESNMap.xml file for editing. This requires administrator privileges on the machine.
2. Change the "display" attribute for each desired device in the file. For example, as per the scenario described above, change the descriptor for the M7300 UHF radio listed on line 104 from "M" to "T" so that the line will now look like:

```
<ESNMap id="338" description="M-7300 (330-380 MHz)" display="T"/>
```



The "id" attribute must NOT be modified. This attribute is the primary key by which each radio type is identified. Similarly, it is not recommended that the "description" attribute be altered either since this is the actual description of the device.

3. Modify the display field for any other desired devices and save the file.

This procedure must be performed on each Symphony machine individually; however, the changes can be made once and copied to all machines on which it is needed.

19. CONFIGURING THE AUDIO SYSTEM

The Symphony Dispatch Platform uses the Audio Box Configuration Tool to manage audio and voice input and output attributes. This tool allows you to customize the console for different hardware devices and different dispatch operators.

The audio configuration described in this section is stored on a per user/per setup basis. Each dispatcher may have individualized audio settings; furthermore, each setup for a dispatcher may hold a unique set of audio configuration settings. Whenever the dispatcher changes setups, the new Audio Box settings will be applied.

19.1 AUDIO BOX SETTINGS OVERVIEW

The Audio Box is the central hub used to connect audio accessories to the Symphony console. It also performs audio processing functions such as applying gains, equalization, and level control. The Audio Box Configuration Tool controls these functions.

Audio that is received from the radio system flows from the NSS to the console PC. The console PC, decodes the radio audio, mixes it with other radio channels or tones, if needed, and sends it to the Audio Box. The Audio Box then sends the audio to the speaker, headset, or other output after mixing and applying equalization and gains as necessary.

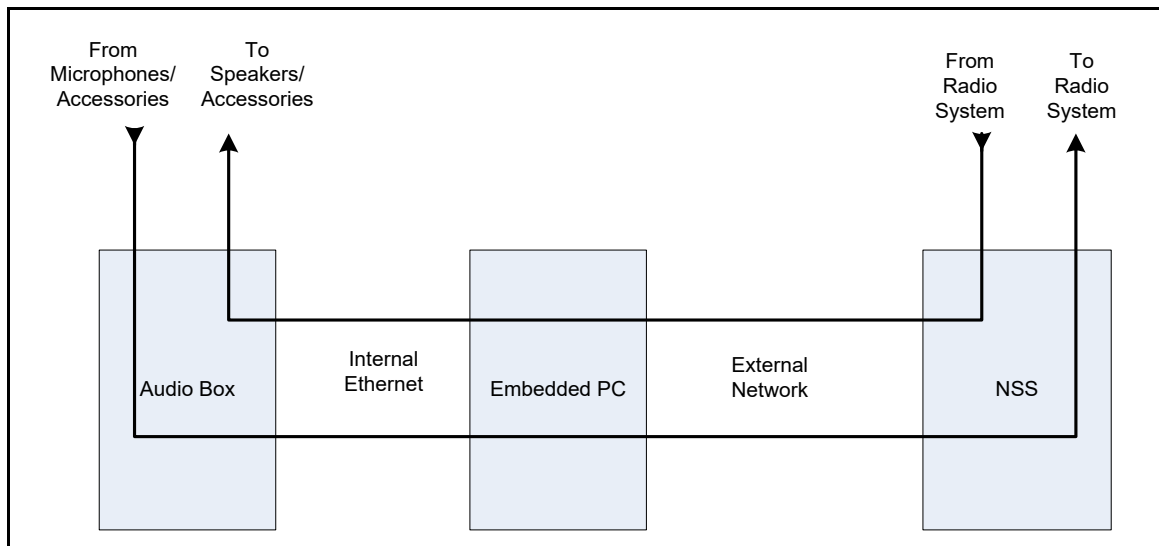


Figure 19-1: Audio Box Settings Overview

Audio that is sent to the radio system is first gained, sampled by the audio box, processed, and sent to the console PC to be encoded in the radio system format.

Some audio is sent directly from an audio box input to an audio box output, after possibly being mixed with other audio. This is the case for telephone and Aux inputs as well as a few others.

19.2 OPENING THE AUDIO BOX CONFIGURATION TOOL

To Configuration Audio Settings:

1. Click the Harris logo in the top left of the display (Symphony application or Baton application).
2. Select **Configure** → **Audio Settings**. The “Audio Box configuration” dialog opens.

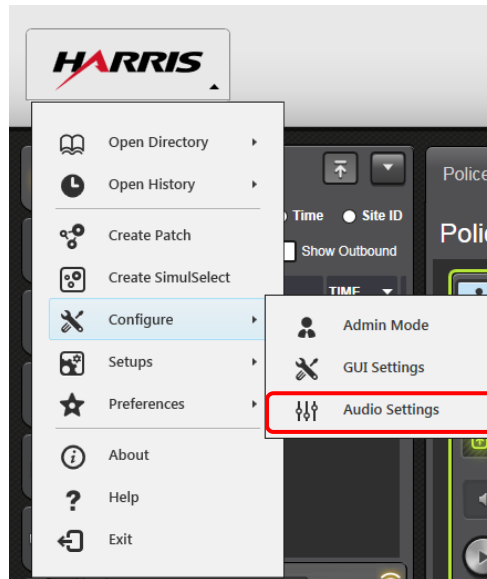


Figure 19-2: Configure Audio Settings

3. Select either the **Inputs** or **Outputs** tab.

After making selections, click **Save**. To restore default settings, click **Restore**.

19.3 RESTRICTING DISPATCHERS' ACCESS TO AUDIO SETTINGS

The Symphony administrator may wish to prevent dispatchers from accessing the Audio Box Configuration tool. To do this, the administrator must first create the proper configuration for each user.

If the default Audio Box settings are sufficient, uncheck the **Allow Access to Audio Config** in the Configuration Tool. See Section 16.2.2 for more details.

If Audio Box settings must be customized, the administrator should use the following procedure.

1. Login to the dispatcher's user account.
2. Ensure that **Users can change Audio Config** is checked.
3. To change this, launch the configuration tool. You may be asked for administrator credentials; if so, enter them. Change the setting. See Section 16.2.2 for additional details.
4. Launch the Symphony Console.
5. Open the Audio Box Configuration tool. See Section 19.2 for details.
6. Make the appropriate changes.

If you want to use the same settings for all setups, check **Persist Settings to All Setups** and click **Save**. Otherwise, click **Save**.

7. To make changes to other setups, close the dialog and switch to the appropriate setup. Repeat steps 4 and 5.
8. Once the Audio Box Configuration settings are complete, close the Symphony console.
9. Repeat this for each dispatch user on the machine.
10. Once everything is completed, uncheck the **Users can change Audio Config** in the Configuration Tool to prevent dispatchers from accessing the Audio Box dialogs.

19.4 AUDIO SETTINGS AND BACKUP RADIO

Some of the Audio Configuration Tool settings are also used during backup radio operations. The Audio Box saves all settings which are applicable to backup radio in non-volatile memory whenever they are changed such as on startup or when the setup is changed.

If the console goes to the Backup Radio Mode for any reason, the audio settings in the non-volatile memory are used. This means if a user is actively using a console and puts it into the Backup Radio Mode, they will continue with the current audio settings.

However, if the console is powered on in the Backup Radio Mode, it uses the settings from the previous setup.

Settings that are applicable to the Backup Radio Mode are discussed in the following sections.

19.5 CONFIGURING AUDIO INPUTS

The Audio Box Configuration tool Input screen enables an administrator to adjust the gain of the devices listed, turn on or off the Automatic Level Control for selected devices, and enable or disable bias on selected devices.

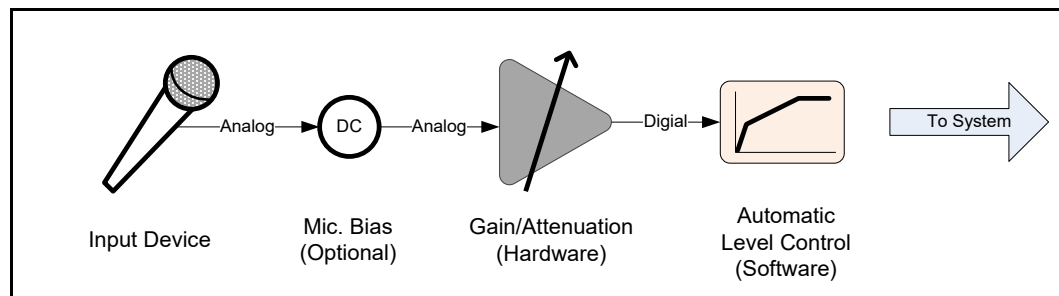


Figure 19-3: Audio Box Processing Stages

Audio Box inputs have several processing stages that are controlled by the Audio Box Configuration Tool.

Some inputs have a microphone bias that can be enabled from the configuration tool. When enabled, hardware in the Audio Box provides a DC voltage (5 V through a 237-ohm impedance) that is required by some unbalanced active microphones. Symphony enables all microphone bias circuits, by default, because the standard L3Harris microphones all require bias.

The second stage is a hardware Gain/Attenuation that is applied immediately before the audio is sampled and turned into a digital stream. All inputs can be adjusted from -95 to +31 dB to accommodate various audio hardware and user preferences. The gain on the inputs is the earliest and only opportunity to provide a fixed gain to the input signal. Later stages only apply attenuation. When performing setup for new hardware, adjust the gain/attenuation on the input stage so the audio is at the maximum value that does not result in clipping or other distortion when driven at the maximum expected voltage. Later stages can be used to adjust the volume down to the level required.

When the ALC is enabled, the hardware input Gain/Attenuation should be set so that the ALC does not limit the signal and cause distortion.

The ALC stage attempts to maintain an input signal at a continuous level even as the audio level varies. It has four main parts: an expander, a compressor, a limiter, and a dynamic algorithm. The dynamic algorithm detects noise and speech levels to determine which of the three audio processing functions should be applied to the input signal. The expander attempts to lift the level of a low signal so that it can be heard. The compressor applies a greater gain to lower signals and a lower gain to larger signals so that the signal will remain at a similar level even if the input signal swings greatly in level. Finally, the limiter prevents a loud signal from clipping by applying attenuation to keep the output signal at a constant level no matter how large the input signal gets.

For the best effect, the ALC should be operated so the input signal is at the center of the compression region. This can be controlled by appropriately setting the audio input path gain. When configuring new hardware, some trial will be required to find the right gain/attenuation that will work with the ALC.

Order of operations:

- 1) Adjust microphone inputs to the radio system (Headsets/Handset, Desk Microphone). This should not need to be done with standard L3Harris equipment.
- 2) Adjust radio to Headset/Handset. Should not be needed.
- 3) Adjust Call Director output (do not change microphone gains).
- 4) Adjust Call Director input (do not change CD out or microphones).
- 5) Adjust Radio Recorder output.
- 6) Adjust Telephone Recorder output.

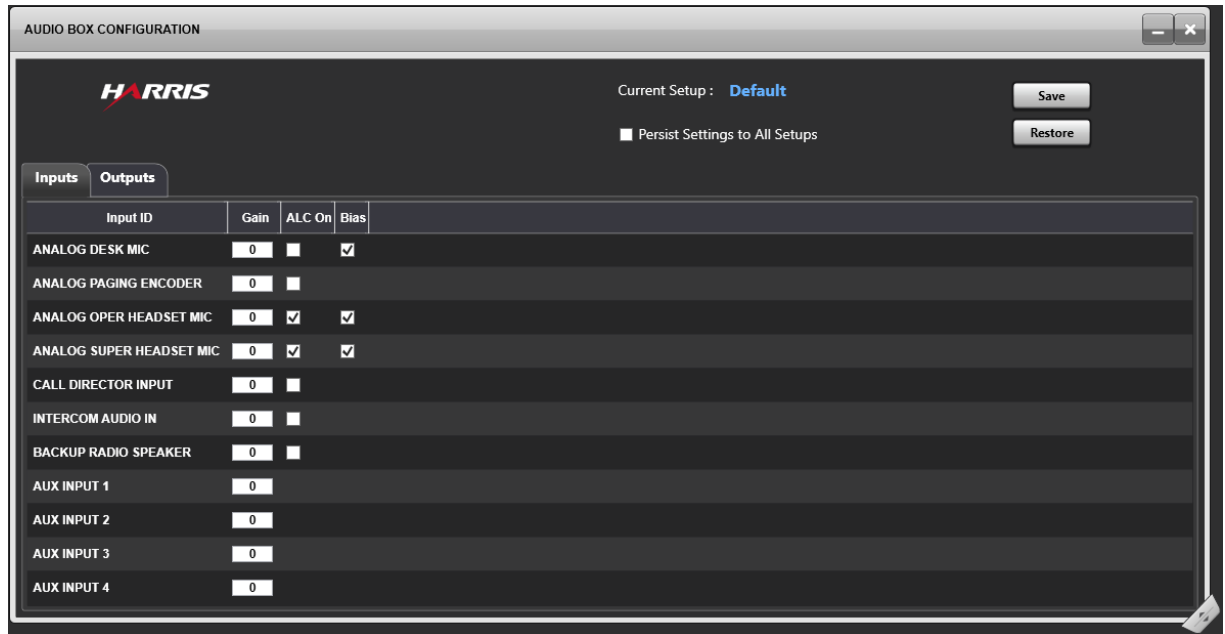


Figure 19-4: Audio Box Configuration Tool – Audio Inputs

19.5.1 Analog Desk Microphone Input Settings

The Analog Desk Microphone input settings control the input audio processing applied to the Desk Microphone DB-9 input on the SDP.

Default Values:

Gain: **0**
 ALC On: **Disabled**
 Bias: **Enabled**

These default settings are appropriate for the standard desktop microphones available for use with Symphony (L3Harris part number 2C-CM22218-0400 or MC-014121-003).

The optional Goose Neck microphone (L3Harris part number CM-22218-0402M) will require different settings. The bias should be disabled and the ALC enabled.

Changing the gain of the Analog Desk Microphone affects the audio level at all points where it is used. This includes:

- To the radio system (calls)
- To the telephone
- To the call check recorder
- To the backup radio

The Analog Desk Microphone settings are also used for backup radio operations.

19.5.2 Analog Paging Encoder



The external Analog Paging Encoder is not supported in this version of Symphony.

The Analog Paging Encoder settings control the processing of audio on the Paging Encoder RJ-45 Input on the SDP.

Default Values:

Gain:	0
ALC On:	Disabled
Bias:	N/A

When using an external paging encoder, it is **STRONGLY** recommended that the ALC remain disabled. The ALC can distort paging tones.

These settings are **NOT** applicable to the Backup Radio Mode.

19.5.3 Analog Headset Microphone Inputs

The Operator and Supervisor Analog headset microphone input settings control the processing of the audio coming from the headset microphones connected to the **OPERATOR HEADSET** and **SUPERVISOR HEADSET** DB-9 connectors on the SDP. If using a telephony style handset, this setting adjusts the gain of the microphone.

Default Values:

Gain:	0
ALC On:	Enabled
Bias:	Enabled

The standard headsets available with Symphony work well with these settings. Only disable the Bias if using another type of headset that does not require it.

With the standard headsets, enabling the ALC results in better pickup from the microphone elements even as they move in relation to the operator's mouth. If it is disabled, be sure dispatchers are trained to maintain the microphone position exactly as slight movements could result in large changes in the transmitted audio levels.

Changing the settings for the Supervisor and Operator headset microphones affects the audio at all the destinations to which it is distributed. This includes:

- The radio system (radio calls)
- Audio to the Telephone
- Sidetone audio from the Telephone
- Call check recorder output
- Operator and Supervisor Earpieces (Sidetone)
- Backup radio

These settings are also used in the Backup Radio Mode.

19.5.4 Call Director Input

The Call Director Input settings control the processing applied to audio that comes from the **CALL DIRECTOR** RJ-45 connector on the SDP. This connector is intended to take telephone audio and send it to the dispatcher's headset or select speaker. Audio is sent from a custom-built adapter box (not provided by L3Harris) that is connected to a telephone system.

The telephone system provides sidetone (i.e., reflects transmitted audio back to the console) mixed with the other parties audio.

Default Values:

Gain:	0
ALC On:	Disabled
Bias:	N/A

Configuring this input will require experimentation as each phone system is different. The recommended procedure is as follows:

1. Ensure that the *Call Director To Phone* output has been adjusted properly before proceeding (see Section 19.6.4).
2. Disable the ALC.
ALC will apply gain to the sidetone from the phone and make it uncomfortable. If your phone does not generate a sidetone, then ALC can be enabled.
3. Using the microphone that is to be used by the dispatcher (Headset or Desk Microphone), take the phone off hook and listen to the dial tone.
4. Adjust the gain up until the dial tone starts to become distorted, then take it down 20 dB from there.
5. Call a wired phone and listen for the remote audio and your sidetone. (Cell phones are not recommended for this procedure.)
6. If the audio is distorted, adjust the gain down until it is clear.
7. If the audio cannot be made clear, then disable the ALC and repeat steps 2 to 5.
8. At this point, if the audio cannot be made clear, the levels coming into the Symphony should be adjusted.

The Call Director input settings affect the audio at its destinations. These include:

- Select speaker
- Operator and Supervisor Earpieces
- Recorder: Telephone Input Lin

These settings are also used in the Backup Radio Mode.



Sidetone from the phone is required to record dispatcher's audio over the phone or if using off-hook tone detection.

19.5.5 Intercom Audio In



The Intercom feature is not supported in this version of Symphony.

The Intercom Audio In settings apply to the inbound audio on the SDP **INTERCOM** RJ-45 connector.

Default Values:

Gain:	0
ALC On:	Disabled
Bias:	N/A

The settings here affect the level of the Intercom audio at all destinations. These include:

- Supervisor and Operator Headset Earpiece
- Select Speaker

As each intercom system is different, adjusting these settings requires some experimentation. The recommended procedure is as follows:

1. Disable ALC and set the Intercom Audio In - output mixer attenuation setting on the headsets and speakers set to 0.
2. Activate the intercom so that audio goes to the headset or the speaker (use the device that the dispatchers will be using).
3. While speaking loudly into the intercom, adjust the gain up until you start to hear distortion in the console. Note the gain setting.
4. Subtract 20 dB from the gain setting noted above and make that the input gain.
5. Increase the output mixer attenuation setting (lowering the signal) until the output is approximately the same level as a call from the radio system.

Using the ALC on the Intercom Audio In is not recommended. However, if you wish to attempt it, use this procedure with the ALC enabled to adjust the audio settings.

The intercom settings are **not** used in the Backup Radio Mode.

19.5.6 Backup Radio Speaker

This value controls the amount of analog gain applied to audio coming from the backup radio to the console. This adjustment can be used to match the Backup Radio level heard in the headset or speaker with the audio coming from the radio system via IP. This setting applies only when the Symphony's Backup Radio is active. This means that either the Backup Radio switch is in the "Manual" position or it is in the "Auto" position and the Symphony application is not running.

This setting is applied when changed in this dialog and remembered by the Audio Box in non-volatile memory to support the Symphony hardware starting up directly into Backup Radio mode without the PC application running first.

Default Values:

Gain:	0
ALC On:	Disabled
Bias:	N/A

19.5.7 Aux Inputs

The Aux Input settings control the audio processing applied to the signals on the SDP **AUX IN** 3.5 mm TRS connectors. These inputs offer the ability to mix up to four (4) external audio signals into the Supervisor and Dispatcher headset earpieces.

In addition to a potential external connection, **AUX IN 1** is internally wired to the PC sound card output. This allows applications running on the PC to have their audio mixed into the operator and supervisor headsets. To hear PC and Windows audio on the operator and supervisor headsets, set the attenuation to less than the default 96 dB.

Each input can be independently gained, however ALC is not supported.

Using **AUX IN 1** should be the last auxiliary input used. Anything connected to this input is mixed with the PC audio and has to be externally adjusted to about the same level, since the gain and attenuation cannot be independently adjusted.

Default Values:

Gain:	0
ALC On:	N/A
Bias:	N/A

To prevent PC audio from being routed to the headsets, it is recommended to use the output mixer settings, described in Section 19.6, rather than adjusting the input gain.

The settings here affect the level of the auxiliary inputs at the following destinations:

- Supervisor and Operator Headset Earpiece
- Select Speaker

These settings are **not** applicable in the Backup Radio Mode.



NOTE

When the console switches to Backup Radio Mode, all auxiliary inputs stop playing to the headsets.

As each auxiliary audio source is different, adjusting these settings requires some experimentation. The recommended procedure is as follows:

1. Activate the auxiliary input source so that audio goes to the headset or the speaker (use the device that the dispatchers will be using).
2. While playing the source loudly, increase the gain until you start to hear distortion in the headsets or speakers. Note the gain setting.
3. If the auxiliary audio source is voice, subtract 20 dB from the gain setting noted above and make that the input gain.

If the source is music, television, or another high dynamic range source, subtract 30 dB.

4. Increase the output mixer attenuation setting (lowering the signal) until the output is approximately the same level as a call from the radio system. See Section 19.6 for details.

19.6 CONFIGURING AUDIO OUTPUTS

The Audio Box Configuration Tool Outputs screen enables an administrator to adjust the gain of the devices listed, equalize output audio amplitude controls [EQ Band 1, EQ Band 2, and EQ Band 3 (upper, mid, and high frequencies)] for selected devices, and enable or disable attenuation for selected devices.

Audio Box outputs have three stages that are controlled by the Audio Box Configuration tool.

- Mixer with Attenuation Stage
- Equalization Stage
- Hardware Gain/Attenuation Stage

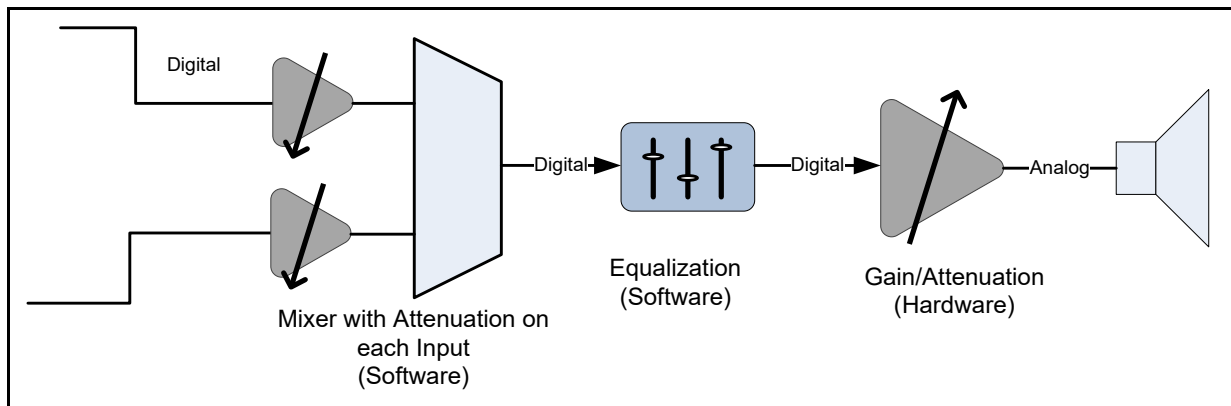


Figure 19-5: Audio Box Audio Stages

The first stage mixes audio from Audio Box inputs and/or the radio system. In the mixer stage, the various audio streams contributing to the output can be attenuated before they are mixed. Typically, the attenuators are used to match the levels of the various audio streams, but they can be set so that some streams are louder or softer according to the dispatcher's or administrator's preferences. The range for attenuation is 0 dB (no attenuation) to -96 dB (silence).



You cannot apply gain in the mixer. Gain is applied on the inputs and attenuation on the outputs. This ensures maximum dynamic range and simplifies configuration.

The equalization stage is designed to change the character of the audio by boosting or attenuating certain frequencies. This stage operates on the mixed audio stream. The equalizer on each output works the same and allows adjusting three frequency bands by -10 to +10 dB. The frequency bands are centered on 300, 600, and 1200 Hz. The equalizers should be used to attain a good-sounding output according to the dispatcher's or administrator's preferences.

The last stage is a hardware gain/attenuation. It occurs after the audio has been converted from digital to analog format. The range for this setting is -95 to +31 dB. This stage is intended to match the level of the output signal to that expected by the device connected to the output. The administrator should adjust the output gain only if ALL the contributing audio streams are high or low, as this setting affects them all equally. If one audio stream is high or low, the adjustment should be made first at the Attenuation Settings, then the Input gain, finally this setting should be changed as a last resort.

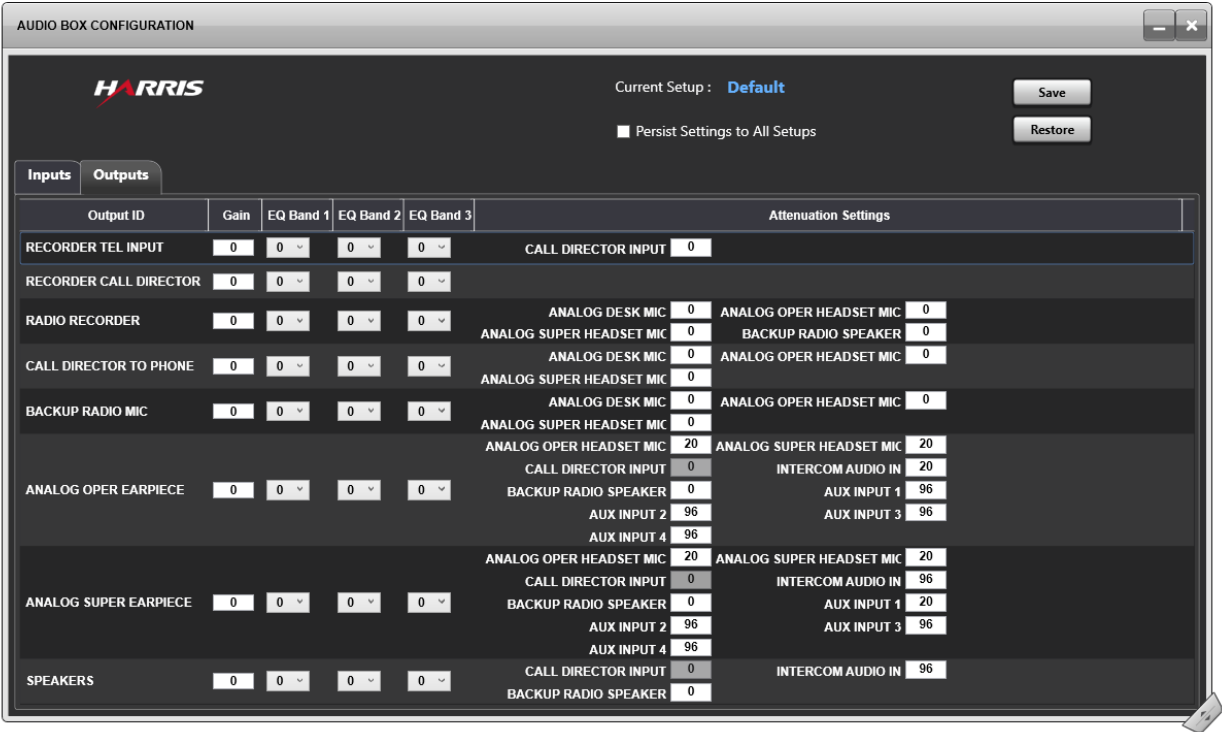


Figure 19-6: Audio Box Configuration Tool – Audio Outputs

Each row in the Outputs settings table corresponds to a hardware output on the Symphony. Gain settings are available for each output. There are equalizer settings for most outputs. The rightmost column contains the Attenuation Settings for the mixer. There are one or more inputs in each output row. These show what inputs contribute to the output signal and the current attenuation applied. Zero (0) means that the signal is mixed to the output with no attenuation, while 96 (maximum attenuation) means the signal is not mixed into the output.

19.6.1 Recorder Telephone Input

The **RECORDER TEL INPUT** output settings control the Telephone Input signal on the SDP **Recorder** RJ-45 output connector. This signal is a copy of the *Call Director Input* signal that can be routed to a logging recorder device.

Any equalization problems should be resolved in the signal that is feeding the Call Director In.

Default Values:

Gain:	0
EQ Band 1:	N/A
EQ Band 2:	N/A
EQ Band 3:	N/A

The only contributing stream for this output is the Call Director Input. Adjust that input and ensure proper signals to the headsets and speakers before adjusting these settings.

Once the signals are at good levels in the rest of the system, adjust the Call Director Input Attenuation Setting first (the input should be adjusted for maximum dynamic range). If the proper level to the recorder cannot be attained, then adjust the hardware gain setting for this output.

This setting applies to the Backup Radio Mode.

19.6.2 Recorder Call Director

The **RECORDER CALL DIRECTOR** controls the audio processing settings for the Telephone Out on the SDP **RECORDER** RJ-45 connector. This signal is a copy of the *Call Director To Phone* signal that can be sent to an external logging recorder device. This signal has its own gain stage, but shares the equalizer with the *Call Director To Phone* signal.

The gain should be used to match the output level required by the recording device.

19.6.3 Radio Recorder

The **Radio Recorder** settings control the Select and Unselect outputs on the SDP **RECORDER** RJ-45 connector.

Default Values:

Gain:	0
EQ Band 1:	0
EQ Band 2:	0
EQ Band 3:	0

The Analog Desk Microphone, Analog Operator Headset Microphone, Analog Supervisor Headset Microphone, and Backup Radio Speaker are mixed to the Radio Recorder output when the dispatcher is transmitting to record outbound audio. In addition, an audio stream from the PC is mixed to this output (not shown in the UI) to record radio traffic.

To Set the Microphone Attenuation Settings:

1. Starting with the output gain at 0.
2. Ensure that the Analog Desk Microphone and Analog Operator/Supervisor Headset Microphones have been adjusted properly and the audio levels from the radio system are finalized.
3. Place a call from a radio and observe the level at the recorder. If the level is too high or low, adjust the recorder first. If the recorder cannot be adjusted further, adjust the output gain.
4. Place a call using the desk microphone and observe the level at the recorder.
5. Adjust the *Analog Desk Microphone* attenuation setting so that it matches the radio system audio level.
6. Repeat with calls from the Operator and Supervisor headsets, adjust the attenuation accordingly.

To Set the Backup Radio Levels:

1. If using the recorder in Backup Radio Mode, then set the console Backup Radio Mode switch to **AUTO** or **MANUAL**.
2. Place a call from another radio to the backup radio and observe the level.
If it is too low, adjust the backup radio output so that it matches the level recorded when the console transmits.
If the level is too high, then adjust the *Backup Radio Speaker Attenuation Settings* so that the levels match.
3. Finally, the equalizer should be adjusted to your preference.

Test the equalizer settings with each input source before deploying them.

These settings apply to the Backup Radio Mode.

19.6.4 Call Director To Phone

The **CALL DIRECTOR TO PHONE** output setting controls the audio processing for the output line on the SDP **CALL DIRECTOR** RJ-45 connector. This signal passes through a custom phone interface device (not provided by L3Harris) to the phone system.

The Analog Desk Microphone, Analog Operator Headset Microphone, and Analog Supervisor Headset Microphone are mixed to this output when sending audio to the phone.

To adjust the Attenuation Settings for the Analog Operator/Supervisor Headset Mics:

1. Starting with the output gain at 0.
2. Ensure that the Analog Desk Microphone and Analog Operator/Supervisor Headset Microphones have been adjusted properly.
3. Take the telephone off hook and dial a nearby wireline phone.
4. Speak into the headset microphones and observe the audio level at the phone.
 - a. If it is too low, first attempt to make any adjustments possible to the custom phone interface box. If not possible, adjust the gain setting.
 - b. If it is too high, adjust the Attenuation Settings for the headset microphones.

5. Check the *Call Director Input*. It may need adjustment now.

It is not recommended to use the Analog Desk Microphone with the telephone; however, you can use this procedure to adjust its settings as well. Both desktop microphones must be unplugged.

These settings are used in the Backup Radio Mode.

19.6.5 Backup Radio Microphone

The **BACKUP RADIO MICROPHONE** output setting controls the audio processing to the Backup Radio Microphone Line on the **BACKUP RADIO** DB-9 connector. This signal is a console output that drives the backup radio microphone when the console is in backup radio mode. The backup radio is interfaced to the console with a custom-built cable (not provided).

This output can be driven by the Operator and Supervisor headset microphones or by the desk microphone.

Default Values:

Gain:	0
EQ Band 1:	0
EQ Band 2:	0
EQ Band 3:	0

The gain setting should be adjusted to match the line level of the output to that expected by the backup radio being used.

The Symphony console software ensures that only one microphone is routed to the backup radio at a time, the Attenuation Settings are applicable only when the console is in Backup Radio Mode and keyed.

These settings are used in the Backup Radio Mode.

19.6.6 Headset Earpieces

The supervisor and operator headset earpiece settings control the audio processing of the **SDP OPERATOR HEADSET** and **SUPERVISOR HEADSET** DB-9 connectors.

Default Values:

Gain:	0
EQ Band 1:	0
EQ Band 2:	0
EQ Band 3:	0

19.6.6.1 Attenuation Settings

Analog Oper/Super Headset Microphone

The headset microphone audio can be routed to its own and the other headset's earpiece. This provides a sidetone for the operator.

By default, the microphone audio from the other headset is also routed to the earpiece at 20 dB of attenuation. This may be disabled according to the dispatcher's or administrator's preference.

This sidetone routing occurs at all times except when the Call Director is off hook. When Call Director is off hook, the telephone provides the sidetone while Symphony disables its sidetone to prevent a double sidetone.

Since the telephone connected to Call Director provides the sidetone, adjustments must be made there to meet the administrator's or dispatcher's preferences. Also, when using the Call Director off hook auto detection feature, the telephone sidetone cannot be completely disabled. See Appendix E for more details.

If using a headset that provides its own sidetone, set this to 96 dB to shut off the sidetone generated in the SDP. Be aware that when Call Director is off hook, you will experience a double sidetone.

Call Director Input

Call director audio is routed to the headset earpiece whenever the call director is off hook and a headset is inserted. This setting controls the level coming from the *Call Director Input*.

This setting is disabled for direct editing. However, its value is changed by the Call Director Volume slider control, which calculates the attenuation based on the adjusted volume level and updates this setting accordingly.

Intercom Audio In

Intercom audio is routed to the headset earpieces all the time; however, it is gated by the Intercom circuit in the Symphony hardware.

By default, this is set to 96 dpcB, meaning that the Intercom Audio routing is disabled. The console administrator must change this setting to enable intercom operations.

Backup Radio Speaker

The backup radio speaker is routed to the headset earpiece whenever the console is in the Backup Radio Mode. The setting has no effect in normal mode.

By default, this is set to 0, but should be checked once a backup radio is hooked up.

Aux Inputs (1-4)

The aux inputs are routed to the headset all the time, except in the Backup Radio Mode. By default, all Aux Inputs are set to 96 dB. This disables the inputs. To enable the inputs, set the value for less attenuation.

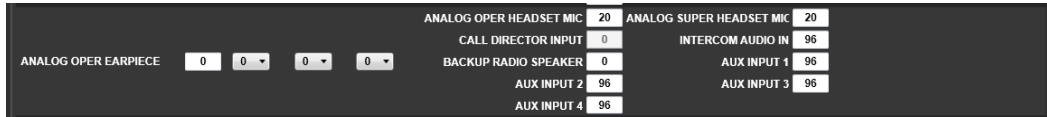
Aux Input 1 is unique; it will route PC and Windows audio to the headset earpieces when enabled (attenuation is set to less than 96 dB).

19.6.6.2 Headset Audio Configuration

When adjusting the headset levels, first decide if you are going to be using supervisor headsets and, if so, do you want the operator to hear the dispatcher's microphone and vice versa. This can be useful if the supervisor is on a wireless headset and wishes to supervise at a distance from the console position. Also decide if you want to use a sidetone.

All of these adjustments are made on the outputs tab of the Configure Audio Settings dialog in Symphony.

Each headset mixes several audio sources into the earpiece. This includes radio audio, sidetone, and supervisor/operator audio from the other headset (if desired) and up to four (4) auxiliary inputs. Symphony uses a digital mixer which means that it needs to attenuate signals coming into the mixer so it will not clip in the final mix. This means for each signal that is fed into the mixer, the overall earpiece audio level will be lowered if not compensated for.



Shown above is the starting earpiece configuration.

If supervisor headsets are not being used or you do not want the dispatcher to hear the supervisor microphone audio, set “ANALOG SUPER HEADSET MIC” to 96. Ninety-six (96) is full attenuation and completely shuts the mixer input off. To hear the supervisor’s microphone, set this value to zero (0) to hear it at full volume. Set the attenuation to a higher level (6, 12, etc.) if you do not want the supervisor microphone to be as loud as the radio traffic.

When setting the “ANALOG SUPER HEADSET MIC” to something other than 96 dB, add 6 dB to the Gain on the left. This compensates for the attenuation applied by the mixer to avoid clipping the signal. For all other attention settings, except “CALL DIRECTOR INPUT” and “BACKUP RADIO SPEAKER,” that are not set to 96, add 6 dB to the gain setting on the left.

After the levels are set for everything else, set the sidetone. If no sidetone is desired, set “ANALOG OPER HEADSET MIC” to 96, otherwise determine a suitable sidetone level. A good place to start is 20 dB lower than everything else. Sidetone is determined by the “ANALOG OPER HEADSET MIC” attenuation value and the gain setting.

To set the sidetone to 20 dB, first add 6 dB to the gain for the “ANALOG OPER HEADSET MIC” not set to 96. Then add 20 dB (the desired sidetone) to the gain setting on the left and enter that value into the “ANALOG OPER HEADSET MIC” field.

After the values are set, listen to some radio traffic on the headset with the talk group volume at mid-range. Adjust the gain to achieve the desired audio level for normal calls.

The same procedure can also be applied to the Supervisor headset if it is being used.

Some typical configurations are:

1. No supervisor headset, 20dB of sidetone

Gain = 6

ANALOG OPER HEADSET MIC = 26

ANALOG SUPER HEADSET MIC = 96

All Aux Inputs = 96

2. No supervisor headset, No sidetone

Gain = 0

ANALOG OPER HEADSET MIC = 96

ANALOG SUPER HEADSET MIC = 96

All Aux Inputs = 96

3. Supervisor headset, Dispatcher hears supervisor mic, 20 dB sidetone
Gain = 12
ANALOG OPER HEADSET MIC = 32
ANALOG SUPER HEADSET MIC = 12
All Aux Inputs = 96
4. Supervisor headset, Dispatcher hears supervisor mic, 20 dB sidetone, 1 aux input
Gain = 18
ANALOG OPER HEADSET MIC = 38
ANALOG SUPER HEADSET MIC = 18
AUX INPUT 1 = 0
AUX INPUT 2 = 96
AUX INPUT 3 = 96
AUX INPUT 4 = 96



NOTE

PC and Windows audio can be heard on operator and supervisor headset earpieces if the Aux Input 1 attenuation is set to less than the default 96 dB. Setting the attenuation of Aux Input 1 mutes PC and Windows audio in the headset earpieces.

19.6.7 Speakers

There is a single row for all 8 speakers. Speakers 2-8 (the unselect speakers) have no inputs routed to them. They are routed radio traffic by the PC. The gain and equalizer settings are applied to all speakers, while the Attenuation Settings apply only to the select speaker.

Default Values:

Gain:	0
EQ Band 1:	0
EQ Band 2:	0
EQ Band 3:	0

19.6.7.1 The Following Inputs may be Routed to the Select Speaker

Call Director Input

Call Director Audio is routed to the select speaker whenever the Call Director is off hook and no headsets are connected. This setting controls the level coming from the *Call Director Input* and is disabled for direct editing. However, its value is changed by the Call Director Volume slider control, which calculates the attenuation based on the adjusted volume level and updates this setting accordingly.

This setting is also applied in the Backup Radio Mode.

Intercom Audio In

Intercom audio is routed to the select speaker all the time; however, it is gated by the Intercom circuit in the SDP.

By default, this is set to 96 dB, meaning that the Intercom Audio routing is disabled. The console administrator must change this setting to enable intercom operations.

Backup Radio Speaker

The backup radio speaker input is routed to the select speaker whenever the console is in backup radio mode and no headsets are inserted. The setting has no effect in normal mode.

By default, this is set to 0, but should be checked once a backup radio is installed.

20. CUSTOM KEYPADS AND KEYBOARDS

Symphony supports executing many operations through quick action key combinations (or hot keys). The *Symphony Operator's Manual* contains specific information about the supported key sequences and how to use them. The dispatcher can use the standard PC keyboard for quick action keys. Symphony also supports an optional, programmable 24-key keypad. Symphony uses the same standard hot key mechanism employed by other Windows applications. The application must have focus to accept the key commands.

The programmable keypad simplifies using quick action keys by allowing the dispatcher to press a single key for a given function instead of a combination of keys. It also enables the administrator to restrict the available quick action key operations to only those required or allowed in their operations.

Programmable keypad support requires both the keypad hardware and software from the keypad vendor. The Symphony Windows operating system images come pre-installed with MacroWorks™ 3.1 software from PI Engineering. The Symphony keypad is an X-Keys® XK-24. The MacroWorks™ software is used to program the Keypad and it runs in the background to enable some advanced operations.



The **Num Lock** key on the console's keyboard should be pressed so that the Num Lock function is enabled. This insures that programmed keys on a Programmable Keypad function properly when their corresponding Quick Action Keys include the Number Pad as part of their KEY COMBINATION.

20.1 DEFAULT KEYPAD LAYOUTS

The Symphony software application includes three default layouts for the 24-key keypad that can be used as-is or as a starting point for further customization. The keypad layout files are installed into **C:\ProgramData\Harris\Symphony\Keypad\XKeys XK-24**. The included files are:

- Radio Keypad Map.mw3 – This file contains a single layer keypad layout that contains many common radio dispatch functions. The layout is:

Toggle Previous Select	Change to & TX Alert	Open History Dialog	Toggle Layer/ Open Paging in Dir
S1	Change to & TX Warble	Open Group Tab in Dir	P1
S2	Change to & TX Pulse	Open User Tab in Dir	P2
S3	TX Current Alert Tone	Mute Tone	P3
S4	Replay Last Select Call	Mute All Unselect	P4
PTT Select		Vol -	Vol +

- Phone Keypad Map.mw3 – This is a single layer keypad layout that focuses on SIP telephony functions. The layout is as follows:

Overdial	Last #	New Call	Toggle Layer/Open Telephony Panel
1	2	3	Mute
4	5	6	Xfer
7	8	9	Conf
*	0	#	Hold/Resume
PTT Select		Answer	Decline/End

- Layered Keypad Map.mw3 – This is a multi-layer layout that has a radio and SIP telephone mode. The dispatcher can switch between modes by pressing the **Toggle Layer** button. When the backlight is blue, the keypad is in the Radio mode, red is SIP phone mode. The layouts above correspond to the Radio and SIP modes. When using this keymap, the Toggle Layer/XXX button toggles between layers; the second function **Open Telephony Panel/Open Paging in Dir** is not available.

20.2 PROGRAMMING THE KEYPAD

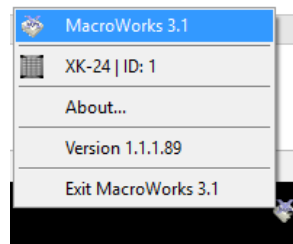
This section describes the process for loading a new keyboard layout into a XK-24 keypad using the MacroWorks™ 3.1 software. There is no need to install this software on Symphony computers since it is included with the operating system image. MacroWorks 3.1 software operation is not fully covered in this manual.

1. Connect the keypad to one of the USB 2.0 ports on the console. Four of these are on the back and 3 are on the front. Do not connect the keypad to the USB 1.1 ports on the rear of the unit.
2. If you are using an unprogrammed keypad and are asked to assign a Device ID, set it to the desired Unit ID for the functionality you plan to use – set the ID to 1 for Radio Only default keypad layout; 2 for SIP Only default keypad layout; or 3 for the Layered (Radio and SIP) default keypad layout. If planning to program your custom keypad mapping, consider using a Unit ID between 4 and 253 inclusive.
3. If your console’s operating system is Windows 10, use Windows File Explorer to open the folder.

C:\Program Files (x86)\PI Engineering\MacroWorks 3.1

Double-click on the **MacroWorks 3 Launch** application.

If your console's operating system is Windows 8.1, open the MacroWorks application from the icon in the notification area.



If this is a new Keypad, you are asked to select a mode. Select **Hardware**. This causes the keymap to be written to the keypad's internal memory. The keypad can then be moved to another Symphony box and retain the settings.

4. Open the **File** menu and select **Load Script**. When warned that the action will overwrite scripts and legends, click **OK**.
5. Navigate to and select the keymap to load. See previous page for a list of default keymaps you can use. The file will be loaded. You can change the key assignments at this point, if desired. See the MacroWorks 3.1 documentation for details.
6. Open the **File** menu and select **Write to Device**. Wait until the operation is completed.

The default backlight information must also be programmed into the keypad for the functionality to be different than the factory settings (red and blue LED banks on at ½ full intensity). Do this each time the programming script is changed in the device. The default keymaps provided by L3Harris can be configured to utilize backlighting to indicate the functionality programmed. The blue backlighting can indicate the keypad is programmed for radio functionality, while red backlighting can indicate SIP operation. To ensure that the backlighting functions accordingly, perform the following actions after loading the keypad script:

- a. Open the **Tools** menu and select **X-keys Backlight Utility**. Click **Yes** when asked to confirm that you want to allow the utility to change the backlighting of the device. If you have a prompt, "Allow X-keys Basic Setup to reset the backlights," click **Yes**.
 - b. For radio operation (Radio keypad or Layered keypad) turn the Red Bank of backlight LEDs (Bank 2) off and the Blue Bank (Bank 1) on. For SIP only operation, set the Red Bank of backlight LEDs (Bank 2) on and the Blue Bank (Bank 1) off. Click the button at the bottom of the dialog to Save Backlighting As Default. Close the X-keys Backlight Utility dialog.
7. Repeat step 6 to ensure the changes are written to the device.
 8. Open the **File** menu and select **Exit MacroWorks 3.1**. If you get a prompt "Changes were detected in the hardware mode macros. Write changes to device?," click **Yes**.

The device is now ready to use with Symphony.

The MacroWorks software can be used to create and print key labels, change key assignments, and other useful things.

It is recommended that the administrator exit the MacroWorks software instead of selecting "Close GUI" after programming the keypads. The MacroWorks application is only necessary for programming the devices and not recommended for operation while using the keypad to direct Symphony operations.

20.3 CUSTOMIZING THE KEYPAD

MacroWorks™ 3.1 software allows administrators to change the hot keys that are assigned to buttons on the keypad. Administrators should refer to the MacroWorks™ documentation and understand its operation before making changes or creating new layouts. This section assumes familiarity with MacroWorks.

The strategy for programming a keypad button for use with Symphony is as follows:

1. Lookup the quick action key (hot key) of the function you wish to assign in the Symphony Operator's Manual.
2. Open MacroWorks while the key pad you wish to program is plugged into one of the USB 2.0 ports.
3. Ensure it is in **Hardware Resident** mode. If not, change it.
4. Double-click on the key that you wish to program.
5. If this is a PTT type key where the function is active the entire time the key is depressed, then check the **Automatic Separation of Up and Downstrokes** box before starting the recording.
6. This causes the keypad to send the key down message to Symphony when the key is depressed and then the key up when released. Otherwise, it sends a key down/key up pair when the keypad button is depressed.
7. Record the key stroke for the Symphony function by pressing the keys.

MacroWorks contains many features and functions that are beyond the scope of this manual. The following is a discussion of MacroWorks features and settings that are important to the operation of Symphony and are discussed here to aid in troubleshooting.

MacroWorks can operate in **Hardware Resident** or **Software Mode**. Symphony is compatible with either mode, but the recommended mode is **Hardware Resident Mode**. This loads the key map on to the device in a way that does not require the MacroWorks software to be running to use the keypad functions. **Software Mode** requires the MacroWorks software to run (the MacroWorks icon must be visible in the notification area). **Software Mode** supports more features such as limiting hot keys to certain applications. If dispatchers are having problems related to switching applications and the keypad sending keystrokes to the incorrect one, the **Software Mode** may alleviate this; however, steps must be taken to ensure that MacroWorks is running on each Symphony user account.

MacroWorks supports a Device ID. When a keypad is plugged in for the first time, or after it has been reset to factory defaults, you are asked to assign it a Device ID. The default keypad mapping files included with Symphony assume the Device ID is 1 and will not operate correctly otherwise. The Device ID is intended to be used when multiple keypads are used simultaneously, and different key maps are used for each one in **Software Mode**. If the keyboard is not responding, ensure the Device ID is 1.

MacroWorks software can be used to change the USB endpoints exposed by the keypad. For Symphony applications, this should always be set to **1027 | Keyboard | Joystick | PI Consumer (required for Software Mode)**. This is the default and should not be changed. Check this value by looking on the Unit Data tab if the keypad is not operating as expected.

The keypad vendor (PI Engineering) offers other keypad products that can be used with MacroWorks. Symphony has been tested and certified only with the XK-24 keypad and the standard 104-key PC keyboard that comes with it.

20.4 PROTECTING AGAINST INADVERTENT KEYPAD COMBINATIONS

If the dispatcher inadvertently depresses more than one key at once on the keypad, this could trigger undesirable hotkey combinations. For example, pressing the “S1” (activate SimulSelect 1) and “P4” (activate Patch 4) keys simultaneously could rotate the entire Symphony screen by 90 degrees. Graphics driver hotkeys, such as screen rotation, can be disabled to prevent this. To disable the Intel Graphics Driver hotkey commands, click on the “Intel HD Graphics” System Tray icon → “Graphic Options” → “Hot Keys” → “Disable.”

Symphony does not support pressing multiple keypad keys simultaneously (e.g., increasing the volume on the selected module via keypad key while simultaneously transmitting of the selected module via keypad key). Only one keypad action should be executed at a time.

21. TROUBLESHOOTING

21.1 STARTUP ERROR MESSAGES

The following describes the error messages that may be displayed on the splash screen during login.

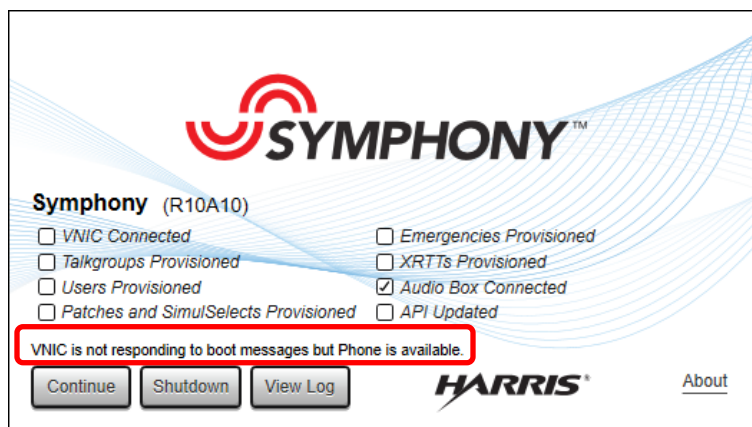


Figure 21-1: Example of Login Error

Table 21-1: Login Messages and Causes

MESSAGE	POSSIBLE CAUSES
Dispatcher is not authorized.	User ID is wrong or not in UAS. Password is incorrect. PSAP ID is incorrect or not in UAS.
Failed to login. Requested FlexPaths or Vocoders not allowed by VNIC. Check Max Talk Paths in UAS.	The PSAP's "Max Talk Paths" setting is less than the number of FlexPaths the console is licensed for.
VNIC protocol version is not supported.	The console is trying to login to a VNIC that does not support this console version.
VNIC is not responding to boot messages.	The VAS Server, VNIC Virtual machine or VNIC application are not running. IP address/Hostname of the VNIC is wrong in connection manager. The console is trying to login to a VNIC that does not support this console version.
Unknown failure connecting to VNIC.	Various, logs should be submitted to TAC.
When starting Symphony application, system indicates a duplicate instance has been detected.	One instances of the GUI was detected. This may have resulted for improperly shutting down the previous instance. Restart the console computer.

MESSAGE	POSSIBLE CAUSES
VNIC is not responding to boot messages but Phone is available.	SIP Telephony is available. The VAS Server, VNIC Virtual machine, or VNIC application are not running. IP address/Hostname of the VNIC is wrong in connection manager. The console is trying to login to a VNIC that does not support this console version.
Unable to log into Console.	Symphony's ConsoleService is not running. Check Windows Task Manager. Console does not have valid Symphony licenses.



Symphony must connect to a VNIC to complete the startup process. On initial startup of the Symphony application, a dispatcher cannot access the phone system or the radio system until the VNIC is reachable. The console proceeds with the startup if the PBX is unreachable, but the dispatcher cannot place/receive phone calls. Once started and in operation, Symphony allows phone-only operations if the VNIC fails.

21.2 NETWORK AND CONNECTION QUALITY METERS

The Symphony console has three indicators and two dialogs that display information about the connection to the VNIC and network health. These can be used to detect and assist in diagnosing connection and network problems.

21.2.1 Network Status

The Network Status Dialog shows information about the current network connection status, FlexPath usage, and connection quality in detail. Click ▲ next to **NETWORK** to expand the Network Status dialog. Next to ▲, there are three indicators that also show the current network status, FlexPath usage, and connection quality. When the network connection is good, the Network Status dialog will indicate that it is connected (Table 21-3).



Contact the administrator if the Network Connection is lost (Figure 21-3), if the FlexPaths have been exceeded (Table 21-2), or the connection quality icon is orange or red (Table 21-3).

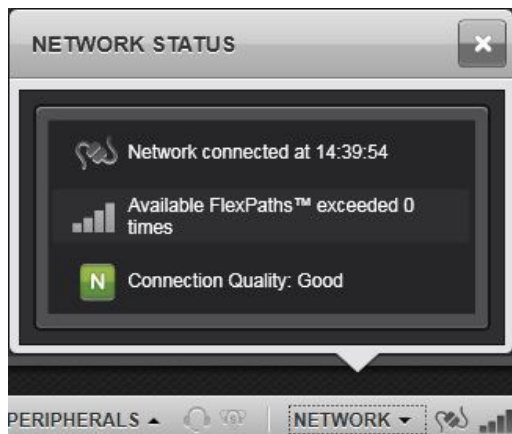


Figure 21-2: Network Status – Expanded

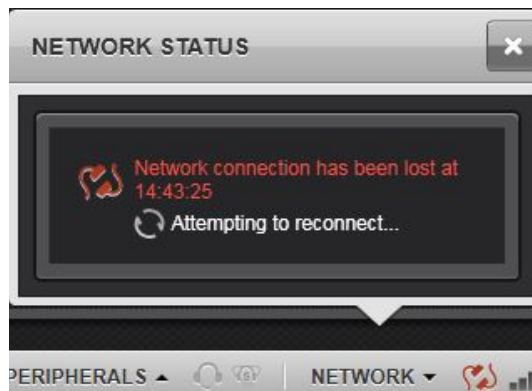


Figure 21-3: Network Status Connection Lost

A call is considered bad if it contains at least one missed, late, or out-of-order packet. The indicator is updated based on the number of bad calls in the previous 50 calls. If between 25 % and 49% of the calls were bad, the Network Health Meter is colored yellow. If 49% or greater of the last 50 calls were bad, the network health meter is colored red.




A more detailed analysis of the Symphony and network logs is required to determine possible root causes of bad Network Health indications.

The FlexPath meter summarizes the current usage of FlexPaths. Each bar represents 25% of the currently licensed FlexPaths. As FlexPaths are used for received calls, the bars disappear starting with the rightmost. When there are no FlexPaths left, the FlexPath meter will turn orange. If all FlexPaths are exhausted and a call is dropped, the FlexPath meter will remain orange, but show a circle with a slash.

Table 21-2: Available FlexPaths


ICON	Description
	100% of FlexPaths are available.
	75% of FlexPaths are available.
	50% of FlexPaths are available.
	25% of FlexPaths are available.
	0% of FlexPaths are available.
	FlexPath limit exceeded; you will miss calls due to lack of FlexPaths.

Table 21-3: Connection Quality

ICON	DESCRIPTION
	Green: Good Connection
	Orange: Warning
	Red: Serious network problem – contact your administrator

More detailed information can be obtained from the Network Status dialog. Each time a call is missed due to a lack of FlexPath resources, the “Available FlexPaths exceeded # times” counter is increased. This number is zero (0) when Symphony starts and increases for each missed call.

21.2.2 Server Status

The Server Status section displays a **SERVERS** button which opens a dialog showing a list of servers and their current status. To the right of the **SERVERS** button, there is a summary area that displays information for the important servers. Click  next to **SERVERS** to expand the Servers dialog (Figure 21-4). The Servers information dialog displays the name and state for all servers in use by the console.

- **VNIC** – The server that allows you to talk to the radio system (and have the radios talk back).
- **Audio Box** – The other part of the Symphony Dispatch Console that plays audio and interfaces with accessories.
- **Aux I/O Server** – This server communicates with all of the I/O points monitored by the Symphony Dispatch Console. Specifically, the server is the Regional Network Manager which communicates with one or more Network Sentries which manage the physical I/O points.
- **Key Management Facility** – This server provides Symphony with Encryption information including encryption keys and bindings between talkgroups and keys.

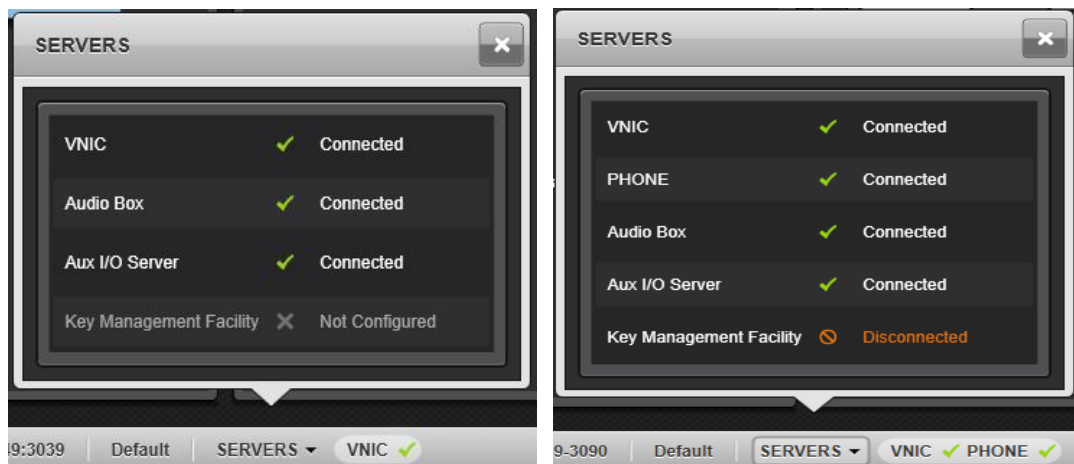


Figure 21-4: Servers Status

The server states include the following:

- **Connected:** Normal state.
- **Poll Failing:** When the poll is failing, the console is starting to miss messages from the VNIC but does not treat it as fully disconnected.
- **Disconnected:** Once enough poll messages are missed, the console declares the VNIC disconnected and shows it in the server's dialog.
- **Not Configured:** Symphony is unable to connect to the server due to a lack of configuration information.
Review the configuration settings to make sure all the configuration information has been entered.
- **Connecting...:** Symphony is in the process of connecting to the server.
- **Not Licensed:** Symphony unable to connect to the server because the requisite license is not active. Review the inactive licenses as described in Section 15 and call customer service to purchase the appropriate license.
- **Unknown Host:** Symphony could not contact to the server. Make sure the server is online and verify that the configuration information, such as IP address or host name, is correct.

If the connection to the VNIC is restored while in the "Poll Failing" state, the console does not re-login to the VNIC. This allows the re-connect process to go quickly. From the "Disconnected" state, the console performs a complete login process with the VNIC and is re-provisioned. This allows the console to discover any group or unit database changes that were made while the connection was down.

It is normal to see the "Poll Failing" state during VNIC failovers when the VNIC has not had time to recover from a previous failover.

21.3 USER ALIASES ARE NOT SHOWN

Normally, user aliases are sent to the console from the VNIC when the console logs in and anytime changes are made to the user database. If a call, emergency, or unit alert is received from an alias that is not in Symphony's database, one is automatically generated for it using the numeric VIDA ID for that unit or user.

If this occurs, check the following:

- In the Symphony Configuration Tool, ensure that "Only Show Users from Certain Agencies" is unchecked in the **Provisioning** tab (refer to Section 16.2.8).
- In the UAS, try changing the peer-info record in the PSAP configuration. Refer to the UAS manual for more information.

21.4 NO VU METER WHEN TRANSMITTING

The VU meter shows the audio level in the packets received from the microphone just before they are encoded to the radio system's format. If the console VU meter is not moving when transmitting, check the following:

1. Verify that the call to the radio system is active.
2. Check the "ripple" effect is on the group module and stays active for more than five (5) seconds while the PTT is held.

If this is the case, then the Audio Box IS sending audio to the console.

If the audio box were to fail to send samples to the PC application, the PC application sends nothing to the VNIC and the VNIC will tear down the call in 3-4 seconds.

3. Verify the Desk Microphone/Headset device connections.
4. Check the Audio Settings dialog and ensure that the audio device input is not attenuated too much.
5. Attempt to use a different audio device (new Desk Microphone, Jackbox, or headset) from a console that is working.
6. If the radio system call is being torn down, the audio sample packets are not reaching the PC application.
7. Check the Windows Firewall by disabling it and attempting to transmit again.

If this works, then add ConsoleUserApp to the firewall exclusion list.

21.5 OTAR KEYS NOT LOADING

If Symphony indicators suggest that OTAR keys are not being loaded, it could be because the Symphony is not establishing a connection with the KMF Service. The Symphony receives OTAR bindings and KMF parameters from the VNIC as part of Dispatcher Provisioning. To verify that the Symphony has received these parameters and has established a connection with the KMF service, do the following:

1. Pop up the Servers dialog.
2. Verify it displays a row for Key Management Facility with a green check and the “Connected” status (as shown).

If the status is “Not Configured,” the Symphony has not received KMF connection parameters from the VNIC.

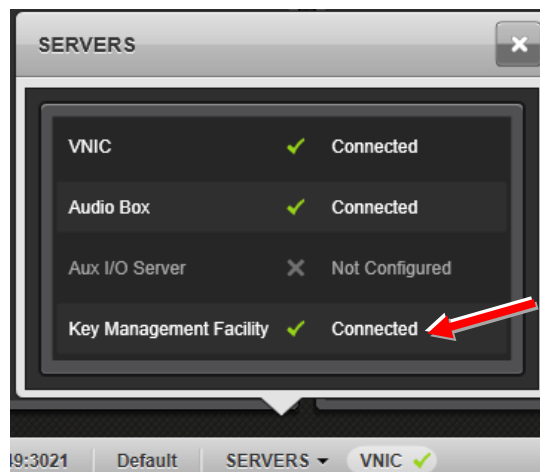


Figure 21-5: Servers Status KMF Connected

3. Expand the System History dialog and scroll through the entries until you find the entries for the KMF service as shown. Pay particular attention to the entries that state “KMF Params loaded,” “KMF Bindings loaded,” and “KMF is now connected.”

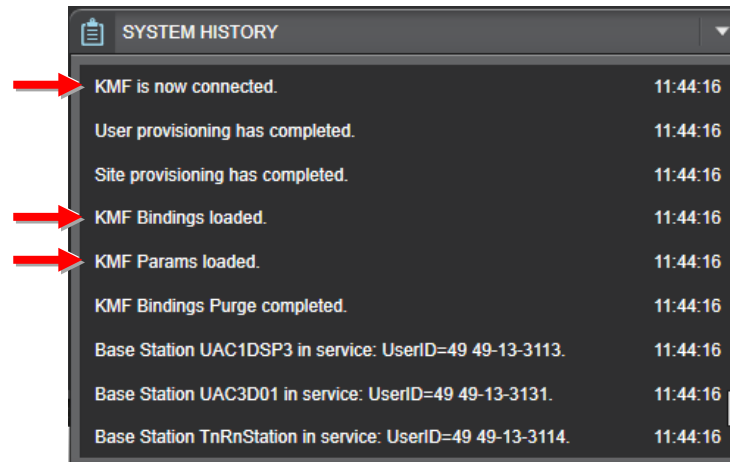
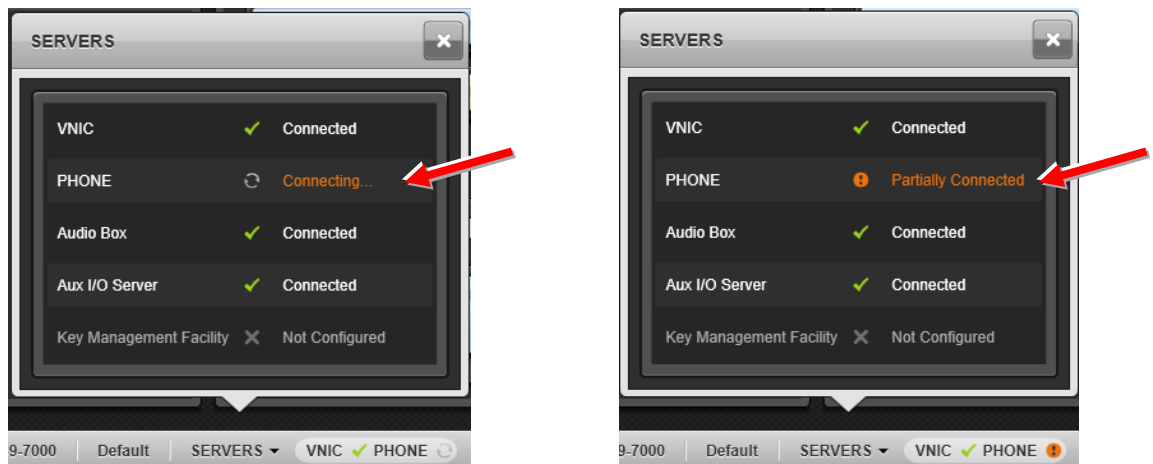


Figure 21-6: System History KMF Examples

If any of these dialogs fail to convey the status described, there may be a problem with the network or the KMF service. The UAS may also have a corrupted database that requires correction. Contact TAC for support.

21.6 SIP TELEPHONY CONNECTIVITY

The Symphony console has indicators that display the status information of SIP telephony Accounts. This can be used to assist in diagnosing issues with connection and/or configuration issues.



The Phone server states include the following:

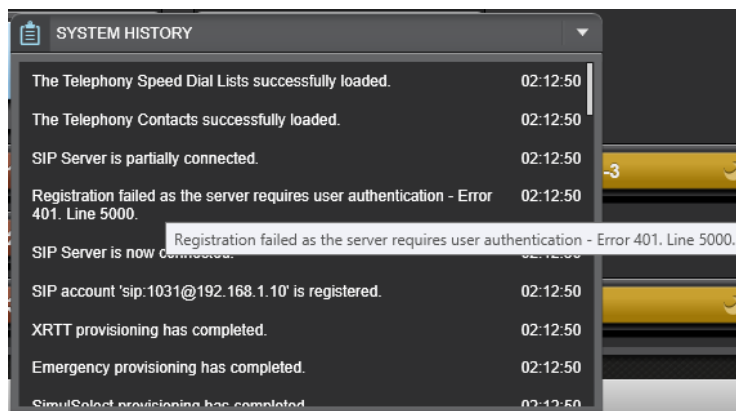
- **Connected:** Normal state. All configured SIP accounts have successfully registered.
- **Connecting:** All SIP accounts failed to register with the SIP Server.
- **Partially Connected:** One or more SIP accounts failed to register with the SIP Server.

If the Phone status is “Connecting” or “Partially Connected,” perform the following to further identify the issue:

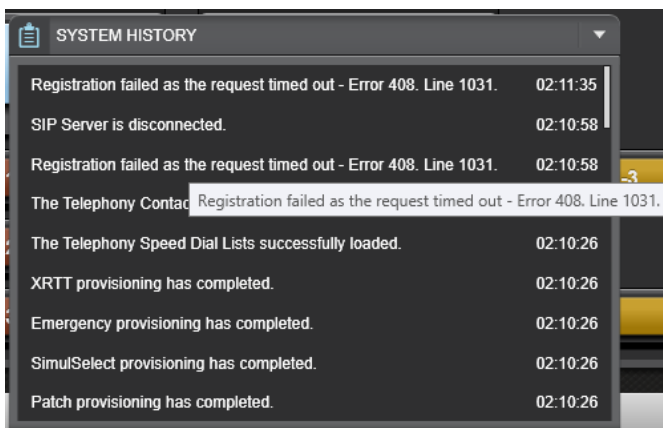
1. Check the System History for the specific error message.
2. Check the Network connectivity of the Symphony Console to the SIP PBX.
3. Check if the firewalls have the required ports opened.
4. Check Connection Manager to verify if the PBX settings are correct.
5. Check Connection Manager to verify if the Account settings are correct.
6. Check SIP PBX to verify if SIP Accounts are configured correctly.

The System History dialog displays the specific error. This can be used to further assist with diagnosing the issue.

Example 1, if the System History states “Registration failed as the server requires user authentication...” this indicates username or password mismatch between the Symphony configuration and the SIP PBX. Therefore, account setting and SIP PBX configuration must be verified.



Example 2, if the System History states “Registration failed as the request timed out...” this indicates that there is an issue with connectivity with the PBX. Therefore, physical connectivity or PBX Settings such as IP Address needs to be verified.



21.7 DEFINING SIMULSELECTS IS SLOW

Symphony performs best when the number of actively managed users is less than 25000. Actively managed users are included in many runtime processes that include units, such as creating a SimulSelect or opening a dialog containing lists of units. These processes require loading, searching, or processing all the actively managed units. For large numbers of units, these processes slow down, making the console feel unresponsive.

To avoid performance degradation in large systems, it is best to limit the number of units that are actively managed. This can be done using the “Only Show Users From Certain Agencies” configuration parameter defined in the Symphony Installation and Configuration manual. Selecting only the agencies the dispatcher actively manages greatly reduces the number of actively managed units and improves response time. It also provides isolation between agencies and allows the dispatcher to focus on the specific units for which he/she is responsible.



If an I-Call or group emergency is received from a unit outside of the specified agencies, the call is processed and the unit ID is shown with a console-generated alias such as “Unknown.” Unit alerts are not received from units outside of the specified agencies.

Enabling “Motorola Mode” on the General tab of the configuration utility also solves this problem. In Motorola mode, units cannot be part of a SimulSelect.

21.8 ABR MODULES

21.8.1 Lost ABR Module

If an ABR Module is lost on the Workspace, remove the Ethernet Adaptor from the USB port and reinsert to initialize.

21.8.2 ABR Error Messages

MESSAGE	POSSIBLE CAUSE
ABR call is queued	Another call is already in progress.
The ABR is still in transmit state	The console is attempting to transmit from the ABR while the ABR is already transmitting.
The ABR is still in the receive state	The console is attempting to transmit from the ABR while the ABR is still receiving.
There is no ABR audio stream. Cannot start transmit	The ABR connection has failed.
There is no ABR receive audio stream	The ABR connection has failed.
There is no ABR audio stream	The ABR connection has failed.
The ABR is disconnected	The ABR connection has failed.

21.9 SDP ERROR MESSAGES

When the Audio Box OMAP detects a problem, it updates the SDP LCD display with a code and error text. The error text string information will alternate with status information. These errors are also reported to the console depending on the error reporting level. Error codes will scroll until a minute passes with no new errors.

Table 21-4 is a list of the more common errors that may occur. For a complete error list, please refer to the *Symphony Dispatch Platform Product Manual*, 14221-7400-6010.

Table 21-4: Error Codes and Meanings

ERROR CODE	ERROR TEXT STRING	ERROR MEANING
06	LOG_ERR_POLL_TIMEOUT	This error indicates the console and OMAP are no longer connected. (This error may “go away” because both the Console and the blue LCD display will indicate DISCONNECTED.)
0A	LOG_ERR_FORMAT_ERR	This error indicates a message between the console and the OMAP was not known.
15	LOG_ERR_LEN_LOADSW	This error indicates an error in the software update for the OMAP.
16	LOG_ERR_LEN_IMAGE	This error indicates an error in the software update for the OMAP.
17	LOG_ERR_LEN_IMAGE_FINAL	This error indicates an error in the software update for the OMAP.
2E	LOG_ERR_MSG_NOT_CONNECTED	This error indicates that the console is sending a message to the OMAP without a valid connection.
50	LOG_ERR_READ_MSGQ	This error indicates a communication error between the ARM and the DSP in the OMAP.
51	LOG_ERR_WRITE_MSGQ	This error indicates a communication error between the ARM and the DSP in the OMAP.
55	LOG_ERR_DSP_POLL_ERROR	This error indicates that the DSP is not responding to Polls (dead).
66	LOG_ERR_AUDIO_IN_NOT_CONN	This error indicates that the console is sending audio without a valid connection to the OMAP.
68	LOG_ERR_WRITING_AUDIO_TO_DSP	This error indicates that the DSP is not taking the audio packets (could indicate holes in audio or dead DSP).
7C	LOG_ERR_DSP_VERSION	This error indicates that the DSP code is not released for this ARM code.

21.10 ERROR REPORTING

The display is also useful for error reporting. During the Boot process, if there has been a fatal error in the previous boot and the SDP is rebooting, an error code is displayed. During Operational mode, error codes are displayed when appropriate to inform the user of various error states.

During Boot, if an error occurs which requires a reboot, line 1 will read “**Boot FAIL**” for 15 seconds and line 2 will indicate “**ERROR 20**” during the pause and subsequent reboot if the error is not critical.

If the Backup Radio switch is in the **Manual** position and the computer connection is not established after a time, line 1 will read “**ERROR - Manual**” and line 2 will indicate “**Disconnected.**”

During Operational mode, if an error is detected, the application will display the error codes every four (4) seconds for four (4) seconds in duration in the “**EXX, EXX, EXX**” format. When it is displaying errors, the SDP uses both rows of the display (not just the second line). It will continue to alternate between the normal and error display, until no new errors have been seen for 60 seconds.

The error display will clear automatically after 60 seconds of no errors are detected. If there are recurring errors, then the cause of the error condition will have to be fixed.

For a complete list of errors codes, refer to the *Symphony Dispatch Platform Product Manual*, 14221-7400-6010.

21.11 EMPTY BATON CONTEXT MENUS

Problem: Baton Context menus are empty or do not appear.

Solution: Ensure the user has read access to the files in **C:\ProgramData\Harris\Baton\ContextMens.xml** and all other files in that directory. Using an admin account, adjust the permission accordingly. If the files are missing, repair the installation in **Control Panel→Programs→Baton**.

21.12 AUDIO BOX FIRMWARE UPGRADE INSTALLATION FAILURE

If the Audio Box firmware upgrade process is stopped, e.g., due to power failure or PC crash, the Symphony hardware must be hard reset. The Audio Box contains a backup copy of the last working firmware code, but a hard reset is required to launch from the backup copy.

If the audio box Firmware update process does not proceed past the “Erasing Flash” stage, the Windows firewall may be blocking communications. Under normal conditions, the firewall settings are controlled by Active Directory Group Policy Objects (GPOs). The console PC must be in the correct Organizational Unit (OU) for the operating system being used.

For SR10A.3 or later systems, check that Symphonies running Windows 10 are in the “VIDA Workstations\Symphony Consoles\VIDA Symphony Win10” or and those running Window 8 (or 8.1) are in “VIDA Workstations\Symphony Consoles\VIDA Symphony Win8.” For older systems, the Symphony Consoles should be in the “VIDA Workstations\Symphony Consoles” OU.

See Section 9.2.5 for more details.

21.13 WEB APPLICATION TROUBLESHOOTING

21.13.1 Internet Explorer® Window Launches When User Clicks on a Link

In some cases, clicking on a link in the embedded web browser will create a new Internet Explorer window rather than a new web subtab within Symphony. This is not the correct behavior and may cause confusion for dispatchers as the Internet Explorer window can fall behind the Symphony window and be difficult to move back.

This problem has several possible root causes, including:

1. Not having Java® installed on the Symphony machine.

Security Update Management Service (SUMS™) should be used to make sure that Java is installed.

2. An Internet Explorer (IE) window is running outside of Symphony.

Since Symphony embeds a copy of Internet Explorer, an external IE window can interact with the copy embedded in Symphony. The result may be new IE windows when clicking in links in the Symphony embedded web browser. Close the external IE window, and ensure that the IE application is not running at the same time the Symphony Web Browser is being used.

3. SUMS (or other) patch that requires a restart is installed, but the restart has not yet occurred.

In this case, the console should be restarted to complete the installation of the patch. Typically, SUMS will restart the machine when required, but in some cases it may not. SUMS updates and patching dispatch positions should be scheduled by the administrator to minimize console downtime and assure continued dispatch coverage at other positions.

21.13.2 Certificate Not Valid Error Navigating to RNM

Navigating to the RNM web application may result in the following security warning dialog:

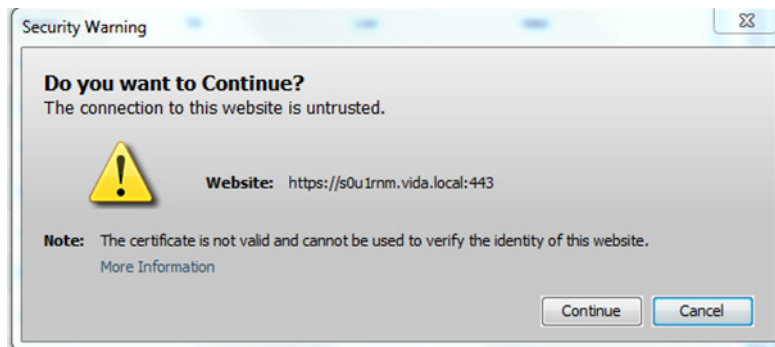


Figure 21-7: RNM Security Warning Dialog

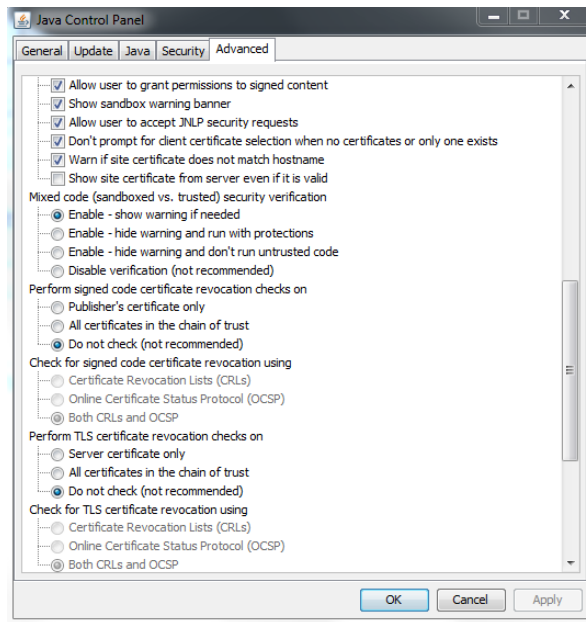
This means that the Java plugin has not been properly configured to accept the security certificate used to sign the RNM applet.

To resolve this, an administrator must modify the Java configuration to stop checking for certificate revocation, place the RNM (web application) in the Exception Site List, and load the site's certificate in the Java certificate store.

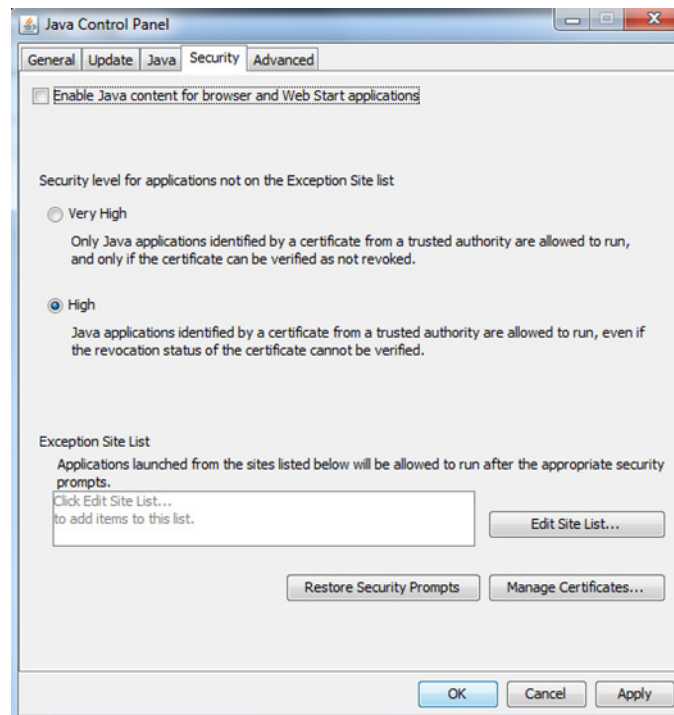
Disable certificate revocation checking:

1. Open the Windows control panel.
2. Launch the "Java" control panel applet.

3. Navigate to the **Advanced** tab.
4. Under **Perform signed code certificate revocation checks on** select **Do not check (not recommended)**.

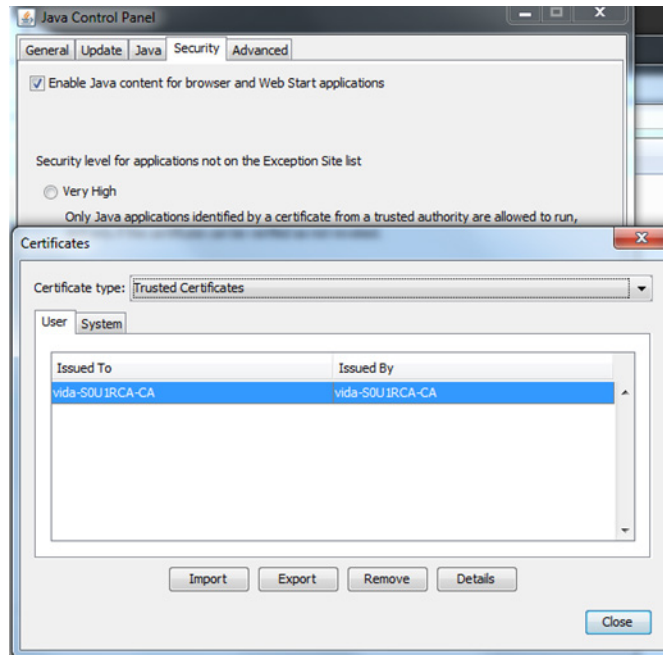


5. Next navigate to the **Security** tab.



6. Click on the **Edit Site List...** button to open the site list dialog.
7. Add the RNM (web sites) home URL to the list. Typically, this is <https://s0u1rnm.vida.local>.

8. Open Internet Explorer outside of Symphony and navigate to the RNM (web site). Open the **view certificates** dialog. Open the site certificate and go to the **Detail** tab. **Copy to File** the certificate using a file type of **.CER**.
9. Click on **Manage Certificates...** on the security tab of the Java control panel applet.



10. **Import** the CER file into the User tab of the Certificates dialog.

21.13.3 “Do You Want to Run This Application?” Security Warning on RNM.

The following dialog may appear when attempting to navigate to some RNM applications. The dialog may be safely dismissed by checking **I accept...** and then pressing the **Run** button.

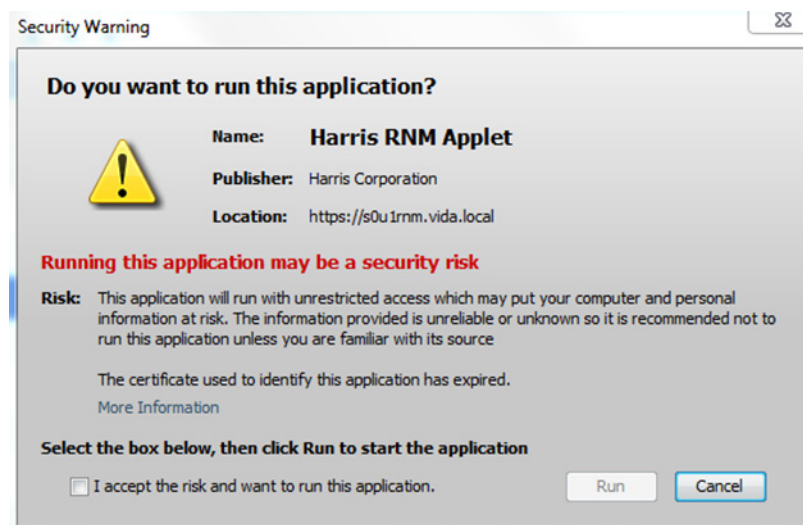


Figure 21-8: RNM Security Warning Dialog

This security warning dialog will return the next time the console is restarted. This can be inconvenient; however, there is no way to prevent this dialog.

21.14 HOW TO COLLECT LOGS FOR TAC

The Symphony console continuously logs all activity during operations. These logs can be critical in troubleshooting potential problems in the console's operation and configuration. They can also be used to reconstruct the dispatchers' interaction with the user interface.

These logs are not intended to be readable by users, administrators, or field service personnel. Occasionally, it is necessary to collect these logs and transfer them to L3Harris' Technical Assistance Center for analysis by support personnel. You will be notified by L3Harris TAC if this is required.

All logs are stored in the Windows Users account profile. If you are requested to collect logs while troubleshooting a specific incident, the logs must be collected from the Windows User Account that was logged in during the incident. The best way to do this, is to login as that user.


The Symphony console produces many log files. It also creates a single "CAB" file that contains all log files produced as well as configuration information about the Symphony console and operating system. The CAB file is created by a background process that is run whenever the Symphony console is started. The CAB file create contains all the logs from the previous execution of the console.

CAB files are stored in the local application data section of the Windows Users profile.

C:\Users*username*\AppData\Local\Harris\Symphony\Logs\Archives

The CAB files are named with the time stamp of their creation. The format for the CAB file name is YYYYMMDDHHMMSS.CAB. For example, 20140317133219.CAB, was created on March 3, 2014 at 1:32:19pm. The hour is in 24hr clock format. Since this file is created when the Symphony is started, this file will contain all the logs for the previous run of the console which ended some time *before* the timestamp of the file. When locating the correct CAB file, look for the file with the time stamp that is the earliest after the time of interest. If there is no file created after the time of interest, then start the Symphony console to create one.

To collect log files:

1. Ensure you are logged into Windows as the user who was running the console when the incident occurred.
2. Insert a USB Drive into one of the front USB ports on the SDP.
3. Open the Windows explorer by pressing the **Windows Logo Key**  + **E**.
4. Click in the address bar and type what is shown below followed by **Enter**.

%LOCALAPPDATA%\Harris\Symphony\Logs\Archive

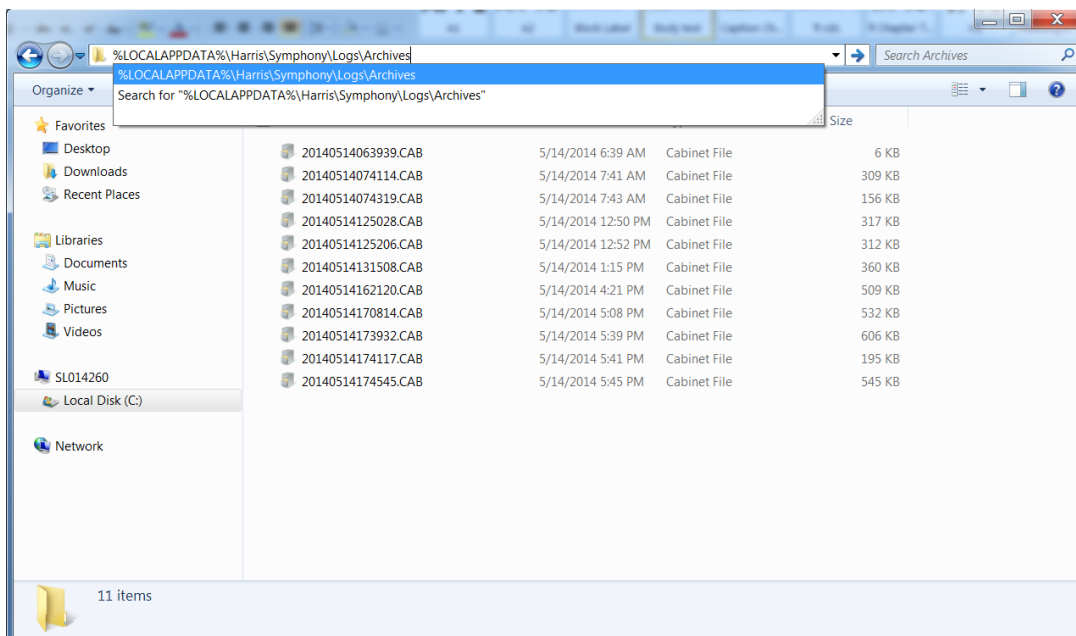


Figure 21-9: Windows Explorer - Symphony Log Files

5. Locate the file containing the time of interest.
6. Drag and drop (copy) the CAB file to a USB Drive.
7. Using an Internet connected computer, transfer the file to TAC as instructed.

APPENDIX A CLONING CONSOLE SETTINGS

To clone the general settings of a Symphony from one console to another, copy some directories and registry settings from the source console to the destination console. This will clone the settings defined in the Configuration Tool, GUI layouts, and dispatcher's VIDA User IDs. However, it is not possible to clone licenses.

A.1 FILE STORAGE LOCATIONS

A.1.1 General

There are several directories to copy from the source machine to properly clone a console. These directories should be placed in the corresponding directories on the destination machine. The directories are as follows:

- **%PROGRAMDATA%\Harris\Symphony\Admin** – Or the Admin directory as defined in the Config Tool.
- **%PROGRAMDATA%\Harris\Symphony\Default Settings**
- **%PROGRAMDATA%\Harris\Symphony\UISettings**
- **%PROGRAMDATA%\Harris\Baton\UISettings** – If using the Baton.
- **%APPDATA%\Harris\Symphony** – Per Windows User. If you do NOT want to copy the dispatcher's VIDA User IDs, then do not copy file "Symphony.Identity.xml."

A.1.2 Layouts Only

If you follow the steps in cloning the General Settings, it will also clone the layouts. However, if you would ONLY like to clone the layout of the GUI and not the rest of the general settings of the console, copy the following directories from the source console to the corresponding directories on the destination console:

%PROGRAMDATA%\Harris\Symphony\Admin – Or the Admin directory as defined in the Config Tool.

A.2 REGISTRY

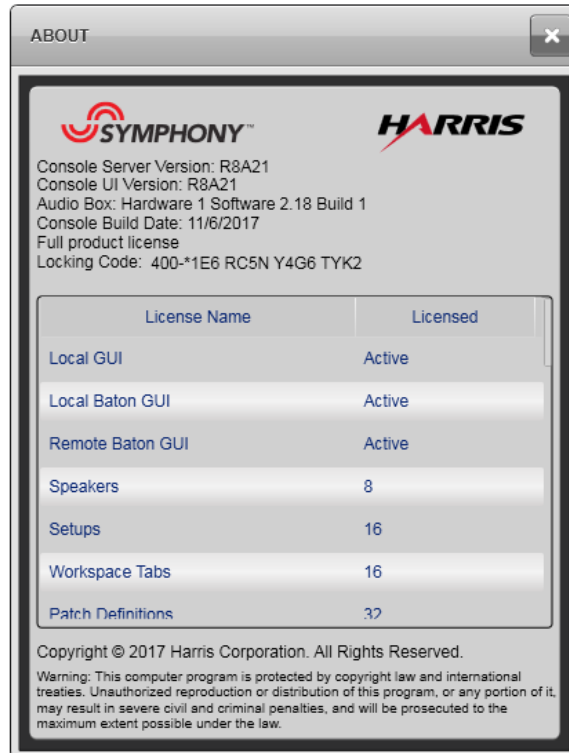
There are also several things in the registry that must be cloned to get all the settings from the source console. To clone these settings, export the following registry keys to a .reg file and then import them on the destination machine (usually by double-clicking the files).

To export a registry key, right-click on the folder icon and click **Export**. The registry keys that must be copied are as follows:

- **HKLM\SOFTWARE\Policies\Harris\Symphony** – After export, edit the file with Notepad, and remove the lines with "PsapWacn," "PsapRegion," and "PsapID." Otherwise, your PSAP ID will also be cloned which is generally not desired.
- **HKLM\SOFTWARE\Policies\Harris\Symphony Remote** – If using Baton.
- **HKCU\Software\Policies\Harris\Symphony** – Per Windows User.

A.3 LICENSES (PER CONSOLE)

The licenses for a console are configured per machine and cannot be cloned from one machine to another. Therefore, after cloning files to a different machine, generate new licenses. To ensure the second machine has the same licenses, first record which licenses are active on this active machine. Then open the second machine's **About** screen and get its locking code. Finally, contact L3Harris to purchase licenses for the given locking code.



APPENDIX B CUSTOMIZING WAV FILES

Symphony uses the Waveform Audio File Format (WAVE; or more commonly known as WAV, due to its filename extension) for the tones generated in the user interface or over the air. It is possible to customize Symphony tones by replacing the default Symphony WAV files with user-generated WAV files. Do this with great care and only to a few noncritical notification tones, like ring tones. Care has been taken to select default tones that are appropriate for the stressful dispatch environment and changing the defaults could impact dispatch operations. For example, changing the Grant tone to a one second tone will delay dispatcher transmissions.



NOTE

Administrator privileges are required to modify the Symphony WAV files.

B.1 CUSTOMIZING A WAV FILE

If you chose to replace or customize a WAV file, use the following procedure:

1. Save the default Symphony file by appending the file name. For example, adding “_old” to the filename. See Section 16.2.7 for information on the WAV file directory location.
2. Make sure the new WAV file is single channel 16-bit PCM with an 8 kHz sample rate and less than 60 seconds long. PMT tones must be at least 360 ms long on P25 Systems. A tone file at least 720 ms long is required on OpenSky systems and in case the PMT goes through an EDACS Migration Gateway (EMG).



NOTE

The 60 second maximum length is a general limit, but Symphony may truncate a WAV file to ensure safe dispatch operation for specific tones.

3. Copy the new WAV file into the same directory as the default Symphony WAV file and name the new WAV file the same as the default Symphony file.
4. Test the new file.

If the new file does not work properly, restore the default file by deleting the new file and restoring the default file to its original name. Be sure the WAV file meets the criteria defined above and try again.

B.2 MODIFYING AMPLITUDE

If the amplitude of specific tones must be adjusted, modify the amplitude using an audio editor, such as Audacity® shown in Figure 21-10.

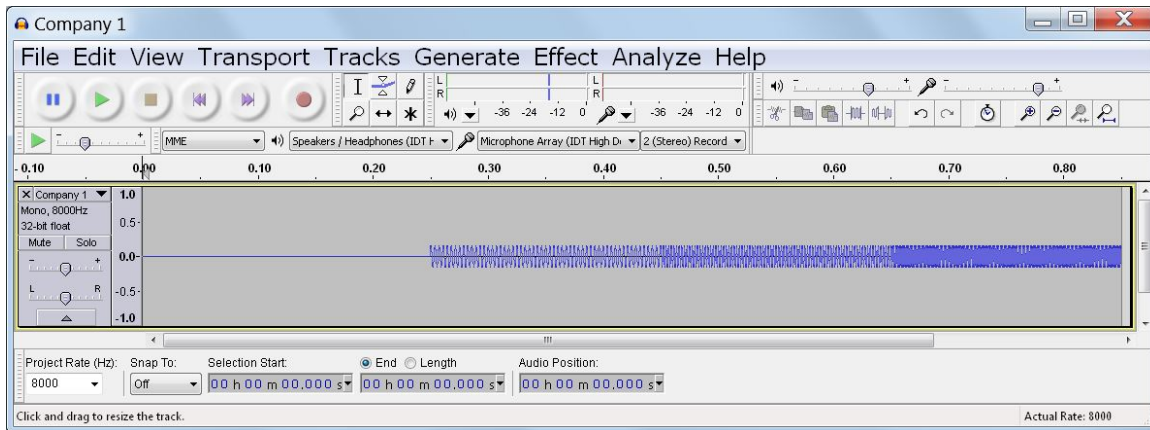


Figure 21-10: Audacity Audio Editor

The following steps describe the process for changing the amplitude using Audacity:

1. Open Audacity.
2. Select the **File**→**Open** and select the tone WAV file.
3. Select the whole track by double-clicking on it.
4. Select the **Effect**→**Amplify**.
5. Type in or select the desired amplification (or attenuation) and click **OK**.
6. Select **File**→**Export**.
7. Ensure the Save as **Type** is “WAV (Microsoft) signed 16-bit PCM,” and save the file somewhere (other than over the original file).
8. Replace the old WAV file with the one created using audacity. (This requires admin rights.)

APPENDIX C CREATING A BOOTABLE USB IMAGE FOR THE SDP

The following procedures enable you to create a bootable USB flash drive. The following items are needed:

C.1 DOWNLOADING ISO IMAGE

C.1.1 Windows 8.1 Procedure for Symphony Dispatch Platform 1.0 Hardware

The following items are needed:

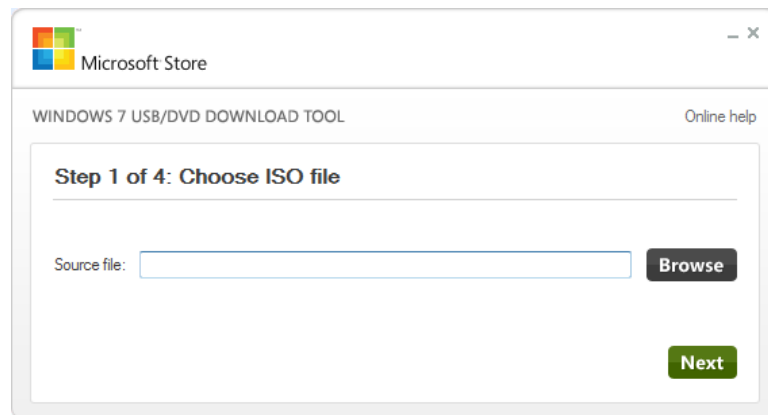
- L3Harris Symphony Dispatch Platform 1.0 Hardware (one of the stickers on the bottom of the console will list the Assembly Number as 14017-1001-01, which is the L3Harris part number).
- USB Drive ***minimum size - 8 Gb***
- 14004-0148-01 (Win 8.1) ISO file
- Windows7 USB DVD Download tool

Procedure:

1. Download the appropriate ISO image.
2. Download and install the Windows 7 USB/DVD Download tool from the Microsoft Store.
http://www.microsoftstore.com/store/msusa/html/pbPage.Help_Win7_usbdvd_dwnTool
3. Run the Windows 7 USB Download Tool.

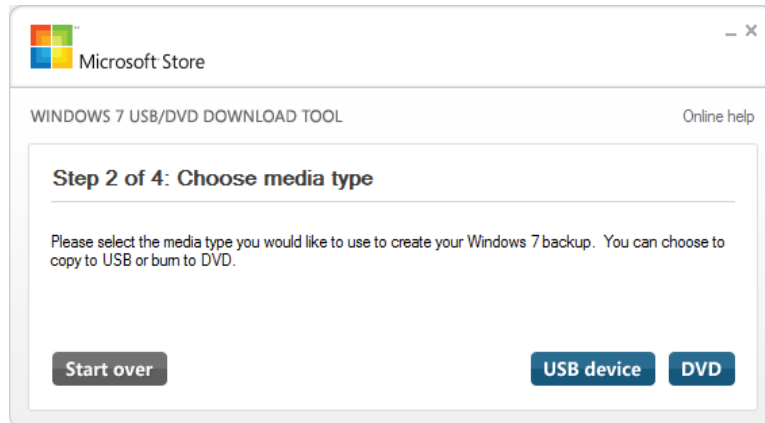
This utility runs as a simple wizard which will guide you through the steps to create a bootable USB drive.

4. **Step 1** allows you to choose an ISO to add to the USB drive.



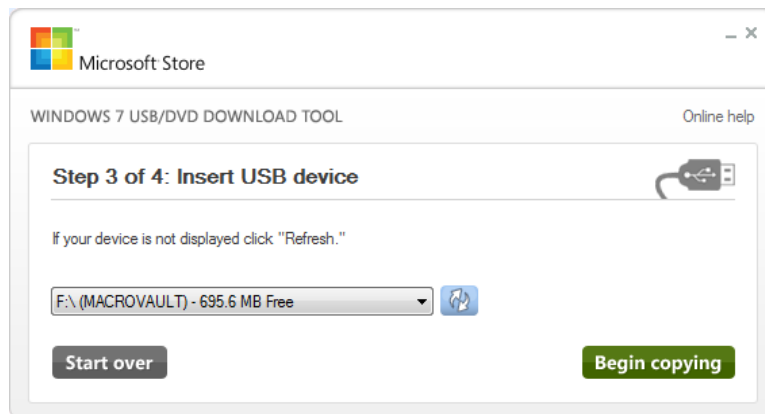
5. Once you have browsed to and selected the file, click **Next**.

6. **Step 2** allows you to select the media type the ISO file will copied to. Select **USB Device**.



7. **Step 3** prompts you to insert the USB device.

The wizard will detect any USB drive connected and allows you to choose which one to use as your bootable device.



8. Select the correct device and click **Begin copying**.

A warning is displayed which states that all data on the USB device will be erased. Click **OK** to continue.



NOTE

A minimum of 8 GB total space is required on the USB drive.

9. Ensure Symphony Dispatch Platform (SDP) is Off.
10. Once the ISO has been copied onto the USB drive, insert it into one of the USB ports on the front of the Symphony Dispatch Platform.
11. Apply power to the platform.
Windows installation will proceed. This takes approximately 10 – 15 minutes.
12. When the installation is complete, the Windows installer will direct you to reboot the SDP. Before cycling power, remove the USB drive from the USB port.
13. Follow the remaining setup instructions after Windows boots.

C.1.2 Windows 10 Procedure for Symphony Dispatch Platform 1.0 Hardware

The following items are needed:

- L3Harris Symphony Dispatch Platform 1.0 Hardware (one of the stickers on the bottom of the console will list the Assembly Number as 14017-1001-01, which is the L3Harris part number).
- Two (2) USB Drives ***minimum size 8 Gb each***
- 14004-0249-01 “SW, UEFI, SYMPHONY DISP PLATFORM” Version R2A01
- 14004-0245-01 “SW, SYMPHONY CONSOLE IMAGE, WINDOWS 10” R7A04
- ISO Image burning tool capable of writing to USB Drives (in UEFI mode). (Example: PowerISO)

Determining UEFI Version Prior To Windows 10 Installation:

1. Obtain L3Harris Media Kit Part #14004-0249-01 Version R2A01.
2. Open the zip file from the L3Harris Media Kit Part #14004-0249-01 Version R2A01. Extract all of the files to the root of an empty USB drive. The USB drive must be formatted to the **FAT32** file system.
3. Look at the bottom of the SDP (*Symphony Dispatch Platform*). There will be a sticker that includes the SDP Assembly Number, Part Number, Serial Number, Date Manufactured and MAC ADDRESSES.

Newer consoles will have the UEFI Version listed on the sticker.

If the sticker has UEFI Version: VBDD0001, this is the latest UEFI Firmware available at the time these instructions were written. You can skip the **BIOS update** section and proceed with the **Creating Windows 10 Bootable USB Key** section.



NOTE

The UEFI Version information may be printed on a separate label or sticker on the bottom of the SDP.

Updating the BIOS:

1. Power off the SDP (Symphony Dispatch Platform).
2. Insert the USB Drive containing the extracted files from L3Harris Media Kit Part #14004-0249-01 Version R2A01 into one of the front USB ports on the SDP.
3. Power on the SDP.
4. Prior to the initial Splash Screen (SeaLevel or L3Harris Branded) press **F7** several times before you see the “Harris” screen. This causes the “**Please select boot device**” menu to be displayed.
5. Select the **Enter Setup** option.
6. Press **Enter**.
7. The Main menu will be displayed. You will have either **UEFI Firmware Revision** or **Project Version** information.

- If **UEFI Firmware Revision** is displayed with a value of **VBDD0001**, your UEFI Firmware will **NOT** have to be updated for the installation of Windows 10. Press **Esc** and select **Yes** on the “Exit without saving” dialog. You can skip the rest of these instructions and proceed with Windows 10 installation.
- If **Project Version** is displayed with a value of **VBDD0 0.00**, your UEFI Firmware needs to be updated prior to the installation of Windows. Proceed to the next step.



NOTE

Use your keyboard arrow keys to navigate the Menu and Item options.

8. Select the **Advanced** menu.
9. Select the **PCH-FW Configuration** item.
10. Press **Enter**.
11. Select the **Firmware Update Configuration** item.
12. Press **Enter**.
13. Select the **Me FW Image Re-Flash** item.
14. Press **Enter**.
15. Select the **Enabled** option.
16. Press **Enter**.
17. Press **F4**.
18. Select **Yes** on the “Save & Exit Setup” dialog.
19. Press **Enter** to restart the SDP.
20. Prior to the initial Splash Screen, press **F7** several times before you see the “Harris” screen. This causes the “**Please select boot device**” menu to be displayed.
21. Select the **UEFI: Built-in EFI Shell** option.
 - a. If **UEFI: Built-in EFI Shell** is not in the list of boot devices, select **Enter Setup**.
 - b. Press **Enter**.
 - c. Select **Boot**.
 - d. Select **CSM parameters**.
 - e. Press **Enter**.
 - f. Select **Boot option filter**.
 - g. Press **Enter**.
 - h. Select the **UEFI and Legacy** option.
 - i. Press **Enter**.
 - j. Press **F4** to Save and Exit.
 - k. On the **Save & Exit Setup** dialog, select **Yes** for the prompt “Save configuration and exit?”
 - l. Press **Enter**. Power off the SDP.

- m. Power on the SDP and go back to Step 20.
22. Press **Enter**.
23. A script named startup.nsh will start automatically.
24. When the script finishes updating the firmware, the screen will display “**UEFI and ME Update Passed? Now power off (G3) for at least 1 Minute!**”
25. Power off the SDP by pressing the power button.
26. Remove the USB Drive (containing the extracted files from L3Harris Media Kit Part #14004-249-01 R2A01) from the SDP.
27. It is recommended that you attach a label or sticker to the bottom of the SDP that lists **UEFI Version VBDD0001** and the date the firmware was updated.



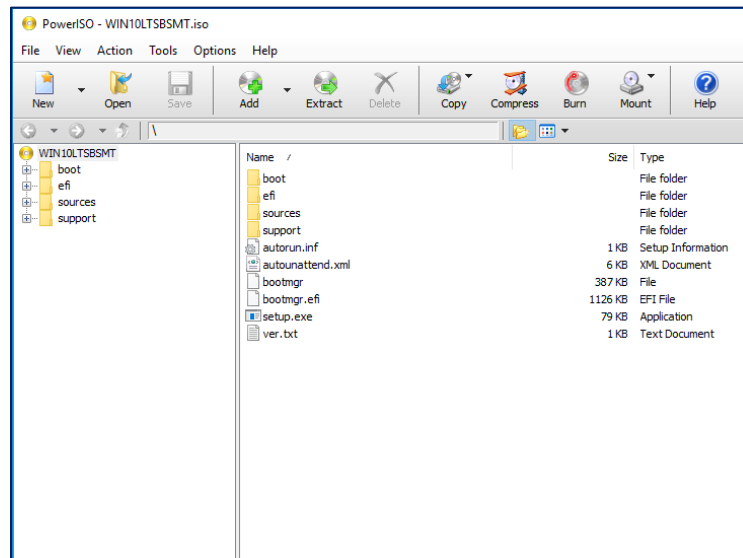
NOTE

You may need to power off and restart the SDP one more time.

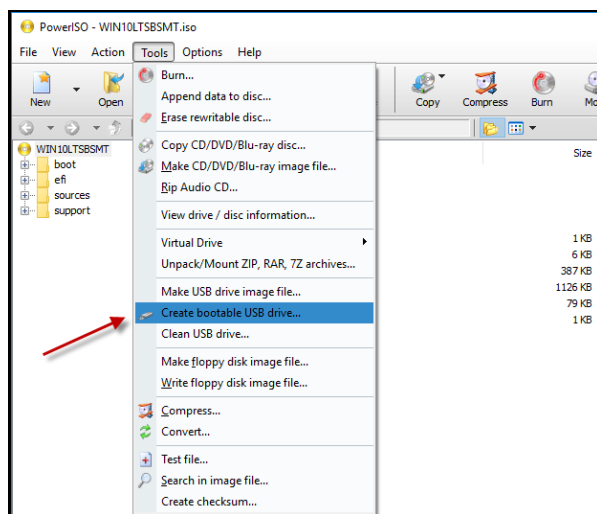
28. The SDP is now ready for Windows 10 installation.

Creating Windows 10 Bootable USB Key:

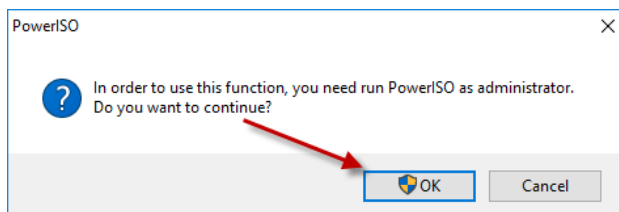
1. Install “PowerISO (or similar tool)” on the machine you intend to create the USB Key from.
2. Insert an empty USB Drive.
3. Once installed, double-click the Symphony image file (WIN10LTSBSYM.iso).



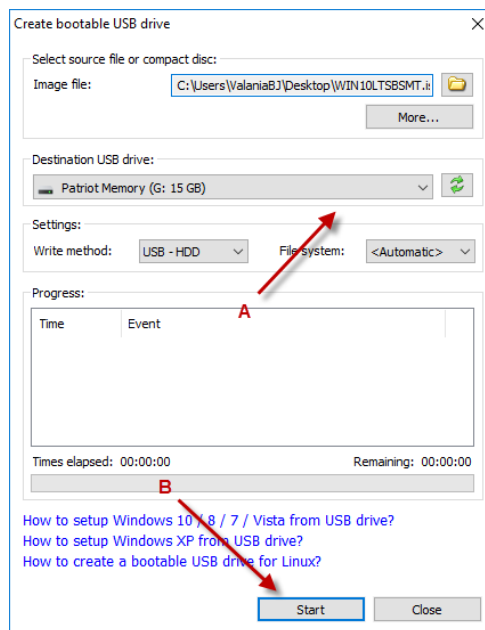
4. Choose **Tools** from the menu and select “Create bootable USB drive...”



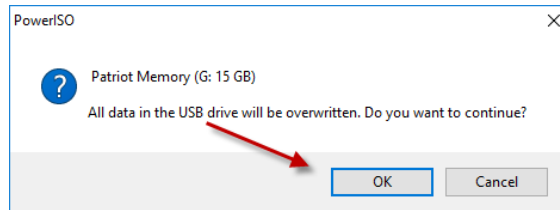
5. You may receive the following prompt upon selecting this option. Click **OK**.



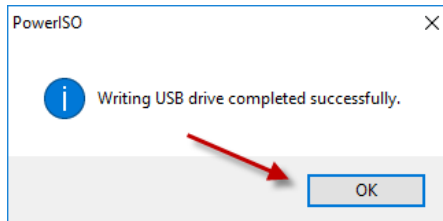
6. Select the USB Device from the drop-down list (A) and click “Start” (B).



7. Click **OK** to overwrite the USB volume with the new image.



8. Once drive creation is completed, you are presented with a write successful message. Click **OK**.



BIOS Settings for Symphony Dispatch Platform:

1. Plug in the newly created Windows 10 USB drive to one of the front USB ports on the Symphony Dispatch Platform.
2. Power on the Symphony Appliance device.
3. Prior to the initial Splash Screen, press the "**F7**" key.
4. Choose **Enter Setup**.
5. Go to the **Boot** screen.
6. Choose **Boot Option #1** and press enter (last option).
7. Verify that the **first Drive** listed is the hard drive (named Windows Boot Manager in UEFI mode) and ***not*** the USB drive.
8. If the USB drive is listed first, choose the appropriate options to place the USB drive as the second disk in the order.
9. Once complete, press the **Esc** key.
10. Go to the **Exit** screen and choose **Save Changes and Exit**.
11. Power off the SDP by pressing the power button for 10 seconds prior to the initial splash screen. This provides time to prepare for the installation of the Windows 10 image.
12. Continue to Section C.2.2 or C.3 for Windows 10 installation.

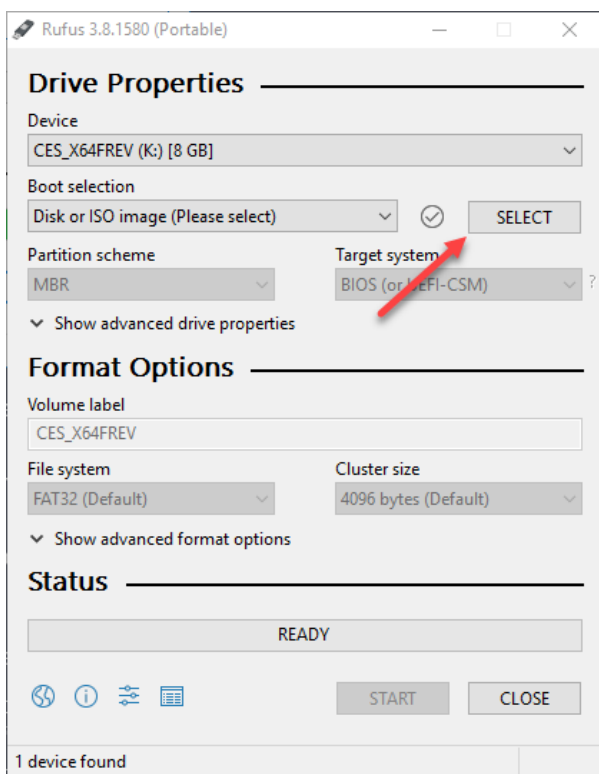
C.1.3 Windows 10 Procedure for Symphony Dispatch Platform 2.0 Hardware

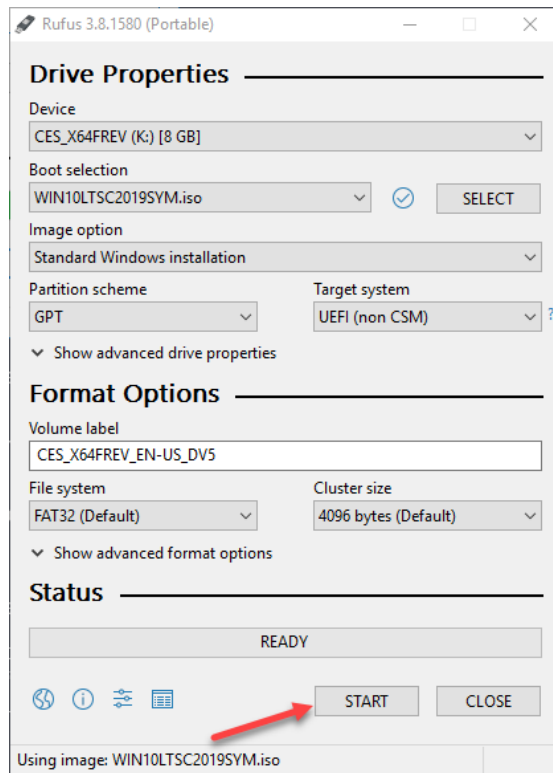
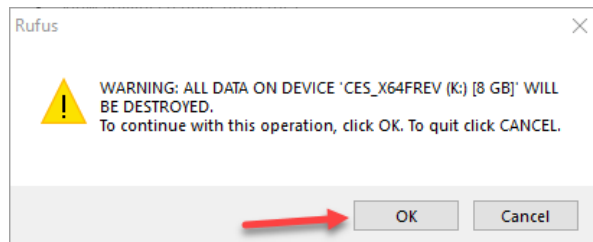
The following items are needed:

- L3Harris Symphony Dispatch Platform 2.0 Hardware (one of the stickers on the bottom of the console will list the Assembly Number as 14017-1001-04, which is the L3Harris part number).
- One (1) USB Drive ***minimum size 8 Gb***
- 14004-0245-01 “SW, SYMPHONY CONSOLE IMAGE, WINDOWS 10” R8A05
- ISO Image burning tool capable of writing to USB Drives (in UEFI mode). (Example: Rufus)

Creating Windows 10 Bootable USB Key:

1. Install “Rufus” (or similar tool) on the machine from which you intend to create the USB Key.
2. Open Rufus and select (press **SELECT**) the Symphony image file (WIN10LTSC2019SYM.iso).



3. Click **START**.4. You may receive the following prompt upon selecting this option. Choose **OK**.**BIOS Settings for Symphony Dispatch Platform:**

1. Plug in the newly created Windows 10 USB drive to one of the front USB ports on the Symphony Dispatch Platform.
2. Power on the Symphony Appliance device.
3. Prior to the initial Splash Screen, press the **F11** key.
4. Choose **Enter Setup**.
5. Go to the **Boot** screen.
6. Choose **Boot Option #1** and press **Enter** (last option).
7. Verify that the **first Drive** listed is the hard drive (the name begins with Windows Boot Manager) and **not** the USB drive.
8. If the USB drive is listed first, choose the appropriate options to place the USB drive as the second disk in the order.
9. Once complete, press the **Esc** key.

10. Go to the **Exit** screen and choose **Save Changes and Exit**.
11. Power off the SDP by pressing the power button for 10 seconds prior to the initial splash screen. (This provides time to prepare for the installation of the Windows 10 image.)
12. Continue to Section C.2.3 for Windows 10 installation.

C.2 INSTALLING THE IMAGE ON THE SDP

C.2.1 Windows 8.1 Procedure on Symphony Dispatch Platform 1.0 Hardware

1. Start with the Symphony Dispatch Platform powered off.
2. Insert the USB drive (containing the Windows 8.1 image files) into one of the USB ports on the front of the SDP and then power on the SDP.
3. Press **F7** when you see the “Harris” screen. This will happen quickly. This causes a boot menu to be displayed.
4. Select the USB drive from the boot menu.
5. Windows installation will proceed. This takes approximately 10 – 15 minutes.

Once installation is complete, the Windows installer will inform you that the SDP is going to reboot.

6. The Installation will be completed after the reboot is complete.

You can remove the USB disk any time after this reboot. Use the **Safely Remove Hardware and Eject Media** option if the SDP is powered on and Windows 8.1 is running.

C.2.2 Windows 10 Procedure for Symphony Dispatch Platform 1.0 Hardware

1. Verify the USB key is plugged into one of the front USB ports on the Symphony Dispatch Platform.
2. Power on the Symphony Dispatch Platform.
3. Prior to the initial Splash Screen, press the **F7** key.
4. The next screen asks “Please Choose Boot Device:” – choose the UEFI: USB key (for Windows 10 to install properly, the UEFI version must be used).
5. Once the process starts, it is fully automated. It takes approximately 15 minutes to install.
6. After several restarts, the machine performs one final restart, at which time it boots up and auto logs in once with the following credentials:

Username: xAdministrator

Password: !QAZ2wsx#EDC4rfv

7. The machine will auto login until a new account is created or the machine has been joined to the domain.
8. Windows 10 Setup is complete.
9. Some touchscreen drivers are located in the **C:\PreinstallTouchScreen Drivers** folder. Installation instructions are included in the **ReadMe.txt** file in the same folder. Driver and installation information may have also been provided with your monitor.

C.2.3 Windows 10 Procedure for Symphony Dispatch Platform 2.0 Hardware

1. Verify the USB key is plugged into one of the front USB ports on the Symphony Dispatch Platform.
2. Power on the Symphony Dispatch Platform.
3. Prior to the initial Splash Screen, press the **F11** key.
4. The next screen asks “Please Choose Boot Device:” – choose the UEFI: USB key (for Windows 10 to install properly, the UEFI version must be used).
5. Once the process starts, it is fully automated. It takes approximately 15 minutes to install.
6. After several restarts, the machine performs one final restart, at which time it will boot up and auto login once with the following credentials:
 Username: xAdministrator
 Password: !QAZ2wsx#EDC4rfv
7. The machine will auto login until a new account is created or the machine has been joined to the domain.
8. Windows 10 Setup is complete.
9. Some touchscreen drivers are located in the **C:\Preinstall\TouchScreen Drivers** folder. Installation instructions are included in the **ReadMe.txt** file in the same folder. Driver and installation information may have also been provided with your monitor.

C.3 **UPGRADING AN SDP FROM WINDOWS 8.1 TO WINDOWS 10 ON SYMPHONY DISPATCH PLATFORM 1.0 HARDWARE**

Use the following procedure to upgrade the Symphony Dispatch Platform 1.0 from Windows 8.1 to Windows 10 and retain the Domain Dispatch User Symphony Configuration Settings:

Items Needed:

- USB Drive
- 14004-0152-01 “SW, SYMPHONY PC APPLICATION, EXPORT” Release R6 or later
- See Section C.1.2 for additional items needed

Procedure:

1. Obtain L3Harris Media Kit Part #14004-0152-01 latest standard release of R6 or later.
2. Open the ISO file from the L3Harris Media Kit Part #14004-0152-01. Extract all of the files to the root of an empty USB drive. There is a folder named **Upgrade Tools** that has (2) Windows PowerShell script files.
3. Login to an AD Server or a SMT as a Domain Administrator.
4. Open the Active Directory Users and Computers application.
5. Expand **vida.local** → **VIDA Users** → **VIDA Dispatch Users**. Locate the Dispatch User account you want to backup in preparation for Windows 10, right-click, and select **Move**. Expand **vida**. Expand **VIDA Users**. Select **VIDA Maintenance Users** and click **OK**.

The VIDA Dispatch User you are using must be temporarily moved to the VIDA Maintenance Users group for USB port access.

6. Logout of the AD Server or SMT.
7. Power on the Symphony Dispatch Platform (SDP) you want to upgrade to Windows 10.
8. Login to the **vida.local** domain using the Dispatch User credentials (currently this user has VIDA Maintenance User privileges).
9. Insert the USB drive containing the (2) Windows PowerShell scripts files into one of the front USB ports on the SDP.
10. Using Windows File Explorer, select the USB drive containing the script files.



NOTE

You can copy the script files to a mapped Shared drive. Create a folder for the storage of the Windows 8.1 Symphony Configuration Settings. You will have to navigate to that folder before proceeding.

11. Right-click on the **SymphonyBackup.ps1** file.
12. Select **Run with PowerShell**.
13. The script backs up the Symphony Configuration Utility registry settings and files for the Dispatch User. When the script is complete, the USB drive or Shared Drive will have a folder named **SymphonyConfigData** containing the files backed up for the SDP and the Dispatch User.
14. Important: document the SDP's hostname and the TCP/IP configuration settings. The **SymphonyBackup.ps1** script will **not** capture this information.
15. Press the Windows logo key **⊞+X** and select **System**.
16. Select **Change settings** located in the **Computer name, domain, and workgroup settings** section.
17. Click on **Workgroup** in the **Member of** section.
18. In the Workgroup field, type **WORKGROUP** and select **OK**.
19. Shutdown the SDP and power the SDP off.
20. Remove the USB drive containing the Windows PowerShell script files.
21. Follow the instructions in Section C.1.2 to Create a Windows 10 bootable USB drive and update the UEFI if necessary on the SDP.
22. Follow the instructions in Section C.2.2 regarding Windows 10 installation.
23. Press the **Windows logo key ⊞+X** to bring up the advanced context menu and select **Network Connections**.
24. Review the Network Connection Names – you should have **Ethernet**, **Ethernet 2**, **Ethernet 3** and **Symphony_NIC_Team**. If you do not have these names, refer to Section 12.2.4.2 for instructions on how to fix NIC Teaming before proceeding.
25. Right-click on **Symphony_NIC_Team** and select **Properties**.
26. Select **Internet Protocol Version 4 (TCP/IPv4)** and select **Properties**.

27. Configure the IP address, subnet mask, Default gateway, Preferred DNS server and Alternate DNS server to match the Windows 8.1 configuration.
28. Select **OK** several times.
29. Close the **Network Connections** window.
30. Press the **Windows logo key** **+X** and select **System**.
31. Select **Change settings** located in the **Computer name, domain, and workgroup settings** section.
32. Select **Change** to the right of **To rename this computer or change its domain or workgroup**, click **Change**.
33. In the **Computer name** field, change the name to match the Windows 8.1 SDP Hostname.
34. Click on **Domain** in the Member of section.
35. In the Domain field, type **vida.local** and select **OK**.
36. A dialog prompts you for Domain credentials. Enter the Domain Administrator credentials
37. A dialog prompts you that you must restart your computer to apply these changes.
38. Select **Close** to close **System Properties**.
39. A dialog will prompt you to **Restart Now** or **Restart Later**. Select **Restart Now**.
40. When Windows starts, log in using the Domain Administrator login credentials.
41. Install Symphony application.
42. Select **Shut down** or sign out and select **Restart Now**.
43. Log into an AD Server or an SMT.
44. Open the Active Directory Users and Computers application.
45. Expand **VIDA Workstations**. Expand **Computers**. Expand Symphony Consoles. Locate the SDP and move the SDP to the appropriate Symphony Windows 10 OU.
46. Log out of the AD Server or SMT.
47. Shutdown and restart the SDP.
48. Log into the SDP with Dispatch User credentials.
49. Insert the USB drive containing the (2) Windows PowerShell scripts files into one of the front USB ports on the SDP.
50. Using Windows File Explorer, select the USB drive containing the script files.



NOTE

If you used a mapped Shared drive to back up the Windows 8.1 Configuration settings, map a drive to the Shared drive. Navigate to the same folder before proceeding.

51. Right-click on the **SymphonyRestore.ps1** file.
52. Select **Run with PowerShell**.
53. The script restores the Symphony Configuration Utility registry settings and files for this Dispatch User from the Windows 8.1 configuration.



If you had encryption keys loaded on the SDP on Windows 8.1, you will have to load them on Windows 10. The scripts cannot backup and restore encryption keys.

54. Some touchscreen drivers are located in the **C:\Preinstall\TouchScreen Drivers** folder. Installation instructions are included in the **ReadMe.txt** file in the same folder. Driver and installation information may have also been provided with your monitor.
55. Log into an AD Server or an SMT.
56. Open the Active Directory Users and Computers application.
57. Expand **vida.local**. Expand **VIDA Users**. Expand **VIDA Maintenance Users**. Locate the Dispatch User account you used during this test. Select it and then right-click and select **Move**. Expand **vida** → **VIDA Users**. Select **VIDA Dispatch Users** and click **OK**.
58. Log out of the AD Server or SMT.
59. Log out and restart the SDP.
60. Symphony should start with the same configurations as the Dispatch User had with Windows 8.1.

C.4 LOGIN TO THE NEWLY IMAGED SYMPHONY CONSOLE

The console image contains a single pre-configured user account:

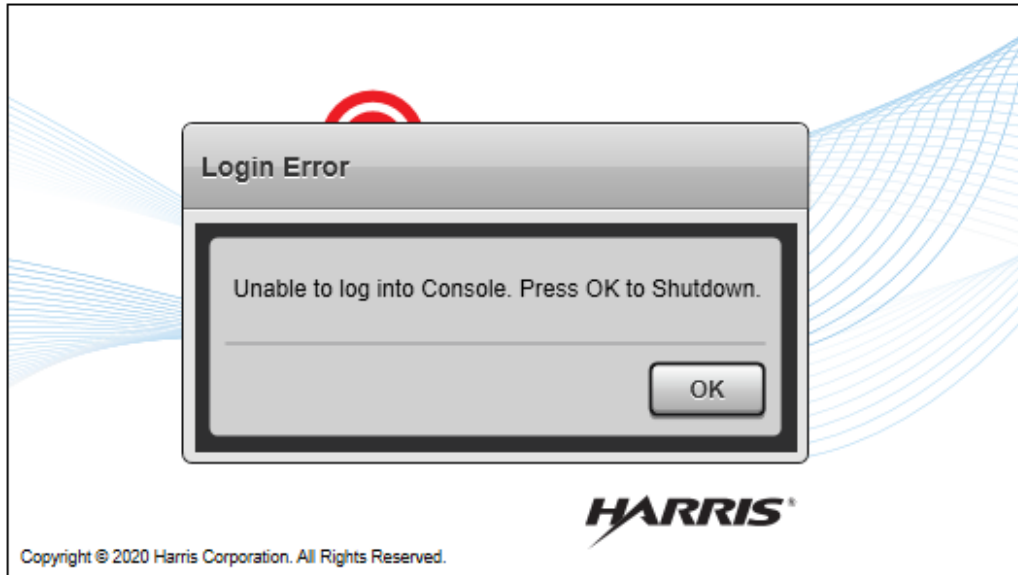
Username: **xAdministrator**
Password: **!QAZ2wsx#EDC4rfv**

C.5 TROUBLESHOOTING WHEN SYMPHONY WILL NOT START

This information is targeted at Symphony consoles that were running as expected but do not restart after SUMS or Windows updates or local GPO updates. This problem is very rare but does occasionally occur.

C.5.1 Unable to Log in to Console

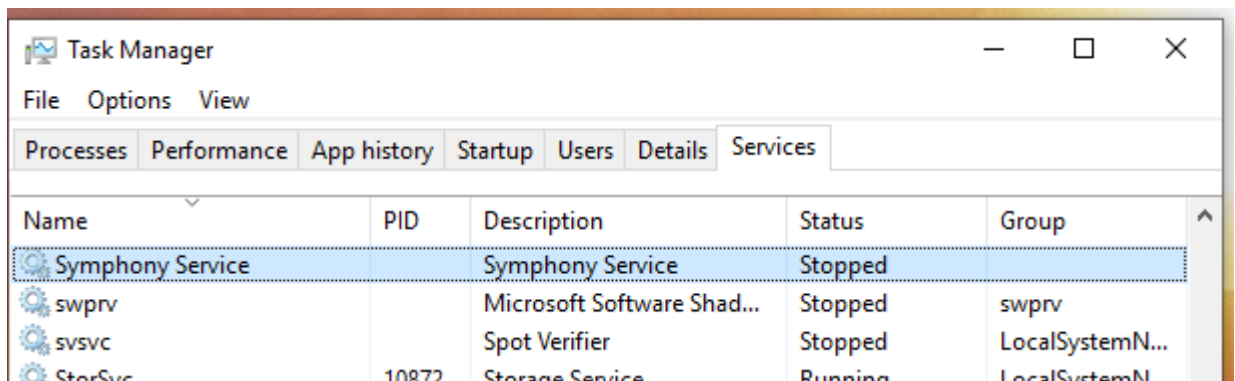
If you attempt to start Symphony by executing the Symphony FullScreenApplication (or Baton) and a dialog box like the following displays over the startup SplashScreen (with no check boxes), perform the steps in the following sections.



Third-party applications like CAD software, based on the Symphony SDK, will receive a "Harris.Symphony.Services.APIExceptions.ConnectionException."

Verify the Symphony Service is running:

Open Windows **Task Manager** (taskmgr.exe), navigate to the **Services** tab then look for **Symphony Service**. If it shows the state as "Stopped" you have found a potential solution to the problem.



Right-click on the entry for **Symphony Service** and try to start the service. It will say "Starting" but if it returns to "Stopped" and not "Running" then you will have to find out why the service will not run.

Navigate to “C:\ProgramData\Harris\Symphony\Logs” and open the file “ConsoleService.log.” Entries will tell you whether Symphony does not have the required license or whether something else is going on. Other potential problems are:

If you reimaged a Windows 8.1 console, apply SUMS patches or manually install .NET 4.6.2 and its prerequisites. If updating .NET does not resolve this problem, refer to the steps outlined below.



Updating or operating off domain and subsequently joining the domain can cause problems. In particular, directory and registry access permissions and firewall settings can be affected. It is generally best to have the console PC join the domain before installing or starting Symphony.



When installing SUMS patches or manually installing prerequisites for .NET 4.6.2, it is very important that you install them in the correct sequence. Installing out of sequence can result in unrecoverable errors. You may or may not be able to recover by re-installing the Windows updates in the correct sequence.



Sometimes a SUMS update seems to cause damage to some .DLL files which can cause applications not to start properly, though L3Harris is still investigating this.

C.5.2 Next Steps

After you verify that SymphonyService is running (Section C.5.1), navigate to “C:\ProgramData\Harris\Symphony\Logs” and open the file “ConsoleService.log.” You should find clues there.

AudioBox Not Connecting:

If the ConsoleUserApplication is not able to establish a connection to the AudioBox, the display on the front surface of the Symphony Desktop Platform (SDP) will not display "CONNECTED." If it displays anything other than "DISCONNECTED," there may be an error in the AudioBox itself. If it displays an Error Code prefixed with an “E,” consult Section 21.8 (SDP Error Messages).

If the display shows "DISCONNECTED," check the “ConsoleUserApplication.log” in the “Appdata\Local\Harris\Symphony\Logs” folder. If it displays a long and growing list of entries for “AUDIO_OVER_ETHERNET” that begin with “TX” but none that begin with “RX,” you likely have a problem with the firewall that is blocking bi-directional communications between the ConsoleUserApplication and the AudioBox via the internal ethernet interface. Check the Windows Firewall policies for public, private, and domain types for any local policies that reference a Symphony application and specify “blocked” rather than “allowed.”

The “ConsoleUserApplication.log” may show other errors related to the AudioBox. If they do not provide clear guidance, perform the steps defined in the “Capture All Logs” section below, then contact L3Harris TAC.

Configuration or Environment Problem:

A configuration or environment issue may be involved if you see a series of entries like the following:

- "Started CUA"
- "Console Service has lost connection with CUA"
- "Unable to connect to CUA"

In some instances, ConsoleUserApplication.exe started but failed and exited because of an unhandled exception or configuration problem that caused an unhandled exception. Open the most current "ConsoleUserApplication.log" in the "Appdata\Local\Harris\Symphony\Logs" folder. If you have not attempted to restart Symphony yet, you can go to the end of the log. If you have attempted to restart Symphony, search for the entry that says "Starting LogArchiveRunner" and look at the entries above it.

If the log reports a "NullReferenceException," check to see if ConsoleUserApplication was attempting to read or load settings or lists of properties. This might indicate a problem with permissions or changes in the user's AppData path being changed by SUMS or local GPO updates. The settings may also have been corrupted. It would be helpful if you can attempt to restart Symphony in order to generate a .CAB file for investigation by L3Harris TAC.

Certificate Not Found: Unable to Create Certificate:

If the "ConsoleService.log" includes the following entries, follow the steps outlined in Section C.5.5:

- "Certificate not found: unable to create certificate"
- "Started CUA"
- "Unable to connect to CUA"

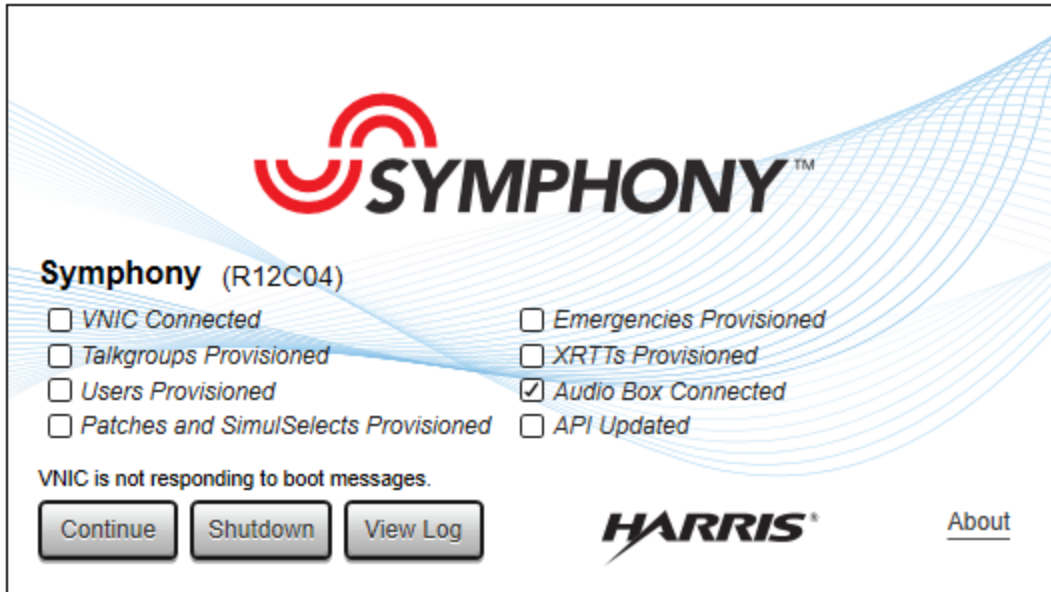
Problem with CUA.exe or a .DLL:

If you see an entry like: "Attempt to Create Process as User <WinUserName> failed -- unable to launch CUA," Symphony never attempted to start. There may be a problem with ConsoleUserApplication.exe or one of its .DLLs.

You will probably need to uninstall and reinstall Symphony. However, before doing so, perform the steps defined in Section C.5.6.

C.5.3 VNIC Not Connecting

If the startup splash screen displays with buttons to “Continue” or “Shutdown,” and with a checked box for “Audio Box Connected,” then the ConsoleUserApplication is not able to connect to the VNIC.



VNIC Not Responding:

The “ConsoleUserApplication.log” includes the following entries.

"NEVER_CONNECTED TO DISCONNECTED"

"VNIC_NOT_RESPONDING"

"Did not receive a VNIC response for correlation 0"

These entries indicate that the Symphony and VNIC are not communicating. Verify that the VNIC is running. Verify the network is configured correctly. Verify no firewalls are blocking messages in either direction between Symphony and VNIC. Open “ConnectionManager” as Administrator and verify that the VNIC IP Address is correct.

User or PSAP Not Configured Correctly:

If the “ConsoleUserApplication.log” does not include “VNIC_NOT_RESPONDING” but does include “Did not receive a VNIC response for correlation 0,” then the Dispatcher’s UserID, Password, and/or PSAP may not be configured correctly. VNIC will not respond to any messages from Symphony if any of these settings are not correct. Open “ConnectionManager” as Administrator and verify that these properties are configured correctly.

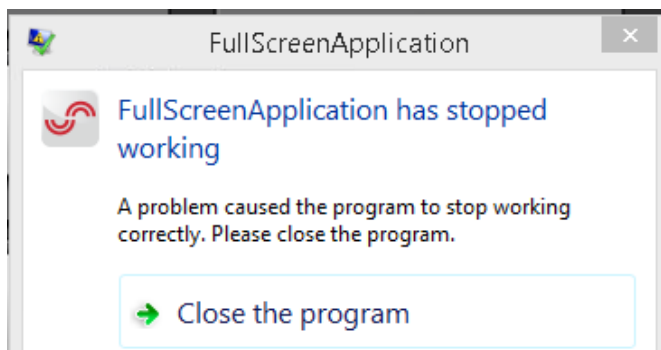
If all of these are correct, verify that the number of “Flexpaths” defined for the PSAP in the System matches the number licensed for the console. The VNIC will also not respond to any messages from Symphony if these do not match.

Open the “License Import Utility” (also referred to as “License Manager” and “Load License”) and scroll through the grid until you find the row for “FlexPaths” and note the number that the console is licensed for. Next, log into the Unified Administration System (UAS), navigate to **Agency→PSAP** and note the “MAX TALK PATHS” configured for the PSAP.

If these values do not match, change the number defined in the UAS so it matches the number of licensed FlexPaths. This is easier and quicker than requesting a new license, at least for the short term. If you need to change the number of licensed FlexPaths, contact L3Harris Software Services to request a new license.

C.5.4 GUI ISSUES

Occasionally, the GUI (“FullScreenApplication” and “Baton”) throws an exception that requires exit and restart. These can occur at startup but generally occur at runtime. When these happen, a dialog like the following displays.



Most of these seem to be caused by a bug in the third-party controls from DevExpress, which are currently being investigated. At this time, there does not seem to be an underlying problem that can be resolved in the field. If this happens, screen capture the dialog and capture all the logs and pertinent data as outlined below.

C.5.5 Hail Mary Steps to Resolve Symphony Startup Issues

If you do not find a cause for the startup failure after checking everything above, perform the following:

1. Try reinstalling the Symphony Application. It is recommended that you uninstall then reinstall.
2. If reinstalling does not work, try reimaging the SSD, then reinstalling Symphony.



NOTE

Make a copy of the license file; refer to Appendix A for which directories and registry locations must be saved so that you can restore the original configuration.

C.5.6 Capture All Logs and Data

Perform the following steps to capture all logs and data:

1. Copy the ConsoleService.log from “C:\ProgramData\Harris\Symphony\Logs.”
2. Copy all the .log files on the “Appdata\Local\Harris\Symphony\Logs” folder (.log only not any folders or any other files).
3. Copy the most recent .CAB file from “Appdata\Local\Harris\Symphony\Logs\Archives.”
4. Capture the Windows Event logs for Application, System, and Security.

APPENDIX D SPECIFICATIONS

D.1 SYMPHONY DISPATCH PLATFORM

D.1.1 General Specifications Symphony Dispatch Platform 1.0

Physical

Geometry:	1 Rack Unit – 19" EIA Instrument Rack
Physical Dimensions (H x W x D):	1.75 x 16.75 x 10.5 in. (4.5 x 42.5 x 26.6 cm)
Mounting Space Requirements (H x W x D):	1.75 x 19 x 18.5 in. (4.5 x 48.3 x 47 cm)
Weight:	11 lbs. (5 kg) Maximum
Noise:	Meet Noise Emissions in accordance with ISO 9296
Mounting:	Ships standard with rubber feet mounted for desktop application. Mounting brackets supplied for rack or under desk mounting. Includes a cable strain relief bracket.

Environmental

Operating Temperature:	+32°F to 122°F (0°C to +50°C)
Storage Temperature:	-22°F to +185°F (-30°C to +85°C)
Humidity:	5% to 80%, non-condensing

Electrical

Input Voltage:	110 to 240 VAC, 50-60 Hz, nominal (85 to 264 VAC, 47 to 63 Hz)
Power:	50 Watts (Typical) 75 Watts (Max w/ USB Fully Loaded)

Regulatory Compliance

Safety:	UL 60950-1 CAN/CSA-C22.2 No. 60950-1-07,
EMC:	47 CFR, Part 15 ICES-003 Class A

D.1.2 General Specifications Symphony Dispatch Platform 2.0**Physical**

Geometry:	1 Rack Unit – 19" EIA Instrument Rack
Physical Dimensions (H x W x D):	1.75 x 16.75 x 10.5 in. (4.5 x 42.5 x 26.6 cm)
Mounting Space Requirements (H x W x D):	1.75 x 19 x 18.5 in. (4.5 x 48.3 x 47 cm)
Weight:	11 lbs. (5 kg) Maximum
Noise:	Meet Noise Emissions in accordance with ISO 9296
Mounting:	Ships standard with rubber feet mounted for desktop application. Mounting brackets supplied for rack or under desk mounting. Includes a cable strain relief bracket.

Environmental

Operating Temperature:	+32°F to 104°F (0°C to +40°C)
Storage Temperature:	-22°F to +185°F (-30°C to +85°C)
Humidity:	5% to 80%, non-condensing

Electrical

Input Voltage:	110 to 240 VAC, 50-60 Hz, nominal (85 to 264 VAC, 47 to 63 Hz)
Power:	50 Watts (Typical) 75 Watts (Max w/ USB Fully Loaded)

Regulatory Compliance

Safety:	UL 60950-1 CAN/CSA-C22.2 No. 60950-1-07,
EMC:	47 CFR, Part 15 ICES-003 Class A

D.1.3 Platform Solid-State Drive Symphony Dispatch Platform 1.0

Features

Interface:	SATAII 3.0 Gb/s
Capacity:	64 GB or Higher

Drive Physical

Geometry:	Standard 2.5" SATA HDD Form Factor
Thickness:	9.5 mm
Mounting:	Attached mounting bracket with captive retention thumb screws.
Shock Endurance:	1,500 G
Vibration Endurance:	20 G

Environmental

Operating Temperature:	+32°F to 158°F (0°C to +70°C)
Storage Temperature:	-58°F to 194°F (-50°C to +90°C)
Humidity:	5% to 80%, non-condensing

Electrical

Input Voltage:	5V ±5%
Power:	Idle: <0.33W Active: <1.42W

D.1.4 Platform Solid-State Drive Symphony Dispatch Platform 2.0**Features**

Interface:	SATA 3.0 6.0 Gb/s
Capacity:	240 GB

Drive Physical

Geometry:	Standard 2.5" SATA HDD Form Factor
Thickness:	9.5 mm
Mounting:	Attached mounting bracket with captive retention thumb screws.
Shock Endurance:	1,000 G/0.5 msec

Environmental

Operating Temperature:	+32°F to 158°F (0°C to +70°C)
Humidity:	5% to 80%, non-condensing

Electrical

Input Voltage:	5 V \pm 5%
Power:	Idle: <1.0 W Active: <2.4 W

D.1.5 Embedded Computer Specifications Symphony Dispatch Platform 1.0

PC Subsystem

Processor:	Intel® Dual Core™ i7 Ivy Bridge processor
Memory:	DDR3 SDRAM w/ ECC, 4 GB standard
Form Factor:	COM Express module (Type 6)
Storage:	64 GB extended temperature SATA interface Solid State Drive. Externally accessible and removable via front panel.

I/O Ports

USB:	Seven USB 2.0 ports: <ul style="list-style-type: none">• 4 stacked, USB Type-A connectors on the rear panel.• 3, high retention, USB Type-A connectors on front pane
Ethernet:	Two 10/100/1000 Gigabit Ethernet ports w/ RJ45 connectors.
Audio:	PC Line-In and Line-Out jacks on front panel w/ 3.5mm TRS jacks.
Video:	Two Display Port Video Connections: <ul style="list-style-type: none">• One located on the front of the enclosure• One located on the rear of the enclosure

D.1.6 Embedded Computer Specifications Symphony Dispatch Platform 2.0**PC Subsystem**

Processor:	Intel® Dual Core™ i7 Kaby Lake processor
Memory:	DDR3 SDRAM w/ ECC, 16 GB standard
Form Factor:	COM Express module (Type 6)
Storage:	240 GB extended temperature SATA interface Solid State Drive. Externally accessible and removable via front panel.

I/O Ports

USB:	Seven USB 2.0 ports: <ul style="list-style-type: none">• 4 stacked, USB Type-A connectors on the rear panel.• 3 high retention, USB Type-A connectors on front panel
Ethernet:	Two 10/100/1000 Gigabit Ethernet ports w/ RJ-45 connectors.
Audio:	PC Line-In and Line-Out jacks on front panel w/ 3.5 mm TRS jacks.
Video:	Two Display Port Video Connections: <ul style="list-style-type: none">• One located on the front of the enclosure• One located on the rear of the enclosure

D.1.7 Audio Processor Specifications

Processor

Processor:	OMAP L-138B
Memory:	128 MB RAM
Storage:	32 MB Flash Memory

I/O Ports

USB:	Seven USB 1.1 ports, with Type-A connectors on rear panel for: <ul style="list-style-type: none">• USB Operator Foot Switch interface• USB Supervisor Foot Switch interface• 5 additional spare ports
Ethernet:	Two 10/100 Ethernet ports w/ RJ45 connectors. Labeled "Audio Exp." (Spare)
DB-9F Interfaces:	All located on Rear Panel: <ul style="list-style-type: none">• Operator Headset interface• Supervisor Headset interface• Analog Desk/Gooseneck Microphone interface• Analog Backup Radio interface via DB-9 Male connector on rear panel
RJ-45 Audio Connectors:	All Located on rear panel: <ul style="list-style-type: none">• Paging Encoder interface• Recorder interface• Call Director interface• Building Intercom interface
Aux Audio:	Two 2-channel Audio Inputs via 3.5mm TRS jacks on rear panel (total of 4 channels)
Speaker Outputs:	8-Channel Analog Speaker interface on rear panel. ¼ inch TRS connectors with Auto Jack Detect. Differential output
Backup Radio Switch:	3-Position Mode selection switch mounted on front panel.

Display

LCD Display	Integrated 144 x 32 Graphic LCD Display Module on front panel, STN/Blue.
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D.2 EXTERNAL SPEAKER (PART NUMBER 14017-0100-01)

Installation:	Desk Top or Wall Mountable
Controls:	On/Off Power Switch (rear), Volume Control (Level), Low Frequency Adjust (Low), High Frequency Adjust (High)
Indicators:	LED for Power and Signal
Physical Dimensions (H x W x D):	5 x 4.25 x 4.5 in. (12.7 x 10.8 x 11.4 cm)
Weight:	1.75 lbs. (0.8 kg) maximum
Power Requirements:	External Power Supply:
12 to 18 VDC 1.3-1.8 A max	Input: 100 to 240 VAC, 50/60 Hz
	Output: 12 VDC, 1.3 A
Performance Specifications:	
Impedance:	4 Ohm Impedance
Frequency Response:	150 Hz to 17 kHz
Power Out:	15 Watts
Connectors:	
Speaker DC Power:	5.5 mm Barrel Connector (Tip Positive VDC)
AC Power:	3-Prong Edison
Audio Line Input:	1/4" Input 22K Balanced (11K Unbalanced)

D.3 MICROPHONE

D.3.1 Gooseneck Microphone (Part Number 2C-CM22218-0402)

Type:	Dynamic, unidirectional (cardioids), close-talking
Frequency Response:	100 to 7,000 Hz
Impedance:	170 ohms actual
Output Level:	-61.5 dBV/Pa (.84 mV)* -41.5 dB (8.4 mV)** *1 Pa = 94 dBSPL **0 dB = 1V/100 μ bar
Polarity:	Positive pressure on diaphragm produces positive voltage on white conductor with respect to black conductor.
Hum Pickup:	Maximum 15 dB equivalent SPL in m0e field

D.3.2 Desktop Microphone (Part Number MC-014121-003)

Frequency Response:	300 to 3,000 Hz \pm 5 dB (using 0 dB reference at 1000 Hz, 94 dBa SPL acoustic input at microphone port)
Impedance:	170 ohms actual
Output Level:	
Factory preset microphone audio level:	275 \pm 25 mV rms at 1000 Hz (94 dBa SPL acoustic input at microphone port)
Microphone audio adjustment range (adjustable via user accessible trimmer pot on the bottom of the desk mic):	50 to 1000 mV rms at 1000 Hz (94 dBa SPL acoustic input at microphone port)
Audio Distortion:	Less than 3% for adjustment levels 100 to 500 mV rms at 1000 Hz (94 dBa SPL acoustic input at microphone port)

APPENDIX E CALL DIRECTOR OFF HOOK AUTO-DETECTION CALIBRATION

The Call Director Off-Hook Auto Detection feature detects the telephone's Off-Hook condition by generating a low-level tone on the phone microphone line and looking for the tone to be looped back on the phone earpiece line. This feature depends on the phone looping the signal back via sidetone when the phone is Off-Hook.

Calibrating the Off-Hook Auto Detection involves finding the lowest possible tone Amplitude and Detection Threshold that will allow the console to detect the Off-Hook condition. At the same time, the tone should not cause audio artifacts in either the Console headset or the phone at the far end.

The frequency of the tone can be set to 70, 100, or 150 Hz. It is desirable to use the lowest possible frequency because that is furthest from the normal human voice frequencies. However, each phone system is different and may block some of these frequencies.

The feature must be calibrated for each phone system if the defaults are not sufficient.

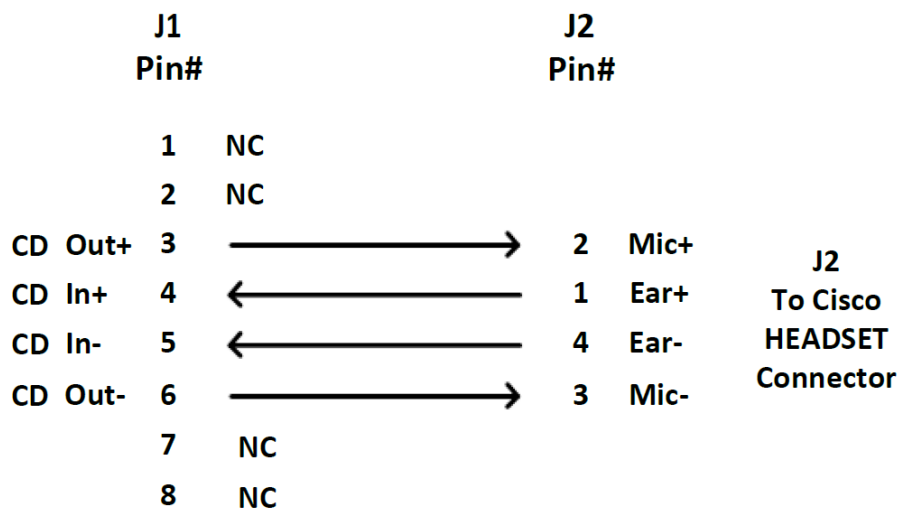
E.1 HIGH LEVEL PROCEDURE

1. Determine the baseline audio quality from console to a representative set of phones. See Section E.3.2 for details.
2. Connect the phone to the Symphony Dispatch Platform.

Most modern IP phones have a headset connector. This is typically the connection that should be used. The Symphony Dispatch Platform functions as a headset from the phone's perspective.

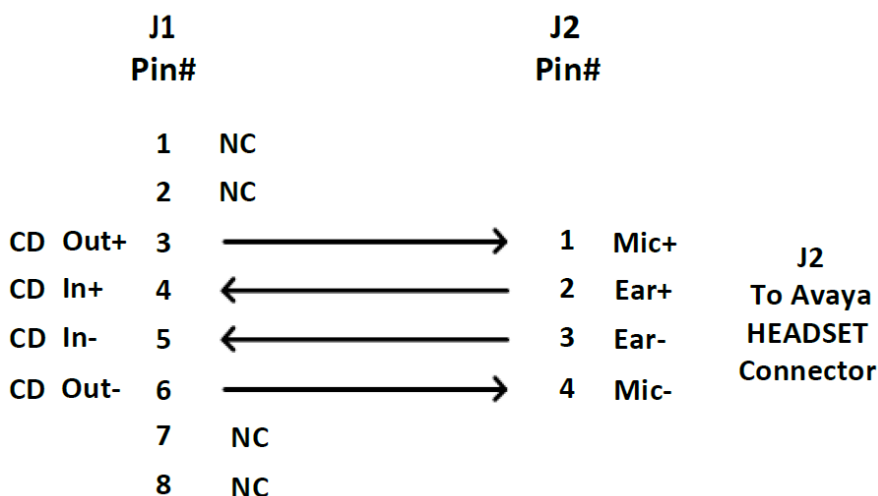
- a. Cisco IP phone:

Cisco 7940 Series Phone Head Set Cable



b. Avaya:

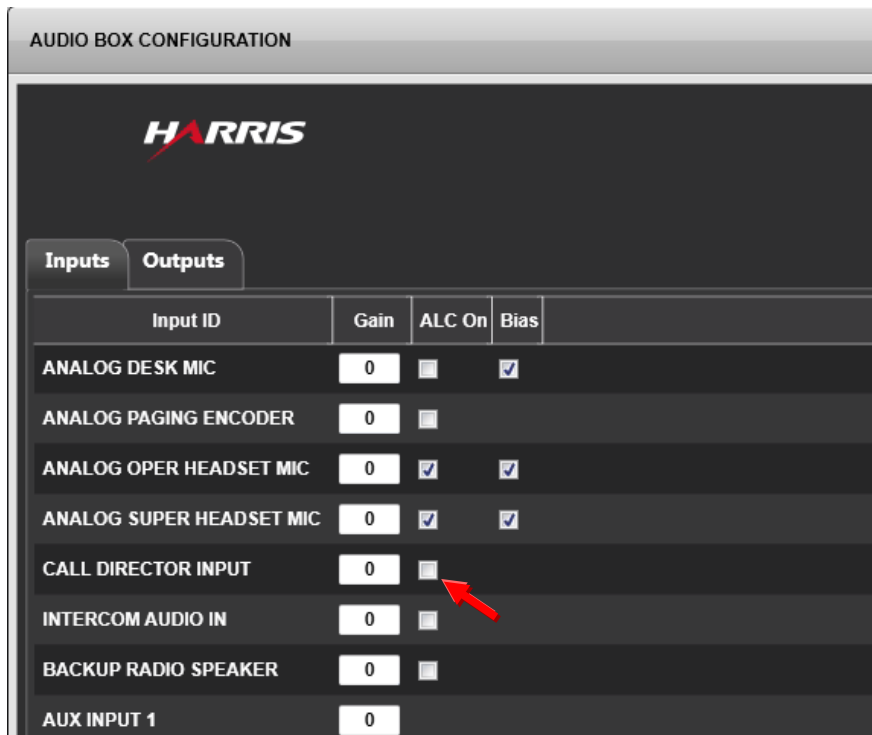
Avaya 9608, 2420 Series Phone Head Set Cable



c. Other:

Consult the phone manufacturer for details on their headset jack.

- Open the Audio Box Configuration tool (see Section 19.2). From the **Inputs** tab, disable (uncheck) the **CALL DIRECTOR INPUT ALC On** setting.



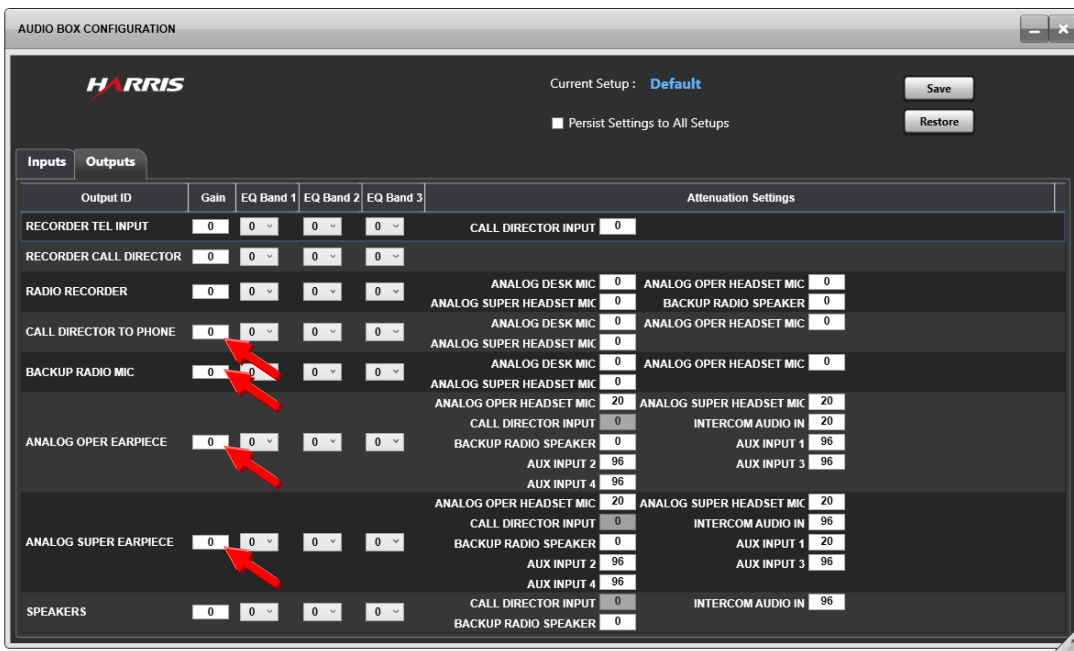
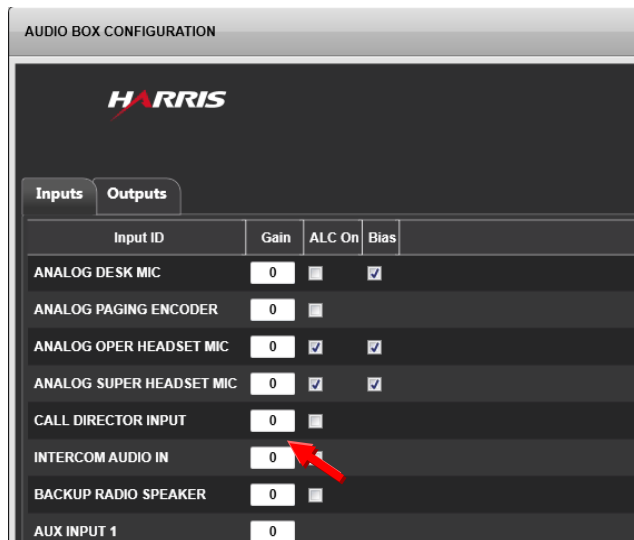
4. Enable the Off-Hook Auto Detect Feature, as defined in Section E.3.1, using the following parameter values. These settings may also cause degraded audio to the phone, but allow you to validate that the audio paths are correct. Fine tuning will be done later.

PHONE TYPE	DETECTION THRESHOLD (-dB)	AMPLITUDE (-dB)	FREQUENCY (Hz)
Cisco 7xxx (or other Cisco)	70	45	70
Avaya	75	50	100
Other	75	20	70

5. With the console running and the phone is on-hook, ensure the Call Director indicator shows On-Hook. If it does not, the go to item 1 in the Troubleshooting Section (E.2).
6. Take the phone off hook using the “headset” or equivalent button. Ensure that the Call Director indicator on the select bar follows the phone state. Ignore any audio artifacts at this time. If the state is not observed, go to item 1 in Troubleshooting Section E.2.

At this time, the Symphony should be detecting Off-Hook and On-Hook state properly. Do not proceed unless this is the case.

7. Following the steps in Section E.3.1, enable the Off-Hook Auto Detect Feature and lower the Amplitude (-dB) setting until any prominent audio artifacts are gone when the phone is off hook and the Off-Hook detect continues to work. If this cannot be achieved, then go to item 2 in the Troubleshooting Section E.2.
8. Take the Call Director Off-Hook and place a call to one of the representative target phones.
9. Open the Audio Box Configuration tool (see Section 19.2). From the Inputs tab, adjust the **CALL DIRECTOR INPUT Gain** as needed. From the Outputs tab, adjust the **CALL DIRECTOR TO PHONE Gain**, the **ANALOG OPER EARPIECE Gain**, and the **ANALOG SUPER EARPIECE Gain** as needed to attain the desired audio levels. You may also need to use a radio to ensure the radio and phone volumes are equivalent.



10. Following the steps in Section E.3.1 to Enable the Off-Hook Auto Detect Feature, lower the Amplitude (-dB) to find the point at which the console no longer properly detects the Off-Hook condition. Confirm that the Off-Hook detect feature works while in a phone call and while the dial tone is playing.
11. Add six (6) to this value. This becomes the Amplitude (-dB) setting to use. If the Off-Hook detection continues to work with the Amplitude (-dB) set to 96 dB, then use 90 as the value.
12. Call a representative phone to determine if there are any bad audio artifacts introduced by the Call Director Off-Hook Auto Detect tone. If there are no issues, you are finished. If there are issues, such as a hum, or other audio artifacts, then go to item 3 in the Troubleshooting Section E.2.

E.2 TROUBLESHOOTING

1. Console does not sense off hook:

Wiring to the phone is incorrect.

To test this, build a cable or other device that allows you to trigger the Digital Off-Hook line on the Call Director connector while remaining connected to the phone. (Refer to the *Symphony Dispatch Platform Product Manual*, 14221-7400-6010, for details.)

- The Symphony is not receiving a strong enough signal when the phone is off hook.
 - It is preferred to generate as low a tone as possible so that it has the least negative effect.
 - The *Detection Threshold (-dB)* is too low for the signal that is being received while the phone is off hook.
2. Console is indicating Off-Hook all the time.

There are two (2) probable causes. First, the generated tone is passing through the phone even while it is on hook. The Auto Detect feature requires that the phone apply a “good amount” of attenuation to the sidetone signal when the phone on hook. Most phones mute it entirely, but some may allow a small amount of signal through.

The second possible cause is that the Symphony is detecting normal background line noise as a tone signal.

To identify the cause, lower the generated signal to -96 dB (this effectively turns it off).

- The *Detection Threshold (-dB)* is too low. With the detection threshold too low, Symphony may be interpreting background noise as a tone signal.
 - The *Amplitude (-dB)* is too high.
3. Remote phone is hearing distracting noise artifacts, such as, tone, hum, more static than usual, or cannot understand dispatcher.
- Option 1: Increase *Amplitude (-dB)* so that it cannot be heard on the remote phone. In doing so, the *Detection Threshold (-dB)* should also be increased in tandem. This can only be done until the Detection Threshold is below the noise floor.
 - Option 2: If Option 1 is not workable, then attempt changing the frequency. Sometimes phone systems are sensitive to particular frequencies.

E.3 COMMON PROCEDURES

The following procedures are shared by the steps above.

E.3.1 Enable the Off-Hook Auto Detect Feature

1. Shutdown the Symphony console application.
2. Start the Symphony Config application.
3. Navigate to the *Select/Hardware* tab.
4. Click on the “Enable Call Director Off-Hook Tone Detection.”
5. Select a Frequency, Amplitude, and Detection Threshold.

Values for these parameters vary from installation to installation and depend on the phone handset, phone system and other variables. Use the calibration procedure (Section E.1) to find suitable values.

6. Apply the settings and close the Symphony Config application.
7. Start the Symphony Console.

E.3.2 Determine Baseline Audio Quality

1. Ensure the Phone is not connected to the Symphony console, or that the audio path of the phone is not affected by the Symphony being connected.
2. Select a representative set of target phones (a couple cell phones and a typical landline).
3. Place calls to the target phones and make note of the audio going from the source phone to the target phone.
 - a. How much, if any, background noise? Is it static, a hum?
 - b. Are there audio artifacts? Dropped syllables, spikes?
 - c. Encoding artifacts? Is the audio robotic sounding?
4. Listen to the audio coming from the target phone and observe the quality. (See previous list.)
5. Repeat this with each target phone. All phones should perform similarly.



NOTE

This is the baseline performance. Once the Off-Hook Auto Detect is enabled, gauge its effect against this baseline.

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L3Harris Technologies is an agile global aerospace and defense technology innovator, delivering end-to-end solutions that meet customers' mission-critical needs. The company provides advanced defense and commercial technologies across air, land, sea, space and cyber domains.