NYQUIST™

E7000 Series

Version 5.0

System Administrator Manual

BOGEN® COMMUNICATIONS, INC.

740-00023L 191119

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1 Introducing the E7000 Series

Introducing the E7000 Series

E7000 is an IP network based intercom and paging solution that allows you to:

- Control facility bell schedules, announcements, and tones.
- Create and manage zones and queues.
- Manage station types, configuration, and Class of Service (CoS).
- Manage users, roles, and permissions.
- Create routines that can be manually started or that automatically launch procedures, or sequences of actions, that the Nyquist system executes as a result of input triggers.
- Monitor check-in status of classrooms or other areas during an emergency event, such as a lockdown or evacuation.

> **Note:** This manual describes the tasks, including configuration tasks, that you can perform if you are assigned an **Admin** role with proper permissions and if your station **Type** is an **Admin Web Interface**. If you are assigned a **User** role and your station's **Type** is **Web Interface**, refer to the *Non-Admin Web Interface User Guide* and to "*Performing Tasks Via the Dashboard" on page 293* of this manual. For information about roles, see "*Managing Roles and Users" on page 199*.

E7000 simplifies routine and emergency network communications and allows the linking of administrative and staff locations within a single building, among multiple buildings throughout a campus, or across the entire district.

E7000 features a built-in streaming Internet radio service – airable by TuneIn, and optional custom-tailored music selections from SOUND-MACHINE, the premier music subscription service for business. Both services can be used to schedule audio to play at specific times, such as when classes are changing.

Available feature-rich IP phones and purpose-built networked appliances provide convenient communication, control, and interoperability with third-party devices and systems such as access control, fire alarm, clock, and PBX systems.

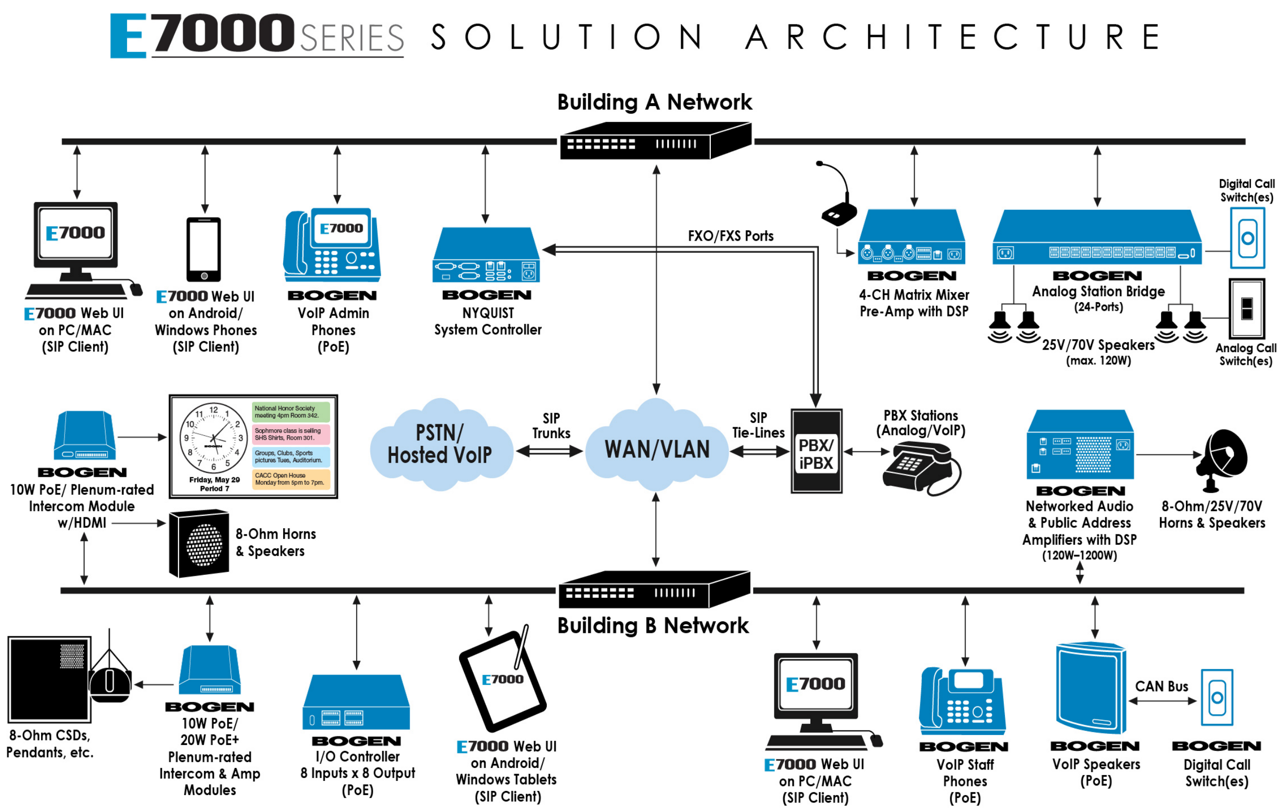


Figure 1-1, Example of E7000 Network

The E7000 system supports the following hardware:

- Personal Computers (PCs), tablets, and Android and Windows mobile phones that support the full Google Chrome web browser to access the E7000 Admin Web user interface (UI) and the E7000 Web UI (User Dashboard)
- E7000 certified Voice over IP (VoIP) phones
- Nyquist appliances

For information about the Nyquist appliances that work with the E7000 system, visit:

1.1 Understanding System Requirements

The E7000 web-based UI requires a secure Hypertext Transfer Protocol Secure (https) type network connection to the E7000 system server. Users can log in to the E7000 system using the Google Chrome web browser from a computer or tablet running either a Windows 8.1 (or later) or a Mac OS X 10.12.x (or later) operating system (OS). The UI can also be accessed via a Chrome browser enabled Android-based tablet or mobile device. To access the server, type your server's IP address (for example, 10.10.20.12).

1.1.1 Whitelisted Web Addresses

E7000 requires access to specific Uniform Resource Locators (URLs), commonly referred to as web addresses. Access to many of these web addresses is required during installation; access to other web addresses, such as the address for the Network Time Server (NTS) are required during runtime. The Information Technology (IT) department for the site must whitelist the web addresses so that they can be easily accessed as needed.

The following table lists the URLs that must be whitelisted.

Table 1-1, Whitelisted Web Sites

URL	Description
http://hostedactivation.com (specifically, http://hostedactivation.com/bogen)	Required for E7000 License support
http://downloads.digium.com	Required for downloads from Digium Phone Module for Asterisk (DPMA)
http://downloads.asterisk.org/ (specifically, http://downloads.asterisk.org/pub/telephony/sounds/releases)	Required for sounds download
http://www.pjsip.org/	Required for PJSIP download
http://ftp.us.debian.org (specifically: http://ftp.us.debian.org/debian/)	Required during Linux package installation
http://security.debian.org (specifically: http://security.debian.org/)	Required during Linux package installation

Table 1-1, Whitelisted Web Sites (Continued)

URL	Description
stun01.sipphone.com	Required for STUN based IP address resolution (This is used by the E7000 Web UI and should be enabled on the computer that runs the web UI.)
https://raw.githubusercontent.com/	Serves unprocessed versions of files stored in the GitHub repositories.
http://2431612419.airable.io https://2431612419.airable.io	airable URL
http://api.sound-machine.com https://api.sound-machine.com	SoundMachine URL
http://api.bogenedu.com/api/customers	Required for E7000 Warranty Support
http://bogen-ssu.bogen.com/	Bogen System Software Update server – Required for automatic Nyquist server software and Nyquist firmware software update notifications and downloads.
https://www.weather.gov/alerts	Required for displaying weather alerts.
https://ipapi.co	Required for automatically finding county code for alerts.
https://api.weather.gov	Required for obtaining alerts from the National Weather Service.
ns1.google.com resolver1.opendns.com	Required for obtaining the Nyquist server's public IP address for Audio Distribution streams and for automatically finding the county code for alerts.
dl-ssl.google.com	Required for Nyquist installation and updates to download and install Google Chrome browser.
linux.teamviewer.com	Required for Nyquist installation and updates to download and install TeamViewer software.

URLs that are entered on the E7000 System Parameters page are used during runtime and include the URLs for the NTS, the Session Traversal Utilities for (Network Address Translation (NAT) (STUN) server, and the Traversal Using Relays around NAT (TURN) server.

The default URLs for the STUN and TURN servers are not set. The default URL for NTS is pool.ntp.org.

1.1.2 E7000 System Server Requirements

The following are the minimum requirements for the E7000 system server if you elect to not use the Nyquist System Controller (NQ-SYSCTRL):

Table 1-2, E7000 System Server Minimum Requirements

OS	Debian Linux OS (AMD 64-bit version) release 8.9.0 **Note:** Refer to the most up to date Release Notes on the www.bogenedu.com web site for details about which Linux OS versions have been tested for use with the E7000 system.
CPU	Quad-core Intel-based processor running at 3.0 GHz or higher
Hardware	Sound card with microphone port
Memory	8 GB RAM (Error Correcting Code (ECC)) RAM is recommended for increase performance and reliability.)
Disk Storage	One 250 GB disk drive Some form of hardware-based Redundant Array of Independent Disks (RAID) is recommended for redundancy and high availability. Consider using a larger drive if large amounts of audio (for example, voice mail, announcements, recordings, and music) are being stored on the system. Note that music, tones, and announcements created or stored as .wav files will be larger than if created or stored as MP3 files. Other factors that should be considered are: • How often will backups be performed? • Will the system be backed up locally or remotely on a detachable drive, Storage Area Network (SAN)/Network Attached Storage (NAS), or Network File System (NFS)? • How many users will have voicemail ability? • How long will voicemail messages be stored? • Will voicemail messages be part of the local system backups?

Table 1-2, E7000 System Server Minimum Requirements (Continued)

NIC	10/100/1000 MB Ethernet port (NIC is an acronym for Network Interface Card)
PCI Expansion Slots	One or more Peripheral Component Interconnect (PCI)/PCI Express (PCIe) slot if telephony network connectivity other than, or in addition to, SIP trunking is required; contact your Bogen Dealer for assistance in determining these telephony hardware needs.
Telephony Interfaces	One or more PCI/PCIe type third-party telephony interface cards (for example, Foreign Exchange Office (FXO), Foreigh Exchange Subscriber (FXS), etc.) if telephony network connectivity other than, or in addition to, SIP trunking is required; contact your Bogen Dealer for assistance in determining these telephony hardware needs.

1.1.3 Network Application Services

Required application services will be installed automatically on the E7000 system server as part of the E7000 installation. All other network services must be already present or installed manually on the associated network. The following table lists the services and their locations:

Table 1-3, Network Application Services

Service	Description	Required	Location
Apache	Used as the web server to drive the E7000 web interface.	Mandatory	E7000
DHCP	Supplies dynamic IP addresses to the E7000 system server and associated devices. (DHCP is the acronym for Dynamic Host Configuration Protocol.) It also supplies the Trivial File Transfer Protocol (TFTP) server IP address or host name to devices on the network via option_66.	Optional	Network

Table 1-3, Network Application Services (Continued)

Service	Description	Required	Location
DNS	Resolves host names to IP addresses. DNS is an acronym for Domain Name System, a hierarchical naming system for computers, servers, or other resources connected to either the Internet or to a private network.	Optional	Network
 ICE STUN TURN	Resolves IP addresses behind Network Address Translation (NAT)/ firewall. - Interactive Connectivity Establishment - Session Traversal Utilities for NAT - Traversal Using Relays around NAT	Optional	E7000 Network
NTP	Provides date/time synchronization for the E7000 system server and the associated devices (IP Phones, appliances). (NTP is an acronym for Network Time Protocol.)	Mandatory	Network
SNMP	Provides the E7000 Linux server statistics via Simple Network Management Protocol (SNMP) v1 through Port 161.	Optional	E7000
TFTP	TFTP is used by IP phone and E7000 device provisioning. A TFTP server runs on the E7000 system server on port 69 (the standard TFTP port #). Device provisioning files are stored on the E7000 system server in directory: `/srv/tftp.` This is the only directory exposed by the TFTP server.	Mandatory	E7000

1.1.4 Network Ports

The following table lists the network ports required by the Nyquist system controller and the associated devices.

Table 1-4, Network Ports Used by Nyquist

Service	Description	Port
DHCP	Dynamic Host Configuration Protocol (Optional)	67, 68
DNS	Domain Name System (Optional)	53
DUNDI	Distributed Universal Number Discovery	4520
HTTP	Phone provisioning (HTTP is an acronym for Hypertext Transfer Protocol)	8088
HTTPS	Secure HTTP	8089
HTTPS	Secure HTTP (HTTP over TLS/SSL); used during DPMA license registration.	443
IAX	Inter-Facility Communications	4569
MGCP	Media Gateway Control Protocol (Optional)	2727
NTP	Network Time Protocol	123
ODBC	Database connection (ODBC is an acronym for Open Database Connectivity.)	3306
RTP	Audio Streams (RTP is an acronym for Real-Time Transport Protocol.)	10000-20000
Server Management	Local port used for server management DO NOT allow outside access to this port. During system controller installation, an IP filter rule is installed to block outside access to this port.	5038
SIP	Session Initiation Protocol (SIP) Transfer Control Protocol (TCP)/User Datagram Protocol (UDP) connections	5060
SIP over Web Services	SIP WS/WSS connections	8088
SNMP	Simple Network Management Protocol (Optional)	161
TFTP	TFTP connections	69

1.1.5 Using the Web-Based User Interface

The web-based UI is an interactive dashboard that presents system information and parameters in an easy to read and use format. The view of the dashboard varies depending upon the permissions (the role) assigned to the user. See *"Accessing the Dashboard" on page 12*.

1.1.6 Client Requirements

The web-based UI is accessed through a client, which can run on PCs, tablets, and Android and Windows mobile phones that support the full Google Chrome web browser. In addition to supporting Chrome, the client must have a sound card with a microphone port and a Secure Sockets Layer (SSL) certificate, which is also known as a digital certificate. The SSL certificate authenticates the identity of the E7000 website and encrypts the data that is transmitted from the client to the server. If you do not install the SSL certificate, a lock with a red x appears when you attempt to access the E7000 system server.

1.1.6.1 Installing SSL Certificate on Windows System

To export the SSL certificate:

Step 1 From your Chrome browser, type the E7000 system server's IP address in the address bar (for example, https://192.168.1.0).

Step 2 Select **Advanced**.

Step 3 Select to **Proceed to <IP Address> (unsafe)**.

Step 4 From the Chrome menu, point to **More tools** and then select **Developer tools**.

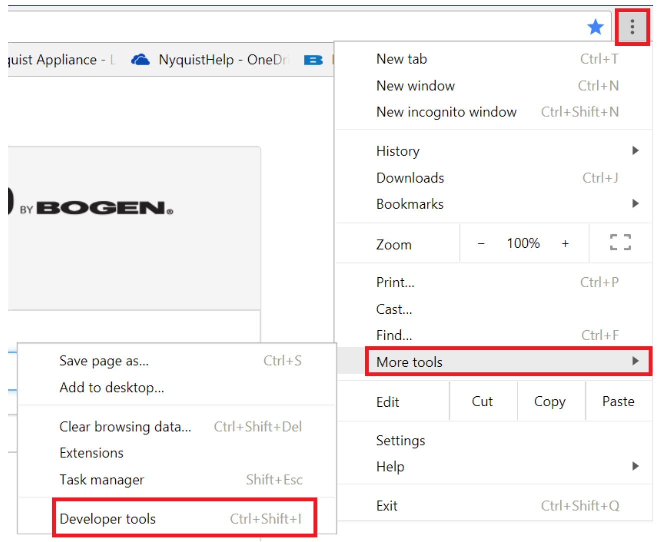


Figure 1-2, Chrome Menu Selections

Step 5 Navigate to the **Security** tab, and then select the **View Certificate** button.

Step 6 Select the **Details** tab, and then select **Copy to File**. The Certificate Export Wizard launches.

Step 7 Select **Next**.

Step 8 Select **Next** again, browse to the location of the file that you want to export, and select **Next**.

Step 9 Select **Cryptographic Message Syntax Standard** and **Include all certificates in the certification path if possible**.

Step 10 Select **Finish**.

To install the certificate to Windows:

Step 1 Right-click the certificate, and select **Install Certificate**. The Certificate Import Wizard launches.

Step 2 Select **Current User**, and then select **Next**.

Step 3 Select **Browse**.

Step 4 Select **Trusted Root Certificate Authorities**, and then select **OK**.

Step 5 Select **Next**.

Step 6 Select **Finish**.

Step 7 Restart the Chrome browser and log in to the E7000 web server.

1.1.6.2 Installing SSL Certificate on Mac System

Step 1 From your Chrome browser, type the E7000 system server's IP address in the address bar (for example, https://192.168.1.0).

Step 2 From the browser menu on the upper right of the screen, point to **More Tools** and then select **Developer Tools**.

Step 3 From the **Security overview** window, select **View certificate.**
The Certificate Details window appears.

Step 4 Drag the certificate image to the desktop.

Step 5 Double-click the certificate file on the desktop.
The Keychain Access App opens.

Step 6 Double-click the certificate to reveal the trust settings.

Step 7 Change the top trust setting to **Always Trust**.

Step 8 Close the Trust Setting window and enter the computer administrative password to save.

Step 9 Reload the E7000 web page. If the green lock fails to appear in the RL, restart Chrome.

1.1.6.3 Installing SSL Certificate on an Android Device

To install the SSL certificate on an Android device:

> **Note:** The Android device WiFi must be connected to the same network as the E7000 system server.

Step 1 Type the certificate URL in the Chrome browser, using the format <E7000 server IP address>/ssl/ca.crt.

Step 2 When prompted, select **Download**.

Step 3	If prompted, verify your identity and enter your Personal Identity Number (PIN).
Step 4	Type the certificate name and select **OK** to install it.
Step 5	Verify the installation by selecting **Settings > Lock Screen and Security > Other Security Settings** >**View Security Certificates**.
Step 6	Select the **User** column, select the certificate, and then select **Certificate details**.

1.1.6.4 Installing a Self-Signed CA Certificate on an iOS Device

To install a Self-Signed CA certificate on an iPhone Operating System (iOS) device:

> **Note:** The iOS device WiFi must be connected to the same network as the E7000 system server.

Step 1	Enter the certificate URL in the Safari browser, using the format <E7000 Server IP address>/ssl/ca.crt.
Step 2	Select **Continue**.
Step 3	When the Install Profile window appears, select **Install**.
Step 4	When the Warning screen appears, select **Install**.
Step 5	Select **Install** again to install the profile.
Step 6	Select **Done**.
Step 7	Verify the installation by selecting **Settings > General > Profile**.
Step 8	Select **Details**.
Step 9	Select the certificate.

1.1.7 Accessing the Dashboard

To access your dashboard:

Step 1	From your Chrome browser, type the E7000 system server’s IP address in the address bar (for example, https://192.168.1.0) and press **Enter.**
Step 2	On the Login page, type your username and password.
Step 3	Select **Login.**

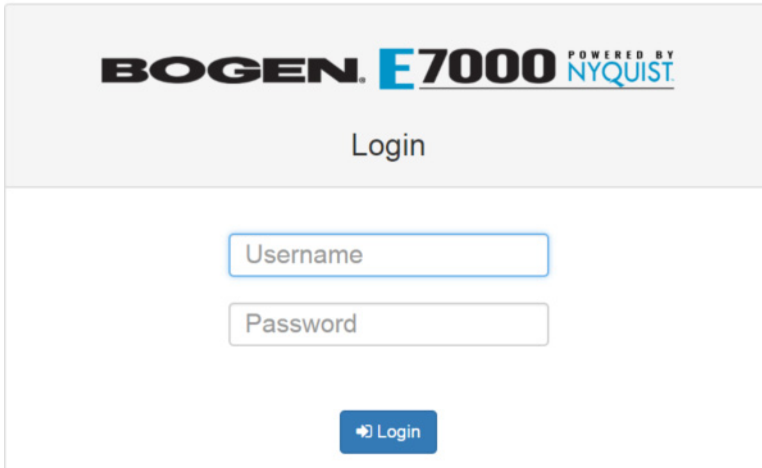


Figure 1-3, Login Page

The dashboard that appears depends on whether your station is an **Admin Web Interface** or a non-administrator **Web Interface**.

If you are using the Admin Web Interface and have permissions for configuration tasks, your dashboard will appear like that in *Figure 1-4, E7000 Dashboard for Admin Web Interface*.

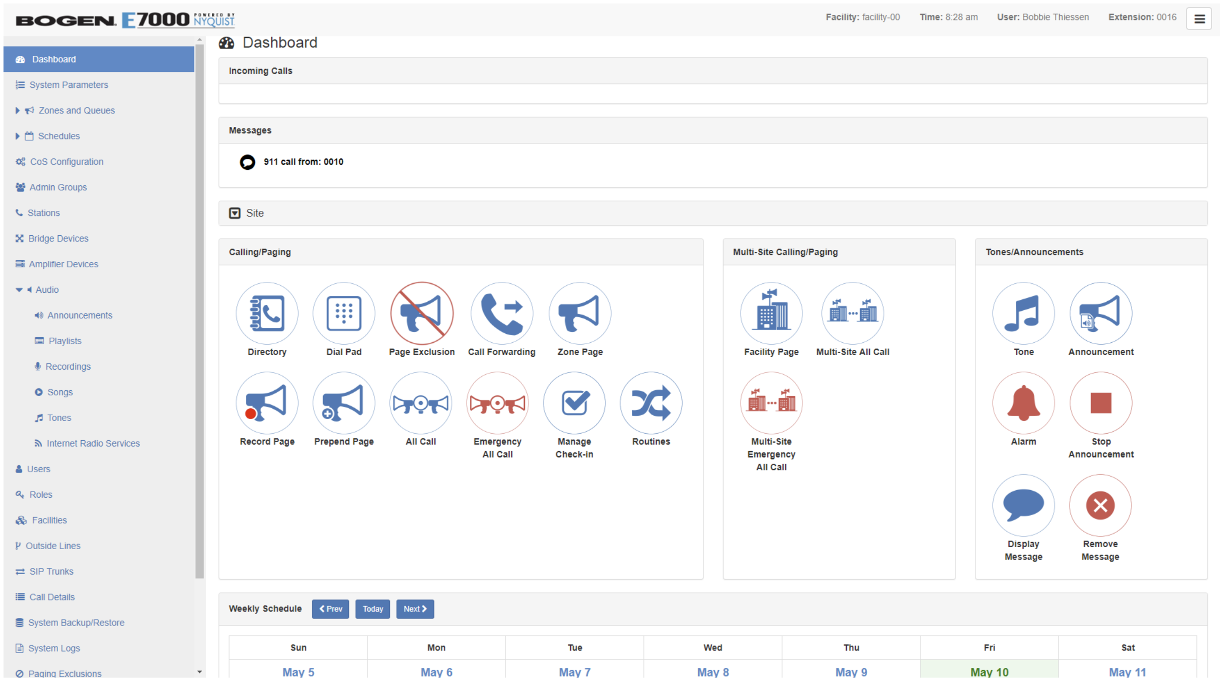


Figure 1-4, E7000 Dashboard for Admin Web Interface

If you are logged in as a user and using the non-administrator **Web Interface** station **Type**, the dashboard will look like *Figure 1-5, Non-Administrator Web Interface*.

> **Note:** This manual describes the tasks, including configuration tasks, that you can perform if you are assigned an **Admin** role with proper permissions and if your station **Type** is an **Admin Web Interface**. If you are assigned a user role and your station's **Type** is **Web Interface**, refer to the *Non-Admin Web Interface User Guide* and to "*Performing Tasks Via the Dashboard" on page 331* of this manual. For information about station types, see "*Managing Stations, Zones, and Queues" on page 105*. For information about roles, see "*Managing Roles and Users" on page 199*.

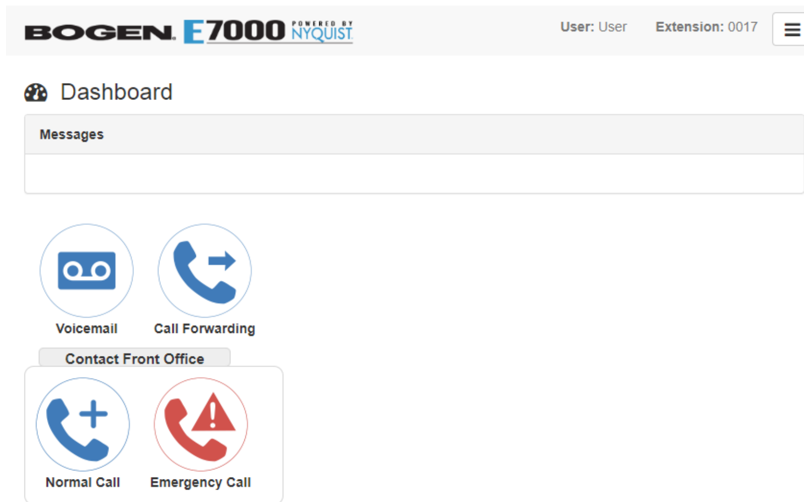


Figure 1-5, Non-Administrator Web Interface

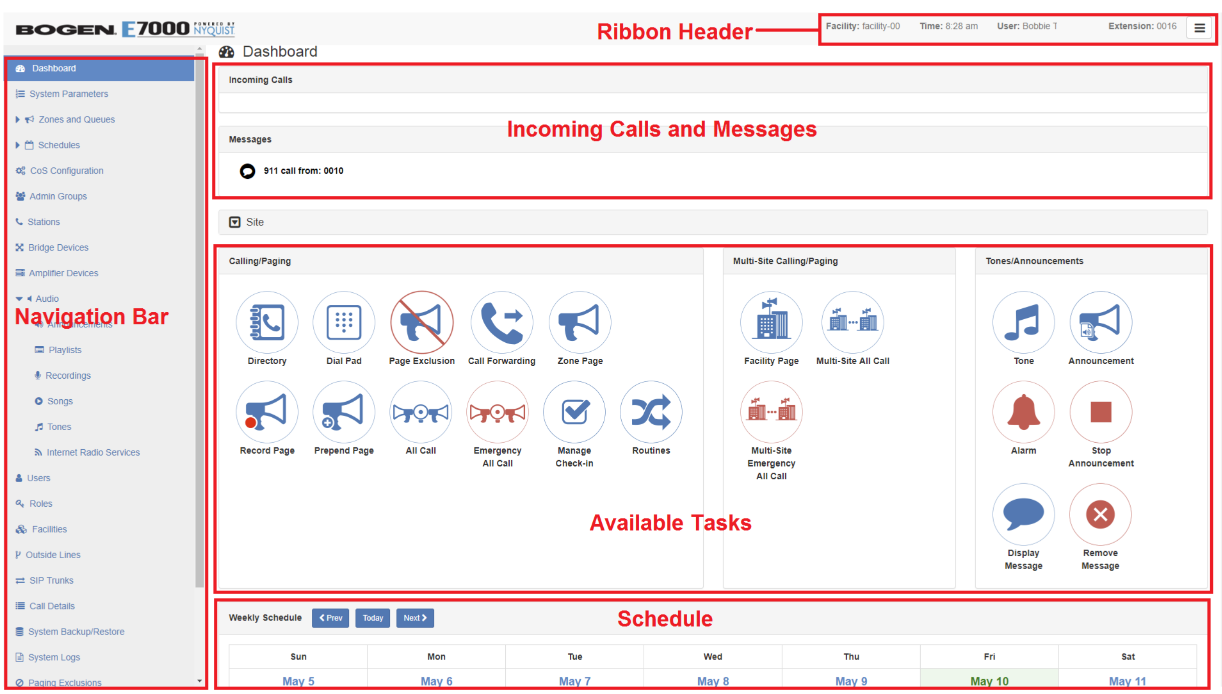


Figure 1-6, Dashboard Areas

The left side, or navigation bar, of the dashboard, lists the areas of the E7000 system that you can access. Accessibility to E7000 features and functionality is controlled by the user's assigned role.

The right header ribbon provides the facility name, server time in hours and minutes, the username for the account and the extension for the station. The facility name and server time will not appear if the screen is reduced in size, such as when viewing from a phone or tablet.

Incoming Calls and Messages appear on the top right dashboard pane.

The majority of the dashboard is set up to allow you to perform communications activities, view this week's bell schedules, and perform audio distribution.

The navigation bar does not appear for those users not authorized to make changes to the E7000 configuration. Instead, those users see only common tasks, such as calling an extension. See "*Performing Tasks Via the Dashboard" on page 331* for details about tasks that office and teaching staff commonly perform. Chapter 9 of this manual can be distributed by itself to front office staff.

At the top of the dashboard, messages appear that can provide information about your system, such as any stations or devices that were connected to your server but now are not appearing to be connected or responding. (See "*Dashboard Messages" on page 324*.)

If the dashboard message "System is running in demonstration mode" appears, all E7000 functions are enabled but the maximum station count is set to 6 and the maximum number of simultaneous calls is set to 2.

If an I/O Controller rule's **Action** has been set to **Manual**, a dashboard button appears that can be used to manually close or open specified output contact. (See "*Viewing I/O Controller Configuration Rules" on page 120*.)

On the lower part of the dashboard are options for Audio Distribution and an **Enable/Disable Audio** button that you can toggle to enable or disable audio.

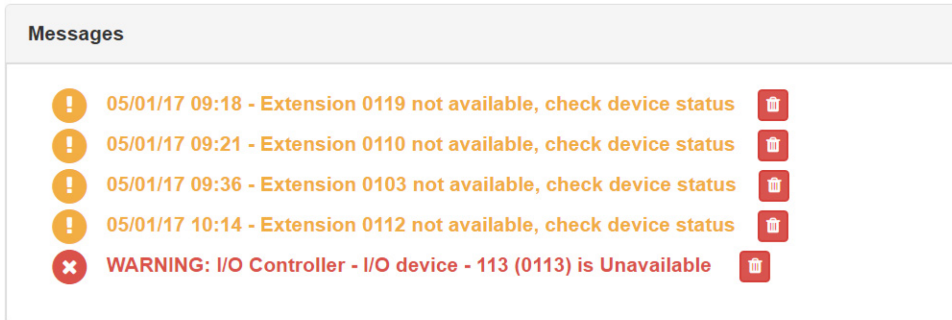


Figure 1-7, Dashboard Messages

For detailed information about performing tasks from the dashboard, see *"Performing Tasks Via the Dashboard" on page 331*.

1.1.8 Making UI Selections

You can navigate and make UI selections by either using a mouse click or using touchscreen functionality. The UI provides buttons, which appear with a name and a graphic, and icons, which are graphics only.

Table 1-5, UI Icons

Icon	Description
	**Add** icon – Selecting this icon allows you to add an item.
	**Edit** icon – Selecting this icon allows you to edit an item.
	**Delete** icon – Selecting this icon allows you to delete an item.

1.2 Configuring E7000

After E7000 is installed on your server, you must configure your system and the E7000 features to best suit your organizational needs. For example, you must determine if your E7000 server is being used for just your school or for a multi-school campus environment. An example of a multi-school campus environment is when a middle school and a high school are on the same campus.

Note: If an E7000 system server is used in a multi-school campus environment, All-Call and Emergency All-Call pages broadcast at all schools managed by that E7000 system server. If you do not want this setup, then each school on the campus should have its own E7000 system server. A single E7000 system server should not be used to manage multiple schools that are geographically separated since WLAN and power issues at one school could disrupt E7000 service at all locations.

The following table provides the suggested order for setting up your system and directs you to specific sections of the E7000 documentation for step by step instructions.

Table 1-6, E7000 Setup Tasks

Task	Reference
Define the single stand-alone school or determine the number of schools in a multi-school campus environment to be managed by the E7000 system server.	Configure these via Schedules. (See *"Adding a School" on page 217*.)
Set the dialing length and other System Parameters to the desired values.	See *"Setting System Parameters" on page 53*.
Set the CoS configurations.	See *"Adding CoS Parameters for a Station" on page 67*.
Determine the number of Admin Phones and Web Admin stations and configure these stations.	See *"Adding a Station" on page 153*.

Table 1-6, E7000 Setup Tasks (Continued)

Task	Reference
Determine the number of Admin Groups, if any, that you need and create them.	See *"Adding an Admin Group" on page 215*.
If outside lines are being used, use the Discover Ports feature to configure outside lines and enable outside access for stations authorized to make or receive outside calls.	See *"Discover Ports" on page 90* and *"Editing Station Configuration Settings" on page 118*.
If staff IP phones or the non-admin web user interface will be used, determine how many are planned and configure these stations.	See *"Adding a Station" on page 153*.
If needed, configure the roles for the Web Admin and non-admin web interface.	See *"Adding a Role" on page 201*.
If needed, configure the users for the Web Admin and non-admin web interface.	See *"Adding a User" on page 207*.
If using VoIP speakers, I/O Controllers, or MMPAs, configure the stations using E7000's Auto Discovery feature.	See *"Adding a Station" on page 153*.
If using an ASB, configure the device using E7000's Auto Discovery Feature.	See *"Adding a Bridge Device" on page 182*

Table 1-6, E7000 Setup Tasks (Continued)

Task	Reference
Configure page, time, and audio zones and assign stations to these zones.	**Note:** If you want bells to interrupt active pages, you must create separate page and time zones and the time zones must be created first. Creating time zones first sets the priority of time zones over page zones. Stations can be in multiple zones. See *"Adding a Zone" on page 169*.
If using tones to announce an alarm or an event, such as a bell, define the tones that will be available for E7000.	See *"Uploading Tones" on page 294*.
If using playlists with E7000, create playlists and download songs.	See *"Adding Songs" on page 254* and *"Creating a Playlist" on page 259*.
Define the school start and end dates.	See *"Reviewing and Editing a Schedule" on page 222*.
Configure events for bell schedules, including bells, tones, and Scheduled Audio.	**Note:** If you want bells to play during active pages, you must create separate page and time zones and the time zones must be created first. Creating time zones first sets the priority of time zones over page zones. Stations can be in multiple zones. See *"Adding an Event" on page 227*.
Schedule holidays.	See *"Adding a Holiday" on page 236*.
If a SIP trunk is being used, add the SIP trunk configuration to E7000, configure the station to use the SIP trunk for 911 calls, and add the SIP registration password to the station parameters.	See *"Adding SIP Trunk Configuration Parameters" on page 72* and *"Editing Station Configuration Settings" on page 118*.
If the E7000 system server will manage multiple facilities, add each facility to the E7000 system.	See *"Adding a Facility" on page 103*.

1.3 Getting Help

Help is available through the E7000 web UI and through Bogen's Technical Support. Technical Support is available between 8:30 am and 6:00 pm, and on-call until 8 pm, Monday through Friday. Technical Support contact information is as follows:

Tel: 1-800-999-2809
Fax: 201-934-6532
Email: Bogen Technical Support at techsupport-orlando@bogen.com

Online help is accessed from the menu that appears in the upper right portion of the web UI's navigation pane. The menu contains the following options:

- About – Selecting this option displays the version number and contact information for Bogen Communications, Inc.
- Help Topics – Selecting this option
- Admin Manual – Selecting this option displays the *System Administrator Manual*.
- Logout – Selecting this option logs you out of E7000.

2 Configuring Your System

Configuring Your System

The Admin Web UI allows you to configure most of your Nyquist system or gracefully restart or power down the Nyquist server through **System Parameters** (see "*Setting System Parameters" on page 53*). System configuration also includes the following:

- Setting parameters for what actions can be done from a specific station (see "*Using CoS Configuration" on page 63*)
- Setting what permissions are assigned to a user (see "*Managing Roles and Users" on page 199*)
- Configuring facilities for a multi-site server (see "*Configuring Facilities" on page 98*)
- Setting up stations, zones, and queues (see "*Managing Stations, Zones, and Queues" on page 105*)
- Updating firmware for Nyquist devices and stations (see "*Configuring Firmware" on page 91*)
- Setting parameters for SIP trunks (see "*Managing SIP Trunks" on page 67*)
- Disabling an outside line (see "*Editing Outside Lines" on page 87*)

2.1 Understanding System Parameters

System parameters include key information that is unique to the system, including passwords, night ring characteristics, and telephony settings. (For more information on night ring behavior, see "*Setting Night Call Options" on page 31*.)

2.1.1 Viewing System Parameters

Viewing system parameters can aid in troubleshooting. For example, if your calls are not being routed to the proper day or night Admin Station, you should check that the system parameters settings for day start and night start time are correct.

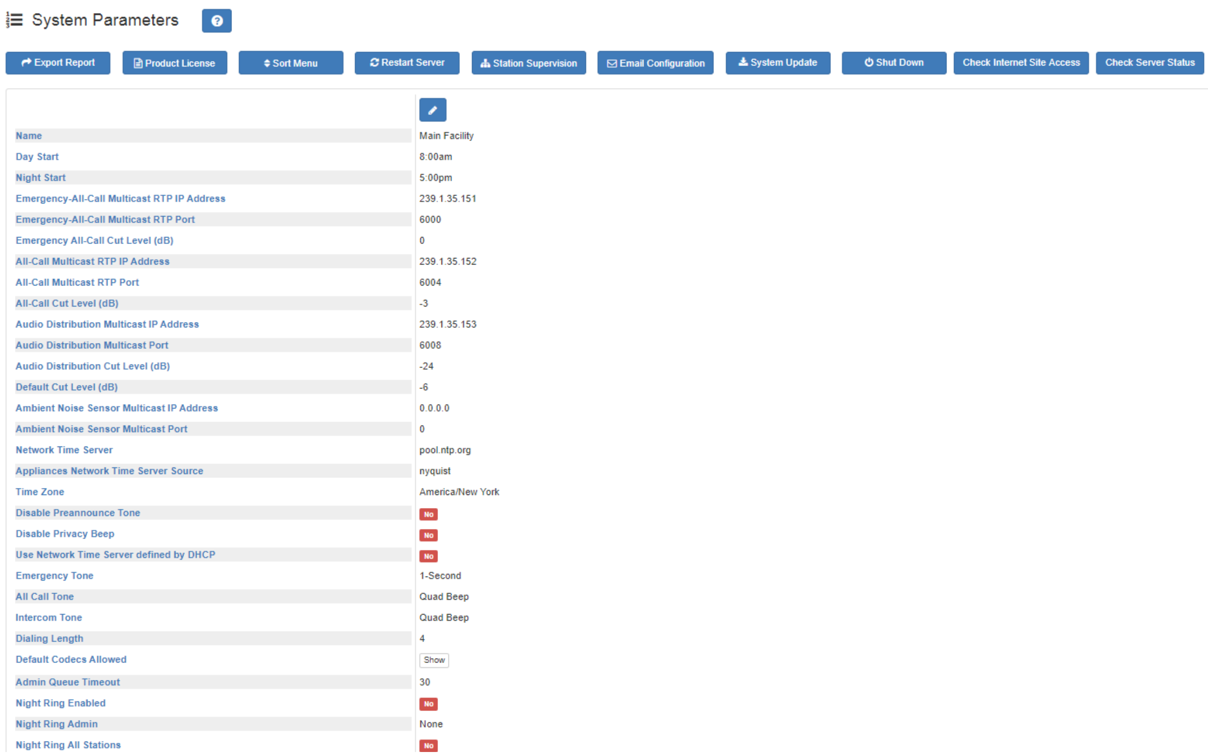


Figure 2-1, System Parameters Page

To view System Parameters:

From the navigation bar, select **System Parameters**.

The System Parameters page appears.

2.1.1.1 Using the System Parameters Page

From the System Parameters page, you can view many of the settings for the entire facility and perform the following tasks:

- Export a report. (See "*Exporting a Report" on page 32*.)
- Enter a product license. (See "*Entering a Product License Activation Key" on page 35*.)

- Sort the menu. (See *"Changing the Navigation Bar Order" on page 37*.)
- Restart the server. (See *"Restarting the Server" on page 38*.)
- Monitor stations and set station supervision criteria. (See *"Station Supervision" on page 38*.)
- Configure settings for Simple Mail Transfer Protocol (SMTP) email notifications. (See *"Email Configuration" on page 41*.)
- Perform a system update. (See *"Performing a System Update" on page 43*.)
- Configure Automatic Software Download. (See *"Configuring Automatic Software Download" on page 48*.)
- Shut down the server. (See *"Shutting Down the Server" on page 51*.)

The following table details the parameters that you can view from the System Parameters page:

Table 2-1, System Parameters Page

Name	Specifies the name given to the entire facility. The name can be up to 30 characters.
Day Start	Identifies when the system switches to its "Day" mode of operation and specifies the time period for which the day Admin Station is active. Telephones with night-only outside line access are prevented from placing outside line calls during this time. Valid times range from 00:00 to 23:58, but must be less than the Night Start time.
Night Start	Identifies when the system switches to its "Night" mode of operation and specifies the time period for which the night Admin Station is active. During this time, telephones with the night-only outside line access can place outside line calls. Valid times range from 00:01 to 23:59; but must be larger than the Day Start time.
Emergency-All-Call Multicast RTP IP Address	Identifies the IP address to use for multicast RTP paging for Emergency-All-Call. Receiving IP telephones must also have this IP address configured. Emergency all-call is a top priority all-call page. An all-call page is a simultaneous page to all speakers within a facility.

Table 2-1, System Parameters Page (Continued)

Emergency-All-Call Multicast RTP Port	Identifies the RTP port to use for multicast RTP paging for Emergency-All-Call. Receiving IP telephones must also have this RTP port configured.
Emergency-All-Call Cut Level (dB)	Sets the cut volume for Emergency-All-Call audio. The cut volume range is 0 to -42.
All-Call Multicast RTP IP Address	Identifies the All-Call Multicast RTP IP address. Receiving IP telephones must also have this IP address configured.
All-Call Multicast RTP Port	Identifies the RTP port to use for multicast RTP paging for All-Call. Receiving IP telephones must also have this RTP port configured.
All-Call Cut Level (dB)	Sets the cut volume for All-Call audio. The cut volume range is 0 to -42.
Audio Distribution Multicast IP Address	Identifies the RPT multicast IP address to use for audio distribution to all stations. For more information about audio distribution, see *"Managing Audio" on page 247*.
Audio Distribution Multicast Port	Identifies the RTP multicast port to use for audio distribution to all stations.
Audio Distribution Cut Level (dB)	Sets the cut volume for audio distribution. The cut volume range is 0 to -42.
Default Cut Level (dB)	Defines the default cut volume level for a new zone. The cut volume range is 0 to -42. For information about zones, see *"Viewing Zone Information" on page 168*.
Ambient Noise Sensor Multicast IP Address	Identifies the multicast IP address to use by ambient noise sensors (ANSs) to send volume data.
Ambient Noise Sensor Multicast Port	Identifies the multicast port number to be used by ANSs to send volume data.
Network Time Server	Identifies the IP address or the domain name of the NTP server to be used.

Table 2-1, System Parameters Page (Continued)

Appliances Network Time Server Source	Identifies the time source for all appliances on the Nyquist network. The appliances may use one of the following sources: • nyquist When this option is selected, all Nyquist appliances will use the Nyquist system server as the NTP server; this is the default option. • dhcp When this option is selected, all Nyquist appliances will use the NTP server provided via DHCP Option 42. • ntpserver When this option is selected, all Nyquist appliances will use the Network Time Server defined in System Parameters.
Time Zone	Sets the time zone for the server.
Disable Preannounce Tone	Indicates if the preannounce tone is disabled. If disabled, the tone is not heard when connecting to a speaker or prior to a page.
Privacy Beep	Indicates if the privacy beep feature is on.
Use Network Time Server defined by DHCP	When enabled, the Network Time Server will be defined by DHCP.
Emergency Tone	Identifies the preannounce tone played before an Emergency-All-Call is made.
All Call Tone	Identifies the preannounce tone played before an All-Call is made.
Intercom Tone	Identifies the preannounce tone played before an intercom call is made.
Dialing Length	Specifies the number of digits required to dial within the system. Valid values are 3, 4, 5, or 6. If you change the dialing length, all Nyquist appliances and IP phones must be rebooted. A system backup is automatically created.
Default Codecs Allowed	Provides the default list of media CODECs to be used. A CODEC, or coder-decoder, is a device or computer program for encoding or decoding a digital data stream or signal.

Table 2-1, System Parameters Page (Continued)

Admin Queue Timeout	Specifies the maximum amount of minutes that a call switch or handset station can remain in an administrative queue. When the time is exceeded, the call switch or handset station is removed from the queue. Valid timeout values range from 1 to 999 minutes.
Night Ring Enabled	Indicates if a night ring is enabled. When enabled, you can optionally set a **Night Ring Admin** and option set one additional option from the following list: • **Night Ring All Stations** • **Night Ring Admin Group** • **Night Ring Zones** (For more information on night ring behavior, see "*Setting Night Call Options" on page 31*.)
Night Ring Admin	Identifies the specific Admin Station that handles outside line calls received during night hours. Outside line calls not answered with 15 seconds trigger ringing to all or selected stations. If **Night Ring Admin** is the only option set, then the specified Admin extension rings for 30 minutes and hangs up if the call is not answered within that time. *Note:* If **Night Admin** is also included in the call, both **Night Admin** and **Night Ring Admin** ring. An analog phone cannot be used as a Night Ring Admin even if the station has the admin Class of Service (CoS) enabled.
Night Ring All Stations	Indicates if all stations receive night rings during night hours. When enabled, any ringing station can answer the call. The specified stations will ring for up to 30 minutes, then hang up if the call is not answered within that time. *Note:* NQ-P0100 Matrix Mixer Pre-Amp stations will also ring.
Night Ring Admin Group	Identifies the Admin Group that handles outside line calls received during night hours. The Admin Group is called if the **Night Admin** and **Night Ring Admin** do not answer within 15 seconds. The specified stations will ring for up to 30 minutes, then hang up if the call is not answered within that time.

Table 2-1, System Parameters Page (Continued)

Night Ring Zones	Identifies which zones receive night rings when outside calls are received during night hours. The specified stations will ring for up to 30 minutes, then hang up if the call is not answered within that time.
Server IP Address	Identifies the server's IP address. To change the server's IP address, select **Change Server IP Address** and then select the correct IP address from the menu that appears.
Parking Lot	Defines the range of numbers to use for call parking. The first number listed is used to initiate call parking, which is a feature that allows you to put a call on hold at one telephone set and continue the conversation from any other telephone set.
Record Monitoring	Indicates if call and location monitoring will be recorded.
Emergency Link	Specifies the station that functions as the system's Emergency Link Station. An Emergency Link Station is the station that an emergency call (but not a 911 call) is routed to if the station's associated Admin Station is busy, rejects the call, or fails to answer within 15 seconds. A value of 999 means that this feature is disabled. If the Emergency Link Station is a ringable device (a Nyquist phone), the station will ring and the call will be displayed on the station's display (if so equipped) as an "Emergency Call." If the Emergency Link Station is not a ringable device (a Nyquist VoIP speaker), the station will auto-answer, pre-announcing the call as an "Emergency." The Admin Station will continue to ring if an emergency call is auto-answered by a non-ringable Emergency Link Station device. The Admin Station can retrieve the call by answering it, and the Emergency Link Station device will then drop the call. As with any Emergency Call, all calls to an Emergency Link Station will be recorded.
Max Restricted Digits	Specifies the maximum number of digits that can be dialed if a station has been assigned restricted outside line access.
CDR Storage Duration	Identifies the number of days that a record of call details will be kept. CDR is an acronym for Call Detail Record.
Trunk Priority	Identifies the first trunk type to use for placing outbound calls.

Table 2-1, System Parameters Page (Continued)

Bump on Emergency	Indicates if emergency calls to the Admin Station will bump existing non-emergency calls.
Bump on 911	Indicates if outbound calls to 911 will bump trunk calls if no available outbound trunk is available.
Allow Local Emergency-All-Call Page Interrupt	When enabled, allows an Emergency-All-Call page to be interrupted after the user enters a PIN.
Allow Multi-Site-Emergency-All-Call Interrupt	When enabled, Emergency-All-Call pages can be interrupted by Multi-Site-Emergency-All-Call pages.
Auth Code	Allows you to enable additional features on a telephone when the walking CoS feature is enabled. The four-digit code activates features from the associated phone to the phone being used. (Auth is an abbreviation for Authorization.) If set to 0000, the walking CoS feature is disabled.
Call Assurance Audio	Identifies the audio to be played to the caller to indicate that the call has been placed.
Remote Facility CoS	Identifies the CoS for remote facility access.
Facility Password	Identifies the password to be used by facility servers that are registering with this server. The maximum password size is 12 characters.
RTP Start Port	Identifies the start port number for UDP RTP traffic. The default is 10000.
RTP End Port	Identifies the stop port number for UDP RTP traffic. The default is 20000.
Enable RTP Checksums	Indicates if UDP checksums are enabled for RTP traffic.
Enable ICE Support	Indicates if ICE support is enabled. *Note:* Disabling ICE support could result in audio issues when making calls using the Web Interface.
STUN Server	Identifies the host name or IP address for the STUN server that is used when determining the external IP address and port for an RTP session. (Port number is optional.) If omitted, the default value of 3478 is used.

Table 2-1, System Parameters Page (Continued)

TURN Server	Identifies the host name or IP address for the TURN server that is to be used as a relay. (Port number is optional.) If omitted, the default value of 3478 will be used.
TURN Username	Identifies the user name used to authenticate with the TURN server.
TURN Password	Identifies the password used to authenticate with the TURN server.
Retention Recordings	Identifies the number of days to retain recordings. Recordings that are older than the retention period are automatically deleted.
Backup Retention System	Identifies the number of days to retain system backup files. System backups that are older than the retention period are automatically deleted, provided at least one system backup file remains.
Backup Retention Recordings	Identifies the number of days that backups of recordings are retained. Backups that are older than the retention period are automatically deleted.
Backup Retention Voicemail	Identifies the number of days that voicemail backups are retailed. Backups that are older than the retention period are automatically deleted.

2.1.1.2 Setting Night Call Options

The way outside calls received during nighttime hours are handled depends on how you set up the Night Ring options on the System Parameters page. (See "*Using the System Parameters Page" on page 24*.) The following diagram illustrates how settings for these options affect night calls.

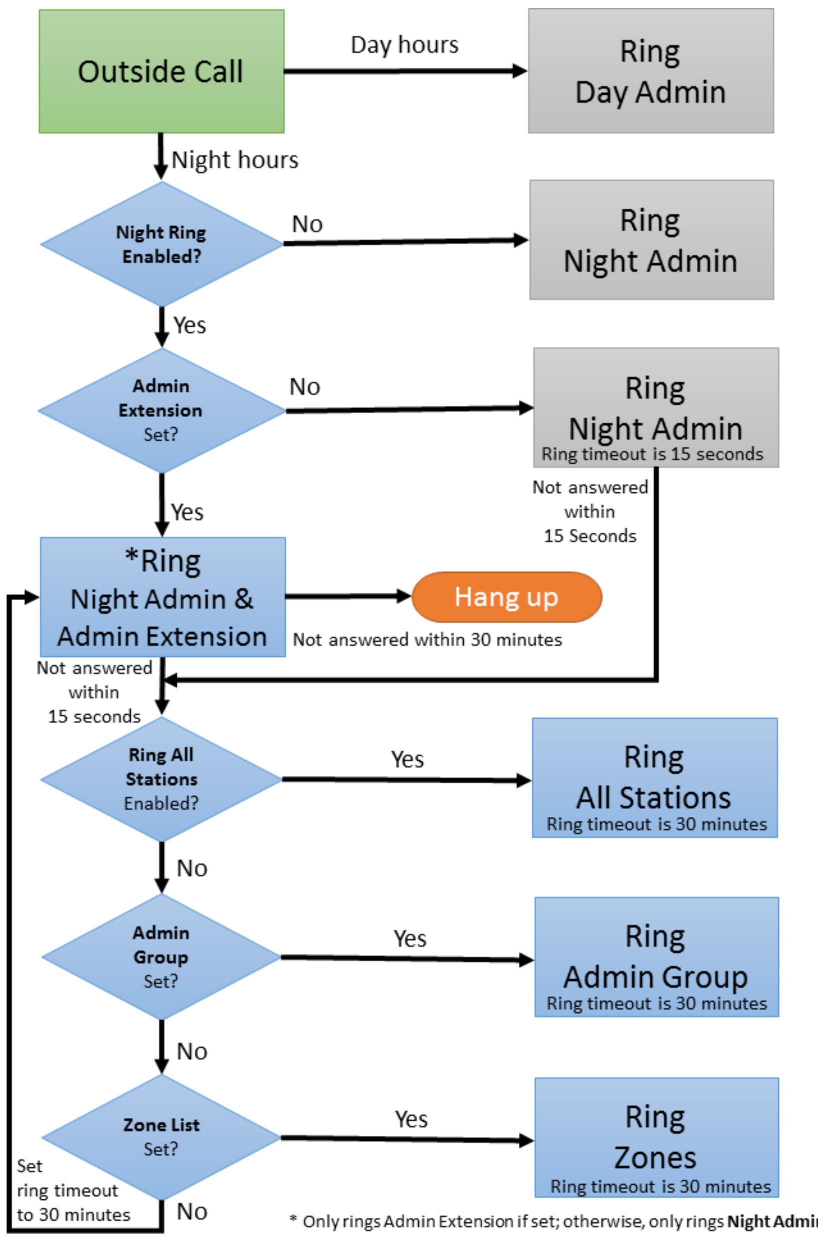


Figure 2-2, Night Ring Options

2.1.2 Exporting a Report

The Export Report feature creates a Microsoft Excel spreadsheet with tabs for each section of configurable variables such as, System Parameters, Zones, and Stations.

To export a report:

Step 1 From the navigation bar, select **System Parameters**.

Step 2 From the System Parameters page, select **Export Report**.

Step 3 When the **Excel** icon and report name appear in the lower left section of the System Parameters page, select the report. (See *Figure 2-3, "System Parameters Page with Excel Icon," on page 33*.)

Step 4 You can also select the **Show all** button in the lower right of the page, and then select the report that you want to view.

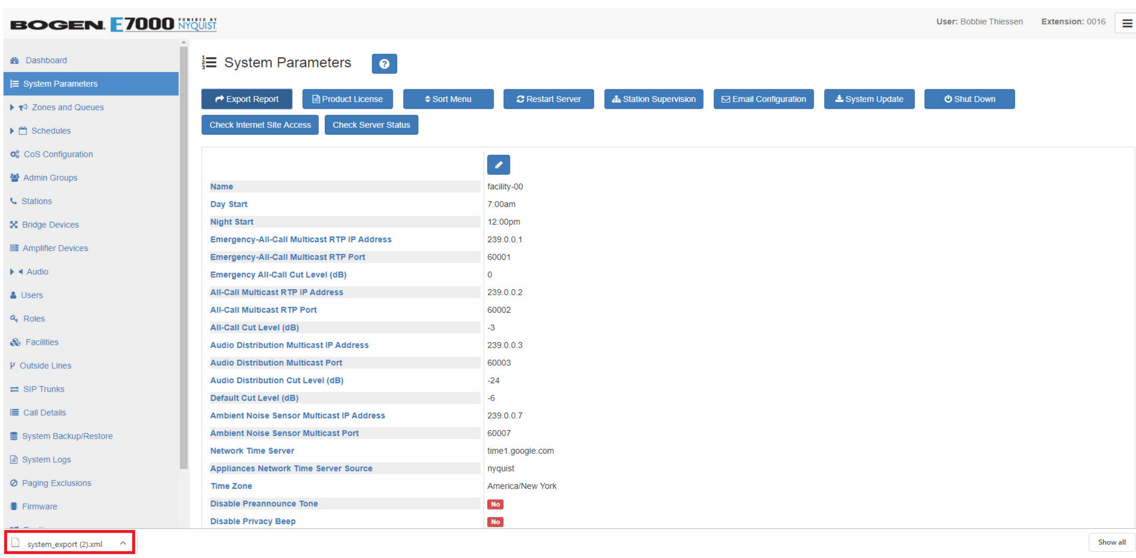
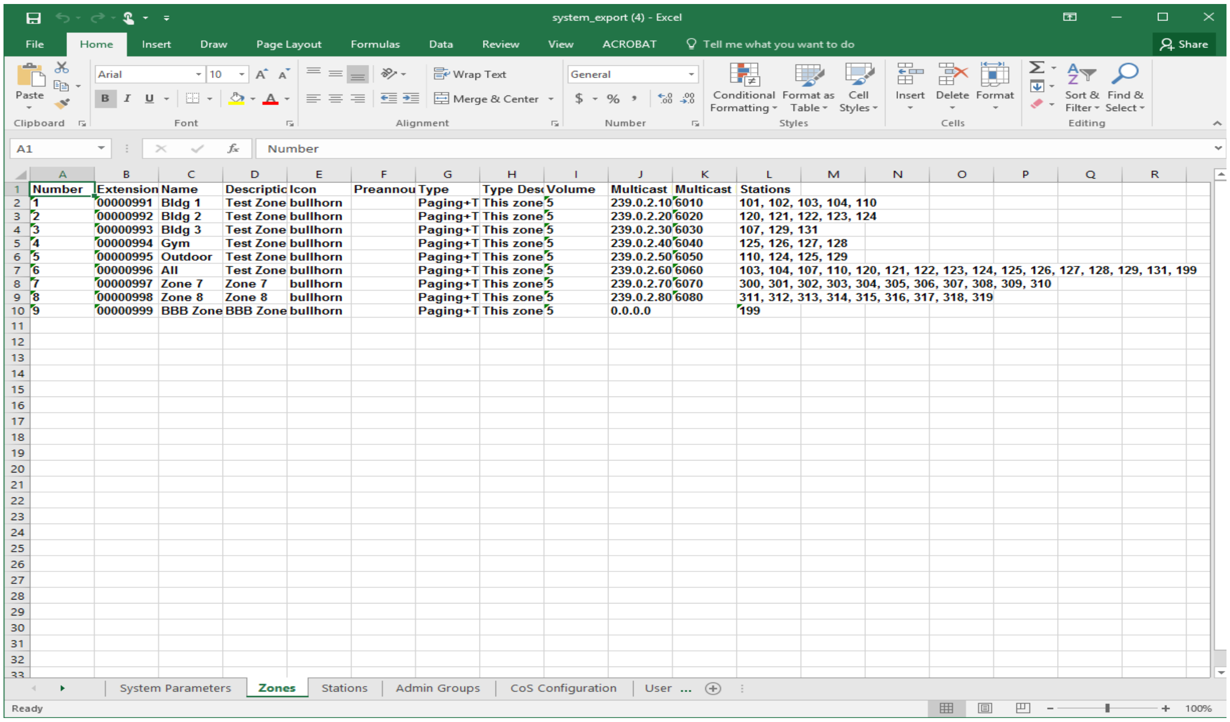


Figure 2-3, System Parameters Page with Excel Icon



Number	Extension	Name	Descriptic	Icon	Preannou	Type	Type Desc	Volume	Multicast	Multicast	Stations
1	00000991	Bldg 1	Test Zone	bullhorn		Paging+T	This zone	5	239.0.2.10	6010	101, 102, 103, 104, 110
2	00000992	Bldg 2	Test Zone	bullhorn		Paging+T	This zone	5	239.0.2.20	6020	120, 121, 122, 123, 124
3	00000993	Bldg 3	Test Zone	bullhorn		Paging+T	This zone	5	239.0.2.30	6030	107, 129, 131
4	00000994	Gym	Test Zone	bullhorn		Paging+T	This zone	5	239.0.2.40	6040	125, 126, 127, 128
5	00000995	Outdoor	Test Zone	bullhorn		Paging+T	This zone	5	239.0.2.50	6050	110, 124, 125, 129
6	00000996	All	Test Zone	bullhorn		Paging+T	This zone	5	239.0.2.60	6060	103, 104, 107, 110, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 131, 199
7	00000997	Zone 7	Zone 7	bullhorn		Paging+T	This zone	5	239.0.2.70	6070	300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310
8	00000998	Zone 8	Zone 8	bullhorn		Paging+T	This zone	5	239.0.2.80	6080	311, 312, 313, 314, 315, 316, 317, 318, 319
9	00000999	BBB Zone	BBB Zone	bullhorn		Paging+T	This zone	5	0.0.0.0		199

Figure 2-4, System Report

When the System Report appears, you can select a tab to view specific configuration settings.

2.1.3 Entering a Product License Activation Key

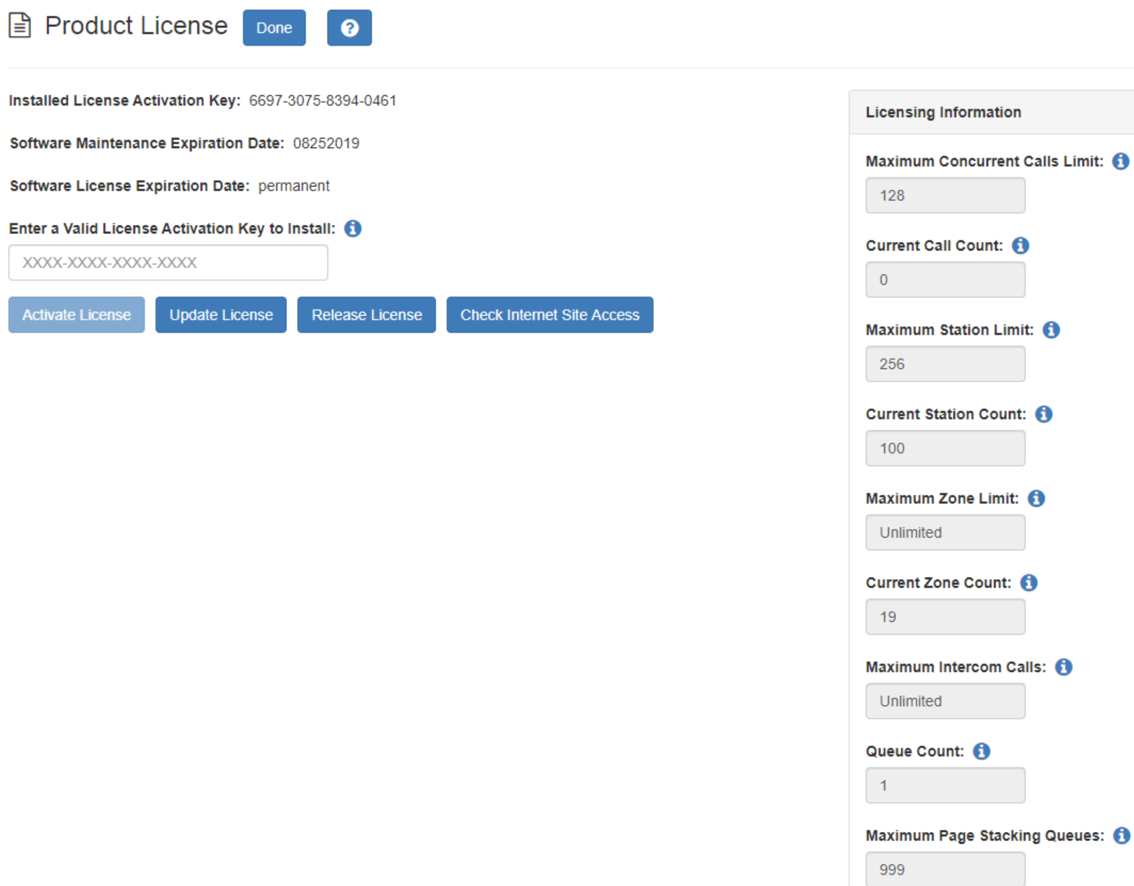


Figure 2-5, Product License Page

You must enter your product license activation key before you begin configuring the Nyquist system. Without a product license, you can only add a single station. You can only enter one product activation key. Your product license specifies the number of maximum concurrent calls that can be made and the maximum number of stations that can be added to a system.

The Product License page provides the following information:

Table 2-2, Product License Parameters

Installed License Activation Key	Provides the activation key currently installed on your server.
Software Maintenance Expiration Date	Provides the expiration date in MMDDYYYY format for software maintenance. If software maintenance has expired, then your system will not allow software updates.

Table 2-2, Product License Parameters (Continued)

Software License Expiration Date	Provides the software license expiration date for demo mode in dd-mmm-yyyy format. This field only appears if you are in demo mode.
Activation Key	Enter the activation key for your product license.

The Product License page also provides the following information about your currently installed license:

Table 2-3, Licensing Information

Maximum Concurrent Calls	Displays the maximum number of concurrent calls allowed. For this field, calls mean telephone calls, pages, tones, alarms, and announcements.
Current Call Count	Displays the number of open calls in the system.
Maximum Station Limit	Displays the maximum number of stations allowed for your licensed system or displays **Unlimited** if your system has no maximum station limit. A Nyquist station is a device used to access the web interface, a speaker, a phone, or a Nyquist appliance (except for an I/O Controller. If you need to increase your station limit, contact Tech Support.
Current Station Count	Displays the number of stations registered with your Nyquist system server.
Maximum Zone Limit	Displays the maximum number of zones (regardless of type) allowed for your licensed system. If you need to increase your zone limit, contact Tech Support.
Current Zone Count	Displays the number of stations registered with your Nyquist system server.
Maximum Intercom Calls	Displays the maximum number of concurrent intercom calls allowed for your licensed system. If you need to increase this limit, contact Tech Support.

Table 2-3, Licensing Information (Continued)

Queue Count	Displays the number of queues created for your system.
Maximum Page Stacking Queues	Displays the maximum number of zone queues allowed for your licensed system. If you need to increase this limit, contact Tech Support.

To enter a product license activation key:

Step 1 From the navigation bar, select **System Parameters**.

Step 2 From the System Parameters page, select **Product License**.

Step 3 Type the activation key number.

Step 4 Select one of the following buttons:

Activate License	This button becomes active only when data is entered into the Activation Key field. Select this button to activate the Nyquist system.
Update License	Select this button to have the Nyquist system server check for any changes that have been made to the license (such as maximum station count or maximum calls) and update the system to reflect those changes.
Release License	Select this button if you want to release the license, which allows it to be moved to another server.

Step 5 Select **Done**.

2.1.4 Changing the Navigation Bar Order

Through the System Parameters menu option, you can change the order of the selections that appear after Dashboard in the navigation bar.

To change the menu order:

Step 1 From the navigation bar, select **System Parameters**.

Step 2 From the System Parameters page, select **Sort Menu**.

Step 3	Drag and drop the menu items until you have them in the order you prefer.
Step 4	Select **Done**.

To return to the default settings for the menu order:

Step 1	From the navigation bar, select **System Parameters**.
Step 2	From the System Parameters page, select **Sort Menu** and then select **Reset Menu.**
Step 3	Select **Done**.

2.1.5 Restarting the Server

Restarting the server should take less than a minute and is provided as a troubleshooting tool to use if the Nyquist system is not functioning. For example, if you are unable to page or make calls, you probably want to restart the server.

To restart the server:

Step 1 From the navigation bar, select **System Parameters**.

Step 2 From the System Parameters page, select **Restart Server** and select one of the three options:

- **Graceful** – System will restart after all current calls are completed.
- **Now** – All current calls will be dropped.
- **Force** – Use only if **Graceful** and **Now** do not work. The **Force** option will resolve more issues than the **Graceful** and **Now** options, including issues involving Recorded Paging (Queues), Routines, and Audio Distribution. This option will cause any running Routines to be terminated and will then start all routines that include a **Reboot** trigger.

2.1.6 Station Supervision

You can set up parameters for alert notifications when a device, or station, goes offline. With this feature, you can set up email notifications, specify where records are to be stored, select what type of devices will be supervised, and select stations to be excluded from station supervision.

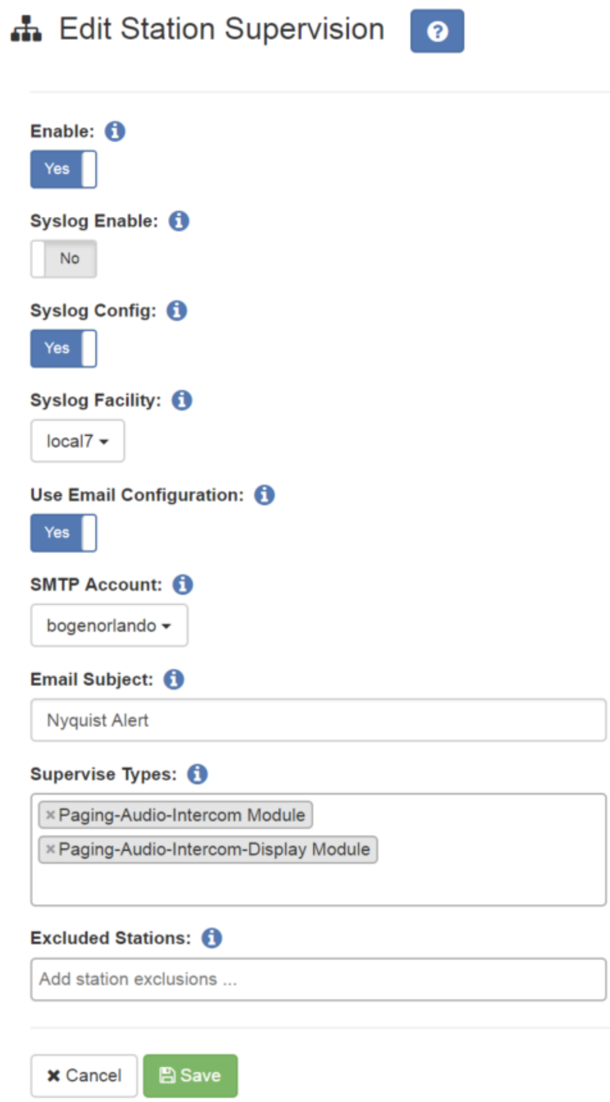


Figure 2-6, Edit Station Supervision

To set up station supervision parameters:

Step 1 From the navigation bar, select **System Parameters**.

Step 2 From the System Parameters page, select **Station Supervision**.

Step 3 Select desired options from the Edit Station Supervision page.

Step 4 Select **Save**.

Table 2-4, Edit Station Supervision Parameters

Enable	Use the slider to enable or disable the station supervision feature and the associated alerts creation. By default, this feature is disabled.
Syslog Enable	Use the slider to select if alerts will be recorded in the syslog file.
Syslog Config	Use the slider to select **Yes** to enable syslog configuration by the station supervision feature or select **No** if you are doing your own syslog configuration.
Syslog Facility	Select the syslog facility that will be used to report alerts to syslog.
Use Email Configuration	Use the slider to select **No** if you want to use SMTP parameters from the /etc/msmtprc file. If the default **Yes** is used, SMTP parameters from the SMTP configuration list will be used.
Send Email To	*Note:* This option appears if **Use Email Configuration** is set to **No**. Enter email addresses separated by commas for all recipients who will receive an email message if a station goes down. If this field is left blank, email notification is disabled.
SMTP Account	*Note:* This option appears if **Use Email Configuration** is set to **Yes**. Specify the SMTP account that will be used for alert notification emails.
Email Subject	Enter a subject line to appear on the email notifications. The default is **E7000 Alert**.
Supervise Types	Select the station type or types that you want to be supervised.
Excluded Stations	Select the station extensions that are to be excluded from station supervision. If this option is left blank, no stations with the selected **Supervise Type** are excluded.

2.1.7 Email Configuration

Through the Email Configuration feature, you can configure settings for SMTP email notifications for when a station is not responding to the server. For example, if a DCS and speaker is off line, an automatic email can be sent to a facilities manager or IT personnel.

SMTP is an Internet standard for email transmission.

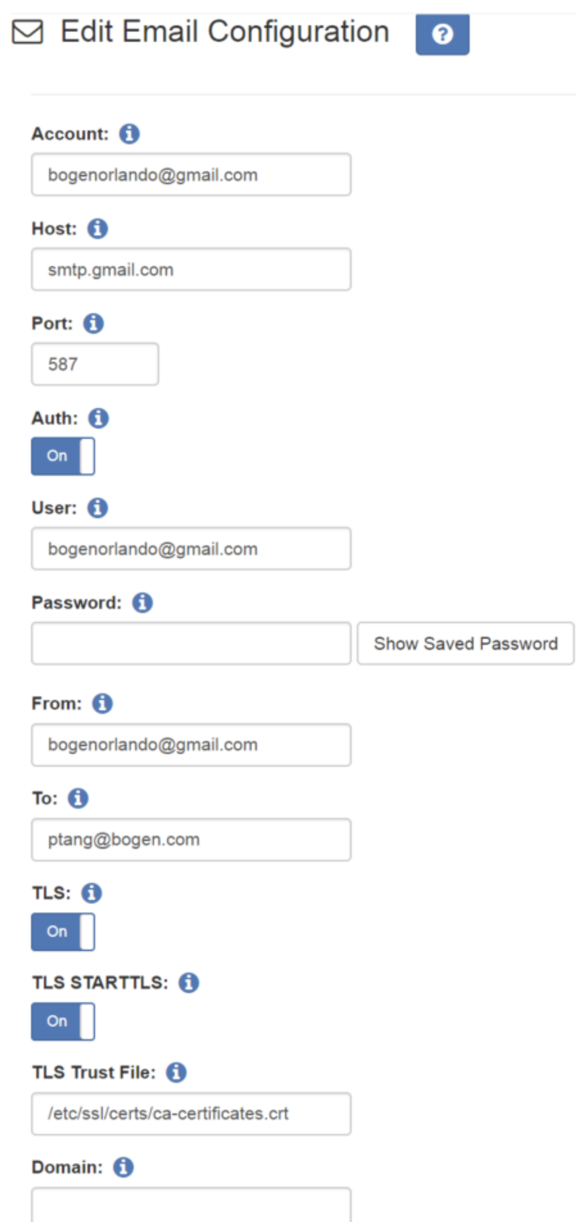


Figure 2-7, Edit Email Configuration

To set up email configuration:

Step 1 From the navigation bar, select **System Parameters**.

Step 2 From the System Parameters page, select **Email Configuration**.

Step 3 Select desired options from the Edit Email Configuration page.

Step 4 Select **Save**.

Table 2-5, Edit Email Configuration

Account	Enter the user-defined name for this account. The default account name is **Gmail**.
Host	Enter the SMTP server to send the email to. The value may be either a host name or a network address.
Port	Enter the port that the SMTP server uses to receive email transmissions. Typically, this is set to 25 form SMTP, 465 for SMTPS, or 587 for submission.
Auth	Use the slider to enable or disable SMTP authentication. By default, **Auth** is set to **On**, which is the recommended setting. When authentication is enabled, a user must provide a valid username and password to send email.
User	Enter the user name for SMTP authentication.
Password	Enter the password for SMTP authentication.
Show Saved Password	Select this button to show the saved password for SMTP authentication.
From	Enter the name that is to appear in the **From** field for the email.
To	Enter the email addresses for the recipients. Separate each email address by a comma.
TLS	Use the slide to enable or disable the use of TLS. When you have one email server send a message to another email server over TLS, the connection itself is encrypted so no one can intercept the payload information. But, the actual data itself is still unencrypted. It’s secure and compliant because it was sent over an encrypted channel.

Table 2-5, Edit Email Configuration (Continued)

TLS STARTTLS	Use the slider to enable or disable the use of STARTTLS. STARTTLS is an email protocol command that tells an email server that an email client, including an email client running in a web browser, wants to turn an existing insecure connection into a secure one.
TLS Trust File	Enter the location for the CA-Certificate trust file. The default location is **/etc/ssl/certs/ca-certificates.crt**.
Domain	Specify the domain of the server that is initiating the SMTP connection. If the email is rejected due to anti-SPAM programs, this domain name is used as the fully qualified domain name for the SMTP EHLO command.

2.1.8 Performing a System Update

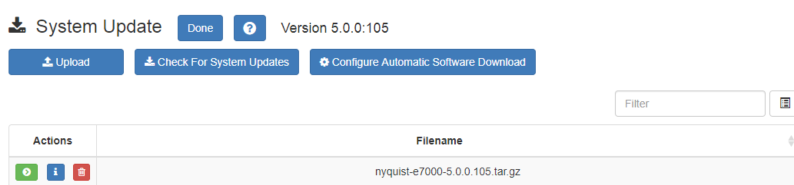


Figure 2-8, System Update

> *Note:* After a new software release is installed, permissions for features introduced by this new release must be set for the roles that will use these features. See "*Assigning and Editing Permissions" on page 203*.

From the System Update screen, you can select to upload or check for new versions of the software or set configuration options for automatic software downloads.

Software updates can be a major release, a bug fix, or even an update that is created specifically for your system.

> *Note:* New appliances may have been introduced in a newer server release than the release you are using. To use these appliances, you must perform a **System Update**.

This feature updates the software and the configuration data.

A list of downloaded software appears on the System Update screen. When you first access the System Update screen, the list will show only the default file that was installed. You can select **Check for Updates** to obtain a list of software available for download or select **Upload** to browse for software files.

> *Note:* If your Software Maintenance package has expired, you will receive a dashboard message explaining that you must contact your Bogen dealer to purchase a maintenance renewal to access system updates.

To perform a system update:

Step 1 From the navigation bar, select **System Parameters**.

Step 2 From the System Parameters page, select **System Update**.

Step 3 If you want the system to check for any new server software updates, select **Check for Updates**. A popup window appears with one of the following messages:

- *No Nyquist System Software updates available.* When this message appears, select **OK** to exist the popup window.
- *Can't check for updates. Check Internet connection and try again.*
- *Nyquist System Software download successful.*
- *Nyquist System Software download failed, try again.*

Step 4 If you want to upload a file using the browser:

a Select **Upload**.

b Select **Choose file**.

c Locate the .tar file.

d Select **Upload**.

Step 5 If you want to update your system, select the **Run Update** icon for the file that you want to use for the update.

> *Note:* During an update, volume control levels (Cut Levels) will be set to factory defaults. If you have changed these levels, you will need to make adjustments again.

A series of screens will appear when the System Update is running.

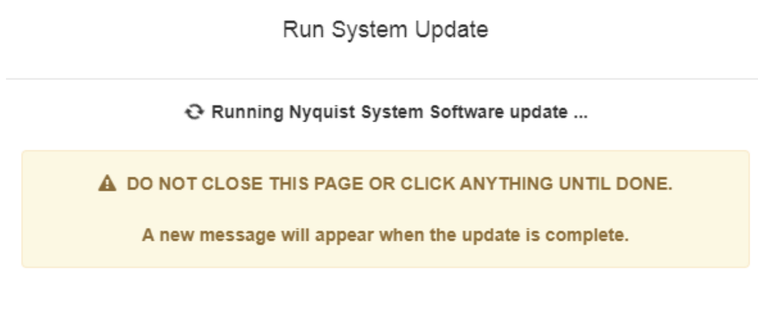


Figure 2-9, System Software Update Message

The first screen warns that the Nyquist System Software is being updated. Do not close the window or click anything on the computer screen until the update is completed.

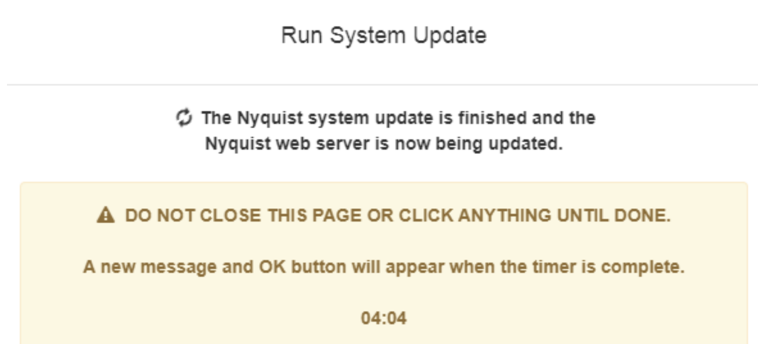


Figure 2-10, Nyquist Web Server Update Message

After the application software has been updated, the system will update any files, such as PHP files, needed for the Nyquist application. The screen that appears during this Nyquist web server update includes a progress clock that shows how many minutes and seconds remain before the update is complete. Again, do not close the message or click anything on the computer screen.

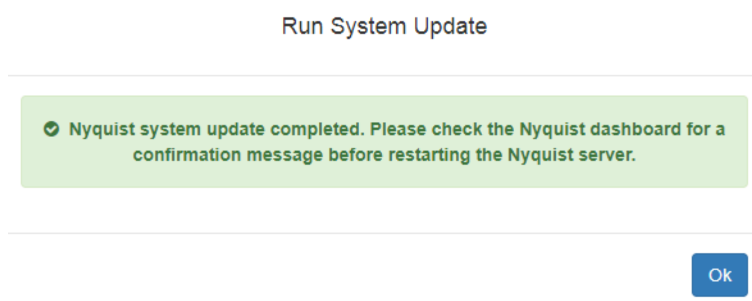


Figure 2-11, System Updated Completed Message

When the system update completes, a message and an **OK** button appear. Select **OK** and check the Nyquist dashboard for a confirmation message before restarting the Nyquist server.

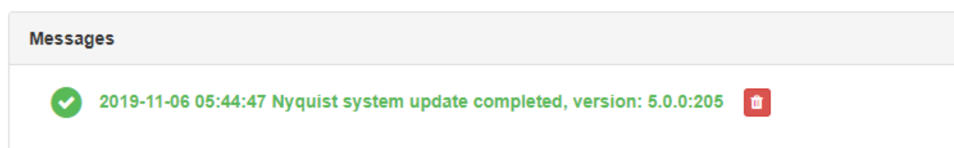


Figure 2-12, Dashboard Message After System Update

The dashboard message provides the date and time the update ran and the software version that was installed.

You might see a blank message box with an OK button. If so, click **OK**.

If a PHP message appears (like the one shown in *Figure 2-13, "PHP Message," on page 47*), press the refresh key (normally F5) repeatedly until the dashboard message appears.

```
<?php

/**
 * Laravel - A PHP Framework For Web Artisans
 *
 * @package  Laravel
 * @author   Taylor Otwell <taylorotwell@gmail.com>
 */

/*
|--------------------------------------------------------------------------
| Register The Auto Loader
|--------------------------------------------------------------------------
|
| Composer provides a convenient, automatically generated class loader for
| our application. We just need to utilize it! We'll simply require it
| into the script here so that we don't have to worry about manual
| loading any of our classes later on. It feels nice to relax.
|
*/

require __DIR__.'/../bootstrap/autoload.php';

/*
|--------------------------------------------------------------------------
| Turn On The Lights
|--------------------------------------------------------------------------
|
| We need to illuminate PHP development, so let us turn on the lights.
| This bootstraps the framework and gets it ready for use, then it
| will load up this application so that we can run it and send
| the responses back to the browser and delight our users.
|
*/

$app = require_once __DIR__.'/../bootstrap/app.php';

/*
|--------------------------------------------------------------------------
| Run The Application
|--------------------------------------------------------------------------
|
| Once we have the application, we can handle the incoming request
```

Figure 2-13, PHP Message

2.1.9 Configuring Automatic Software Download

From the Configure Automatic Software Download screen, you can schedule your Nyquist server to automatically check for and download server or firmware software updates.

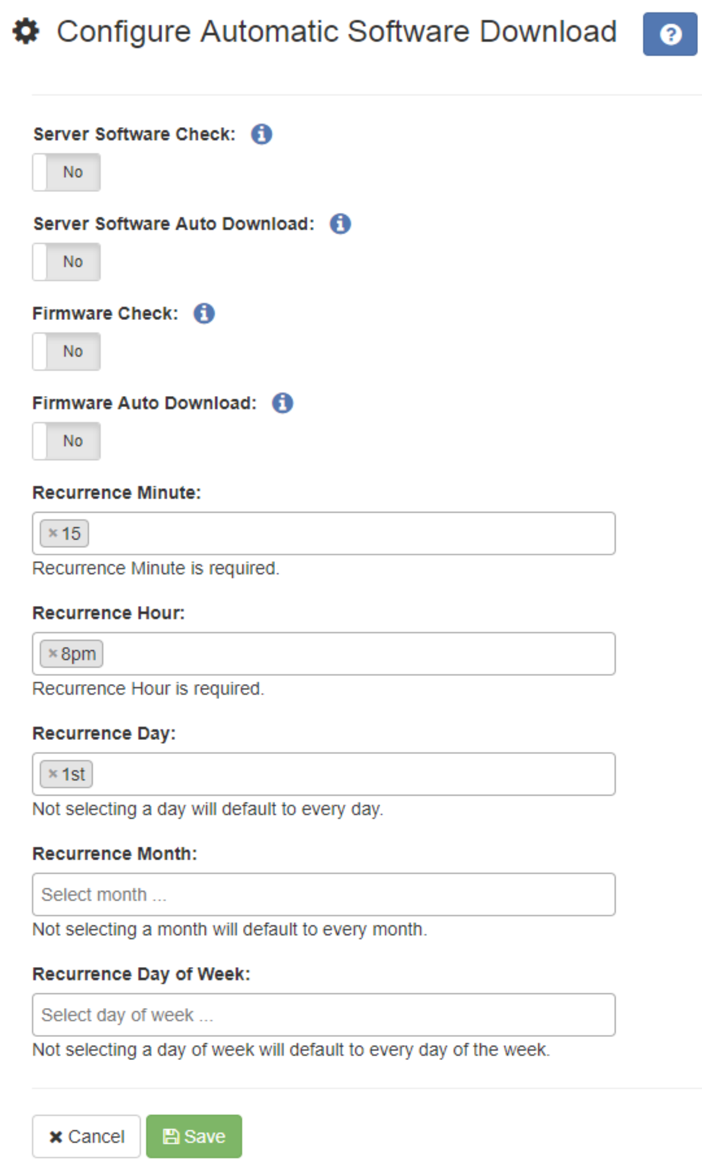


Figure 2-14, Configure Automatic Software Download

To configure automatic software downloads:

Step 1 Do one of the following:

a From the navigation bar, select **System Parameters**, then from the System Parameters page, select **System Update**.

b From the navigation bar, select **Firmware**.

Step 2 Select **Configure Automatic Software Download**.

Step 3 Complete the options on the Configure Automatic Software Download screen.

Step 4 Select **Save**.

Table 2-6, Configure Automatic Software Download Options

Server Software Check	When set to **Yes**, the server automatically checks for Nyquist server software updates and posts notifications to the dashboard when new software is available.
Server Software Auto Download	When set to **Yes**, the server automatically downloads Nyquist server software updates and posts notifications to the dashboard.
Firmware Check	When set to **Yes**, the server automatically checks for Nyquist device firmware updates and posts notifications to the dashboard when new software is available.
Firmware Auto Download	When set to **Yes**, the server automatically downloads Nyquist device firmware updates and posts notifications to the dashboard.
Recurrence Minute	Select the minute setting for automatic checks and downloads to occur. This field is required.
Recurrence Hour	Select the hour setting for automatic checks and downloads to occur. This field is required.
Recurrence Day	Select the day of the month for automatic checks and downloads to occur. If left blank, the setting defaults to every day of the month.
Recurrence Month	Select the month for automatic checks and downloads to occur. If left blank, the setting defaults to every month.
Recurrence Day of Week	Select the day of the week for automatic checks and downloads to occur. If left blank, the setting defaults to every day of the week.

- *"Performing a System Update" on page 43*
- *"Viewing System Parameters" on page 24*

2.1.10 Shutting Down the Server

Using the **Shut Down** button is the recommended way to gracefully stop Nyquist processes and power down the Nyquist server. Powering down the Nyquist server manually via the **Power** button the server is not recommended.

> *Note:* If you are using the System Controller, the Shutdown Server button powers the component down but does not toggle the Power switch. To turn the System Controller back on, you must toggle the switch to the **Off** position and then toggle it to the **On** position.

To shut down the Nyquist server:

Step 1 From the navigation bar, select **System Parameters**.

Step 2 From the System Parameters page, select **Shut Down**.

Step 3 When prompted, select **Continue**.

2.1.11 Check Internet Site Access

You can use the **Check Internet Site Access** button to verify that you Nyquist server can access URLs, commonly referred to as web addresses, that are required for Nyquist to run properly. This information can be used for resolving or debugging networking issues.

The **Check Internet Site Access** button appears on both the System Parameters page and on the Product License page.

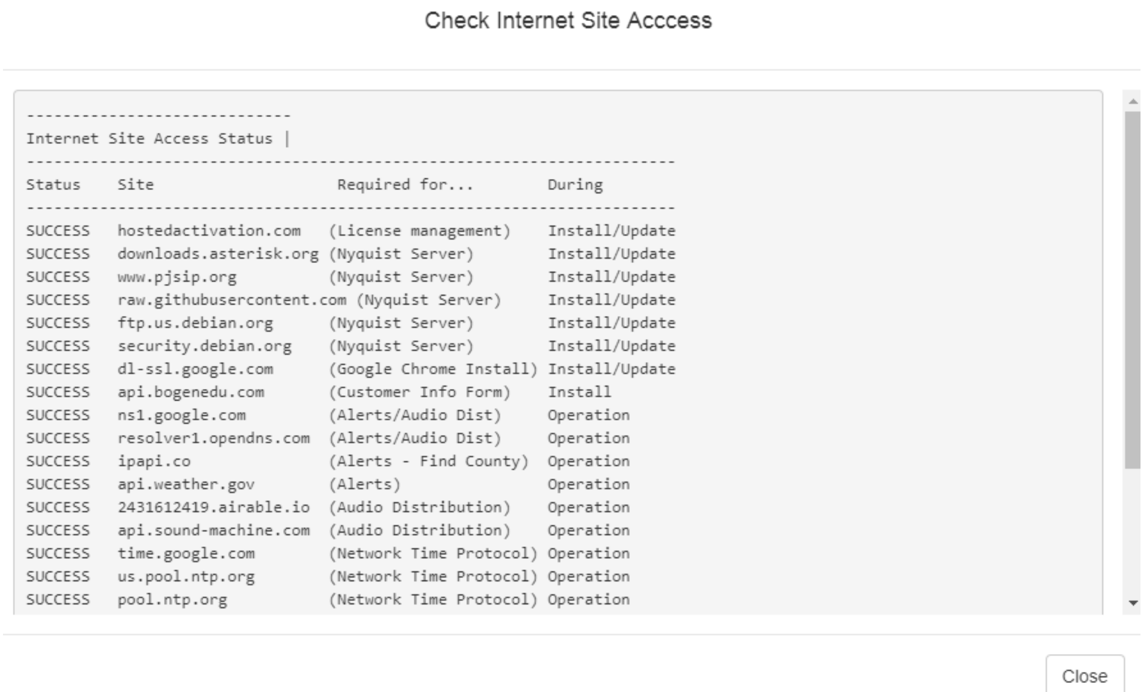


Figure 2-15, Check Internet Site Access

To check Internet site access:

Step 1 From the navigation bar, select **System Parameters**.

Step 2 Do one of the following:

a From the System Parameters page, select **Check Internet Site Access**.

b From the System Parameters page, select **Product License** and then select **Check Internet Site Access**.

Step 3 When finished viewing the Check Internet Site Access display, select **Close**.

2.1.12 Check Server Status

The Check Server Status window shows if the default gateway, Network Time Protocol, and Domain Name Servers are configured and pingable, reports network interface and routing tables status, and displays the Nyquist server's public IP address.

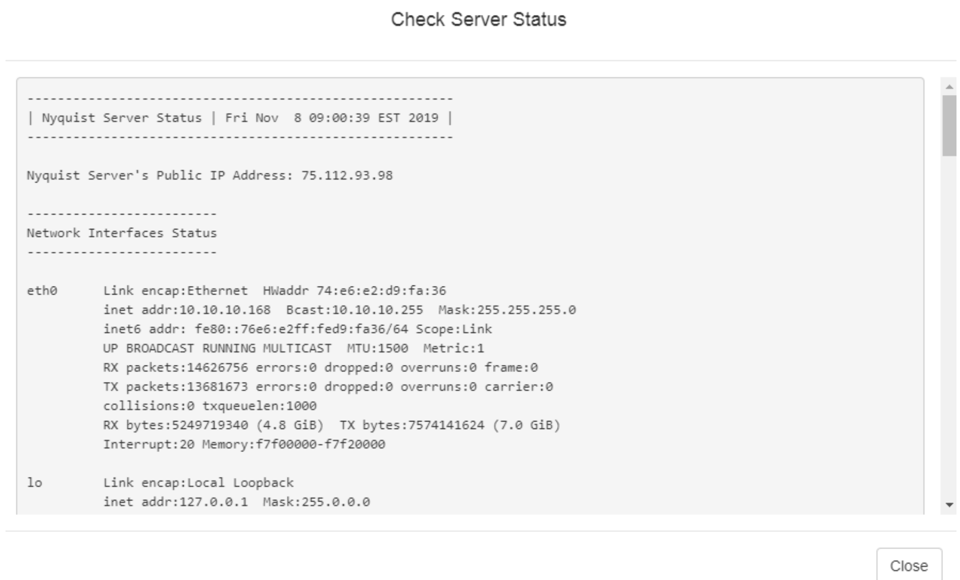


Figure 2-16, Check Server Status

To check server status:

Step 1 From the navigation bar, select **System Parameters**.

Step 2 From the System Parameters page, select **Check Server Status**.

Step 3 When finished viewing the Check Server Status display, select **Close**.

2.1.13 Setting System Parameters

To set system parameters:

Step 1 From the navigation bar, select **System Parameters**. The System Parameters page displays all key system parameters.

Step 2 To change the settings, select the **Edit** icon.

Step 3 On the Edit System Parameters page that appears, make changes to the appropriate settings.

Step 4 After entering all changes, select **Save**.

2.1.13.1 Using the Edit System Parameters Page

The Edit System Parameters page contains the parameters that can be set for the entire facility and is accessed by selecting the **Edit** icon on the System Parameters page.

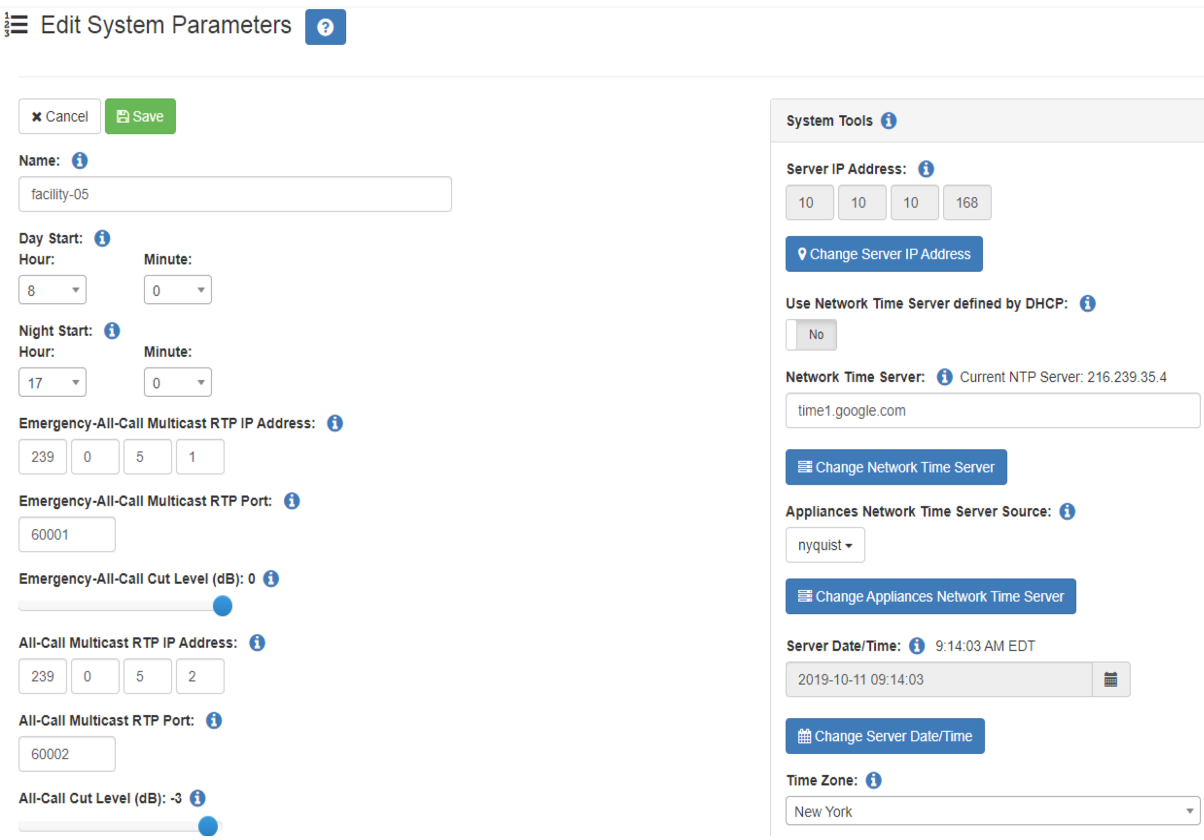


Figure 2-17, Edit Systems Parameters Page

The following table describes the system parameters:

Table 2-7, Edit System Parameters Page

Name	Specifies the name given to the entire facility. The name can be up to 30 characters.
Day Start	Identifies when the system switches to its "Day" mode of operation and specifies the time period for which the day Admin Station is active. Telephones with night-only outside line access are prevented from placing outside line calls during this time. Use the down arrows to select the **Hour** and **Minute** values. Valid times range from 00:00 to 23:58, but must be less than the Night Start time.

Table 2-7, Edit System Parameters Page (Continued)

Night Start	Identifies when the system switches to its "Night" mode of operation and specifies the time period for which the night Admin Station is active. During this time, telephones with the night-only outside line access can place outside line calls. Use the down arrows to select the **Hour** and **Minute** values. Valid times range from 00:01 to 23:59; but must be larger than the Day Start time.
Emergency-All-Call Multicast RTP IP Address	Identifies the IP address to use for multicast RTP paging for Emergency-All-Call. Receiving IP telephones must also have this IP address configured.
Emergency-All-Call Multicast RTP Port	Identifies the RTP port to use for multicast RTP paging for Emergency-All-Call. Receiving IP telephones must also have this RTP port configured.
Emergency-All-Call Cut Level (dB)	Sets the cut volume for Emergency-All-Call audio. The cut volume range is 0 to -42.
All-Call Multicast RTP IP Address	Identifies the All-Call Multicast RTP IP address. Receiving IP telephones must also have this IP address configured.
All-Call Multicast RTP Port	Identifies the RTP port to use for multicast RTP paging for All-Call. Receiving IP telephones must also have this RTP port configured.
All-Call Cut Level (dB)	Sets the cut volume for All-Call audio. The cut volume range is 0 to -42.
Audio Distribution Multicast IP Address	Identifies the RPT multicast IP address to use for audio distribution to all stations
Audio Distribution Multicast Port	Identifies the RPT multicast port to use for audio distribution to all stations.
Audio Distribution Cut Level (dB)	Sets the cut volume for audio distribution. The cut volume range is 0 to -42.
Default Cut Level (dB)	Defines the default cut volume level for a new zone. The cut volume range is 0 to -42.
Ambient Noise Sensor Multicast IP Address	Identifies the multicast IP address to use by ambient noise senors to send volume data.
Ambient Noise Sensor Multicast Port	Identifies the multicast port number to be used by ambient noise senors to send volume data.

Table 2-7, Edit System Parameters Page (Continued)

Disable Preannounce Tone	Indicates if the preannounce tone is disabled. If disabled, the tone is not heard when connecting to a speaker or prior to a page.
Privacy Beep	Indicates if the privacy beep feature is on.
Emergency Tone	Identifies the pre-announce tone played before an Emergency-All-Call is made.
All Call Tone	Identifies the pre-announce tone played before an All-Call is made.
Intercom Tone	Identifies the pre-announce tone played before an intercom call is made.
Default Registration Password	Provides the default password to be used when adding a new station.
Default Codecs Allowed	Provides the default list of media codecs to be used.
Admin Queue Timeout	Specifies the maximum amount of minutes that a call switch or handset station can remain on an administrative queue. When the time is exceeded, the call switch or handset station is removed from the queue. Valid timeout values range from 1 to 999.
Night Ring Enabled	Indicates if a night ring is enabled. When enabled, you can optionally set a **Night Ring Admin** and optionally set one additional option from the following list: • **Night Ring All Stations** • **Night Ring Admin Group** • **Night Ring Zones** (For more information on night ring behavior, see "*Setting Night Call Options" on page 31*.)

Table 2-7, Edit System Parameters Page (Continued)

Night Ring Admin	Identifies the specific Admin Station that handles outside line calls received during night hours. Outside line calls not answered with 15 seconds trigger ringing to all or selected stations. If **Night Ring Admin** is the only option set, then the specified Admin extension rings for 30 minutes and hangs up if the call is not answered within that time. *Note:* If **Night Admin** is also included in the call, both **Night Admin** and **Night Ring Admin** ring. An analog phone cannot be used as a Night Ring Admin even if the station has the admin CoS enabled.
Night Ring All Stations	Indicates if all stations receive night rings during night hours. When enabled, any ringing station can answer the call. The specified stations will ring for up to 30 minutes, then hang up if the call is not answered within that time. *Note:* NQ-P0100 Matrix Mixer Pre-Amp stations will also ring.
Night Ring Admin Group	Identifies the Admin Group that handles outside line calls received during night hours. The Admin Group is called if the **Night Admin** and **Night Ring Admin** do not answer within 15 seconds. The specified stations will ring for up to 30 minutes, then hang up if the call is not answered within that time.
Night Ring Zones	Identifies which zones receive night rings when outside calls are received during night hours. The specified stations will ring for up to 30 minutes, then hang up if the call is not answered within that time.
Parking Lot	Defines the range of numbers to use for call parking. The first number listed is used to initiate call parking, which is a feature that allows you to put a call on hold at one telephone set and continue the conversation from any other telephone set.
Record Monitoring	Indicates if call and location monitoring will be recorded.

Table 2-7, Edit System Parameters Page (Continued)

Emergency Link	Specifies the station that functions as the system's Emergency Link Station. An Emergency Link Station is the station that an emergency call (but not a 911 call) is routed to if the station's associated Admin Station is busy, rejects the call, or fails to answer within 15 seconds. A value of 999 means that this feature is disabled. If the Emergency Link Station is a ringable device (a Nyquist phone), the station will ring and the call will be displayed on the station's display (if so equipped) as an "Emergency Call." If the Emergency Link Station is not a ringable device (a Nyquist VoIP speaker), the station will auto-answer, pre-announcing the call as an "Emergency." The Admin Station will continue to ring if an emergency call is auto-answered by a non-ringable Emergency Link Station device. The Admin Station can retrieve the call by answering it, and the Emergency Link Station device will then drop the call. As with any Emergency Call, all calls to an Emergency Link Station will be recorded.
Max Restricted Digits	Specifies the maximum number of digits that can be dialed if a station has been assigned restricted outside line access.
DISA Password	Identifies the four-digit field used for Direct Inward Station Access (DISA).
Security DISA Password	Identifies the four-digit field used to access Nyquist through a security DISA line.
CDR Storage Duration	Identifies the number of days that a record of call details will be kept.
Trunk Priority	Identifies the first trunk type to use for placing outbound calls.
Bump on Emergency	Indicates if emergency calls to the Admin Station will bump existing non-emergency calls.
Bump on 911	Indicates if outbound calls to 911 will bump trunk calls if no available outbound trunk is available.
Auth Code	Allows you to enable additional features on a telephone when the walking CoS feature is enabled. The four-digit code activates features from the associated phone to the phone being used.

Table 2-7, Edit System Parameters Page (Continued)

Call Assurance Audio	Identifies the audio to be played to the caller to indicate that the call has been placed. To choose a new file, select **Choose File** and browse to select the new file to be used for the Call Assurance audio.
Facility Password	Identifies the password to be used by facility servers that are registering with this server. The maximum password size is 12 characters.
Remote Facility CoS	Identifies the CoS for remote facility access.
RTP Start Port	Identifies the start port number for UDP RTP traffic. The default is 10000.
RTP End Port	Identifies the stop port number for UDP RTP traffic. The default is 20000.
Enable RTP Checksums	Indicates if UDP checksums are enabled for RTP traffic. A checksum is a count of the number of bits in a transmission that is included with the transmission so that the receiver can check to see if the same number of bits arrived.
Enable ICE Support	Indicates if ICE support is enabled.
STUN Server	Identifies the host name or IP address for the STUN server that is used when determining the external IP address and port for a RTP session. (Port number is optional.) If omitted, the default value of 3478 will be used.
TURN Server	Identifies the host name or IP address for the TURN server that is to be used as a relay. (Port number is optional.) If omitted, the default value of 3478 will be used.
TURN Username	Identifies the user name used to authenticate with the TURN server.
TURN Password	Identifies the password used to authenticate with the TURN server.
Retention Recordings	Identifies the number of days to retain recordings. Recordings that are older than the retention period are automatically deleted. You can set a maximum retention period of 99,999 days.
Backup Retention System	Identifies the number of days to retain system backup files. System backups that are older than the retention period are automatically deleted, provided at least one system backup file remains. You can set a maximum retention period of 99,999 days.

Table 2-7, Edit System Parameters Page (Continued)

Backup Retention Recordings	Identifies the number of days that backups of recordings are retained. Backups that are older than the retention period are automatically deleted, provided at least one backup remains. You can set a maximum retention period of 99,999 days.
Backup Retention Voicemail	Identifies the number of days that voicemail backups are retailed. Backups that are older than the retention period are automatically deleted, provided at least one backup remains. You can set a maximum retention period of 99,999 days.
System Password	Displays the password required if a user attempts to change an event schedule.
Multi-Site-Emergency-All-Call Password	Identifies the 4-digit password to use if a caller is required to enter a password when starting a Multi-Site-Emergency-All-Call page. A four zero password (0000) requires the caller to enter 1 for confirmation when starting a Multi-Site-Emergency-All-Call page.
Multi-Site-All-Call Password	Identifies the 4-digit password to use if a caller is required to enter a password when starting a Multi-Site-All-Call page. A four zero password (0000) requires the caller to enter 1 for confirmation when starting a Multi-Site-All-Call page.
Facility-Page Password	Identifies the 4-digit password to use if a caller is required to enter a password when starting a Facility page. A four zero password (0000) requires the caller to enter 1 for confirmation when starting a Facility page.
Emergency-All-Call Password	Identifies the 4-digit password to use if a caller is required to enter a password when starting an Emergency-All-Call page. A four zero password (0000) requires the caller to enter 1 for confirmation when starting an Emergency-All-Call page.
All-Call Password	Identifies the 4-digit password to use if a caller is required to enter a password when starting an All-Call page. A four zero password (0000) requires the caller to enter 1 for confirmation when starting an All-Call page.

Table 2-7, Edit System Parameters Page (Continued)

Emergency-Announcement Password	Identifies the 4-digit password to use if a caller is required to enter a password when starting or stopping an Emergency Announcement. A four zero password (0000) requires the caller to enter 1 for confirmation when starting or stopping an Emergency Announcement.
Announcement Password	Identifies the 4-digit password to use if a caller is required to enter a password when starting or stopping an Announcement. A four zero password (0000) requires the caller to enter 1 for confirmation when starting or stopping an Announcement.
Zone-Page Password	Identifies the 4-digit password to use if a caller is required to enter a password when starting a zone page. A four zero password (0000) requires the caller to enter 1 for confirmation when starting a zone page.
Alarm Password	Identifies the 4-digit password to use if a caller is required to enter a password when starting or stopping an Alarm. A four zero password (0000) requires the caller to enter 1 for confirmation when starting or stopping an Alarm.
Tone Password	Identifies the 4-digit password to use if a caller is required to enter a password when starting or stopping a tone. A four zero password (0000) requires the caller to enter 1 for confirmation when starting or stopping a Tone.

The Edit System Parameters page also contains a section called Systems Tools. The following table describes parameters for this section:

Table 2-8, System Tools

Server IP Address	Identifies the Nyquist system server's IP address, which will be used by Nyquist devices to register with the Nyquist system server. To change the Server IP Address, select **Change Server IP Address**. On the Change Server IP Address page, use the down arrow to select a valid IP address.
Use Network Time Server defined by DHCP	When enabled, the Network Time Server will be defined by DHCP.

Table 2-8, System Tools (Continued)

Network Time Server	Identifies the IP address or the domain name of the NTP server to be used. To change the NTP server, enter the IP address or the domain name, and then select **Change Network Time Server**.
Appliances Network Time Server Source	Identifies the time source for all appliances on the Nyquist network. The appliances may use one of the following sources: • **nyquist** When this option is selected, all Nyquist appliances will use the Nyquist system server as the NTP server; this is the default option. • **dhcp** When this option is selected, all Nyquist appliances will use the NTP server provided via DHCP Option 42. • **ntpserver** When this option is selected, all Nyquist appliances will use the Network Time Server defined in System Parameters. To change the time source for the appliances, use the down arrow to select the desired source, and then select **Change Appliances Network Time Server**.
Server Date/Time	Identifies the date and time of the server. To change the Server Date/Time, use the **Calendar** icon to select the new date, and then select **Change Server Date/Time**.
Time Zone	Sets the time zone for the server. To change the time zone, select a new time zone from the drop-down menu, and then select **Change Time Zone**. *Note:* You must reboot the server after changing the time zone.

Table 2-8, System Tools (Continued)

Dialing Length	Specifies the number of digits required to dial within the system. Valid values are 3, 4, 5, or 6. To change the dialing length, select a new value from the drop-down menu, and then select **Change Dialing Length**. You must reboot all Nyquist appliances and IP phones. A system backup is automatically created.
Teamviewer ID	Displays the Teamviewer remote control ID number assigned to the Nyquist server.
Teamviewer Enabled	Indicates if Teamviewer is enabled. Selecting **Yes** allows the Nyquist server to be controlled via Teamviewer, a software application used for remotely manipulating and trouble-shooting computer issues.
Teamviewer Password	To set a new password, enter the password and then select **Set Password**. Only alphanumeric characters are allowed for the password.

2.2 Using CoS Configuration

CoS configuration allows the setting of parameters for outgoing call privileges, extensions, and outside lines. You can configure and assign an unlimited number of CoS definitions. Once created, a CoS can be assigned to a station as a Day CoS and a Night CoS. (See "*Editing Station Configuration Settings" on page 118*.) Note that an analog phone cannot be used as a day or night admin.

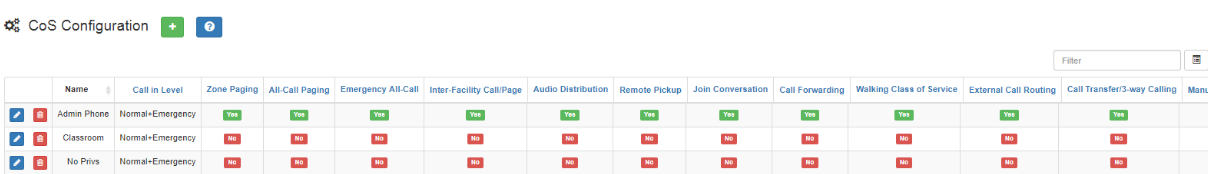


Figure 2-18, CoS Configuration Page

The following table describes the CoS Parameters:

Table 2-9, CoS Configuration Page Parameters

Name	User provided name for the CoS.
Call in Level	For call switch and handset station types, identifies the call as Normal+Emergency, Urgent+Emergency, Emergency only, or Normal only. The system defaults to Normal+Emergency. Call in Levels are described as: • **Normal+Emergency**. Initiates a normal or emergency-level call. Pressing the call switch once or picking up the handset, triggers a normal-level call to the administrative phone. Pressing the call switch or flash hook four times, triggers an emergency-level call to the administrative phone. • **Urgent+Emergency**. Initiates an urgent or emergency-level call. Pressing the call switch or picking up the handset, triggers an urgent-level call to the administrative phone. Pressing the call switch or flash hook four times, triggers an emergency-level call to the administrative phone. • **Emergency Only**. Initiates an emergency level call by pressing the call switch one time or lifting the handset.
Zone Paging	Specifies if Zone Paging is enabled for the associated station.
All-Call Paging	Specifies if the associated station can simultaneously page all speakers within the facility.
Emergency All-Call	Specifies if the associated station can place a top priority all-call page.
Inter-Facility Call/Page	Specifies if the associated station can call or page another facility.
Audio Distribution	Specifies if the associated station can use an audio source, such as a flash drive.
Remote Pickup	Specifies if the associated station can be answered remotely.

Table 2-9, CoS Configuration Page Parameters (Continued)

Join Conversation	Enables the caller to interrupt or join an existing call. If a call is placed to a busy station, the system waits 10 seconds and then bumps or interrupts the call with the new caller, or the caller can dial an access string to join the existing call. This feature applies to administrative display phones only.
Call Forwarding	Permits a user to redirect or route incoming calls to another station.
Walking Class of Service	Enables the manual override of telephone restrictions.
External Call Routing	Enables the station to transfer a call to an outside line.
Call Transfer/3-way Calling	Allows the associated station user to contact a third-party while on a call, establish a three-way conversation and then drop off allowing the two other parties to remain connected.
Manually Activate Tone Signals	Enables a user to initiate tones outside of the schedule.
Call Any Station	Enables a station to call any station.
Manage Recordings	Allows the station user to manage recordings, such as emergency call recordings.
Monitor Calls	Allows the station user to monitor active calls.
Monitor Locations	Allows the station user to monitor locations (not active calls).
Conference Admin	Allows the station user to join a conference as an administrator.
Conference User	Allows the station user to join a conference as a user.
Voicemail	Allows the station user to receive voicemail.
Record Calls	Allows the station user to begin recording an active call by pressing *3 any time during the call. This option is for use with admin phones when a Normal, Urgent, or Emergency intercom call is being made.
Activate Alarm Signals	Allows the station to activate alarms.
Disable Audio	Allows a station with contact closure to disable audio during a fire alarm or other emergency.

Table 2-9, CoS Configuration Page Parameters (Continued)

Enable Audio	Allows enabling of audio previously disabled during an emergency event.
Allow Callee Auto-answer	Allows call auto-answer by the callee for calls placed by this station.
Multi-Site Paging	Allows station to perform multiple site paging.
Inter-Facility Features	Allows the station to call extensions on remote facilities for voice mail and access to recorded calls and to stop audio.
Manage Output Contacts	Allows the station to activate or reset output contacts on I/O Controllers. For more information about managing output contacts, see *"Configuring I/O Controller Output Rules" on page 130*.
Execute Routines	Allows the station to execute routines via DTMF codes. For more information about managing routines, see *"Using Routines" on page 381*.

2.2.1 Editing CoS Parameters for a Station

To edit CoS Parameters for a station:

Step 1 On the navigation bar, select **CoS Configuration**.

Step 2 For the station that you want to edit CoS settings, select the **Edit** icon.

Step 3 Make the desired changes. You can use the **All On** button to turn all features on or the **All Off** button to turn all features off. For information about the settings, see *"CoS Configuration Page Parameters" on page 64*.

Step 4 After all changes are made, select **Save**.

2.2.2 Deleting CoS Parameters for a Station

To delete CoS Parameters for a station:

Step 1 On the navigation bar, select **CoS Configuration**.

Step 2 For the station that you want to delete CoS settings, select the **Delete** icon.

Step 3 When prompted, select **Delete**.

2.2.3 Adding CoS Parameters for a Station

To add CoS Parameters for a station:

Step 1 On the navigation bar, select **CoS Configuration**.

Step 2 Select the **Add** icon.

Step 3 Complete Parameters for the station. For information about the settings, see "*Table 2-9, CoS Configuration Page Parameters" on page 64*.

Step 4 After all changes are made, select **Save**.

2.3 Managing SIP Trunks

A SIP trunk is an IP based network connection between Nyquist and an Internet Telephony Service Provider (ITSP), which is also known as a VoIP telephone service provider. It allows you to use VoIP telephony beyond the facility's firewall without the need for a Public Switched Telephone Network (PSTN), providing a configuration that is easier and less expensive to operate and maintain. SIP trunks can carry VoIP calls, Enhanced 911, and other real-time communications services.

A SIP Tie-Trunk (or a SIP Tie-Line) functions similarly to a SIP trunk, but serves as an IP based inter-connection between Nyquist and a local (premises-based) or hosted IP-PBX. For information about using SIP Tie-Trunks with Nyquist, refer to "*SIP Trunk Custom Configuration Settings" on page 75*.

Before you can set SIP parameters in Nyquist, you must first set up the system's DISA function by creating a station with the **Type** of **DISA Line**. (See "*Adding a Station" on page 153*.)

If you will require support from Bogen during the implementation process, you must install Teamviewer on the Nyquist system server and enable Remote access capabilities in the LAN to allow a remote connection to the server. In addition, Wireshark must be installed in the Nyquist system server to allow packet inspection during SIP implementation and troubleshooting. It is recommended that the technician performing the install be skilled with SIP implementation and testing. The Firewall setting must allow Port 5060 and Ports 10000 – 20000 for the RTP traffic. Any other type of SIP connectivity could be available via an individual case basis process.

2.3.1 How Nyquist Handles Incoming SIP Calls

> *Note:* If a SIP trunk is configured but disabled in the Nyquist System Parameters, then incoming calls from the SIP trunk are ignored.

When a SIP trunk is enabled and Nyquist receives an incoming call on that SIP trunk, Nyquist routes the call based on the **Access** parameter set in the Nyquist SIP trunk's parameters. The **Access** parameter is set when editing or adding SIP trunk configuration (see *"Editing a SIP Trunk Configuration" on page 81* and *"Adding SIP Trunk Configuration Parameters" on page 72*) and must match the ITSP switch configuration.

Based on the **Access** parameter setting, Nyquist does one of the following:

- Routes the call to a DISA function/station
- Routes the call to a Security DISA function/station
- Routes the call to a defined Day Admin or Night Admin

The following **Access** settings route the incoming SIP trunk call to the DISA functionality:

- DISA – Bi-directional – No password
- DISA – Bi-directional – Password
- DISA – Incoming only – No password
- DISA – Incoming only – Password
- PBX Connection – Incoming only. Allow DISA, No password
- PBX Connection – Incoming only. Allow DISA, Password

When the Nyquist system receives an incoming call, the caller will hear a dial tone. The caller can then dial any Nyquist extension or any Dual Tone Multi-Frequency (DTMF) code that is associated with a Nyquist feature. For example, after hearing the dial tone, the caller can dial #0911 to launch an Emergency All-Call page. (See *"Nyquist DTMF Feature Dialing Codes" on page 477* for a list of DTMF codes.)

When incoming calls are routed to the DISA function, the SIP trunk **Extension** setting is used to map the SIP trunk to a station of type **DISA Line**; the associated station's CoS configuration is used to determine what Nyquist functions the incoming DISA user is allowed to initiate. (See *"Adding CoS Parameters for a Station" on page 67*.)

The **Extension** parameter is also used as the caller ID when a DISA user dials a station extension.

The following **Access** settings route the incoming SIP trunk call to Security DISA functionality:

- Security DISA – Bi-directional – Listen only
- Security DISA – Incoming – Listen only
- PBX Connection – Incoming only, security DISA

The caller must enter a valid extension to be monitored and can only listen to calls or station locations.

The following **Access** settings route the incoming SIP trunk call to the defined Day or Night Admin:

- Unrestricted
- Incoming Only

If the Day or Night Admin does not answer the incoming call, the call is routed, or rolled over, to the Admin Group. (See *"Using Admin Groups" on page 211*.)

If the call is not answered during night hours and the Night Ring option is enabled, the call is routed using the Night Ring functionality. (See *"Setting Night Call Options" on page 31*.)

2.3.2 How Nyquist Handles Outgoing SIP Calls

Nyquist users can initiate outside calls by dialing a number that starts with the outside call prefix (98). Outside calls are only sent to SIP Trunks that have one of the following **Access** settings:

- DISA – Bi-directional – No Password
- DISA – Bi-directional – Password
- Security DISA – Bi-directional – Listen only
- Unrestricted
- Outgoing Only

Note: Use the PBX Connection options only if the PBX accepts 7-digit and 10-digit domestic and 12digit international PSTN telephone numbers and can initiate outbound calls to specified telephone numbers.

- PBX Connection – Bi-directional, No DISA
- PBX Connection – Bi-directional, Allow DISA, No password
- PBX Connection – Bi-directional, Allow DISA, Password
- PBX Connection – Bi-directional, Security DISA

When outside calls are placed, the outbound caller ID is set to the Direct Inward Dial (DID) defined for the SIP Trunk. (See "*Editing a SIP Trunk Configuration" on page 81* or "*Adding SIP Trunk Configuration Parameters" on page 72*.)

When **Access** is set to **911 Only**, only outgoing 911 calls may be routed on the associated SIP trunk. The **DID** parameter is not used for outgoing 911 calls; it is expected that the SIP trunk provider has mapped the Billing Telephone Number (BTN) to E911 service.

All outgoing calls are routed through the SIP trunk provider using the following SIP trunk configuration parameters:

- Host IP Address
- Username
- Password

If the SIP trunk provider expects all called numbers to be prefixed with a specific code, the **Dial Prefix** setting can be used to satisfy the requirement.

If the SIP trunk provider expects all called 7-digit numbers to be prefixed with a specific local area code, the **Local Area Code** setting can be used to satisfy the requirement. (See "*Adding SIP Trunk Configuration Parameters" on page 72*.)

2.3.3 Configuring SIP Tie-Trunks Between Nyquist and PBX Systems

If you want all incoming calls from the PBX to always use DISA to prompt the user for Nyquist dial codes, then use one of the **Access** options that starts with **DISA** (for example, **DISA – Incoming only - No password**).

If you want all incoming calls from the PBX to directly pass in dial codes that have already been collected from the user by the PBX or created by the PBX, then choose one of the **Access** options that starts with **PBX Connection** (for example, **PBX Connection – Incoming only, Allow DISA, No password**).

When any of the following **Access** options are configured for the SIP Tie-Trunk, the Nyquist server expects that dialing digits are provided by the PBX system (the dialing digits should be included in the SIP INVITE from the PBX), and Nyquist will immediately initiate a Nyquist call based on the digits provided:

- PBX Connection – Incoming only, No DISA
- PBX Connection – Incoming only, Allow DISA, No password
- PBX Connection – Incoming only, Allow DISA, Password
- PBX Connection – Bi-directional, No DISA
- PBX Connection – Bi-directional, Allow DISA, No password
- PBX Connection – Bi-directional, Allow DISA, Password

If the PBX Connection option includes **Allow DISA**, the PBX may start the DISA function by sending dialing code 950. The DISA function will also be started if the PBX does not pass any dialing digits in the SIP INVITE.

If **PBX Connection – Incoming only, No DISA** is used, the SIP Trunk must still have a DISA station type linked to the SIP trunk extension to provide the Nyquist CoS settings to be used for incoming calls, but when incoming connections are made from the PBX, the Nyquist system will ignore dialing code 950. The DISA function cannot be requested if the **No DISA** option is used.

The dialing digits provided by the PBX can be any of the DTMF codes supported by the Nyquist system. Access to various Nyquist features is granted based on the Nyquist CoS settings of the DISA station extension defined in the SIP Trunk.

If the PBX is not able to pass through # in the dialing digits, alternate dialing codes may be used to replace Nyquist extensions that start with #. The following table describes the alternate dialing codes:

Table 2-10, Alternate Dialing Codes

Nyquist Feature	Dialing Code	Alternate Dialing Code
All-Call Page	#0	0000000

Table 2-10, Alternate Dialing Codes (Continued)

Nyquist Feature	Dialing Code	Alternate Dialing Code
Emergency All-Call Page	#0911	951
Zone Page	#<zone number>	0000099<zone number>

When the following Access options are configured for the SIP Tie-Trunk, upon connection from the PBX system (via SIP INVITE), the Nyquist system automatically activates the Security DISA function:

- PBX Connection - Incoming only, security DISA
- PBX Connection - Bi-directional, Security DISA

The caller must enter an access PIN, followed by the extension number of the station that he wants to monitor:

2.3.4 Adding SIP Trunk Configuration Parameters

Before adding a SIP trunk, the following parameters must be configured or known:

- Extension for the Nyquist DISA line station associated with the specified SIP trunk; the station will have **DISA Line** selected as **Type** (see "*Viewing Station Configuration Settings" on page 106*).
- Dial prefix and format used to connect to an outside line
- Local area code
- Username and password for the DISA line
- DID phone number associated with the DISA line
- Codecs allowed
- Admin Group set up for the SIP extension (see "*Using Admin Groups" on page 211*)

To add a SIP trunk:

Step 1 On the navigation bar, select **SIP Trunks**.

Step 2 On the SIP Trunks page, select the

Step 3 **Add** icon.

Step 4 On the Add SIP Trunk page, complete the parameters. (See *"Adding SIP Trunk Configuration Parameters" on page 72*.)

Step 5 Select **Save.**

Table 2-11, Add SIP Trunk Page Parameters

Name	Enter the name for the SIP trunk. The name cannot contain spaces or a slash (/) and cannot exceed 16 characters.
Extension	Select the DISA station extension that is associated with the SIP trunk.
Dial Prefix	Enter the dial prefix required by the ITSP to complete an outbound call over the SIP trunk. For example, 9, 9+1, etc.
Local Area Code	Enter the local area code if the ITSP requires 7-digit telephone numbers be prefixed with the area code. Otherwise, this field is left blank.
Enabled	Specify if the SIP trunk is enabled. The SIP trunk should be configured before it is enabled to avoid erratic system behavior.

Table 2-11, Add SIP Trunk Page Parameters (Continued)

Access	Select the outside access permissions for the SIP trunk. Options are: • 911 Only • DISA – Bi-directional – No password • DISA – Bi-directional – Password • DISA – Incoming only – No password • DISA – Incoming only – Password • Incoming Only • No Access • Outgoing Only • Security DISA – Bi-directional – Listen only • Security DISA – Incoming – Listen only • Unrestricted • PBX Connection – Incoming only, No DISA • PBX Connection – Incoming only, Allow DISA, No password • PBX Connection – Incoming only, Allow DISA, Password • PBX Connection – Incoming only, security DISA • PBX Connection – Bi-directional, No DISA • PBX Connection – Bi-directional, Allow DISA, No password • PBX Connection – Bi-directional, Allow DISA, Password • PBX Connection – Bi-directional, Security DISA
Username	Enter the user name that is required to access the SIP trunk.
Password	Enter the password that is required to access the SIP trunk. The password is provided by the SIP trunk provider or hosted VoIP provider.
Password Confirmed	Re-enter the SIP trunk password.
Host	Enter the host name or IP address for the ITSP.

Table 2-11, Add SIP Trunk Page Parameters (Continued)

DID	Enter the 10-digit DID telephone number that the SIP trunk or hosted VoIP provider has assigned the SIP trunk, using the format NPANXXxxxx (that is, no spaces or dashes).
Day Admin	Select the Admin Station to call during daytime hours.
Night Admin	Select the Admin Station to call during nighttime hours.
Admin Group	Select the Admin Group to call if the day or night Admin Stations do not answer the call.
Call Recording	Provide if incoming and outgoing calls are to be recorded.
Allow	Provide a list of media codecs that are allowed. PSTN standard codecs are G.711 or ULAW.
Description	Provide user provided description for the SIP trunk.
Custom Settings	Provide custom setting configurations that are provided by Technical Support. (See "*SIP Trunk Custom Configuration Settings" on page 75*.)

2.3.5 SIP Trunk Custom Configuration Settings

The **Custom Settings** parameter can be used if additional parameters are needed during SIP trunk configuration to satisfy SIP trunk provider requirements. Bogen Technical Support will provide any necessary custom settings. In most cases, **Custom Settings** are not required.

Custom Settings can be entered when adding or editing SIP Trunk parameters (see "*Adding SIP Trunk Configuration Parameters" on page 72* or "*Editing a SIP Trunk Configuration" on page 81*) using the following format:

:TABLE-NAME:<variable>=<value>:TABLE-NAME:

In this format, TABLE-NAME is one of the following:

- ENDPOINT
- AOR
- AUTH
- SIPTRUNK

Variable is a valid variable from one of the pjsip tables (ps_endpoints, ps_aors, ps_auths) or sip_trunk table.

Value is a valid value for a specified variable.

Contact Technical Support for information regarding Custom Settings for your specific IP-PBX type and configuration.

2.3.6 Registering as a Third-Party SIP Endpoint

You can configure a Nyquist SIP trunk to register with a third-party SIP endpoint with an IP-PBX. This will allow users to dial an IP-PBX defined extension to initiate Nyquist features, such as paging.

The steps to register the Nyquist SIP trunk as a third-party SIP endpoint for an IP-PBX are:

1 **Define a Third-Party SIP Phone/Endpoint on your IP-PBX system.** On the IP-PBX system, set up a third-party SIP phone/endpoint as you would for a standard single-line basic SIP IP phone with a username and password to use for authentication. Typically, the username would be the extension number. The Nyquist system will attempt to register with your IP-PBX system as a SIP endpoint extension using the provided username (extension) and password pair. Your IP-PBX users will dial the provided IP-PBX extension to access the Nyquist system.

2 **Define a DISA station on Nyquist system.** On the Nyquist System, create a **DISA Line** station **Type**. This station's extension will define the feature CoS permissions to be used when the IP-PBX calls into the Nyquist system.

> *Note:* The station extension used for the DISA Line must be different than the extension being used by your IP-PBX.

3 **Define a SIP Trunk on Nyquist system.** Configure a Nyquist SIP Trunk using the username (PBX extension) and password that was defined on your IP-PBX in step 1.

For example, suppose the IP-PBX has defined extension 511 as the SIP endpoint with password **testpassword**. The Nyquist SIP trunk must use **511** in the **Name**, **Username**, and **DID** parameters on the Add SIP Trunk page. Nyquist station extension 500 is defined as a **DISA** station.

When an IP-PBX user calls 511, the Nyquist system will see an incoming call to extension 511. Nyquist converts to the DISA station extension 500 (to provide CoS definitions for 511 and Caller-ID to the Nyquist system). DISA will be started, allowing the IP-PBX caller to initiate a feature on the Nyquist system. When DISA starts, the IP-PBX user hears a dial tone. The IP-PBX user can then enter DTMF/dial-pad based feature commands to start paging and other Nyquist features.

Table 2-12, Nyquist SIP Trunk Configuration

Name	511 (Username/extension provided by IP-PBX)
Extension	500 (DISA station extension defined on the Nyquist system. On Nyquist, it will look like the call came from this extension.))
Dial Prefix	NOT USED
Local Area Code	NOT USED
Enabled	Yes
Access	• PBX Connection – Incoming only, Allow DISA, No password • PBX Connection – Incoming only, Allow DISA, Password
Username	511 (Username/extension provided by IP-PBX)
Password	testpassword (Password provided by IP-PBX)
Host	10.10.5.100 (The IP-PBX's IP Address or fully qualified domain name, for example, myhost.mycom-pany.com)
DID	511 (Username/extension provided by IP-PBX)
Day Admin	NOT USED (Pick any valid Nyquist Admin extension)
Night Admin	NOT USED (Pick any valid Nyquist Admin extension)
Admin Group	NOT USED (Pick any valid Nyquist Admin extension)

Table 2-12, Nyquist SIP Trunk Configuration (Continued)

Allow	g722 (or ulaw or other codec if needed)
Custom Settings	:AUTH:realm='':AUTH: :SIPTRUNK:context='511':SIPTRUNK: *Note:* If you copy/paste these settings, delete the single quotes after pasting and replace them with single quotes. For some reason, the copy/paste operation does not successfully copy the single quotes; they get turned into a different character that looks like single quotes. *Note:* If realm=' ' does not work, try realm='<server_ip_address>' or realm='<server_hostname>'

2.3.7 Viewing SIP Trunks

To view available SIP trunks for your facility:

On the navigation bar, select **SIP Trunks**.

The following table describes the details that can be viewed for each SIP trunk:

Table 2-13, SIP Trunks Page Parameters

Name	Provides the name for the SIP trunk. The name cannot contain spaces or a slash (/).
Description	Provides user provided description for the SIP trunk.
Enabled	Specifies if the SIP trunk is enabled.
Status	Provides registration status of the SIP trunk. If the credentials are used by the SIP end point, the **Status** might be **Register**. If the SIP end point does not use credentials, the **Status** might be **Rejected** but this will not impede a successful SIP connection.

Table 2-13, SIP Trunks Page Parameters (Continued)

Access	Identifies the outside access permissions for the SIP trunk. Options are: • 911 Only • DISA – Bi-directional – No password • DISA – Bi-directional – Password • DISA – Incoming only – No password • DISA – Incoming only – Password • Incoming Only • No Access • Outgoing Only • Security DISA – Bi-directional – Listen only • Security DISA – Incoming – Listen only • Unrestricted • PBX Connection – Incoming only, No DISA • PBX Connection – Incoming only, Allow DISA, No password • PBX Connection – Incoming only, Allow DISA, Password • PBX Connection – Incoming only, security DISA • PBX Connection – Bi-directional, No DISA • PBX Connection – Bi-directional, Allow DISA, No password • PBX Connection – Bi-directional, Allow DISA, Password • PBX Connection – Bi-directional, Security DISA
Extension	Identifies the station extension that is associated with the outside line (DISA station mapping and caller ID for incoming DISA).
DID	Identifies the DID telephone number associated with the outside line. This number is assigned by the ITSP provider.
Username	Identifies the user name that is required to access the SIP trunk.
Host	Identifies the host name or IP address for ITSP.

Table 2-13, SIP Trunks Page Parameters (Continued)

Dial Prefix	Provides the prefix required by the ITSP to complete an outbound call over the SIP trunk. For example,9, 9+1, etc.
Local Area Code	Provides the local area code if the ITSP requires the 7-digit telephone number be prefixed with the area code. Otherwise, this field is left blank.
Type	Identifies this system trunk's type as a SIP trunk.
Day Admin	Identifies the Admin Station to call during daytime hours.
Night Admin	Identifies the Admin Station to call during nighttime hours.
Admin Group	Identifies the Admin Group to call if the day or night Admin Stations do not answer the call.
Codecs Allowed	Provides a list of media codecs that are allowed. Codecs are separated by a semi-colon.
Call Recording	Indicates if incoming and outgoing calls are being recorded.
Custom Settings	Identifies custom setting configurations that are provided by Technical Support. For more information, refer to *"SIP Trunk Custom Configuration Settings" on page 75*.

2.3.8 Editing a SIP Trunk Configuration

You cannot edit the name given to a SIP trunk, but you can edit other fields, such as the Dial Prefix and Local Area Code.

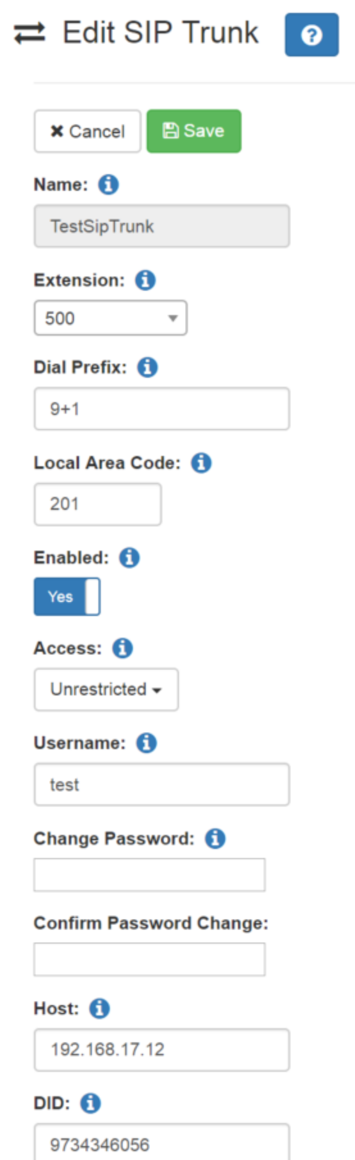


Figure 2-19, Edit SIP Trunks Page

To edit a SIP Trunk's configuration:

Step 1 On the navigation bar, select **SIP Trunks**.

Step 2 On the SIP Trunks page, select the **Edit** icon for the SIP trunk that you want to edit.

Step 3 On the Edit SIP Trunk page, make the desired changes. (See "*Table 2-14, Edit SIP Trunks Page Parameters" on page 82*.)

Step 4 Select **Save**.

Table 2-14, Edit SIP Trunks Page Parameters

Name	Displays the name for the SIP trunk. This parameter cannot be edited.
Extension	Enter the Nyquist DISA station extension that is associated with the outside line (DISA station mapping and caller ID for incoming DISA).
Dial Prefix	Enter the dial prefix required by the ITSP to complete an outbound call over the SIP trunk. For example,9, 9+1, etc.
Local Area Code	Enter the local area code if the ITSP requires the 7-digit telephone number be prefixed with the area code. Otherwise, this field is left blank.
Enabled	Specify if the SIP trunk is enabled. SIP trunks should be fully configured before they are enabled to avoid erratic system behavior.

Table 2-14, Edit SIP Trunks Page Parameters (Continued)

Access	Enter the outside access permissions for the SIP trunk. Options are: • 911 Only • DISA – Bi-directional – No password • DISA – Bi-directional – Password • DISA – Incoming only – No password • DISA – Incoming only – Password • Incoming Only • No Access • Outgoing Only • Security DISA – Bi-directional – Listen only • Security DISA – Incoming – Listen only • Unrestricted • PBX Connection – Incoming only, No DISA • PBX Connection – Incoming only, Allow DISA, No password • PBX Connection – Incoming only, Allow DISA, Password • PBX Connection – Incoming only, security DISA • PBX Connection – Bi-directional, No DISA • PBX Connection – Bi-directional, Allow DISA, No password • PBX Connection – Bi-directional, Allow DISA, Password • PBX Connection – Bi-directional, Security DISA
Username	Enter the user name that is required to access the SIP trunk.
Change Password	Enter the password that is required to access the SIP trunk. The password is provided by the SIP trunk provider or hosted VoIP provider.
Confirm Password Change	Re-enter the SIP trunk password.
Host	Enter the host name or IP address for the ITSP.

Table 2-14, Edit SIP Trunks Page Parameters (Continued)

DID	Enter the DID telephone number associated with the outside line.
Day Admin	Select the Admin Station to call during daytime hours.
Night Admin	Select the Admin Station to call during nighttime hours.
Admin Group	Select the Admin Group to call if the day or night Admin Stations do not answer the call.
Call Recording	Select if incoming and outgoing calls are to be recorded.
Allow	Enter a list of media codecs that are allowed. PSTN standard codecs are G.711 or ULAW.
Description	Edit user provided description for the SIP trunk.
Custom Settings	Edit custom setting configurations that are provided by Technical Support. For more information, refer to "*SIP Trunk Custom Configuration Settings" on page 75*.

2.3.9 Deleting a SIP Trunk Configuration

If you are no longer paying for or using a SIP trunk service via an external provider, you may want to delete a previously added SIP trunk.

To delete a SIP trunk:

Step 1 On the navigation bar, select **SIP Trunks**.

Step 2 On the SIP Trunks page, select the

Step 3 **Delete** icon next to the SIP trunk that you want to delete.

Step 4 Select **Delete**.

2.4 Viewing Outside Line Status

The status of every outside line in a facility can be quickly determined by using the Outside Lines feature.

To view the outside lines:

On the navigation bar, select **Outside Lines**.

Table 2-15, Outside Lines Page Parameters

Name	Identifies the system port name for the outside line.
Description	Identifies the user provided description of the outside line's purpose.
Enabled	Specifies if the outside line is enabled.
Status	Provides the status of the line.
Port Type	Identifies system port type used for this line.

Table 2-15, Outside Lines Page Parameters (Continued)

Access	Identifies level of access allowed on this outside line. Options are: • 911 Only • DISA – Bi-directional – No password • DISA – Bi-directional – Password • DISA – Incoming only – No password • DISA – Incoming only – Password • Incoming Only • No Access • Outgoing Only • PBX Connection – Bi-directional, Allow DISA, No password • PBX Connection – Bi-directional, Allow DISA, Password • PBX Connection – Bi-directional, No DISA • PBX Connection – Bi-directional, Security DISA • PBX Connection – Incoming only, Allow DISA, No password • PBX Connection – Incoming only, Allow DISA, Password • PBX Connection – Incoming only, No DISA • PBX Connection – Incoming only, Security DISA • Security DISA – Bi-directional – Listen only • Security DISA – Incoming – Listen only • Unrestricted
Dial Prefix	Identifies the digit or digits that must be dialed to obtain an outside line.
Extension	Identifies the station extension that is associated with the outside line (DISA station mapping and caller ID for incoming DISA).
DID	Identifies the DID telephone number associated with the outside line.
Day Admin	Identifies the Admin Station to call during daytime hours.

Table 2-15, Outside Lines Page Parameters (Continued)

Night Admin	Identifies the Admin Station to call during nighttime hours.
Admin Group	Identifies the Admin Group to call if the day or night Admin Stations do not answer the call.

2.4.1 Editing Outside Lines

You can edit information or disable an outside line through the Edit Outside Line page.

To edit an outside line:

Step 1 On the navigation bar, select **Outside Lines**.

Step 2 Select the **Edit** icon next to the outside line name.

Step 3 Make desired edits.

Step 4 Select **Save**.

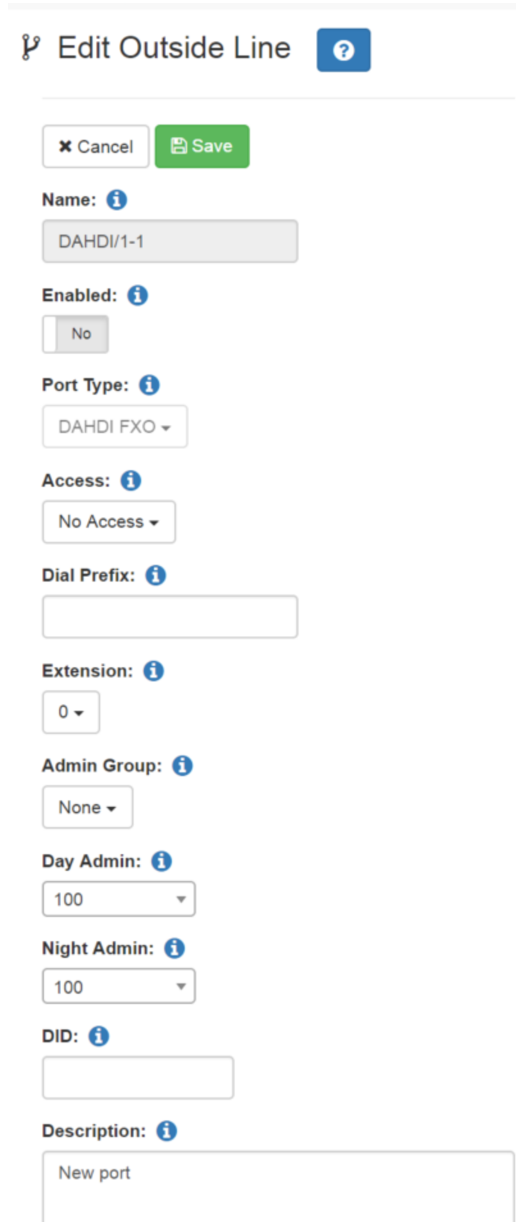


Figure 2-20, Edit Outside Line Page

Table 2-16, Edit Outside Line Page Parameters

Name	Identifies the system port name for the outside line. This parameter cannot be edited.
Enabled	Specifies if the outside line is enabled.

Table 2-16, Edit Outside Line Page Parameters (Continued)

Port Type	Identifies system port type used for this line. This parameter cannot be edited.
Access	Identifies level of access allowed on this outside line. Options are: • 911 Only • DISA – Bi-directional – No password • DISA – Bi-directional – Password • DISA – Incoming only – No password • DISA – Incoming only – Password • Incoming Only • No Access • Outgoing Only • PBX Connection – Bi-directional, Allow DISA, No password • PBX Connection – Bi-directional, Allow DISA, Password • PBX Connection – Bi-directional, No DISA • PBX Connection – Bi-directional, Security DISA • PBX Connection – Incoming only, Allow DISA, No password • PBX Connection – Incoming only, Allow DISA, Password • PBX Connection – Incoming only, No DISA • PBX Connection – Incoming only, Security DISA • Security DISA – Bi-directional – Listen only • Security DISA – Incoming – Listen only • Unrestricted
Dial Prefix	Identifies the digit or digits that must be dialed to obtain an outside line.
Extension	Identifies the station extension that is associated with the outside line (DISA station mapping and caller ID for incoming DISA).

Table 2-16, Edit Outside Line Page Parameters (Continued)

Admin Group	Identifies the Admin Group to call if the day or night Admin Stations do not answer the call.
Day Admin	Identifies the Admin Station to call during daytime hours.
Night Admin	Identifies the Admin Station to call during nighttime hours.
DID	Identifies the DID telephone number associated with the outside line.
Description	Identifies the user provided description of the outside line's purpose.

2.4.2 Discover Ports

The Discover Ports feature allows Nyquist to automatically discover a new installed DAHDI PCI card and to automatically create entries for each port supported by the installed card. You can then edit each port with custom settings. The port name and port type are automatically set by Nyquist and cannot be changed.

2.5 Configuring Firmware

> *Note:* Before configuring or using any Nyquist appliances, you must ensure that the appliance firmware is updated to the latest release. The latest firmware release can be obtained from the secured ES Dealers website: http://www.bogenedu.com/nyquist-secure-dealer-resources/

Firmware, computer software stored on a hardware device, can be updated for Nyquist stations through the Nyquist Admin Web UI or through the appliance's web UI. For information about the appliance's web UI, refer to the device's configuration manual.

Through the Nyquist Admin Web UI, you can upload a firmware file to the Nyquist system server, download firmware to a station, view a list of stations that are linked to a firmware name, set default firmware for any stations to be added, and delete firmware entries. For stations that are attached to a Networked Power Amplifier, such as an NQ-A2300, the firmware is updated to the amplifier and not to the individual station.

2.5.1 Viewing Firmware Stored on the Nyquist System Server

From the Firmware page, you can view a list of available firmware, bring up a list of devices that can be selected for updating firmware, set the file to the default firmware, check for updates, view release notes, select to edit information about or delete firmware files on the Nyquist system server, and configure automatic software downloads.

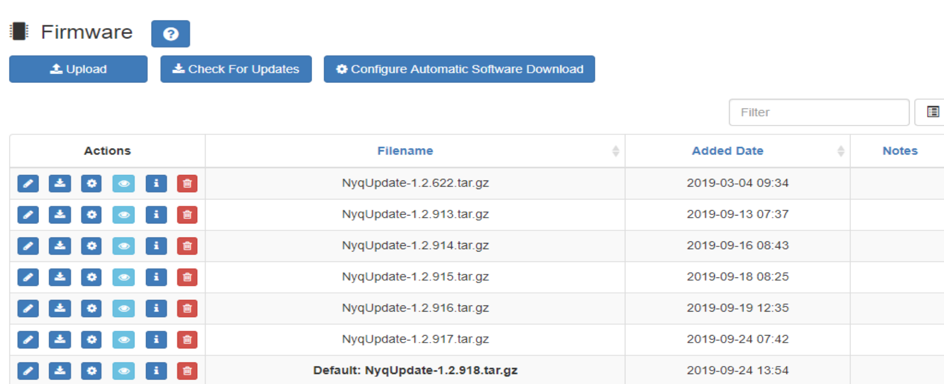


Figure 2-21, Firmware Page

To view firmware available for loading into Nyquist devices:

On the Navigation bar, select **Firmware**.

The following table describes the information provided for each station or bridge device:

Table 2-17, Firmware Page Parameters

Filename	Provides the name of firmware file that is ready for installing to a Nyquist device.
Added Date	Provides the date that the firmware file was loaded to the Nyquist system server.
Notes	Provides notes entered by a user.

2.5.2 Viewing Devices With a Specific Firmware Installed

You can obtain a list of all devices in your Nyquist system that have a specific firmware version installed.

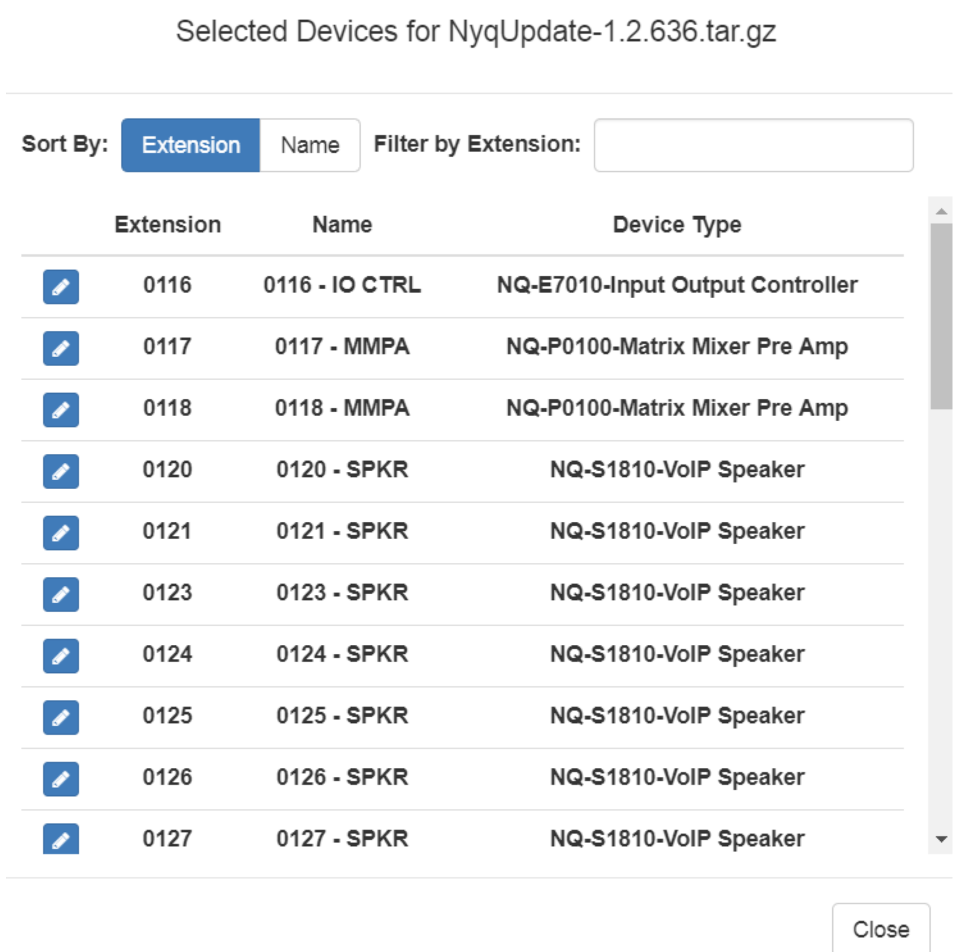


Figure 2-22, Selected Devices for Firmware Version

To obtain a list of devices with the same firmware version installed:

Step 1 On the Navigation bar, select **Firmware**.

Step 2 On the Firmware page, select the **View Selected Devices** icon next to a listed firmware version.

A list of the devices that have the selected firmware version installed appears.

Step 3	Select **Close** to return to the Firmware page.

2.5.3 Uploading New Firmware to the Server

The Firmware page contains an **Upload** button that allows you to upload new files to the Nyquist system server's /srv/tftp directory.

To upload new firmware to the server:

Step 1	On the navigation bar, select **Firmware**.
Step 2	On the Firmware page, select **Upload**.
Step 3	Navigate to the file that you want to upload.
Step 4	Select **Upload**.

2.5.4 Checking for Updates

The Firmware page contains a **Check for Updates** button that allows you to check if new firmware is available and download updates that exist.

To check for firmware updates:

Step 1 On the navigation bar, select **Firmware**.

Step 2 On the Firmware page, select **Check For Updates**.
A popup window appears with one of the following messages:

- No firmware dates available
- Can't check for updates, check Internet connection, and try again
- Downloading firmware update

  If the system attempts to download a firmware update, you will receive a message that the firmware download was either successful or failed. In the case of a failure, you will be prompted to try again.

Step 3 When prompted, select **OK**.

2.5.5 Selecting Devices for Firmware Update

You can select one or more devices for a firmware update.

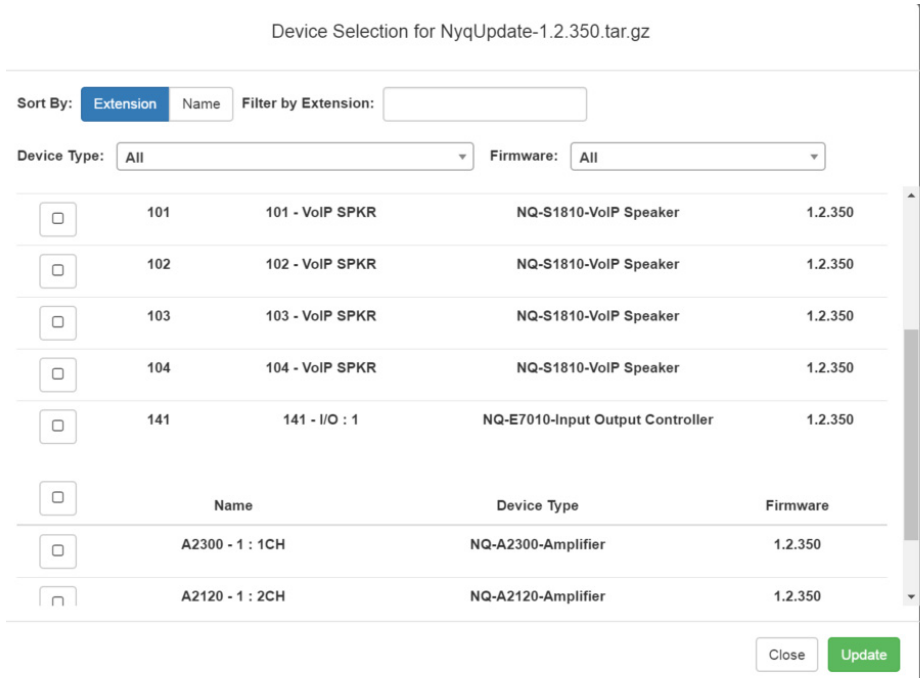


Figure 2-23, Device Selection for Firmware Update

To select devices for firmware update:

Step 1 On the navigation bar, select **Firmware**.

Step 2 On the Firmware page, select the **Device Selection** icon next to the firmware version that you want to load.

Step 3 Select the device or devices that you want to install the firmware to.

Step 4 Select **Update**.

You can select to install firmware to one device at a time. The Device Selection for firmware version screen remains until you select **Close**.

2.5.6 Setting Default Firmware

Through the Firmware page, you can set a firmware file as the default firmware for any new stations added to your Nyquist system.

To set a default firmware file:

Step 1 On the navigation bar, select **Firmware**.

Step 2 On the Firmware page, select the **Set as Default Firmware** icon next to a listed filename.

> **Warning** **Completing this procedure will set the selected firmware file as the default firmware for all new devices, overriding the factory installed firmware. Ensure that the selected firmware version is compatible with your server's software version. To use some appliances, you may need to update your server software.**

Step 3 Select **Yes** to continue.

2.5.7 Downloading Firmware to a Device

To download firmware from the Nyquist system server to a station:

Step 1 On the navigation bar, select **Firmware**.

Step 2 On the Firmware page, select the **Device Selection** icon next to a listed filename.

Step 3 Select the **Update** icon next to the device that you are updating firmware for.

2.5.8 Editing Firmware

You can edit **Notes** for firmware, but you cannot change the **Filename** or **Added Date** information.

To edit notes for firmware:

Step 1 On the navigation bar, select **Firmware**.

Step 2 Select the **Edit** icon next to the desired firmware file.

Step 3 Make changes to the **Notes** parameter.

Step 4 Select **Save**.

2.5.9 Viewing Release Notes for Firmware

Not all firmware versions have release notes. For those that do, you can view the release notes by selecting the appropriate icon in the Actions column.

To view release notes for a firmware version:

Step 1	On the navigation bar, select **Firmware**.
Step 2	On the Firmware page, select the **Information** icon.
Step 3	After viewing the release notes, select **OK**.

2.5.10 Viewing Stations Linked to Firmware

To view stations linked to a specific firmware file:

Step 1	On the navigation bar, select **Firmware**.
Step 2	On the Firmware page, select the **View Selected Devices** icon next to a listed filename.

2.5.11 Deleting Listed Firmware

Note: Firmware cannot be deleted if it is associated with a device.

To delete a firmware file from the Nyquist system server:

Step 1	On the navigation bar, select **Firmware**.
Step 2	On the Firmware page, select the **Delete** icon next to the filename that you want to delete.
Step 3	When prompted, select **Delete**.

2.6 Configuring Facilities

A facility is a building or group of buildings managed by a Nyquist system server. Suppose, for example, that you have a single campus with multiple buildings, such as an administrative office building and a manufacturing plant.

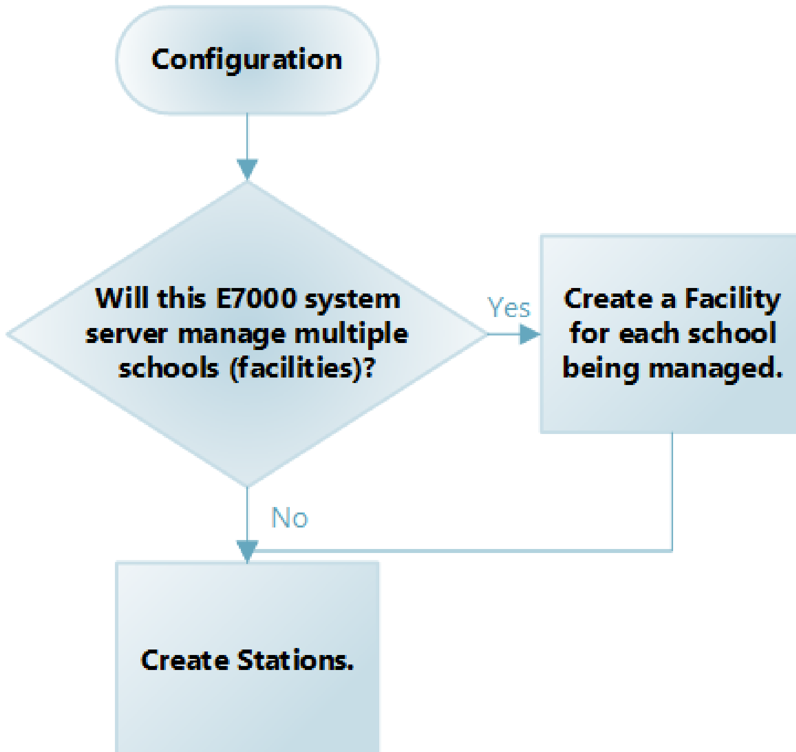


Figure 2-24, Facility Decision Chart

With **Facilities**, you can connect multiple Nyquist facilities (servers) to provide the following multi-site paging and calling features:

- Multi-Site Emergency-All-Call paging to all connected facilities in the Facilities list
- Multi-Site All-Call paging to all connected facilities in Facilities list
- Paging to a specific facility in the Facilities list
- Intercom calls between stations in different facilities in the Facilities list

For information about the Facilities list, see "*Viewing Facilities" on page 100*.

Any connected facility can perform multi-site paging (paging to all facilities listed in the Facilities list) provided the facility has at least one station with the necessary CoS permissions enabled. If you are using an Admin Phone with the correct CoS permissions enabled, you can dial specific DTMF codes to perform various activities.

The following table provides a list of CoS permissions required and DTMF codes used for specific activities.

Table 2-18, Activities, CoS Permissions, and DTMF Codes

Activity	Required CoS Permissions	DTMF Syntax
Multi-Site Emergency-All-Call Page	Emergency All-Call, Multi-Site Paging	##0911
Multi-Site All-Call Page	All-Call Paging, Multi-Site Paging	##0
Facility All-Call Page	Inter-Facility Call/Page	##<Facility Number>
Intercom Call to Remote Facility	Inter-Facility Call/Page	##*<Facility Number>*<Station Extension Number>
Activate System Feature at Remote Facility	Inter-Facility Features	##*<Facility Number>*[900 – 999] ##*<Facility Number>*#<Feature Code> ##*<Facility Number>**<Feature Code> ##*<Facility Number>*00000<Feature Extension>

For information about Facility Error Conditions, see "*Facility Error Conditions" on page 328*.

Your Nyquist network can use multiple servers that all have the same password, or you can set different passwords for each server.

2.6.1 Viewing Facilities

The Facilities page provides a quick view of the building or buildings served by your Nyquist system server.

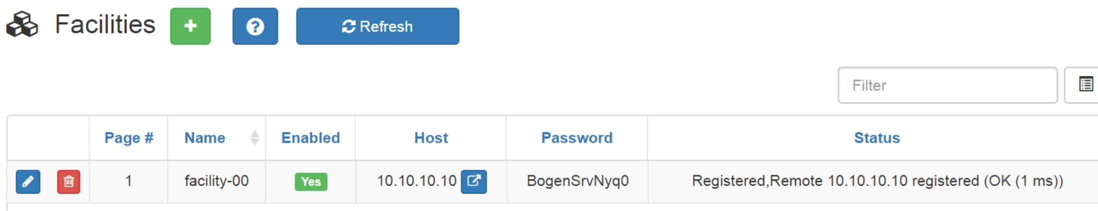


Figure 2-25, Facilities Page

To view facilities:

On the navigation bar, select **Facilities**.

The following table describes the Facility page parameters:

Table 2-19, Facilities Page Parameters

Page #	ID number for facility that is used when paging the facility.
Name	Displays the facility name of the remote server. Spaces in the name are replaced by dashes. The maximum facility name length is 30 characters.
Enabled	Specifies if the facility will register with the remote facility.
Host	Displays the host name or host IP address of the remote server.
Password	Displays the password that is used for the remote connection. The maximum password length is 12 characters.
Status	Displays the registration status of the local and remote facility peers. Some possible statuses are: • **Registration request sent; remote not registered** – Indicates that a connection is not established between the facilities.

Table 2-19, Facilities Page Parameters (Continued)

- **Registered; remote not registered** – Indicates that the local facility is registered with the remote facility but the remote facility is not registered with the local facility. This could be a temporary status captured during server startup, or it might result from the remote server not having the local facility properly configured.
- **Timeout; remote not registered** – Indicates that a connection is not established between facilities. This is probably due to a network connection issue or the remote facility may be down.
- **Timeout; remote 10.10.5.100 registered (OK (8 ms))** – Indicates that the remote facility has registered with the local facility and the connection is good, or OK, with 8 millisecond turnaround time (one-way connection).
- **Registered; remote 10.10.5.100 registered (OK (3 ms))** – Indicates that the local facility has registered with the remote facility, the remote facility has registered with the local facility, and the connection is OK with 3 millisecond turnaround time. This is the desired state.
- **Rejected; remote not registered** – Probably indicates that the remote facility has disabled the local facility's configuration entry.
- **Registered; remote 10.10.5.100 registered (UNREACHABLE)** – Indicates that both ends are (or were) registered but the local facility cannot reach the remote. This is probably due to a network issue or the remote Nyquist system server is down.

2.6.2 Editing a Facility

From the Edit Facility page, you can change parameters for a facility managed by your Nyquist system server.

> *Note:* You cannot edit a facility linked to a **Facility-Page** routine action **Type** (see "*Understanding Action Parameters" on page 406*).

To edit a facility:

Step 1	On the navigation bar, select **Facilities**.
Step 2	Select the **Edit** icon next to the facility that you want to edit.
Step 3	Make the desired changes. (See "*Table 2-20, Edit Facility Page Parameters" on page 102*.)
Step 4	Select **Save**.

Table 2-20, Edit Facility Page Parameters

Page	ID number for facility that is used when paging the facility.
Name	Displays the facility name of the remote server. Spaces in the name are replaced by dashes.
Enabled	Specifies if the facility will register with the remote facility.
Host	Displays the host name or host IP address of the remote server.
Password	Displays the password that is used for the remote connection.

2.6.3 Deleting a Facility

> *Note:* You cannot delete a facility linked to a **Facility-Page** routine action **Type** (see "*Understanding Action Parameters" on page 406*).

To delete a facility:

Step 1	On the navigation bar, select **Facilities**.
Step 2	On the Facilities page, select the
Step 3	**Delete** icon next to the facility that you want to delete.
Step 4	When prompted, select **Delete**.

2.6.4 Adding a Facility

From the Add Facility page, you can add another building or group of buildings to the list of facilities managed by your Nyquist system server.

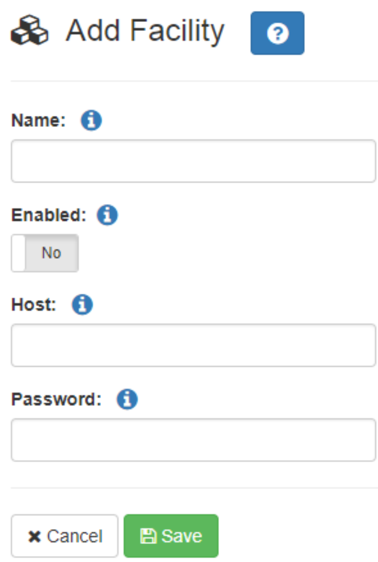


Figure 2-26, Add Facility Page

To add a facility:

Step 1 On the navigation bar, select **Facilities**.

Step 2 On the Facilities page, select the **Add** icon.

Step 3 Complete the Add Facility parameters. (See *Figure 2-21, "Add Facility Page Parameters," on page 103*.)

Step 4 Select **Save**.

Table 2-21, Add Facility Page Parameters

Name	Enter the name of the remote facility. Spaces in the name are replaced by dashes.
Enabled	Specify if this facility will register with the remote facility.
Host	Enter the host name or host IP address of the remote server.
Password	Enter the password that is used for the remote connection.

3 Managing Stations, Zones, and Queues

Managing Stations, Zones, and Queues

You can divide your facility into zones to control paging and audio activities or features. For example, suppose you want to allow the use of an audio source, such as a flash drive, in a cafeteria but prevent it from being played in a conference room. This feature, called audio distribution, can be turned on by zone, so the cafeteria could be placed in a zone that allows audio distribution while conference rooms would not be placed into that zone.

No limit exists for the number of zones or for the number of stations that can be in a multicast zone. Performance limits do exist for unicast connections. The station limit for your system is determined by your license (see "*NQ-E7000SSL – Nyquist E7000 System Station License" on page 486*).

With the Page Queuing feature, you can record an unlimited number of pages or messages for queuing (stacking) for a specified zone or zones. A zone can only be added to a single queue, but a queue may have multiple zones associated with it. Zones must be created before a queue can be created.

A station can be in multiple zones.

An E7000 station is:

- A device used to access the web interface
- A speaker
- A phone
- A Nyquist appliance

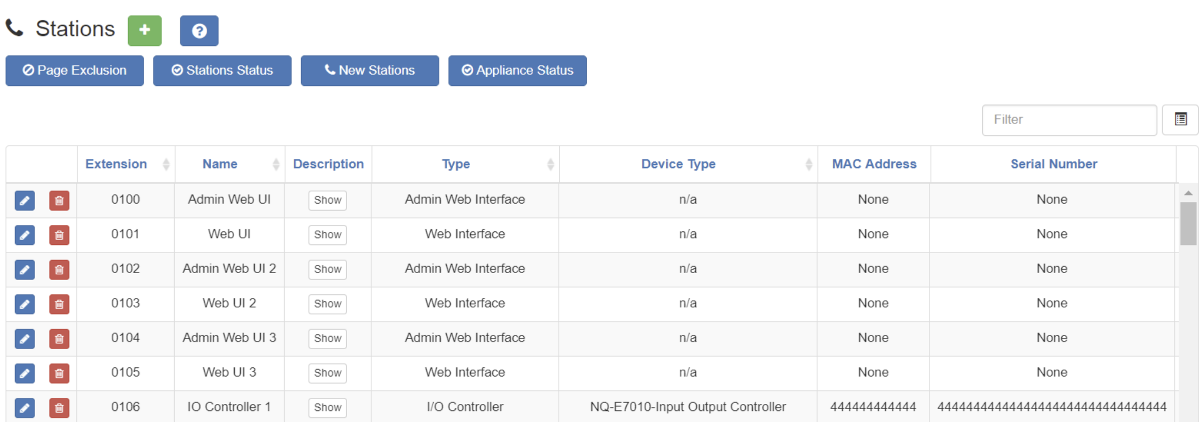
Note: For licensing purposes, an I/O Controller is not counted as a station.

To manage stations and zones, you first add stations and then create zones that contain more than one station. You can add stations by allowing the Nyquist server to automatically discover the device type, MAC address, IP address, and serial number, or manually add these and other parameters. For more information about adding a station, see "*Adding a Station" on page 153*.

3.1 Viewing Station Configuration Settings

On the Stations page, you can:

- View all configured stations.
- Edit a station's configuration. (See "*Editing Station Configuration Settings" on page 118*.)
- Exclude a station from paging. (See "*Excluding Stations from Paging" on page 162*.)
- View station status. (See "*Viewing Station Status" on page 164*.)
- Add new stations. (See "*Adding a Station" on page 153*.)
- View the status of Nyquist appliances, such as the I/O controller. (See "*Viewing Appliance Status" on page 166*.)
- Delete a station. (See "*Deleting a Station" on page 152*.)



	Extension	Name	Description	Type	Device Type	MAC Address	Serial Number
	0100	Admin Web UI	Show	Admin Web Interface	n/a	None	None
	0101	Web UI	Show	Web Interface	n/a	None	None
	0102	Admin Web UI 2	Show	Admin Web Interface	n/a	None	None
	0103	Web UI 2	Show	Web Interface	n/a	None	None
	0104	Admin Web UI 3	Show	Admin Web Interface	n/a	None	None
	0105	Web UI 3	Show	Web Interface	n/a	None	None
	0106	IO Controller 1	Show	I/O Controller	NQ-E7010-Input Output Controller	444444444444	44444444444444444444444444444444

Figure 3-1, Stations Page

To view all stations:

On the navigation bar, select **Stations**.

Station configuration information is described in the following table:

Table 3-1, Station Configuration Page Parameters

Note: Some of the following fields do not appear when adding or editing stations that are of specific device types.

Extension	Specifies the unique multi-digit extension number for the station. Valid values range from 030 to 899 for three-digit dialing. The system can be configured to use three, four, five, or six-digit dialing. **Note:** Extensions 900 to 999 are reserved by Nyquist features; do not assign these extensions to stations.
Name	Specifies the name for the station. Names can contain up to 16 characters in length. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Description	Provides a description for this station. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Action	**Note:** This option appears only when adding a new station. Select **Swap** to switch a discovered appliance for an appliance that was previously added to the database but now needs to be remove. For example, the old device may have stopped working and new hardware is replacing the broken device.

Table 3-1, Station Configuration Page Parameters (Continued)

Type	Specifies the station type. Types include: • Admin Phone • Admin Web Interface • Web Interface • IP Phone • Mobile Device • VoIP Speaker Only • Analog Call Switch & Speaker • Digital Call Switch & Speaker • Analog Phone **Note:** An analog phone cannot be used as an admin destination (day or night admin) even if it has the correct CoS set. An analog phone cannot be added to a zone, cannot be used as an emergency, cannot be monitored, and cannot be a call forwarding target from an Admin Phone. • DISA Line • 911 Line • I/0 Controller **Note:** For licensing purposes, an I/O Controller is not counted as a station, so they do not subtract from the available station count set in the installed license. • Matrix Mixer Pre-Amp • Paging-Audio Amp • Paging-Audio-Intercom Module • Ambient Noise Sensor • Push-To-Talk Microphone

Table 3-1, Station Configuration Page Parameters (Continued)

Device Type	**Note:** Nyquist does not display this field when adding or editing an Admin Web Interface, Web Interface, DISA Line, or Mobile Device. Identifies the physical device used by the station. Device types include: • Analog-Port • Cisco SPA112 • DAHDI FXS • n/a • NQ-A2060-Amplifier • NQ-A2120-Amplifier • NQ-A2300-Amplifier • NQ-A4060-Amplifier • NQ-A4120-Amplifier • NQ-A4300-Amplifier • NQ-E7010-Input Output Controller • NQ-GA10P-Intercom Module • NQ-GA10PV-Intercom Module-HDMI • NQ-GA20P2-Amplifier with Line Output • NQ-P0100-Matrix Mixer Pre Amp • NQ-PA120 Public Address Mixer Amplifier • NQ-PA240 Public Address Mixer Amplifier • NQ-PA600 Public Address Mixer Amplifier • NQ-S1810-E7020 VoIP Speaker CallSwitch • NQ-S1810-G2 VoIP Speaker Gen2 • NQ-S1810-G2-E7020 VoIP Speaker Gen2 CallSwitch • NQ-S1810-VoIP Speaker • NQ-T1000 IP Phone - Basic LCD Display • NQ-T1100 IP Phone - Color Touch Display • Yeastar - TA2400 Analog FXS Port

Table 3-1, Station Configuration Page Parameters (Continued)

Port	**Note:** Nyquist only displays this field when adding or editing a **Type** of **Analog Phone** and a **Device Type** of **DAHDI FXS**. Identifies the system port name for the analog line.
MAC Address	**Note:** Nyquist does not display this field when adding or editing an Admin Web Interface or DISA Line. Specifies the Media Access Control (MAC) address, which is a unique identifier assigned to network interfaces for communications on the physical network segment.
Serial Number	**Note:** Nyquist does not display this field when adding or editing an Admin Web Interface, Admin Phone, IP Phone, or DISA Line. Identifies the serial number for the device.
Facility	Identifies the facility where this station is installed.
Day CoS	Identifies CoS permissions that apply to this station during day time hours.
Night CoS	Identifies CoS permissions that apply to this station during night time hours.
Day Admin	**Note:** Nyquist does not display this field when adding or editing an I/O Controller or Matrix Mixer Pre-Amp. An analog phone cannot be used as an admin destination (day or night admin) even if it has the correct CoS set. Identifies the Admin Station that covers this station during daytime hours. For more information about CoS, see "*Using CoS Configuration" on page 63*.

Table 3-1, Station Configuration Page Parameters (Continued)

Night Admin	**Note:** Nyquist does not display this field when adding or editing an I/O Controller or Matrix Mixer Pre-Amp. An analog phone cannot be used as an admin destination (day or night admin) even if it has the correct CoS set. Identifies the Admin Station that covers this station during nighttime hours. For more information about CoS, see *"Using CoS Configuration" on page 63*.
Admin Group	**Note:** Nyquist does not display this field when adding or editing an I/O Controller or Matrix Mixer Pre-Amp. Identifies the Admin Group associated with the station. The Admin Group is called if the Day Admin or Night Admin does not answer within 30 seconds.
Registration Password	(Add and Edit only) Provide the password used for SIP device registration. Default is **bogen**.
Show Password **Show Saved Password**	(Add and Edit only) Selecting this button shows the current password to the right of the button for 3 seconds. If at least one character is type in the password field, the button label dynamically changes from **Show Saved Password** to **Show Password**.
Registration Password Confirmation	(Add and Edit only) Retype the registration password.
Codecs Allowed	Identifies the list of CODECs supported by the device that is associated with this station.
Voicemail Password	**Note:** Nyquist does not display this field when adding a VoIP Speaker Only, Call Switch & Speaker, I/O Controller, or Matrix Mixer Pre-Amp. (Add only) Provide the password used to access voicemail. This field can contain numeric characters only.
Voicemail Password Confirmation	(Add only) Re-type the voicemail password.

Table 3-1, Station Configuration Page Parameters (Continued)

Show Password **Show Saved Password**	(Edit only) Selecting this button shows the current password to the right of the button for 3 seconds. If at least one character is type in the password field, the button label dynamically changes from **Show Saved Password** to **Show Password**.
Force Name	**Note:** Nyquist does not display this field when adding or editing a VoIP Speaker Only, Call Switch & Speaker, I/O Controller, or Matrix Mixer Pre-Amp. Forces the user to record his name when setting up voicemail.
Force Greetings	**Note:** Nyquist does not display this field when adding or editing a VoIP Speaker Only, Call Switch & Speaker, I/O Controller, or Matrix Mixer Pre-Amp. Forces the user to record a greeting when setting up voicemail.
Call Recording	**Note:** Nyquist does not display this field when adding or editing an I/O Controller or Matrix Mixer Pre-Amp. Determines if all calls made and placed to this station are recorded.
Paging	**Note:** Nyquist does not display this field when adding or editing an Admin Web Interface, Web Interface, DISA Line, I/O Controller, 911 Line, or Analog Phone. When set to **Off**, the station does not receive tones from the schedules, All-Call pages, or Zone pages. However, the station will receive Emergency All-Call pages unless the station is a NQ-T1000 phone. If **Paging** is set to **On** for a NQ-T1000 phone, then this device will receive Emergency All-Call pages even if the station is in the Paging Exclusion List. This device will receive All-Call and zone paging provided the station is not in the Paging Exclusion list. If **Paging** is set to **Off**, then the station will not receive Emergency All-Call, All-Call, or zone paging.

Table 3-1, Station Configuration Page Parameters (Continued)

Audio Distribution to All Speakers	**Note:** Nyquist does not display this field when adding or editing an Admin Web Interface, Web Interface, DISA Line, I/O Controller, 911 Line, IP Phone, or Analog Phone. Determines if the station can receive audio distribution played to all stations. Audio distribution played to zones will still be received if the station is in the audio zone.
Intercom Cut Level (dB)	**Note:** Nyquist only displays this field when adding or editing a speaker. This parameter does not appear when adding or editing a VoIP Speaker Only (with a Device Type of Analog Port) or an Analog Call Switch & Speaker (with Device Type of Analog Port). Specifies the volume cut level for intercom calls. The cut level can range from 0 to -42. The default level is -6 dB.
Talkback Gain	**Note:** This field only applies if viewing, adding, or editing a station that is associated with an NQ-GA10P or an NQ-GA10PV Intercom Module or with an NQ-7030 Analog Station Bridge. Indicates the gain that is to be applied to the microphone function for channels 1 and 2. Gain is the measure of the ability to increase the power or amplitude of a signal. The **Talkback Gain** can range from -12 to +20; default is set at 0.
Microphone Input Gain (dB)	**Note:** This field only applies if viewing, adding, or editing a station that is associated with an NQ-GA10P or an NQ-GA10PV Intercom Module and the station **Type** is **Push-To-Talk Microphone**. Indicates the gain that is to be applied to the microphone function for channels 1 and 2. Gain is the measure of the ability to increase the power or amplitude of a signal. The **Microphone Input Gain** can range from -12 to +20; default is set at 0.

Table 3-1, Station Configuration Page Parameters (Continued)

Outside Access	**Note:** Nyquist does not display this field when adding or editing an I/O Controller or Matrix Mixer Pre-Amp. Identifies permissions for this station to place outside calls. Parameters are: • No Access • Restricted • Restricted Day Only • Restricted Night Only • Unrestricted • Unrestricted Day Only • Unrestricted Night Only
911 Route	**Note:** Nyquist does not display this field when adding or editing a VoIP Speaker Only, Call Switch & Speaker, I/O Controller, or Matrix Mixer Pre-Amp. Identifies where 911 calls placed by this station are routed, such as to a specific SIP trunk.
Auth Code	**Note:** Nyquist does not display this field when adding or editing an I/O Controller or Matrix Mixer Pre-Amp. Allows the user to enable additional features on a phone when the walking CoS feature is enabled. The four-digit code activates features from the associated phone to the phone being used. If Auth Code is set to 0000, this feature is disabled.
Speaker Extension	**Note:** Nyquist does not display this field when adding or editing an I/O Controller or Matrix Mixer Pre-Amp. Identifies the extension of the speaker associated with the station for speaker drop to phone feature and the toggle audio distribution feature (*9).

Table 3-1, Station Configuration Page Parameters (Continued)

VLAN Configuration	**Note:** Nyquist does not display this field when adding or editing an Admin Web Interface, 911 Line, or DISA Line unless the Admin Phone or IP Phone is connected to a Yeastar TA2400 port. Specifies how the station receives its Virtual Local Area Network (VLAN) configuration. Options are: • Server • Network/Device • Disable
VLAN ID	**Note:** Nyquist does not display this field when adding or editing an Admin Web Interface, 911 Line, or DISA Line unless the Admin Phone or IP Phone is connected to a Yeastar TA2400 port. Identifies the VLAN for this station. The VLAN ID parameters range from 2 through 4094 and pertain to the bridge's network interface (not to the ports or stations).
VLAN Priority	**Note:** Nyquist does not display this field when adding or editing an Admin Web Interface, 911 Line, or DISA Line unless the Admin Phone or IP Phone is connected to a Yeastar TA2400 port. Identifies the priority for the port. Values range from 0 through 7.
Web Username	**Note:** Nyquist does not display this field when adding or editing an Admin Web Interface, Admin Phone, IP Phone, 911 Line, or DISA Line unless the Admin Phone or IP Phone is connected to a Yeastar TA2400 port. Provides a username for logging into the bridge.
Web Password **Web Password Confirmation**	**Note:** These fields only appear when adding or editing a station, provided the station is not an Admin Web Interface, Admin Phone, IP Phone, 911 Line, or DISA Line unless the Admin Phone or IP Phone is connected to a Yeastar TA2400 port. Provides a password for logging into the bridge.

Table 3-1, Station Configuration Page Parameters (Continued)

Show Password **Show Saved Password**	(Add and Edit only) Selecting this button shows the current password to the right of the button for 3 seconds. If at least one character is type in the password field, the button label dynamically changes from **Show Saved Password** to **Show Password**.
Load Impedance	**Note:** This field only appears when adding or editing a station where the **Device Type** is NQ-A2060-Amplifier, NQ-A2120-Amplifier, NQ-A2300-Amplifier, NQ-A4060-Amplifier, NQ-A4120-Amplifier, NQ-A4300-Amplifier, NQ-PA120 Public Address Mixer Amplifier, NQ-PA240 Public Address Mixer Amplifier, or NQ-PA600 Public Address Mixer Amplifier. Provides impedance of the attached load. Select **High** for devices that use 25/70V and **Low** for devices that use 8 ohm.
Output Power (Watts)	**Note:** This field only appears when adding or editing a station for VoIP speakers, NQ-GA10P, NQ-GA10PV, NQ-GA20P2, or two- or four-channel amplifiers. Provides the channel output setting. Defaults and settings vary depending on the appliance. For VoIP speakers, NQ-GA10P, NQ-GA10PV, and NQ-GA20P2 devices, the available settings are: • 1/8 • 1/4 • 1/2 • 1 • 2 • 4 • 8 The default for these devices is 1/2. For the other applicable devices, the available settings increment by 1 and range from -6 to 6 with the default being 0.

Table 3-1, Station Configuration Page Parameters (Continued)

Firmware	**Note:** Nyquist does not display this field when adding or editing an Admin Web Interface, Admin Phone, IP Phone, Mobile Device, Analog Call Switch & Speaker with an Analog Port device type, or VoIP Speaker Only with an Analog Port device type or when adding or editing a Networked Power Amplifier. Provides information about firmware available for the station. A Nyquist appliance connected to the Nyquist network receives a configuration file from the Nyquist server that includes the latest firmware available from the server. If the firmware is later than the one installed on the appliance, an automatic firmware update occurs. To prevent an automatic update, you must leave this **Firmware** parameter empty.
Schools	Provides the schools that this station can view or edit on the Dashboard and in schedules.
Maps	**Note:** This parameter only pertains to stations licensed for the Maps feature. Provides the maps that this station is authorized to view from the dashboard.
Queue Zone	Provides the zone number for the station that will be used page queuing. If a zone number does not appear, the station user will be prompted to enter a zone number.
Announcement Zone	**Note:** This parameter only appears when adding or editing a station if the **Type** is set to **Admin Web Interface**, **Admin Phone**, **IP Phone**, **Analog Phone**, and **Mobile Device**. **Announcement Zone** overrides the **Play to Zone** set when creating an announcement. Select a zone number to be used as this station's default zone when playing announcements. If an **Announcement Zone** is not set, you will be prompted for a zone number when playing an announcement. (See *"Using Announcements" on page 282*.)

Table 3-1, Station Configuration Page Parameters (Continued)

Announcement Zone Configuration Type	**Note:** This parameter only appears when adding or editing a station if the **Type** is set to **Admin Web Interface**, **Admin Phone**, **IP Phone**, **Analog Phone**, and **Mobile Device**. Displays either **Fixed** or **Default**, depending on whether you can change the zone for announcements created by this station. If set to **Fixed**, the zone used to play announcements will always be the zone number provided for **Announcement Zone** and cannot be changed. If set to **Default**, the **Announcement Zone** value is used as the default zone, but you can set an announcement to play to another zone.
External Relay Trigger	**Note:** This parameter only applies to NQ-GA10P, NQ-GA10PV, NQ-S1810-G2 VoIP Speaker Gen2, and NQ-S1810-G2-E7020 VoIP Speaker Gen2 CallSwitch devices. Specifies if the device should trigger an external relay when audio is present.
Description	Allows a user description for this station.

3.2 Editing Station Configuration Settings

The Edit Station page allows you to change a station's configuration settings. For example, if you want to disable paging for a station or change a station's access to an outside line, you edit the station's configuration settings.

You cannot edit the configuration settings for a station linked to a routine (see "*Using Routines" on page 381*).

If the station **Type** is Admin Web Interface, Admin Phone, IP Phone, Analog Phone, or Mobile Device, you can set a default **Announcement Zone** and the **Announcement Zone Configuration Type**. If the **Announcement Zone Configuration Type** is set to **Fixed**, the zone used to play announcements will always be the zone number provided for **Announcement Zone** and cannot be changed. If set to **Default**, the **Announcement Zone** value is used as the default zone, but you can set an announcement to play to another zone.

If the station that you are editing is an I/O device, you can select to **Configure Rules** (see "*Configuring I/O Controller Input Rules" on*

page 126 or "*Configuring I/O Controller Output Rules" on page 130*) or **Configure Schedule** (see "*Adding an I/O Contacts Output Daily Schedule" on page 136*).

If the station that you are editing is an MMPA, you can select to **Configure Mixer** (see "*Configuring Device for Push To Talk" on page 139*).

If the station that you are editing is an Intercom Module (NQ-GA10P, NQ-GA10PV), you can select to **Configure Intercom Module** (see "*Configuring Intercom Module" on page 142*).

If the station that you are editing is an Intercom HDMI Module (NQ-GA10PV), you can select **Display Configuration** and set options for how the message and clock appear on the monitor (see "*Configuring Intercom HDMI Module Display Options" on page 146*).

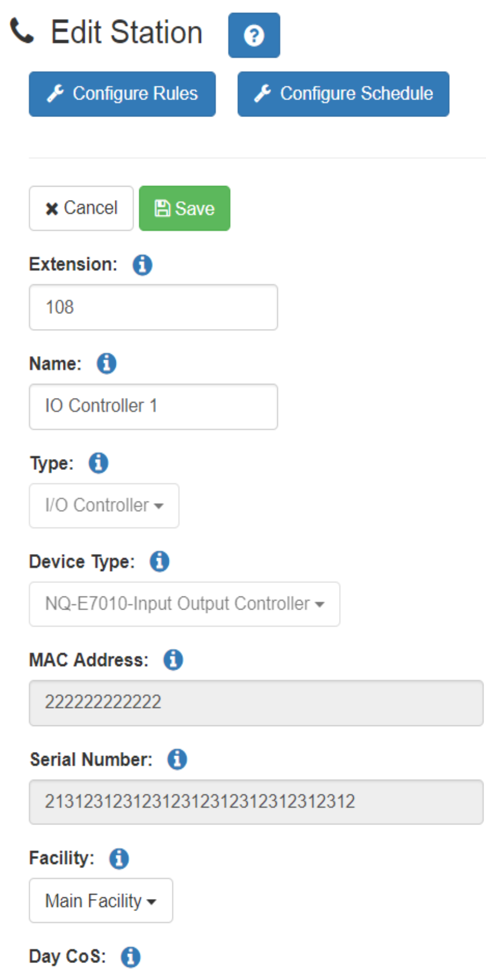


Figure 3-2, Edit Station Page

To edit a station's configuration settings:

Step 1 From the navigation bar, select **Stations**.

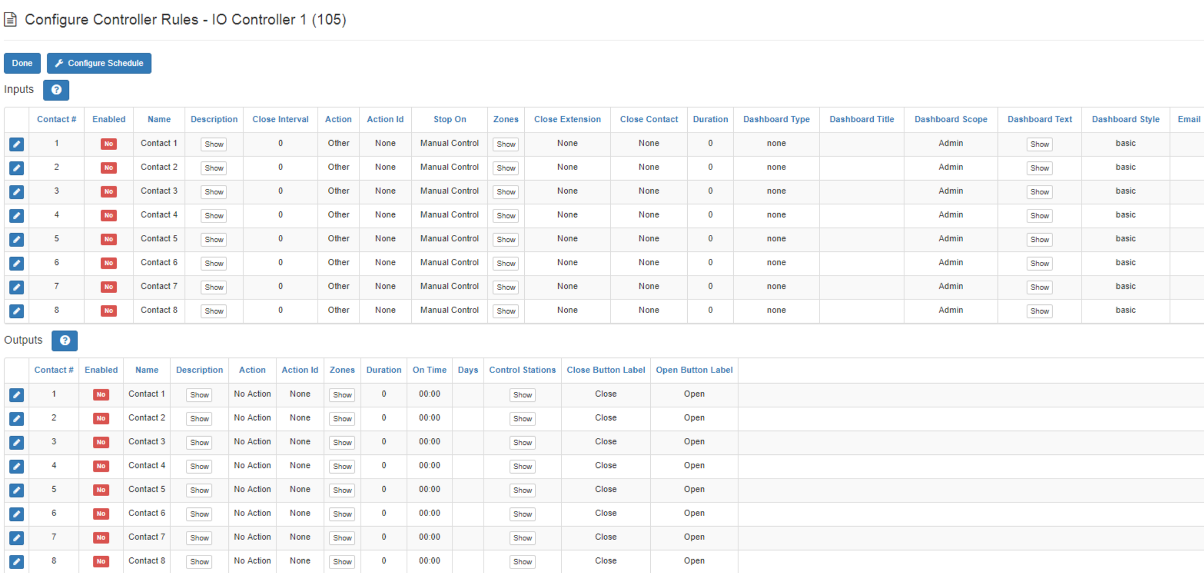
Step 2 Select the **Edit** icon for the station that you want to edit configuration settings.

Step 3 Make desired changes. For information about the configuration settings, see *"Station Configuration Page Parameters" on page 107*.

Step 4 Select **Save**.

3.2.1 Viewing I/O Controller Configuration Rules

The I/O Controller allows Nyquist to recognize third-party switch contact closures and to provide external circuits. Configuration rules can be set for each input and output port on an I/O Controller, so, for example, you can set a rule that if a contact is opened than an alarm sounds or set a rule that if a doorbell rings, an Admin user can trigger another rule that opens the door.


Configure Controller Rules - IO Controller 1 (105)

Done Configure Schedule

Inputs ?

	Contact #	Enabled	Name	Description	Close Interval	Action	Action Id	Stop On	Zones	Close Extension	Close Contact	Duration	Dashboard Type	Dashboard Title	Dashboard Scope	Dashboard Text	Dashboard Style	Email
	1	No	Contact 1	Show	0	Other	None	Manual Control	Show	None	None	0	none		Admin	Show	basic	
	2	No	Contact 2	Show	0	Other	None	Manual Control	Show	None	None	0	none		Admin	Show	basic	
	3	No	Contact 3	Show	0	Other	None	Manual Control	Show	None	None	0	none		Admin	Show	basic	
	4	No	Contact 4	Show	0	Other	None	Manual Control	Show	None	None	0	none		Admin	Show	basic	
	5	No	Contact 5	Show	0	Other	None	Manual Control	Show	None	None	0	none		Admin	Show	basic	
	6	No	Contact 6	Show	0	Other	None	Manual Control	Show	None	None	0	none		Admin	Show	basic	
	7	No	Contact 7	Show	0	Other	None	Manual Control	Show	None	None	0	none		Admin	Show	basic	
	8	No	Contact 8	Show	0	Other	None	Manual Control	Show	None	None	0	none		Admin	Show	basic	

Outputs ?

	Contact #	Enabled	Name	Description	Action	Action Id	Zones	Duration	On Time	Days	Control Stations	Close Button Label	Open Button Label
	1	No	Contact 1	Show	No Action	None	Show	0	00:00		Show	Close	Open
	2	No	Contact 2	Show	No Action	None	Show	0	00:00		Show	Close	Open
	3	No	Contact 3	Show	No Action	None	Show	0	00:00		Show	Close	Open
	4	No	Contact 4	Show	No Action	None	Show	0	00:00		Show	Close	Open
	5	No	Contact 5	Show	No Action	None	Show	0	00:00		Show	Close	Open
	6	No	Contact 6	Show	No Action	None	Show	0	00:00		Show	Close	Open
	7	No	Contact 7	Show	No Action	None	Show	0	00:00		Show	Close	Open
	8	No	Contact 8	Show	No Action	None	Show	0	00:00		Show	Close	Open

Figure 3-3, Configure Controller Rules Page

To view the configuration rules for an I/O Controller:

Step 1 From the navigation bar, select **Stations**.

Step 2 Select the **Edit** icon for the desired I/O Controller.

Step 3 On the Edit Station page, select **Configure Rules**.

Step 4 When finished viewing, select **Done**.

Table 3-2, Configure Controller Rules

Inputs	
Contact #	Displays the assigned number for this contact. This parameter is automatically set and cannot be edited.
Enabled	Indicates if a rule is enabled for this contact.
Name	Displays the user-provided name for the contact.
Description	Displays the user-provided description for the contact.
Close Interval	Displays in milliseconds how long the contact remains open before input action is triggered.

Table 3-2, Configure Controller Rules (Continued)

Action

Displays the action, if any, that is to be taken when the contact is closed. Options are:

- **Audio** – Starts audio distribution to all stations (using previously selected playlist or matrix mixer input channel).

Note: The I/O Controller can only be used to start audio distribution to all stations; it cannot stop the audio to all stations. Another method must be used to stop the audio such as selecting **Stop** from the Admin Web Interface or Admin Phone.

- **Alarm** – Plays the alarm file selected as the **Action ID**.
- **Announcement** – Plays the announcement file selected as the **Action ID**.
- **Disable-Audio** – Disables all audio in the Nyquist system, performing the same action as when the **Disable Audio** button on the dashboard is selected. This action can be used by an external emergency system (for example, fire alarms) to disable all Nyquist audio, which includes: Audio Distribution, Tones, Alarms, Paging.

Note: This contact closure action will only initiate the disabling of audio, it will not restore the audio. To restore audio, use a different contact with the action **Enable Audio**, or enable audio via an Admin Web Interface or Admin Phone.

- **Other** – Used when you don't want to take one of the available actions, but you do want to close a contact, create a dashboard message, or send an email when the contact is closed.
- **Tone** – Plays the tone file selected as the **Action ID**.
- **Enable-Audio** – Enables all audio in the Nyquist system, performing the same action as when the **Enable Audio** button is selected on the dashboard.

Table 3-2, Configure Controller Rules (Continued)

Action ID	Displays identifier for action, such as an alarm or tone number. **Note:** This parameter is only available for Alarm, Announcement, and Tone actions.
Stop On	Specifies how the action is stopped. If set to **Manual Control**, you must manually stop the action. If set to **Contact Open**, the action automatically stops when the contact is opened.
Zones	Displays the zones that are affected by the action. **Note:** This parameter is only available for Alarm, Announcement, and Tone actions.
Close Extension	Specifies which extension of the output contact to close.
Close Contact	Specifies contact number to close.
Duration	Displays duration of contact closure in milliseconds. A value of 0 means leave contact closed.
Dashboard Type	Specifies if the message appears in the dashboard message pane alone or also in a popup message.
Dashboard Title	Specifies the user-provided title that appears for the dashboard message.
Dashboard Scope	Specifies which devices receive the message. Options are: • **All** – All web interface dashboards will receive the message. • **Admin** – Only Admin web interface dashboards will receive the message.
Dashboard Text	Specifies the user-provided text that appears for the dashboard message.

Table 3-2, Configure Controller Rules (Continued)

Dashboard Style	Specifies the icon and color coding that appear with the message. Options are: • Basic • Success • Info • Warning • Danger
Email	Specifies an email address for notification when an I/O contact is closed.
Email Account	Specifies the SMTP account to use for sending email.
Outputs	
Contact #	Displays the assigned number for this contact. This parameter is automatically set and cannot be edited.
Enabled	Indicates if a rule is enabled for this contact.
Name	Displays the user-provided name for the contact.
Description	Displays the user-provided description for the contact.

Table 3-2, Configure Controller Rules (Continued)

Action	Displays the system action for closing the output contact. Options are: • **911** – Starts or stops a call to 911. • **Audio** – Starts or stops audio distribution to all stations (using previously selected playlist or matrix mixer input channel). • **Alarm** – Starts or stops the alarm file selected as the **Action ID**. • **Announcement** – Starts or stops the announcement file selected as the **Action ID**. • **All-Call** – Starts or stops an All-Call page. • **Multi-Site-All-Call** – Starts or stops a Multi-Site All-Call page. • **Multi-Site-Emergency-All-Call** – Starts or stops a Multi-site Emergency-All-Call page. • **Emergency-Call** – Starts or stops an Emergency Call. • **Emergency-All-Call** – Starts or stops an Emergency-All-Call page. • **Hourly** – Specifies the minutes and seconds when the **Action** occurs. • **Audio-Disabled** – Disables or enables all audio in the Nyquist system. Contact is closed when audio is disabled; open when audio is enabled. • **No Action** – Is the default action for outputs that have yet been configured. • **Page** – Starts or stops a zone page. • **Tone** – Starts or stops the tone file selected as the **Action ID**. • **Manual** – Creates a dashboard button that can be used to manually close or open specified output contact. **Note:** When a system activity is started, the output contact is closed; the contact is opened when the system activity ends.

Table 3-2, Configure Controller Rules (Continued)

Action Id	Displays the action identifier (such as an alarm number) for the output contact action.
Zones	Provides a list of paging zones that trigger an output. If blank, all zones are affected. **Note:** This field does not appear if **Action** is set to **Page**.
Duration	Displays the duration of the contact closure in milliseconds. A value of 0 leaves the contact closed.
On Time	Specifies the minutes and seconds when the **Action** is set for **Hourly**. When set to 00:00, hourly closure is not enabled.
Days	Specifies the days of the week that the hourly closure of contact occurs.
Control Stations	Provides a list of stations that can manually control the output contact.
Close Button Label	Displays the user-provided label for the Dashboard button that is associated with the closing of an output contact. The duration for the contact must be set to 0 for this label to appear.
Open Button Label	Displays the user-provided label for the Dashboard button that is associated with the opening of an output contact. The duration for the contact must be set to 0 for this label to appear.

3.2.2 Configuring I/O Controller Input Rules

You can configure eight input rules for each I/O Controller.

To configure an I/O Controller Input Rule:

Step 1 From the navigation bar, select **Stations**.

Step 2 Select the **Edit** icon for the desired I/O Controller.

Step 3 On the Edit Station page, select **Configure Rules**.

Step 4 Select the **Edit** icon for the input contact that you want to configure.

Step 5 On the Edit Controller Rule page, complete the desired Input Contact Rule Parameters.

Step 6 Select **Save**.

Table 3-3, Input Contact Rule Parameters

Enabled	Indicates if a rule is enabled for this contact.
Contact Number	Displays the assigned number for this contact. This parameter is automatically set and cannot be edited.
Contact Type	Displays if the contact is an input or output contact. This parameter is automatically set and cannot be edited.
Extension	Displays the station extension. This parameter is automatically set and cannot be edited.
Name	Displays the user-provided name for the contact.
Description	Displays the user-provided description for the contact.
Close Interval	Displays in milliseconds how long the contact remains open before input action is triggered.

Table 3-3, Input Contact Rule Parameters (Continued)

Action	Displays the action, if any, that is to be taken when the contact is closed. Options are: • **Audio** – Starts audio distribution to all stations (using previously selected playlist or matrix mixer input channel). **Note:** The I/O Controller can only be used to start audio distribution to all stations; it cannot stop the audio to all stations. Another method must be used to stop the audio such as selecting **Stop** from the Admin Web Interface or Admin Phone. • **Alarm** – Plays the alarm file selected as the **Action ID**. • **Announcement** – Plays the announcement file selected as the **Action ID**. • **Disable-Audio** – Disables all audio in the Nyquist system, performing the same action as when the **Disable Audio** button on the dashboard is selected. This action can be used by an external emergency system (for example, fire alarms) to disable all Nyquist audio, which includes: Audio Distribution, Tones, Alarms, Paging. **Note:** This contact closure action will only initiate the disabling of audio, it will not restore the audio. To restore audio, use a different contact with the action **Enable Audio**, or enable audio via an Admin Web Interface or Admin Phone. • **Other** – Used when you don't want to take one of the available actions, but you do want to close a contact, create a dashboard message, or send an email when the contact is closed. • **Tone** – Plays the tone file selected as the **Action ID**. • **Enable-Audio** – Enables all audio in the Nyquist system, performing the same action as when the **Enable Audio** button is selected on the dashboard.
Alarms	Displays the alarm file that plays. **Note:** This parameter is only available for an Alarm **Action**.

Table 3-3, Input Contact Rule Parameters (Continued)

Announcements	Displays the announcement that plays. **Note:** This parameter is only available for an Announcement **Action**.
Tones	Displays the tone that plays. **Note:** This parameter is only available for a Tone **Action**.
Stop On	Sets how the **Action** is stopped. Options are: • **Manual Control** – You must manually stop the action. • **Contact Open** – Action automatically stops when contact is opened.
Zones	Displays the zone that is affected by the action. **Note:** This parameter is only available for Alarm, Announcement, and Tone actions, and only a single zone can be added for an input rule.
Close Extension	Specifies which contact will close.
Close Contact	Specifies the contact number to close.
Duration	Displays the duration of the contact closure in milliseconds. A value of 0 leaves the contact closed.
Dashboard Type	Specifies if the message appears in the dashboard message pane alone or also in a popup message.
Dashboard Title	Specifies the user-provided title that appears for the dashboard message.
Dashboard Scope	Specifies which devices receive the message. Options are: • All – All web interface dashboards will receive the message. • Admin – Only Admin web interface dashboards will receive the message.
Dashboard Text	Specifies the user-provided text that appears for the dashboard message.

Table 3-3, Input Contact Rule Parameters (Continued)

Dashboard Style	Specifies the icon and color coding that appear with the message. Options are: • Basic • Success • Info • Warning • Danger
Email	Specifies an email address for notification when an I/O contact is closed.
Email Account	Specifies the SMTP account to use for sending email.

3.2.3 Configuring I/O Controller Output Rules

You can configure eight output rules for each I/O Controller.

To configure an I/O Controller Output Rule:

Step 1 From the navigation bar, select **Stations**.

Step 2 Select the **Edit** icon for the desired I/O Controller.

Step 3 On the Edit Station page, select **Configure Rules**.

Step 4 Select the Edit icon for the output contact that you want to configure.

Step 5 On the Edit Controller Rule page, complete the desired Output Contact Rule Parameters.

Step 6 Select **Save**.

Table 3-4, Output Contact Rule Parameters

Enabled	Select if a rule is to be enabled for this contact.
Contact Number	Displays the assigned number for this contact. This parameter is automatically set and cannot be edited.
Contact Type	Displays if the contact is an input or output contact. This parameter is automatically set and cannot be edited.
Extension	Displays the station extension. This parameter is automatically set and cannot be edited.

Table 3-4, Output Contact Rule Parameters (Continued)

Name	Provide a name for the contact.
Description	Provide a description for the contact.

Table 3-4, Output Contact Rule Parameters (Continued)

Action	Select the Nyquist system activity that will close the output contact when the activity starts and open the output contact when the activity stops. **Note:** If duration is greater than 0, the output contact opens after duration milliseconds even if the system activity is still ongoing. When a system activity is started, the output contact is closed; the contact is opened when the system activity ends.e Options are: • **911** – Starts or stops a call to 911. • **Audio** – Starts or stops audio distribution to all stations (using previously selected playlist or matrix mixer input channel). • **Alarm** – Starts or stops the alarm file selected as the **Action ID**. • **Announcement** – Starts or stops the announcement file selected as the **Action ID**. • **All-Call** – Starts or stops an All-Call page. • **Multi-Site-All-Call** – Starts or stops a Multi-Site All-Call page. • **Multi-Site-Emergency-All-Call** – Starts or stops a Mult-site Emergency-A ll-Call page. • **Emergency-Call** –Starts or stops an Emergency Call. • **Emergency-All-Call** – Starts or stops an Emergency-All-Call page. • **Hourly** – Specifies the minutes and seconds when the **Action** occurs. • **Audio-Disabled** – Disables or enables all audio in the Nyquist system. Contact is closed when audio is disabled; open when audio is enabled. • **No Action** – Is the default action for outputs that have yet been configured. • **Page** – Starts or stops a zone page. • **Tone** – Starts or stops the tone file selected as the **Action ID**. • **Manual** – Creates a dashboard button that can be used to manually close or open specified output contact.

Table 3-4, Output Contact Rule Parameters (Continued)

On Time	Use the down arrows to select the **Minute** and **Second** if the **Action** is set for **Hourly**. When set to 00:00, hourly closure is not enabled.
Days	Specify the days of the week that the hourly closure of contact occurs. This parameter appears only if the **Action** is set to **Hourly**.
Zones	Specify which paging zones trigger the output contact closure if the **Action** is set to **Page**. If left blank, any zones started trigger the output contact closure.
Tones	Specify which tone to play if the **Action** is set to **Tone**.
Announcements	Specify which announcement to play if the **Action** is set to **Announcement**.
Alarms	Specify which alarm to play if the **Action** is set to **Alarm**.
Program Distribution	Specify which audio distribution file to play if the **Action** is set to **Audio**.
Duration	Provide the duration of the contact closure in milliseconds. A value of 0 leaves the contact closed.
Control Stations	Select the stations that can manually control the output contact. A button for manually setting the output contact appears on the dashboard.
Close Button Label	Provide a label for the Dashboard button that is associated with the closing of an output contact. The duration for the contact must be set to 0 for this label to appear.
Open Button Label	Provide a label for the Dashboard button that is associated with the opening of an output contact. The duration for the contact must be set to 0 for this label to appear.

3.2.3.1 Using Nyquist to Open a Secured Door

One example of the configuration and use of the I/O Controller is the opening of a secured, or locked, door. The I/O Controller can be connected to a doorbell that, when pressed, sends a dashboard message to Admin Stations that someone wants to gain access through a secured door. You or other Admin users can then select an **Activate** button that unlocks the door and allows entry to the secured area.

In this example, the dry contact connection of the doorbell would be wired to an I/O Controller input terminal and the secured door’s relay driver would be wired to an I/O Controller's output terminal. (Refer to *NYQUIST Input/Output Controller NQ-E7010 Installation and Use*.)

Follow the steps for configuring an I/O Controller Input Configure Rule (see *"Configuring I/O Controller Input Rules" on page 126*) using the following parameters:

- For **Close Interval**, enter how long (in milliseconds) the input contact must remain closed before the input action is triggered.
- For **Action**, select **Other**.
- For **Close Extension**, select that extension, or station number, for the I/O Controller connected to the output contact that, when closed, will open the door.
- For **Close Contact**, select the **Output Contact #** that is to be closed when Activate is pressed on the dashboard message.
- For **Duration**, enter the number of milliseconds required for the door open circuit to open the door.
- For **Dashboard Type**, select **io-contact**.
- For **Dashboard Title**, enter a title for the dashboard popup message (for example, **Front Door**).
- For **Dashboard Text**, enter the message that you want displayed on the dashboard popup message (for example, **Front doorbell activated; press "Activate" to open the front door**.
- For **Dashboard Style**, select **basic**.

When configured properly, the doorbell sounds and a message appears when the doorbell is pressed.

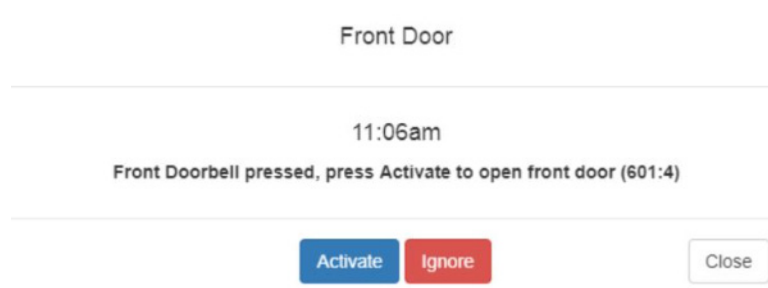


Figure 3-4, Example of Dashboard Message

If you select **Activate**, the door opens. If you select **Ignore**, the door remains closed and the popup message disappears.

3.2.4 Viewing an I/O Controller Schedule

You can view all contact closures set for specific dates and times using the Configure Schedule button on the I/O Controller's Edit Station page. For information about scheduling a output contact event, see *"Adding an I/O Contacts Output Daily Schedule" on page 136*.

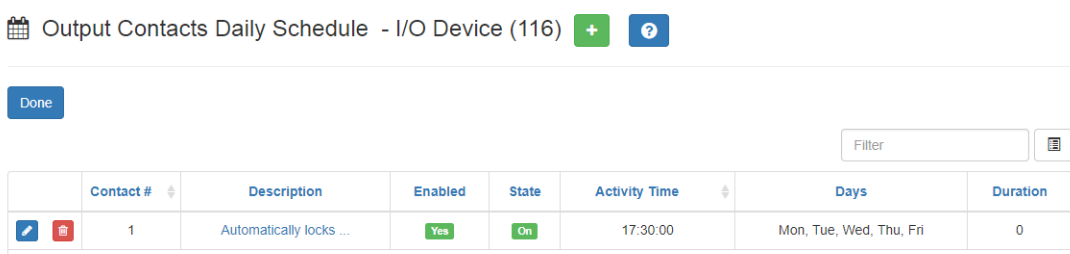


Figure 3-5, Output Contacts Daily Schedule – I/O Device Page

To view contact closure schedules for an I/O Controller:

Step 1 On the navigation bar, select **Stations**.

Step 2 Select the **Edit** icon for the desired I/O Controller.

Step 3 On the Edit Station page, select **Configure Schedule**. The I/O Contacts Output Daily Schedule page appears.

Table 3-5, I/O Contacts Output Daily Schedule Page

Contact #	Displays the assigned number for the contact. This parameter is automatically set and cannot be edited.
Description	Displays the user-provided description for the contact.
Enabled	Indicates if a contact activity event is enabled.
State	Displays if the closure is open or closed.
Activity Time	Displays the time to change the contact event in HH:MM:SS format.

Table 3-5, I/O Contacts Output Daily Schedule Page (Continued)

Days	Displays the day or days of the week that the event is to be executed.
Duration	Displays the duration of the contact closure in milliseconds. A value of 0 means that the contact remains closed until an open event occurs.

3.2.5 Adding an I/O Contacts Output Daily Schedule

Contact closures can be set for specific dates and times using the **Configure Schedule** button on the I/O Controller's Edit Station page. For example, suppose you want to schedule an output that unlocks a door at 7:30 each weekday morning. You can set up an output contact closure schedule for 7:30 am Monday through Friday. When the Activity Time occurs, the contact is closed, which in turn triggers a third-party contact switch that closes the door.

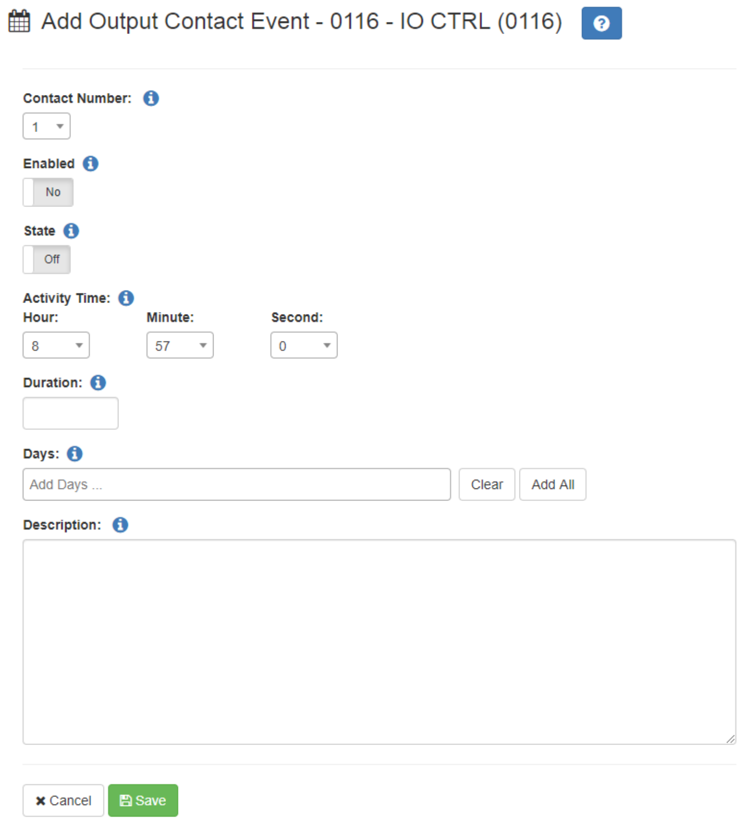


Figure 3-6, Add Output Contact Event Page

To add an output daily schedule for an I/O contact:

Step 1 On the navigation bar, select **Stations**.

Step 2 Select the **Edit** icon for the desired I/O Controller.

Step 3 On the Edit Station page, select **Configure Schedule**.

Step 4 On the I/O Contacts Output Daily Schedule page, select the **Add** icon.

Step 5 Complete the parameters on the Add I/O Contact Output Event page.

Step 6 Select **Save**.

Table 3-6, Add or Edit I/O Contact Output Event Parameters

Contact #	Select the contact number for this contact.
Enabled	Select to enable the contact activity event.

Table 3-6, Add or Edit I/O Contact Output Event Parameters (Continued)

State	Select the state for this new output event from the drop-down menu. Options are: • **On** – The contact is closed. • **Off** – The contact is open.
Activity Time	Enter the time to change the contact event, using the down arrows to make the appropriate selections in the **Hour**, **Minute**, and **Second** fields.
Duration	Enter the duration of the contact closure in milliseconds. A value of 0 means that the contact remains closed until an open event occurs.
Days	Enter the day or days of the week that the event is to be executed.
Description	Enter a description for the contact event. This field is required.

3.2.6 Editing the Daily Schedule for an I/O Contact

The Edit Output Contact Event - I/O Controller page allows you to change the parameters, such as duration, for an I/O contact's daily schedule.

To edit an output daily schedule for an I/O contact:

Step 1 On the navigation bar, select **Stations**.

Step 2 Select the **Edit** icon for the desired I/O Controller.

Step 3 On the Edit Station page, select **Configure Schedule**.

Step 4 On the I/O Contacts Output Daily Schedule page, select the **Edit** icon next to the contact that you want to edit.

Step 5 Make desired change to the Edit I/O Contact Output Event page. (For information about the parameters for this page, see *"Add or Edit I/O Contact Output Event Parameters" on page 137*.)

Step 6 Select **Save** to return to the I/O Contact Output Daily Schedule page.

3.2.7 Deleting an I/O Contacts Output Daily Schedule

You can delete an output contacts daily schedule that is no longer needed from the station's Output Contacts Daily Schedule page.

To delete an output daily schedule for an I/O contact:

Step 1	On the navigation bar, select **Stations**.
Step 2	Select the **Edit** icon for the desired I/O Controller.
Step 3	On the Edit Station page, select **Configure Schedule**.
Step 4	On the I/O Contacts Output Daily Schedule page, select the **Delete** icon next to the contact that you want to delete.
Step 5	When prompted, select **Delete**.

3.2.8 Configuring Device for Push To Talk

Configuring a Matrix Mixer Pre-Amp or a Public Address Mixer Amplifier for Push To Talk is a two-step process. The first part is done through the Admin Web UI and pertains to enabling a **Push To Talk Channel** and selecting a **Push To Talk Type**.

The second step is done through the appliance's web UI and involves enabling the **Line Out** for the selected channel.

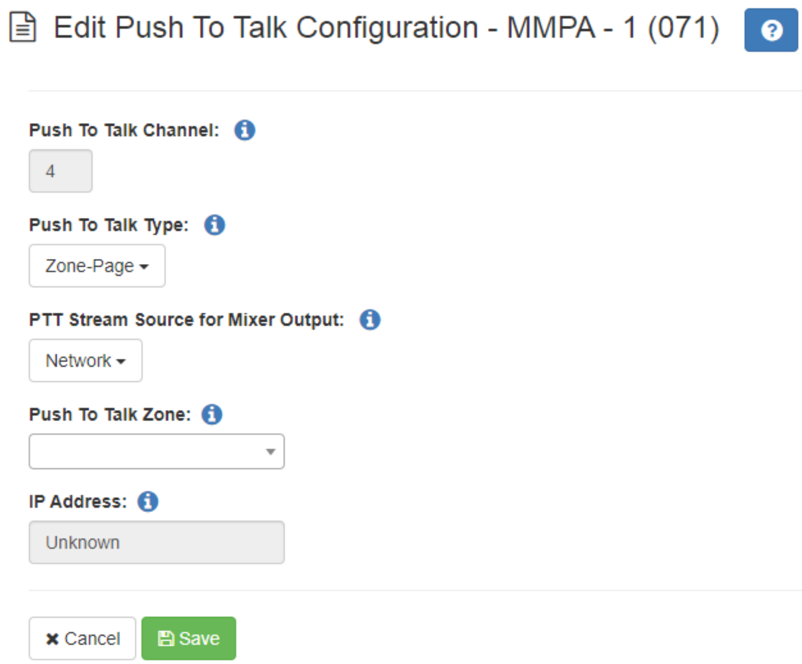


Figure 3-7, Push to Talk Configuration Page

To edit Push to Talk configuration for a Matrix Mixer Pre-Amp:

Step 1 On the navigation bar, select **Stations**.

Step 2 Select the **Edit** icon for the Matrix Mixer Pre-Amp that you want to configure.

Step 3 Select **Configure PTT**.

Step 4 Select parameters from the Edit Push To Talk Configuration page. (For information on editing mixer channels, see "*Configuring Intercom Module" on page 142*.0

Step 5 Select **Save**.

To edit Push to Talk configuration or a public address mixer amplifier:

Step 1 On the navigation bar, select **Amplifier Devices**.

Step 2 For the public address mixer amplifier that you want to configure, in the **Manage** column, select **Configure PTT**.

Step 3 Select parameters from the Edit Push To Talk Configuration page. (For information on editing an amplifier, see *"Editing an Amplifier" on page 169*.)

> **Note:** For the PTT Output setting to work correctly on the public address mixer/amplifier, the Line-Out and Speaker-Out must be disabled on the appliance's DSP Router (see *"Configuring Push to Talk for a Public Address/Mixer Amplifier" on page 195*).

Step 4 Select **Save**.

Table 3-7, Edit Push To Talk Configuration Parameters

Push To Talk Channel	Channel 4 is the only available PTT channel.
Push To Talk Type	Select the type of activity that is performed when the button is pressed on the microphone. Options are: • All-Call-Page • Emergency-All-Call-Page • DSP-Controlled • Zone-Page • Record-Zone-Page
PTT Stream Source for Mixer Output	This field does not appear if Push To Talk Type is set to Record-Zone-Page. Select whether the PTT stream sent to the MMPA output is to be **Analog** or **Network**. If **Analog** is selected, the analog input is directly routed to the output and network output is suspended to devices directly attached to the MMPA. If **Network** is selected, the PTT input is routed through the network, which could create a small, noticeable delay. **Note:** If the **Push To Talk Type** is set to **DSP-Controlled**, this field is automatically set to **Analog** and cannot be edited.
Push To Talk Zone	This field appears only if **Push To Talk Type** is set to **Zone-Page**. Select the zone to page.

Table 3-7, Edit Push To Talk Configuration Parameters (Continued)

PTT Output	Selects the amplifier output used for locally playing PTT initiated paging, provided **Push To Talk Type** is not **DSP-Controlled**. Options are: • Both • Line-Out • None • Speaker-Out If **Push To Talk Type** is set to **Record-Zone-Page**, then this parameter should be set to **None** unless you do want to also play it live.
PTT Extension	The station extension that the PTT configuration is associated to.
IP Address	Displays the IP address of the mixer, if known, and a **Link** button that allows you to launch the mixer's UI. If the Nyquist server has not discovered the mixer's IP address, the **Link** button does not appear.

3.2.9 Configuring Intercom Module

If you have added an NQ-GA10P or an NQ-GA10PV Intercom Module as a Push-To-Talk (PTT) microphone, you can select the type of page that can be made when the PTT mic is active and what zone the page will be made to.

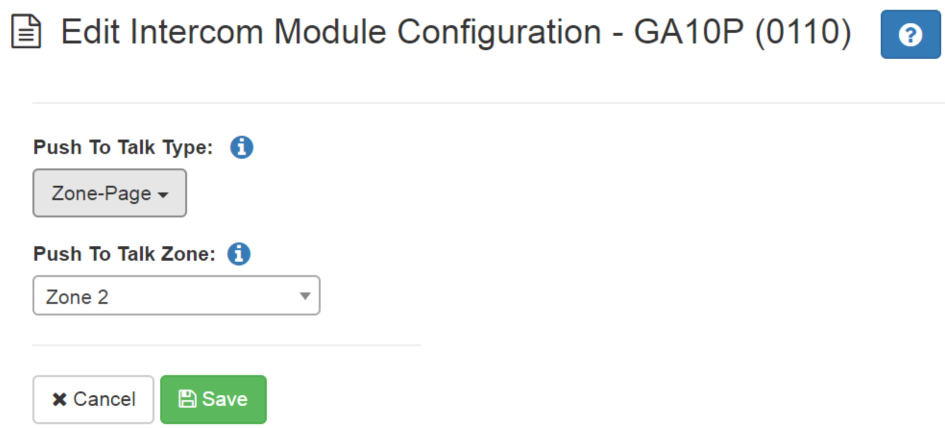


Figure 3-8, Edit Intercom Module Configuration

To edit an intercom module:

Step 1	On the navigation bar, select **Stations**.
Step 2	Select the **Edit** icon for the intercom module that you want to configure.
Step 3	Select **Configure Intercom Module**.
Step 4	After making your edits on the Edit Intercom Module Configuration page, select **Save**.

Table 3-8, Edit Intercom Module Configuration Parameters

Push To Talk Type	Select the type of pages that can be made from the mic. Options are: • All-Call-Page • Emergency-All-Call-Page • Zone-Page • Record-Zone-Page
Push To Talk Zone	Use the drop-down arrow to select a zone to receive the page. Only one zone can be selected.

3.2.10 Configuring Ambient Noise Sensor

The Ambient Noise Sensor ensures that page announcements and music are audible even during periods of high noise levels by continuously monitoring the ambient noise level through a microphone module and adjusting the paging signal level for that area's amplifier channel.

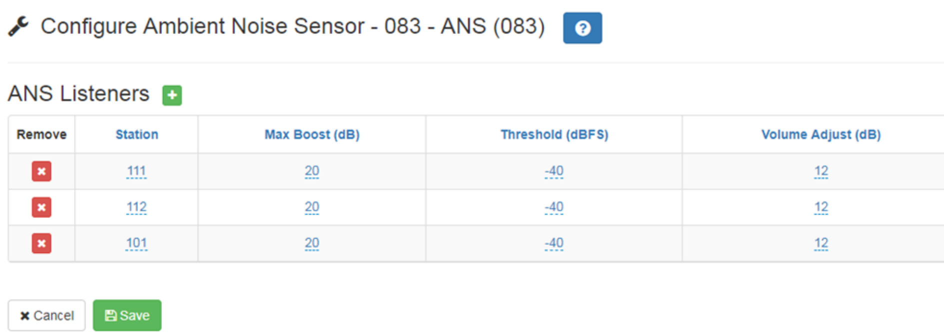


Figure 3-9, Configure Ambient Noise Sensor

This feature requires that an ANS500M Ambient Sound Microphone be attached to an intercom module station type. For installation instructions, refer to the *NQ-GA10P, NQ-GA10PV VoIP Intercom Module Installation and Use* manual.

You must set the **Ambient Noise Sensor Multicast IP Address** and **Ambient Noise Sensor Multicast Port** system parameters (see "*Setting System Parameters" on page 53*).

Then, create a station with **Type** as **Ambient Noise Sensor** and **Device Type** as **NQ-GA10P-Intercom Module** or **NQ-GA10PV-Intercom Module** (see "*Adding a Station" on page 153*).

To configure ANS parameters:

Step 1 On the navigation bar, select **Stations**.

Step 2 Select the **Edit** icon for the **Ambient Noise Sensor** station.

Step 3 Select **Configure**.

Step 4 Select the **Add** icon to add an ANS Listener.

An ANS Listener is a station that will receive Sound Pressure Level (SPL) reports from the ANS. For example, suppose you have speakers in a warehouse area that you want the volume to automatically adjust when noisy machines are operating. You would add the speaker stations as ANS Listeners. When the SPL in the warehouse increases, the ANS reports the increase to the ANS Listeners and the speakers' volumes are adjusted automatically.

Step 5 Set the ANS parameters for the ANS Listener.

Step 6 If you want to remove a station from the ANS Listener list, select the **Remove** icon on the station's row.

Step 7 When all edits are made, select **Save**.

Table 3-9, Configure Ambient Noise Sensor Parameters

Station	Displays the extension number of the station that is an ANS Listener. A station can only listen to one ANS.
Max Boost (dB)	Displays the maximum dB gain adjustment allowed. Setting this parameter to 0 disables any volume adjustments from the ambient noise sensor. The default value is 20 dB.
Threshold (dBFS)	Displays the decibels relative to full scale (dBFS) value at which point the device will adjust the volume to compensate for the increased ambient noise volume. This value should be between -40 and 0 dBFS. A fairly noisy environment is around -20 dBFS; quiet environments are in the range of -40 dBFS. The default value is -20 dBFS.
Volume Adjust (dB)	Displays the amount of decibels to stay above the ambient noise level. Setting this to 0 disables any volume adjustments from the ANS. The default value is 12 dB.
Sample Length(s)	Displays the ambient noise sampling length, which can range from 1 to 20 seconds. Short lengths provide quicker response to changes in the ambient noise; longer lengths will ignore sudden, short fluctuations in the ambient noise.

3.2.11 Configuring Intercom HDMI Module Display Options

If you have a NQ-GA10PV Intercom HDMI Module **Device Type**, you can set display types for the connected monitor, including the type of clock and display colors that appear.

Options configured for the station affect the overall appearance of the display, such as the background color for the display and fonts used to display date and event. Options for specific messages are set through the **Display Message** option on the dashboard (see "*Creating a Display Message" on page 438*).

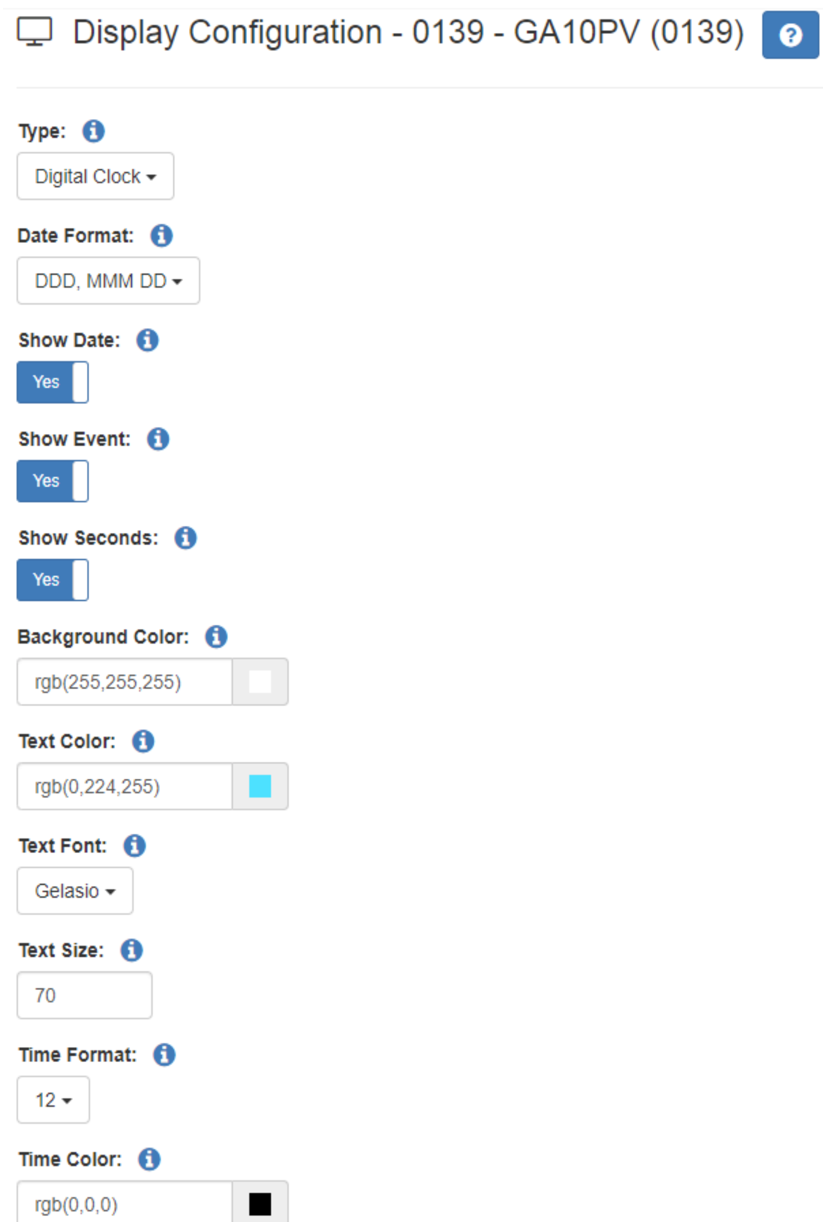


Figure 3-10, Display Configuration for GA10PV Station

To configure display options:

Step 1 On the navigation bar, select **Stations**.

Step 2 Select the **Edit** icon for the intercom HDMI module that you want to configure.

Step 3 Select **Display Configuration**.

Step 4 After making your edits on the Display Configuration page, select **Save**.

Table 3-10, Display Configuration

Type	Select one of the five layouts available: • **Analog Clock**. Displays an analog clock on the left side of the display screen. • **Digital Clock**. Displays a digital clock on the top of the screen. • **Messages 1 Column**. Displays messages only in a single column. • **Messages 2 Columns**. Displays messages only in two columns. • **Messages 3 Columns**. Displays messages only in three columns.
Date Format	Select the format for displaying the date. Available formats are: • MMM DD YY • MMM DD YYYY • DD MMM YY • DD MMM YYYY • DD/MM/YYYY • MM/DD/YYYY
Show Date	Use the slider to select if the date will be displayed.
Show Event	Use the slider to select if the event will be displayed. (See *"Understanding Event Settings" on page 228*.)
Show Seconds	Use the slider to select if seconds will be displayed on the clock.

Table 3-10, Display Configuration (Continued)

Background Color	Select a background color for the display. You can select a color by: • Using the color picker • Entering a hex color (for example: #000000, for black) • Entering an RGB color (for example: rgb(0,0,0) for black) • Entering a color alias name (for example: red, blue, etc.) For more information, see "*Using Color in Display Messages" on page 441*.
Text Color	Select a color for the text. You can select a color by: • Using the color picker • Entering a hex color (for example: #000000, for black) • Entering an RGB color (for example: rgb(0,0,0) for black) • Entering a color alias name (for example: red, blue, etc.) For more information, see "*Using Color in Display Messages" on page 441*.
Text Font	Select a font for the text from the drop-down list. Available fonts are: Comic-Relief Courier-Prime Gelasio Liberation Sans Linux Libertine
Text Size	Enter the text size. Text size is based on font points with 72 points being an inch.
Time Format	Select whether the time is to appear in 12 or 24 hour format.

Table 3-10, Display Configuration (Continued)

Time Color	Select the color for the time display. You can select a color by: • Using the color picker • Entering a hex color (for example: #000000, for black) • Entering an RGB color (for example: rgb(0,0,0) for black) • Entering a color alias name (for example: red, blue, etc.) For more information, see "*Using Color in Display Messages" on page 441*.
Time Font	Select a font for the time from the drop-down list. Available fonts are: Comic-Relief Courier-Prime Gelasio Liberation Sans Linux Libertine
Time Size	Select the font size for the time.

If you select to use an analog clock, the clock appears on the left side of the HDMI connected display and messages appear on the right side. If you select to use a digital clock, the time appears on the top of the display and the messages appear beneath.

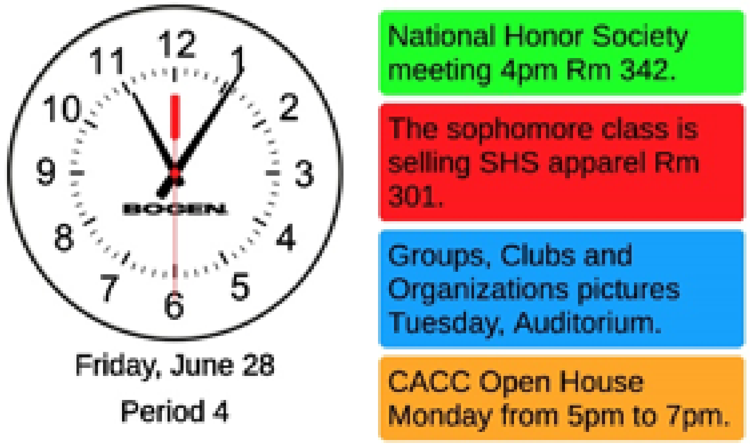


Figure 3-11, Example of Display with Analog Clock

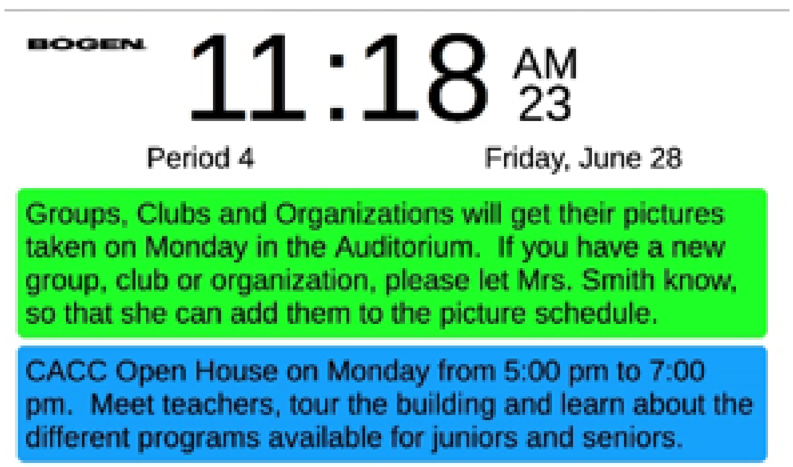


Figure 3-12, Example of Display with Digital Clock

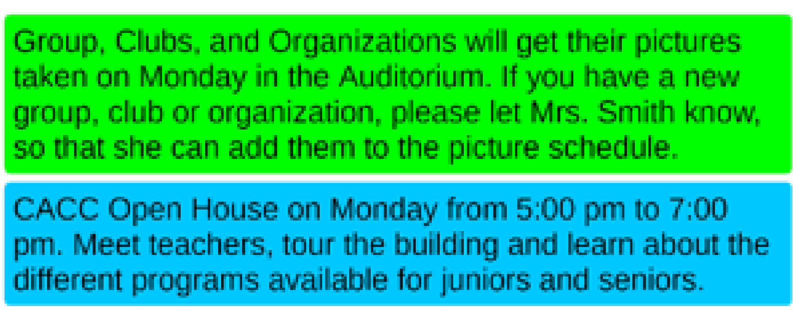


Figure 3-13, Example of Single Column Display

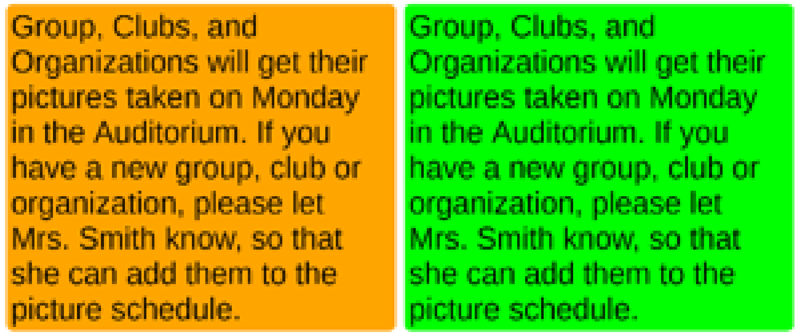


Figure 3-14, Example of Two Column Display

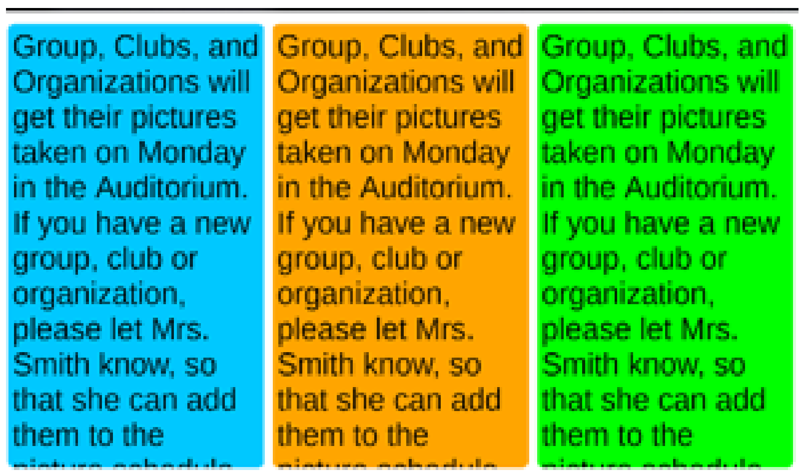


Figure 3-15, Example of Three Column Display

3.3 Deleting a Station

> **Note:** You cannot delete a station that is used in a routine **Action** (see "*Understanding Action Parameters" on page 406*).

When you delete a station, all of its settings are deleted and the station will not be able to register with the Nyquist system server. If it's an admin station, you may not be able to delete it until you delete all associations that the Admin Station has (for example, member of Day Admin, Night Admin, Night Ring, or Admin Group).

After you delete a second station from an SPA112, the Nyquist system server reboots the SPA112. If the Nyquist system server does not know the SPA112's IP Address, you must reboot the SPA112 device for the changes to take effect on the SPA112.

When a station is deleted from an SPA112, it can take several minutes for the changes to show up on the SPA112's web interface. When the second station is deleted from the SPA112, the remaining station is set up on the first port (Phone 1) even if that station was previously set up on the second port (Phone 2). If this situation occurs, move the attached phone cable from Phone 2 to Phone 1.

To delete a station's configurations:

Step 1	On the navigation bar, select **Stations**.
Step 2	Select the **Delete** icon for the station that you want to delete configuration settings.
Step 3	When prompted, select **Delete**.

3.4 Adding a Station

Using the Nyquist system server's automatic discovery feature is the preferred method of adding a station. If you manually add a station, you risk having the MAC address entered incorrectly, which would prevent the station from functioning properly.

If the station **Type** is Admin Web Interface, Admin Phone, IP Phone, Analog Phone, or Mobile Device, you can set a default **Announcement Zone** and the **Announcement Zone Configuration Type**. If the **Announcement Zone Configuration Type** is set to **Fixed**, the zone used to play announcements will always be the zone number provided for **Announcement Zone** and cannot be changed. If set to **Default**, the **Announcement Zone** value is used as the default zone, but you can set an announcement to play to another zone.

To view and add discovered stations:

Step 1	On the navigation bar, select **Stations**.
Step 2	On the Stations page, select **New Stations**.

Step 3 From the New Stations page, select the **Add** icon next to the station that you want to configure.

Step 4 Complete the options that are not automatically filled. (See "*Station Configuration Page Parameters" on page 107*.)

Step 5 Select **Save**.

To manually add a station:

Step 1 On the navigation bar, select **Stations**.

Step 2 Select the **Add** icon.

Step 3 Complete the configuration parameters for the new station. Parameters are described in "*Station Configuration Page Parameters" on page 107*.

Step 4 Select **Save**.

3.4.1 Swapping a Nyquist Device

Through the **New Stations** option, you can replace an existing device with a new device. This option allows you to replace a device, such as VoIP speaker, with a new device of the same type and maintain the original device's extension and configuration.

You can also use the **New Stations** option to replace an audio power amplifier with another amplifier, regardless of type. For example, you can replace an NQ-A2060 amplifier with an NQ-A2300 amplifier.

3.4.2 Using a Cisco SPA112 Adapter

The Cisco SPA112 is an Analog Telephone Adapter (ATA) that allows an analog phone to access IP phone services through two standard telephone RJ-11 phone ports.

The following limitations exist when the Cisco SPA112 is used as a Nyquist Admin Phone station:

- Call queuing is not supported.
- Call waiting is limited to one call. If the Admin Phone is associated with an Admin Group, a call made to the Admin Phone when the phone is already on a call will automatically ring the Admin Group. If the Admin Phone is not associated with an Admin Group and

receives a call when already on a call, a beep sounds on the Admin Phone to indicate a call is on call waiting.

- When you add two stations to an SPA112 device, you must enter the same MAC address for both ports.
- The station number with the lowest numerical value will be set up on the first port (Phone 1) of the SPA112.
- After you add or delete a second station to or from the SPA112, the Nyquist system server reboots the SPA112. If the Nyquist system server does not know the SPA112's IP address you must manually reboot the SPA112 device for the changes to take effect on the SPA112.
- When a station is added to the SPA112, the web password is changed to **bogen**. You can change the web password when adding or editing the station.
- If you configure two stations on the same SPA112, the web password is set to the station with the highest station number, even if the other station has a different web password defined. Ensure that the same web password is entered for both stations on the SPA112.
- When you delete the second station from the SPA112, the remaining station is set up on the first port (Phone 1) even if that station was previously set up on the second port (Phone 2). If this situation occurs, move the attached phone cable from Phone 2 to Phone 1.
- When you configure two stations on the same SPA112, the second station (Phone 2) uses port # 5061.
- It can take several minutes for changes to show up on the SPA112's web interface when adding, modifying, or deleting stations to or from an SPA112.
- When you add a station to an SPA 112 for the first time, you must reboot the SPA112 after adding the station with the Nyquist web UI before the SPA112 will retrieve its configuration information.
- If station VLAN settings are provided and two stations are defined on the SPA112, the VLAN settings from the station with the lowest station number are used. The best practice is to ensure that both stations on the SPA112 use the same VLAN settings.

Refer to the *Cisco Small Business SPA100 Series Phone Adapters Administration Guide* for instructions on connecting the ATA.

To add a Cisco SPA112 station:

Step 1 On the navigation bar, select **Stations**.

Step 2 Select the **Add** icon.

> **Note:** If Use Network Time Server defined by DHCP is set to Yes on the Nyquist system server, the Cisco SPA112's NTP server configuration is not changed; otherwise the device's NTP server is set to the Nyquist system server's defined NTP server.

Step 3 Complete the configuration parameters for the new station:

a For **Type**, select **Admin Phone** or **IP Phone**.

b For **Device Type**, select **Cisco SPA112**.

c For **MAC Address**, enter the MAC address of the Cisco SPA112.

For all other parameters, see "*Station Configuration Page Parameters" on page 107*.

Step 4 Select **Save**.

Step 5 From your web browser, enter the IP address of the Cisco SPA112 device.

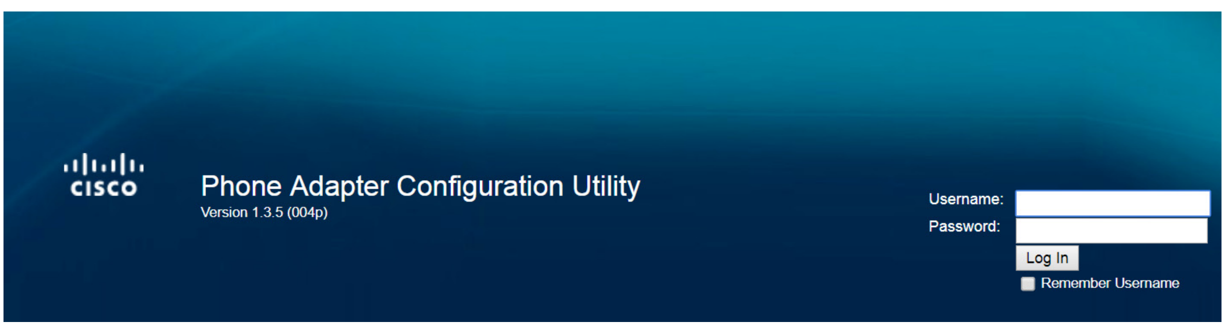


Figure 3-16, Cisco SPA112 Logon Window

Step 6 Log into the device.

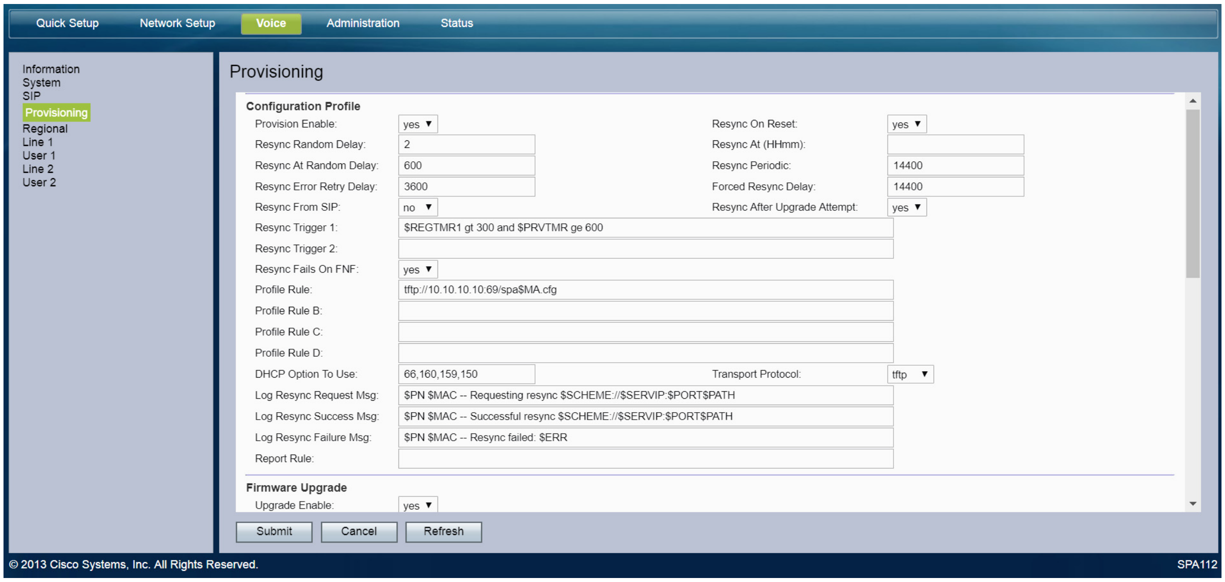


Figure 3-17, Provisioning Settings

Step 7 Select the **Voice** tab, and then select **Provisioning**.

Step 8 Set **Transport Protocol** to **tftp**, and then select **Submit**.

Step 9 Select the **Administrator** tab, and then select **Reboot** to reboot the device.

Step 10 Log into the device. The Nyquist system server will have set the following parameters:

- •Quick Setup -> Line 1 -> Proxy
- •Quick Setup -> Line 1 -> Display Name
- •Quick Setup -> Line 1 -> User ID
- •Quick Setup -> Line 1 -> Password
- •Quick Setup -> Line 1 -> Dial Plan
- •Network Setup -> Internet Settings -> Optional Settings -> Host Name
- •Network Setup -> Time Settings -> Time Server -> Manual
- •Network Setup -> Time Settings -> Time Server (IP or Hostname)

- Network Setup -> Auto Recovery After Reboot -> Yes (checked)
- Network Setup -> Advanced Settings -> VLAN -> Enable VLAN
- Network Setup -> Advanced Settings -> VLAN -> VLAN ID
- Voice -> Provisioning -> Resync Trigger 1
- Voice -> Provisioning -> Profile Rule -> "tftp://NyquistServerIP:69/spa$MA.cfg"
- Voice -> Provisioning -> Resync From SIP -> "no"
- Voice -> Line 1 -> Mailbox ID -> Nyquist-station-extension-number
- Voice -> Line 1 -> Mailbox Subscribe URL -> Nyquist-server-ip-address
- Voice -> Line 1 -> Proxy -> Nyquist-server-ip-address
- Voice -> Line 1 -> Subscriber Information -> Display Name, User ID, Password
- Voice -> Line 1 -> Dial Plan
- Administration -> Management -> User List -> password for username = admin

Step 11 For the **Dial Plan**, use the following:

(911|91x.|*92x.|*96x.|##0911|#0911|#x.|*xxx|#xxx|98x.|*x.|*990|7*x.|971x.|972x.|973x.|974x.|978x.|xxx|##x.|##*x.*x.|942#x.#x.|943#x.#x|904x.|904x.|3*x*x.|942#x.#x.|943#x.#x)

Step 12 Log out of the device.

3.4.3 Using the Yeastar TA2400

The Nyquist E7000 Series supports the use of the Yeastar TA2400 FXS VoIP Gateway to integrate 24 standard analog phones into you IP communications system.

Note: Quantum/Multicom MCESS and MCWESS phones are not supported by this device.

To install the gateway, refer to the *Yeastar TA Series Analog VoIP Gateway Installation Guide* (https://www.yeastar.com/download/Yeastar_TA_Series_Installation_Guide_en.pdf).

To configure the Yeastar TA2400 for use with the E7000 Series, you first set up the Yeastar TA2400 to retrieve configuration from the E7000 Series server. (See "*Connect the Yeastar TA2400 to the Nyquist Server" on page 159*.) Then, you add a station that uses a port on the TA2400 via the E7000 Series Admin UI. (See "*Adding a Station that Uses a Yeastar TA2400 Port" on page 160*.)

You can also use the Yeastar TA2400 web interface to view port status. (See "*Viewing Yeastar TA2400 Status" on page 161*.)

3.4.3.1 Connect the Yeastar TA2400 to the Nyquist Server

Setting up the Yeastar TA2400 to retrieve information from the Nyquist server is done through the Yeastar TA2400 web interface.

Follow instructions in the *Yeastar TA Series Analog VoIP Gateway Installation Guide* for getting an IP address for the Yeastar TA2400 and for logging into the Yeastar TA2400 web interface.

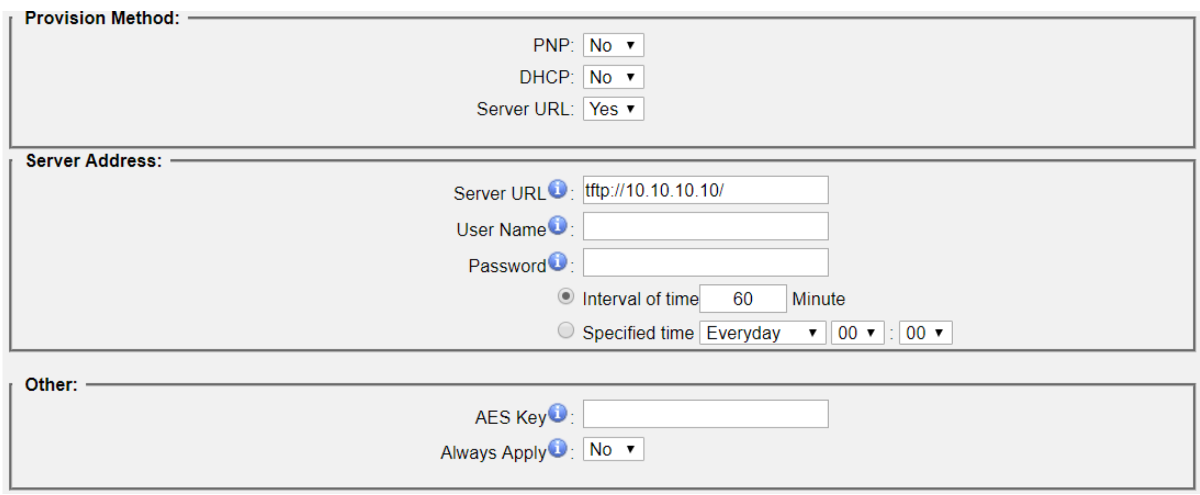


Figure 3-18, Yeastar Auto Provisioning Settings

To set up the Yeastar TA2400:

Step 1 From the Yeastar TA2400 web interface, select **System**.

Step 2 Under **System Preferences**, select **Auto Provision Settings**.

Step 3 In **Provision Method**, change **Server URL** to **Yes**.

Step 4	In **Server Address**, select the **Server URL** field and type **tftp://** followed by the IP address of the Nyquist server and /. For example: **tftp://10.10.5.2/**.
Step 5	Leave **User Name** and **Password** blank.
Step 6	In the **Interval of time** field, enter **60**.
Step 7	Select **Save**.
Step 8	Select **Apply Changes**.
Step 9	Under **System Preferences**, select **Reset and Reboot**.
Step 10	If prompted, select **OK**.

3.4.3.2 Adding a Station that Uses a Yeastar TA2400 Port

To add a station that uses a Yeastar TA2400 port to your Nyquist system, follow the procedures for adding a station (See "*Adding a Station" on page 153*).

When you select **Yeastar-TA2400 Analog FXS Port** as the **Device Type**, you must select the **Port Number** that the station is attached to from the drop-down list. Valid values are 1 through 24.

> **Note:** Port number 1 must always be used.

If you have only one phone attached to the TA2400, it must be attached to port 1. If you have multiple phones attached to the TA2400, one must be attached to port 1 but the use of the other ports can be random. For example, you can have phones attached to port 1, 2, 5, and 10. However, you cannot attach phones to just ports 2, 5, and 10 since that combination does not include phone 1.

The following rules apply when adding a station to a Yeastar TA2400 port:

- **Device Type** is **Yeastar-TA2400 Analog FXS Port**.
- You can select **Admin Phone** or **IP Phone** for **Type**.
- **MAC Address** is a required field. If you are adding the first station for this **MAC Address**, the **Port Number** is automatically set to **1**.
- **Paging** is set to **No** and cannot be changed.
- **Multicast Audio Distribution** is set to **No** but does not appear on the **Add Station** or **Edit Station** pages.
- Volume controls do not appear.

- **Codecs Allowed** is set to **g722** and cannot be changed.
- If you enter 1 for **Port Number**, the Admin Web UI displays the **VLAN settings**, **Web Username**, and **Web Password** fields.
- Stations attached to the Yeastar TA2400 are not available for ringing during Night Ring operations.
- You can associate an external (classroom) speaker to a TA2400 port by selecting a **Speaker Extension**.
- After adding a station, the Yeastar TA2400 must be manually rebooted via the Yeastar TA2400's web interface.
- The Nyquist **Appliances Network Time Server Source** will be used to configure the Network Time Service on the Yeastar TA2400. (See *"Using the Yeastar TA2400" on page 158*.)
- The Yeastar TA2400 time zone will be set to match the Nyquist server's time zone.

3.4.3.3 Viewing Yeastar TA2400 Status

You can use the Station Status feature to view overall status of the Yeastar TA2400 device. (See *"Viewing Station Status" on page 164*.)

You can obtain status of the individual ports through the Yeastar TA2400 UI.

FXS Port Status

Port	UP/Down/Break	Name	Status	Voice Mail(New/Old)	Off-hook/On-hook
1	Up	Yeastar301	OK	--	On Hook
2	Up	Yeastar302	OK	--	On Hook
3	Up	Yeastar303	OK	--	On Hook
4	Up	Yeastar304	OK	--	On Hook
5	Up	Yeastar305	OK	--	On Hook

Figure 3-19, FXS Port Status

To view port status:

Step 1 From the Yeastar TA2400 web interface, select **Status**.

Step 2 Select **Port Status**.
Parameters that can be viewed and a description of the possible statuses are described in the following table.

Table 3-11, Port Status Parameters

Port	Provides the port number for the associated station.
Up/Down	Displays **Up** if the FXS module is working. Otherwise, displays **Down**.
Name	Provides the name of the station.
Status	Shows the state of the port Possible statuses are: • **OK**. Registration is successful, and the port is ready for use. • **Unreachable**. The FXS module cannot determine the status of the port. • **Request Sent**. A request for registering the port has been transmitted to the FXS module. • **Waiting for authentication**. The FXS module is verifying that the correct password and user name have been entered. • **Failed**. The port registration has failed.
Voice Mail (New/Old)	This field is not used.
Off hook/On hook	**On Hook** appears if the FXS port is idle. **Off Hook** appears if the FXS port is busy.

See also:

- *"Viewing Station Configuration Settings" on page 106*
- *"Adding a Station" on page 153*

3.5 Excluding Stations from Paging

Stations can be excluded from paging except for Emergency All Call pages. Emergency All Call pages will be sent and heard at the station even if that station is set to exclude paging.

Stations excluded from paging are also excluded from receiving audio distribution, even if the station's **Multicast Audio Distribution** parameter is enabled, the station is a member of a zone being used for Audio Distribution, or both.

If you exclude a station from paging and the station is included in a **Time** or **Paging+Time** zone, the station does not receive tones either.

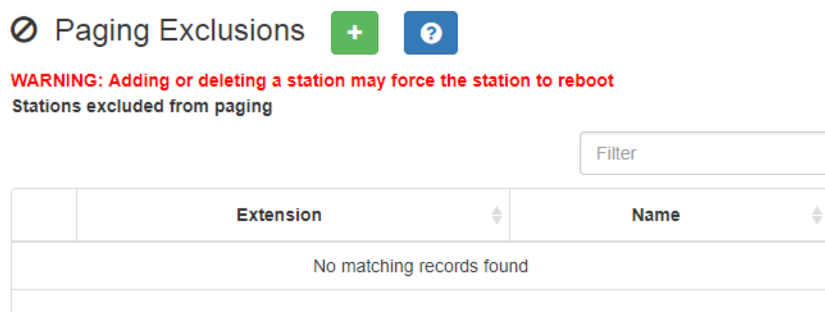


Figure 3-20, Paging Exclusions Page

To exclude a station from paging:

Step 1 On the navigation bar, do one of the following:

a Select **Stations**, and then select **Page Exclusions**.

b Select **Page Exclusions**.

Step 2 Select the **Add** icon to add a station to the Page Exclusions list.

WARNING

Adding or deleting a station from the page exclusions list may force the station to reboot.

To remove a server from the Page Exclusions list:

Step 1 On the navigation bar, select **Page Exclusions**.

Step 2 Select the **Delete** icon next to the station that you want to remove from the Page Exclusions list.

Step 3 When prompted, select **Delete**.

3.6 Viewing Station Status

The Station Status feature allows you to quickly assess the status of all stations.

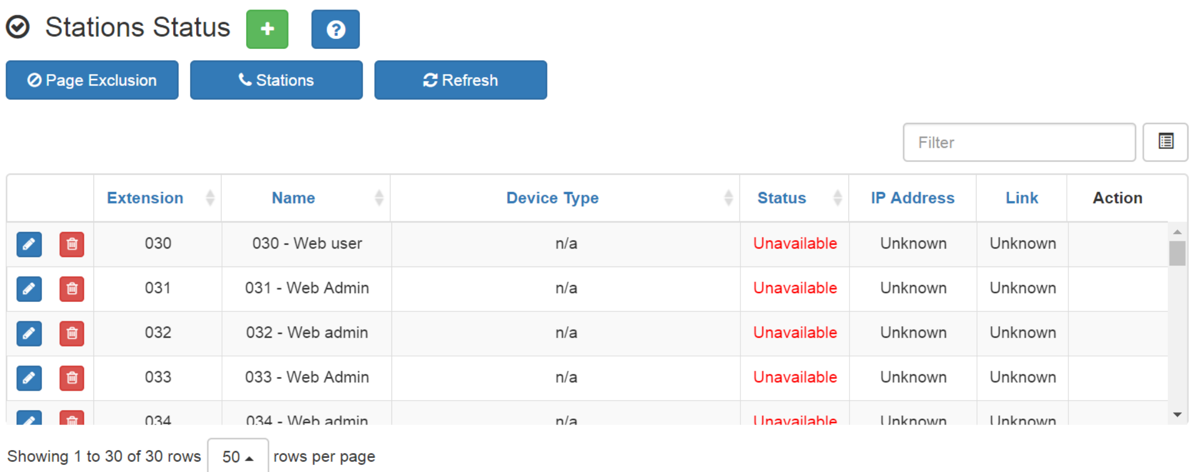


Figure 3-21, Station Status Page

To view station status:

Step 1 On the navigation bar, select **Stations**.

Step 2 Select **Stations Status**.

The following information appears for all stations:

Table 3-12, Station Status Page Parameters

Extension	Specifies the unique multi-digit extension number for this station. Valid values range from 001 to 899 for three-digit dialing. The system can be configured to use three, four, five, or six digit dialing.
Name	Specifies the name for the station. Names can be up to 16-characters in length.
Device Type	Specifies the Device Type, such as NQ-P0100 Matrix Mixer Pre Amp.

Table 3-12, Station Status Page Parameters (Continued)

Status	Shows the current state of the station. Possible statuses are: • **Not in use**. This status indicates that the station is registered with the Nyquist system server and is not on a call. • **In use**. This status indicates that the station is off hook and either placing a call or in a call, such as an intercom call, page, or using a Nyquist feature. • **Ring+Inuse**. Indicates that the station is off hook, on a call, and ringing (at least one incoming call is ringing the station). • **Ringing**. Indicates that the station is on hook and ringing (at least one incoming call is ringing the station). • **Unavailable**. Indicates that the station is not registered with the Nyquist system server and is unavailable. A station in this status is unable to receive calls and most likely cannot place calls.
IP Address	Provides the IP address of the station.
Link	If the device can be configured or managed via an appliance web UI, this provides a login window for the device. After you enter your **Username** and **Password**, the web UI for the device appears.
Action	Provides a **Reboot** button for Nyquist devices that have an IP address. Selecting this button reboots the device.

3.7 Viewing Appliance Status

The Appliance Status feature allows you to quickly view the status of appliances such as I/O controllers, Analog Station Bridges, and Matrix Mixer Pre-Amps without having to set a filter or manually search for each appliance.

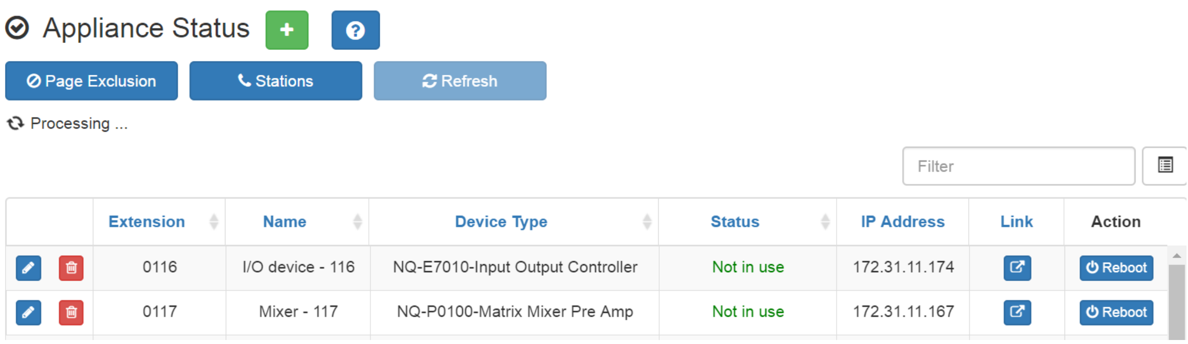


Figure 3-22, Appliance Status Page

To view appliance status:

Step 1 On the navigation bar, select **Stations**.

Step 2 Select **Appliance Status**.

The following information appears for each appliance recognized by the Nyquist system server:

Table 3-13, Appliance Status Page Parameters

Extension	Specifies the unique multi-digit extension number for this station. Valid values range from 001 to 899 for three-digit dialing. The system can be configured to use three, four, five, or six digit dialing.
Name	Specifies the name for the station. Names can be up to 16-characters in length.
Device Type	Identifies the type of appliance such as NQ-E7010-Input Output Controller.

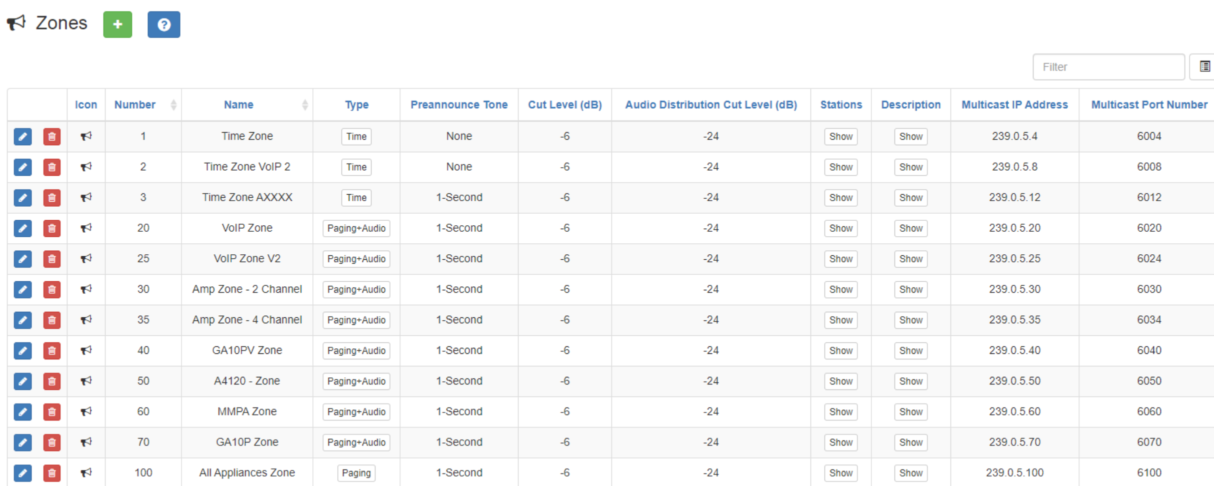
Table 3-13, Appliance Status Page Parameters (Continued)

Status	Shows the current state of the appliance. Possible statuses are: • **Not in use**. This status indicates that the station is registered with the Nyquist system server and is not on a call. • **In use**. This status indicates that the station is off hook and either placing a call or in a call, such as an intercom call, page, or using a Nyquist feature. • **Unavailable**. Indicates that the station is not registered with the Nyquist system server and is unavailable. • **Unknown**. The server is unable to determine the state of the device.
IP Address	Provides the IP address of the appliance.
Link	If the device can be configured or managed via an appliance web UI, this provides a login window for the device. After you enter your **Username** and **Password**, the web UI for the device appears.
Action	Provides a **Reboot** button for Nyquist devices that have an IP address. Selecting this button reboots the device.

You can return to the Stations page by selecting **Stations**.

3.8 Viewing Zone Information

From the Zones page you can select to add, edit, or delete zones and view parameters for all existing zones.



	Icon	Number	Name	Type	Preannounce Tone	Cut Level (dB)	Audio Distribution Cut Level (dB)	Stations	Description	Multicast IP Address	Multicast Port Number
		1	Time Zone	Time	None	-6	-24	Show	Show	239.0.5.4	6004
		2	Time Zone VoIP 2	Time	None	-6	-24	Show	Show	239.0.5.8	6008
		3	Time Zone AXXXX	Time	1-Second	-6	-24	Show	Show	239.0.5.12	6012
		20	VoIP Zone	Paging+Audio	1-Second	-6	-24	Show	Show	239.0.5.20	6020
		25	VoIP Zone V2	Paging+Audio	1-Second	-6	-24	Show	Show	239.0.5.25	6024
		30	Amp Zone - 2 Channel	Paging+Audio	1-Second	-6	-24	Show	Show	239.0.5.30	6030
		35	Amp Zone - 4 Channel	Paging+Audio	1-Second	-6	-24	Show	Show	239.0.5.35	6034
		40	GA10PV Zone	Paging+Audio	1-Second	-6	-24	Show	Show	239.0.5.40	6040
		50	A4120 - Zone	Paging+Audio	1-Second	-6	-24	Show	Show	239.0.5.50	6050
		60	MMPA Zone	Paging+Audio	1-Second	-6	-24	Show	Show	239.0.5.60	6060
		70	GA10P Zone	Paging+Audio	1-Second	-6	-24	Show	Show	239.0.5.70	6070
		100	All Appliances Zone	Paging	1-Second	-6	-24	Show	Show	239.0.5.100	6100

Figure 3-23, Zones Page

To view existing zones:

Step 1 On the navigation bar, expand **Zones and Queues**.

Step 2 Select **Zones**.
Zone information is described in "*Zone Page Parameters" on page 168*.
Details about each zone can be viewed in either table format or in a card view by zone format.

Step 3 To change the format used for the view, select the **Filter** icon.

Table 3-14, Zone Page Parameters

Icon	Displays a visual icon that represents the zone or zone type. For example, the **Cutlery** icon can be used for a zone that contains the cafeteria, while a **Briefcase** icon can be used for a zone that contains executive offices.
Number	Displays a number associated with the zone. This number can have up to five digits.

Table 3-14, Zone Page Parameters (Continued)

Name	Identifies the zone by the user-created name. The name can be alphanumeric (such as Bldg 1) and contain up to 255 characters.
Type	Identifies the zone as being able to receive paging, time, audio, or a combination of paging, time, or audio.
Preannounce Tone	Identifies what, if any, tone should play before an announcement.
Cut Level (dB)	Sets the device volume cut level to be used when devices included in the zone receive pages, time scheduled tones, and manually activated tones. The cut level can range from 0 to -42.
Audio Distribution Cut Level (dB)	Set the volume cut level for to be used when devices in the zone receive audio distribution and scheduled audio. (See *"Using Audio Distribution" on page 315*.)
Stations	Displays the extensions included in the zone when **Show** is selected.
Description	Provides a description of the zone when **Show** is selected.
Multicast IP Address	Identifies the IP address for multicast calls to the zone.
Multicast Port Number	Identifies the port number for multicast calls to the zone.

3.9 Adding a Zone

> **Note:** The maximum number of zones that a Nyquist appliance can be enrolled in is 24. For ASBs, 2-channel amplifiers, and 4-channel amplifiers, the maximum number of zones or all attached stations is 24. Admin Phones can be enrolled in a maximum of seven zones. An error displays if you attempt to add a Nyquist station to a zone and it is already enrolled in the maximum number of zones.

You must have permission to add zones to perform this procedure.

When you create a zone, you select whether the zone will allow manual paging, scheduled time paging, or audio distribution, or any combination of manual paging, scheduled time paging, or audio distribution.

If you want tones to play during active pages, you must create separate page and time zones and the time zones must be created first. Creating time zones first sets the priority of time zones over page zones. Stations can be in multiple zones.

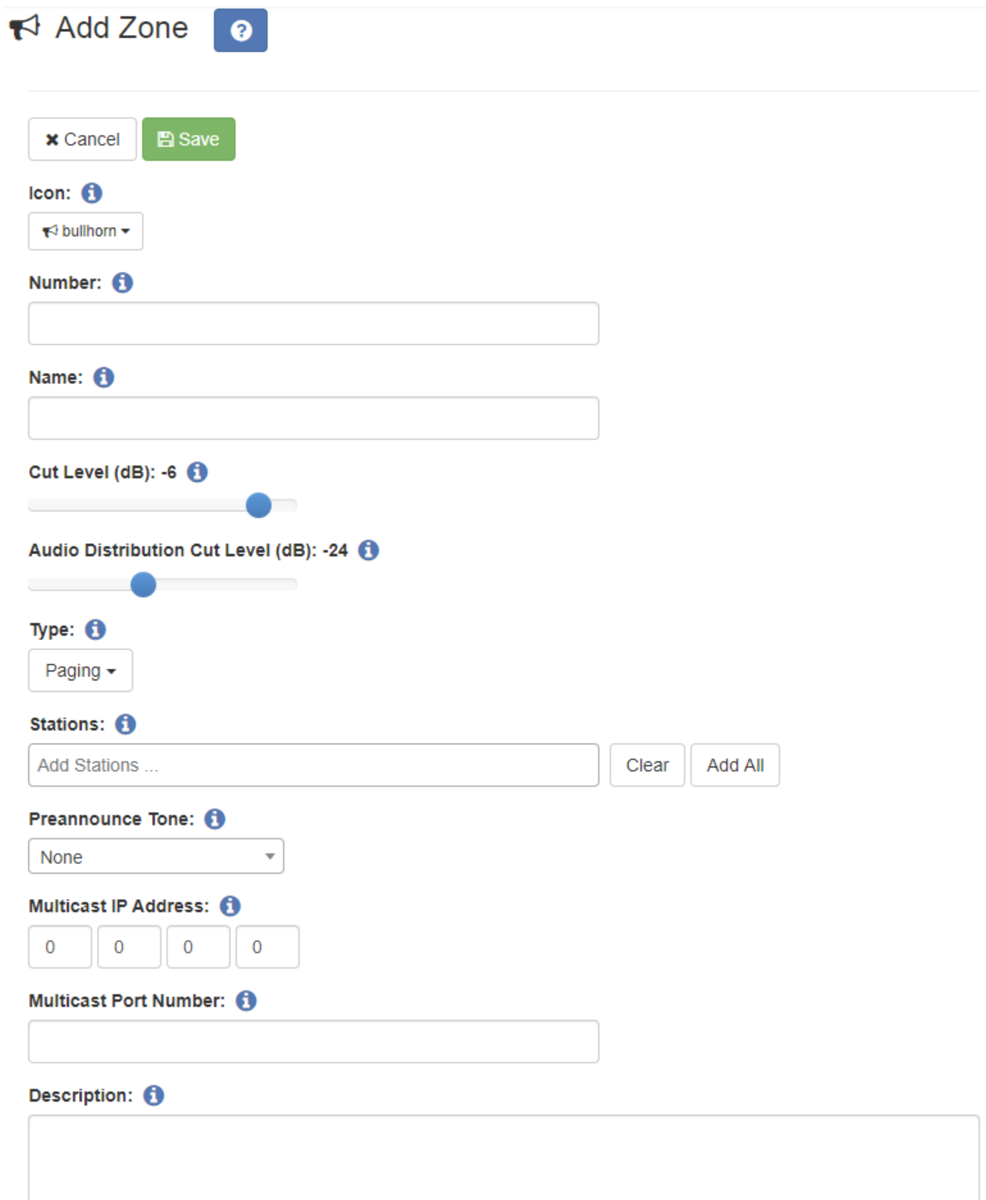


Figure 3-24, Add Zones Page

To add a zone:

Step 1	On the navigation bar, expand **Zones and Queues**.
Step 2	Select **Zones**.
Step 3	Select the **Add** icon.
Step 4	Complete all parameters for the zone. Parameters are described in *"Add Zone Page Parameters" on page 171*.
Step 5	Select **Save**.

Table 3-15, Add Zone Page Parameters

Icon	Use the drop-down menu to select a visual icon that represents the zone or zone type. For example, the **Cutlery** icon can be used for a zone that contains the cafeteria, while an **Eraser** icon can be used for a zone that contains only classrooms.
Number	Enter a number associated with the zone. A zone number can contain a maximum of five digits.
Name	Enter a name for the zone. The name can be alphanumeric (such as Bldg 1) and contain up to 40 characters.
Cut Level (dB)	Set the device volume cut level to be used when devices included in the zone receive pages, time scheduled tones, and manually activated tones. The cut level can range from 0 to -42.
Audio Distribution Cut Level (dB)	Set the volume cut level for to be used when devices in the zone receive audio distribution and scheduled audio. (See *"Using Audio Distribution" on page 353*.)

Table 3-15, Add Zone Page Parameters (Continued)

Type	Identifies the zone as being able to receive paging, time, audio, or a combination of paging, time, or audio. Options are: • Paging • Time • Paging+Time • Audio • Paging+Audio • Paging+Time+Audio • Audio+Time **Note:** If you want tones to play during active pages, you must create separate paging and time zones and the time zones must be created first. Creating time zones first sets the priority of time zones over page zones. Stations can be in multiple zones, and you can create a paging zone (or a Paging+Audio zone) and a time zone (or Audio+Time zone) that contain the same stations.
Stations	Add extensions for the stations to be included in the zone. **Note:** An analog phone station cannot be added to a zone.
Preannounce Tone	Use the drop-down menu to select what, if any, tone should play before an announcement.
Multicast IP Address	Enter the IP address for multicast calls to the zone.
Multicast Port Number	(Optional) Enter the port number for multicast calls to the zone **Note:** This field is required if a Multicast IP Address is entered. The port number must be an even number. Port numbers are assigned increments of four; if a zone was created with the Multicast Port Number of 6004, the next available Multicast Port Number would be 60008. Not using multicast when a zone has many station can cause performance issues.
Description	Provide a description of the zone.

3.10 Editing Zone Configuration

The Edit Zone page allows you to change zone parameters, including adding or deleting stations from the zone. You must be logged in with a role that has permission to edit a zone before completing this procedure.

Note: You cannot edit a zone number for a zone that is linked to a routine.

To edit a zone:

Step 1 On the navigation bar, expand **Zones and Queues**.

Step 2 Select **Zones**.

Step 3 Select the **Edit** icon for the zone.

Step 4 Complete all parameters for the zone.
Parameters are described in "*Add Zone Page Parameters" on page 171*.

Step 5 Select **Save**.

3.11 Deleting a Zone

You can delete a zone that is no longer being used.

Note: You cannot delete a zone that is linked to a routine.

To delete a zone:

Step 1 On the navigation bar, expand **Zones and Queues**.

Step 2 Select **Zones**.

Step 3 Select the **Delete** icon for the zone.

Step 4 When the confirmation page appears, select **Delete**.

3.12 Viewing Queues

> **Warning** **Changes to queues – including adding a queue, modifying an existing queue, or deleting a queue – will result in the deletion of all recorded pages that have not yet played. Changes should only be done after business hours or during a small maintenance window that does not exceed 5 minutes.**

With the Page Queuing feature, you can record an unlimited number of pages or messages for queuing (stacking) for a specified zone or zones. A zone can only be added to a single queue, but a queue may have multiple zones associated with it. Zones must be created before a queue can be created.

Page Queuing is designed to eliminate feedback that can occur if a page is made in an area where a microphone and speaker are in close proximity. With page queuing, the page does not start until you (or the user recording the page) has indicated that the recording is completed.

Page Queuing also prevents page overlapping since pages sent to a queue play one at a time.

The Page Queuing feature differs from the Schedule Announcement (see "*Using the Schedule Announcement Feature" on page 239*) and Record Announcement (see "*Monitoring/Recording" on page 479*) features. The Schedule Announcement feature allows you to specify a date and time when the announcement is to be played, and the DTMF Code *990 allows a user to use the admin phone to record an announcement that is played immediately after it is recorded.

Using the DTMF Codes *991 or *991*{Zone Number} or selecting Record Page from the Admin Phone or the Admin web UI allows you to initiate a queued page.

When the DTMF Code #{Zone Number} is used to initiate a zone page, Nyquist will start a queued page if the zone belongs to a queue. If you want to start a real-time page to the zone instead, dial #{Zone Number}*.

With the Page Queuing feature, the recorded page is placed in a zone's queue. The pages in the zone's queue are played in the order that they are placed in the queue.

A live page started on a zone that is playing a recorded page will cause the recorded page to be terminated and sent back to the queue. The interrupted message will play again, from the beginning of the message, when the zone becomes idle. Multi-Site Emergency-All-Call, Multi-Site All-Call, Emergency All-Call, All-Call, Alarm, Tone, and Emergency Announcement will also interrupt any playing recorded zone messages. All re-queued interrupted messages will play again, from the beginning of the message, when the zones becomes idle.

Selecting **Disable Audio** will cause all recorded messages to stop. The messages will resume play from the beginning when audio is re-enabled.

For information about recording pages, see *"Record Page" on page 334*.

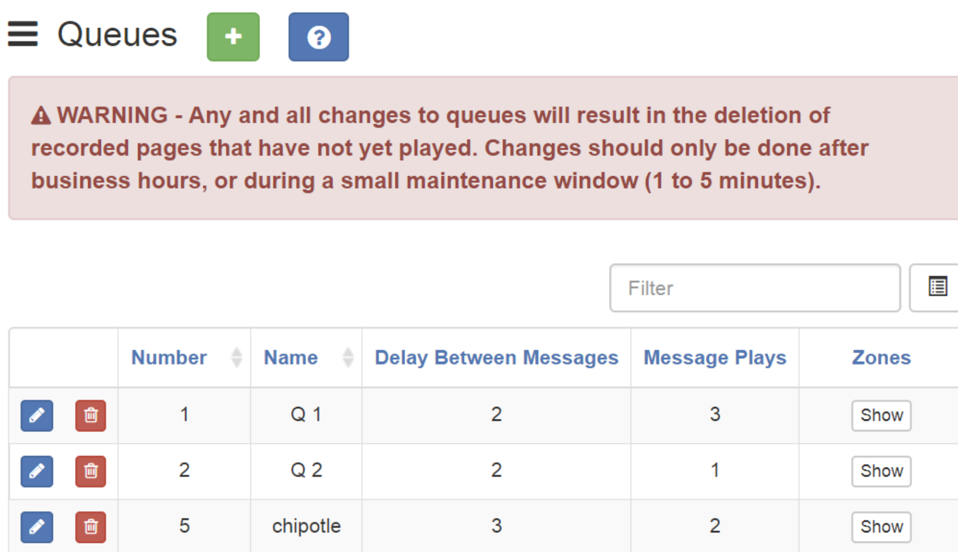


Figure 3-25, Queues

To view existing queues:

Step 1 On the navigation bar, expand **Zones and Queues**.

Step 2 Select **Queues**.
Queue information is described in the following table:

Table 3-16, Queues Page Parameters

Number	Number that the user assigns to the queue
Name	Name that the user assigns to the queue

Table 3-16, Queues Page Parameters (Continued)

Delay Between Messages	Number of seconds to pause between pages. The delay can range between 1 and 10 seconds. The default is 2 seconds.
Message Plays	How many times each page in the queue will play. The number can range between 1 and 3. The default is 1, which means that the message plays only one time.
Zones	Select **Show** when viewing a queue to see the list of zones assigned to the queue. When adding a queue, only zones not already assigned to a queue and that are **Paging**, **Paging+Time**, **Paging+Audio**, and **Paging+Time+Audio** type appear in the drop-down menu. **Note:** A zone can only be associated to a single queue.

3.13 Adding a Queue

You can create multiple queues for stacking pages, and a queue may have one or more zones. However, a zone can only be associated with a single queue.

> **Warning** **Changes to queues – including adding a queue, modifying an existing queue, or deleting a queue – will result in the deletion of all recorded pages that have not yet played. Changes should only be done after business hours or during a small maintenance window that does not exceed 5 minutes.**

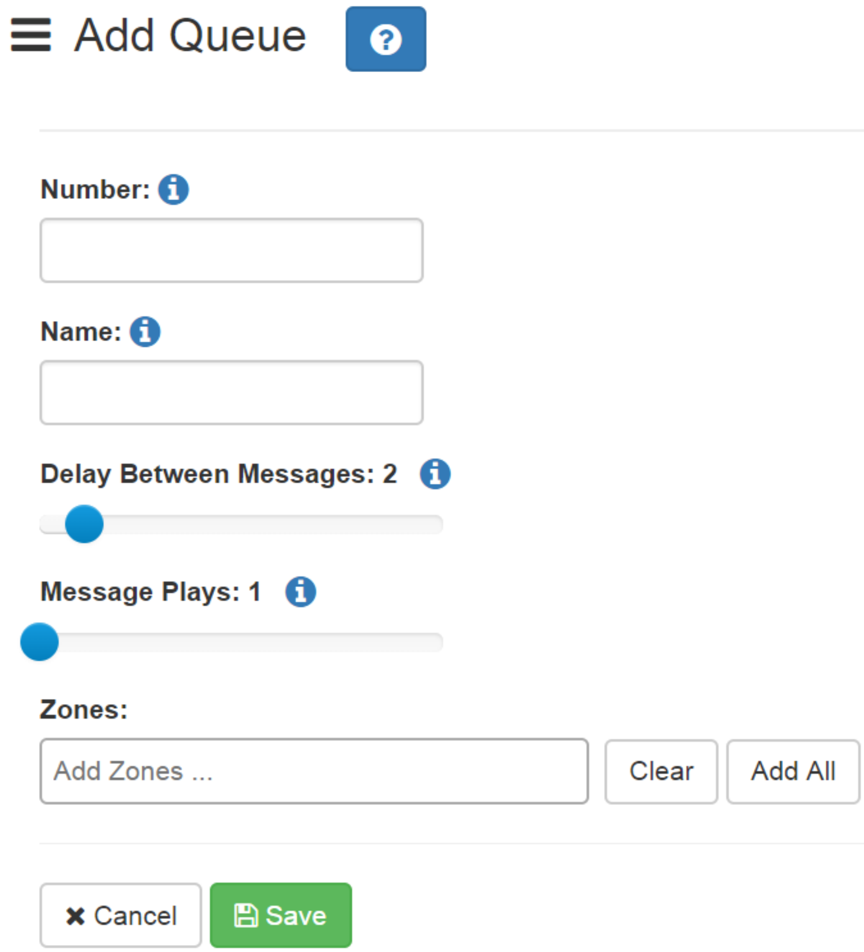


Figure 3-26, Add Queue

To create a queue:

Step 1 On the navigation bar, expand **Zones and Queues**.

Step 2 Select **Queues**.

Step 3 Select the **Add** icon.

Step 4 Complete the Add Queue parameters. (See "*Queues Page Parameters" on page 175*.)

Step 5 Select **Save**.

3.14 Editing a Queue

You can edit a queue to change any of its parameters.

Warning	**Changes to queues – including adding a queue, modifying an existing queue, or deleting a queue – will result in the deletion of all recorded pages that have not yet played. Changes should only be done after business hours or during a small maintenance window that does not exceed 5 minutes.**

To edit a queue:

Step 1 On the navigation bar, expand **Zones and Queues**.

Step 2 Select **Queues**.

Step 3 Select the **Edit** icon next to the queue that you want to modify.

Step 4 Make desired changes to the queue parameters. (See *"Queues Page Parameters" on page 175*.)

Step 5 Select **Save**.

3.15 Deleting a Queue

You can delete a queue that is no longer needed.

Warning	**Changes to queues – including adding a queue, modifying an existing queue, or deleting a queue – will result in the deletion of all recorded pages that have not yet played. Changes should only be done after business hours or during a small maintenance window that does not exceed 5 minutes.**

To delete a queue:

Step 1 On the navigation bar, expand **Zones and Queues**.

Step 2 Select **Queues**.

Step 3 Select the **Delete** icon next to the queue that you want to delete.

Step 4 When prompted, select **Delete**.

4 Managing Bridge Devices

Managing Bridge Devices

Bridge Devices, such as the NQ-E7030 Analog Station Bridge (ASB), allow the E7000 solution to use the existing analog call switches, 25 volt speakers, analog phones, and existing infrastructure when upgrading from Multicom 2000, Quantum Multicom IP, and supported third-party intercom systems. When used exclusively as a networked component of the E7000 series paging and intercom solution, the ASB permits a hybrid IP/analog system configuration through use or connection of analog 25V speakers and associated analog call switches (for example, CA-15C type).

The ASB has 24 station connections that attach to hardwired 25 volt speakers and their associated call switches. While each connection has its own SIP addressable Station ID, the ASB itself uses a single network IP address.

4.1 Viewing Bridge Devices

Through the Bridge Devices page, you can view information about all bridge devices configured for your E7000 system, select to add or edit devices, and select to manage stations for a bridge device.

	Name	Manage	Action	Mac Address	Serial Number	IP Address	Link	Status	Description	Intercom Cut Level {dB}	Output Power (dB)	VLAN Configuration
	ASB - 01	Station Management	Reboot	04a316af0cd4	1747HAN00064	172.31.11.177		Up:24 of 24 stations	Show	-6	0	Network/Device
	ASB - 02	Station Management	Reboot	7c38663c84d1	1747HAN00043	172.31.11.176		Up:24 of 24 stations	Show	-6	0	Network/Device

Figure 4-1, Bridge Devices Page

To view bridge devices attached to your network:

On the navigation bar, select **Bridge Devices**.

The Bridge Devices page provides a list of all bridges that have been discovered by or manually configured for the E7000 system.

Table 4-1, Bridge Devices Page Parameters

Name	Provides a name for the bridge.
Manage	Provides a link to the Station Management tools.
Action	Provides a **Reboot** button to select if the bridge device needs to be rebooted.
MAC Address	Provides the MAC address for the bridge device.
Serial Number	Provides serial number of the bridge device.
IP Address	Provides the IP address for the bridge device.
Link	Provides a link to the bridge device's user interface.
Status	Provides the status of the bridge device. Possible statuses include: • **Unknown**. The server is unable to determine the state of the device. • **Unreachable**. The server is unable to ping the device. • **Registering**. More than one IP address has been found. Stations may still be registering with new IP addresses. • **Up: X of 24 stations**. At least some of the stations are registered with the E7000 Series server and are operating.
Description	Provides a description for the bridge device.
Intercom Cut Level (dB)	Indicates the intercom volume cut level, which applies to all attached stations for intercom calls. The intercom volume cut level can range from 0 to -42.
Output Power (dB)	Provides the channel output setting. The available settings increment by 1 and range from -6 to 6 with the default being 0.
VLAN Configuration	Specifies how the VLAN configuration is set.

Table 4-1, Bridge Devices Page Parameters (Continued)

VLAN ID	Identifies the VLAN for this bridge device. The VLAN ID parameters range from 2 through 4094 and pertain to the bridge's network interface (not to the ports or stations).
VLAN Priority	Identifies the priority for the port. Values range from 0 through 7.
Web Username	Provides a username for logging into the bridge device.
Firmware	Provides information about firmware that is loaded onto the bridge device.

4.2 Adding a Bridge Device

From the Add Bridge Device page, you can add a new bridge device to your E7000 system.

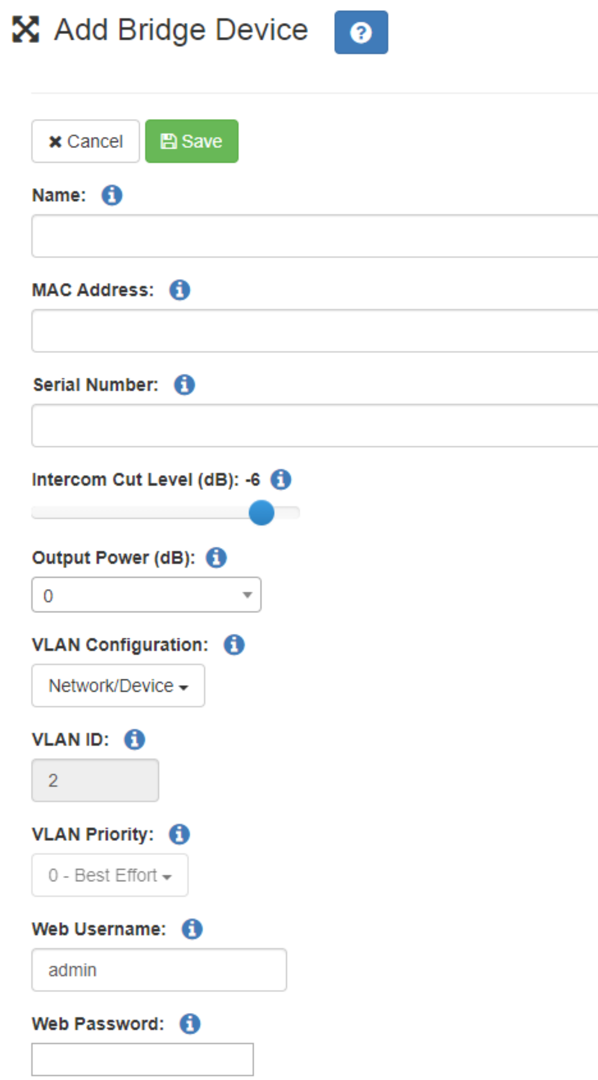


Figure 4-2, Add Bridge Device Page

To add a bridge device:

Step 1 On the navigation bar, select **Bridge Devices.**

Step 2 On the Bridge Devices page, select the **Add** icon.

Step 3 Complete the parameters on the Add Bridge Device page.

Step 4 Select **Save**.

After you save the information, the Station Management page appears so that you can add stations and select the settings to be applied to these new stations. (See "*Using Station Management" on page 185*.)

Table 4-2, Add Bridge Device Page Parameters

Name	Provide a name for this device.
MAC Address	Provide the MAC address for this device.
Serial Number	Provide the serial number for this device.
Intercom Cut Level (dB)	Specify the volume cut level, which applies to all attached stations for intercom calls. The cut level can range from 0 to -42.
Output Power (dB)	Provides the channel output setting. The available settings increment by 1 and range from -6 to 6 with the default being 0.
VLAN Configuration	Set how the VLAN configuration is set. Parameters are Server, Network/Device, or Disabled.
VLAN ID	Provides a numeric identifier for the VLAN. Valid values range from 2 to 4094. This field cannot be edited.
VLAN Priority	Provides the 802.1p priority.Valid values range from 0 to 7. This field cannot be edited.
Web Username	Provide a usename for logging into the bridge.
Web Password	Provide a password for logging into the bridge.
Web Password Confir-mation	Retype the password for logging into the bridge.
Firmware	Select a firmware version from the drop-down menu.
Description	Provide a description for the bridge device.
Auto Generate New Stations	**The following parameters set parameters for stations created by adding the bridge.**
Number of Stations to Create	Select the number of stations to create when adding this bridge.

Table 4-2, Add Bridge Device Page Parameters (Continued)

Station Name(s)	Select the name format to use when creating the stations for this bridge. Use [extension] to add extension to the name. Extension is added to the name by default.
First Extension	Enter the first extension to be used when creating stations for this bridge.
Station Type	Select the default station type to be used when creating stations for this bridge. Parameters are: • VoIP Speaker Only • Call Switch & Speaker
Day CoS	Select the default CoS to be applied to the stations attached to this bridge during daytime hours.
Night CoS	Select the default CoS to be applied to the stations attached to this bridge during nighttime hours.
Admin Group	Identifies the Admin Group associated with the station. The Admin Group is called if the Day/Night admin does not answer within 30 seconds.
Day Admin	Select the extension for the Admin Station that will cover stations during daytime hours.
Night Admin	Select the extension for the Admin Station that will cover stations during nighttime hours.
911 Route	Select how 911 calls made by the stations are to be routed.

4.3 Editing a Bridge Device

To edit a bridge device:

Step 1 On the navigation bar, select **Bridge Devices.**

Step 2 Select the **Edit** icon for the bridge that you want to edit.

Step 3 Complete the parameters on the Edit Bridge Device page.

Step 4 Select **Save.**

Table 4-3, Edit Bridge Device Page Parameters

Name	Provide a name for this device.
MAC Address	Provide the MAC address for this device.
Serial Number	Provide the serial number for this device.
Intercom Cut Level (dB)	Specify the volume cut level, which applies to all attached stations for intercom calls. The cut level can range from 0 to -42.
Output Power (dB)	Provides the channel output setting. The available settings increment by 1 and range from -6 to 6 with the default being 0.
VLAN Configuration	Set how the VLAN configuration is set. Parameters are Server, Network/Device, or Disabled.
VLAN ID	Provides a numeric identifier for the VLAN. Valid values range from 2 to 4094. This field cannot be edited.
VLAN Priority	Provides the 802.1p priority.Valid values range from 0 to 7. This field cannot be edited.
Web Username	Provide a usename for logging into the bridge.
Web Password	Provide a password for logging into the bridge.
Web Password Confirmation	Retype the password for logging into the bridge.
Firmware	Select a firmware version from the drop-down menu.
Description	Provide a description for the bridge device.

4.4 Using Station Management

With the E7000’s Station Management feature, you can reorder the extension for a bridge device port (move an extension to another port), edit a station attached to a bridge device port, and select settings to apply to newly created stations. When adding a new bridge device, you can also use Station Management to auto generate new stations.

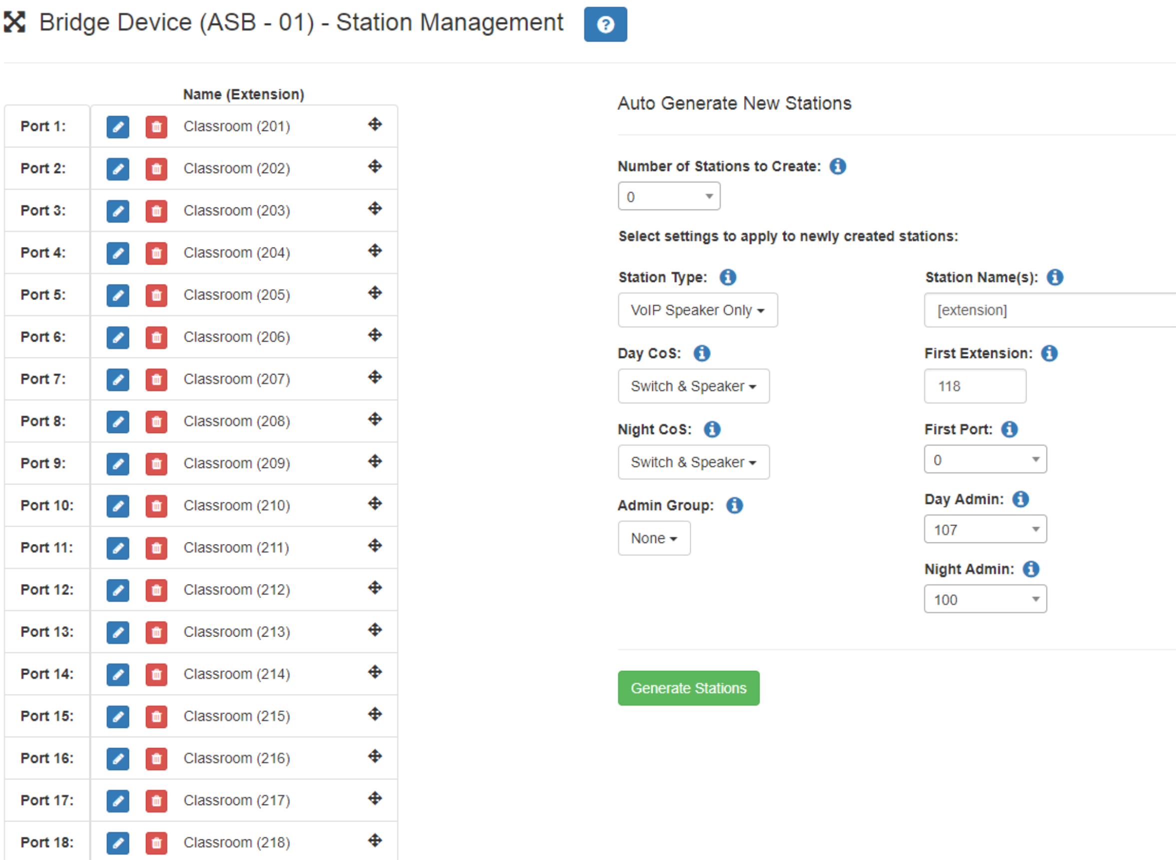


Figure 4-3, Station Management Page

To use Station Management:

Note: The Station Management page automatically appears when you create a new bridge device. (See "*Adding a Bridge Device" on page 182*.)

Step 1 On the navigation bar, select **Bridge Devices.**

Step 2 Select **Station Management** for the desired bridge device, or, if adding a new bridge device,

Step 3 To move an extension to another port, select the icon next to the Name (Extension) of the port and drag the extension to the desired location.

Step 4 To edit a port:

a Select the **Edit** icon next to the desired port.

b Make desired changes to the Edit Station page. (See "*Station Configuration Page Parameters" on page 107*.)

c Select **Save**.

Step 5 If you are adding a new bridge device and you want E7000 to auto generate new stations:

a Use the drop-down menu to select **Number of Stations to Create**.

b Select the settings to apply to the newly created stations. (See "*Station Settings" on page 187*.)

c Select **Generate Stations**.

Step 6 After completing all desired changes, select **Done**.

Table 4-4, Station Settings

Station Type	Select the type of station. Options include: • VoIP Speaker Only • Analog Call Switch & Speaker • Digital Call Switch & Speaker • Analog Phone **Note:** Multiple analog and digital call switches can be assigned the same port via the appliance web UI by assigning the **Digital Call Switch & Speaker** type to each digital and analog call switch. For more information, refer to the *E7000 Analog Station Bridge Configuration Manual*.
Day CoS	Select the default CoS to be applied to the stations attached to this bridge during daytime hours.
Night CoS	Select the default CoS to be applied to the stations attached to this bridge during nighttime hours.
911 Route	Select how 911 calls made by the stations are to be routed.
Station Name(s)	Enter the name format for the generated stations. Use [extension] if you want to include the extension in the name. Extension will be added to the name by default.

Table 4-4, Station Settings (Continued)

First Extension	Select the extension number for the first newly created station. Each station following the first station will be assigned the next available extension. The system can be configured to use 3, 4, 5, or 6 digit extensions.
First Port	Select the port number for the first port for the generated stations. Each station following the first station will be assigned the next available port number.
Day Admin	Select the extension for the Admin Station that will cover stations during daytime hours.
Night Admin	Select the extension for the Admin Station that will cover stations during nighttime hours.

5 Managing Amplifiers

Managing Amplifiers

You can assign stations to an audio power amplifier or a public address/mixer amplifier provided the amplifier has an available port. The station must be assigned manually but the audio power amplifier itself can be automatically discovered by your Nyquist system.

5.1 Viewing Amplifiers

Through the Amplifier Devices page, you can view information about all audio power amplifiers and public address/mixer amplifiers configured for your Nyquist system; select to add, edit, or delete these devices; select to manage stations for an amplifier, and select to configure Push To Talk parameters for an amplifier.

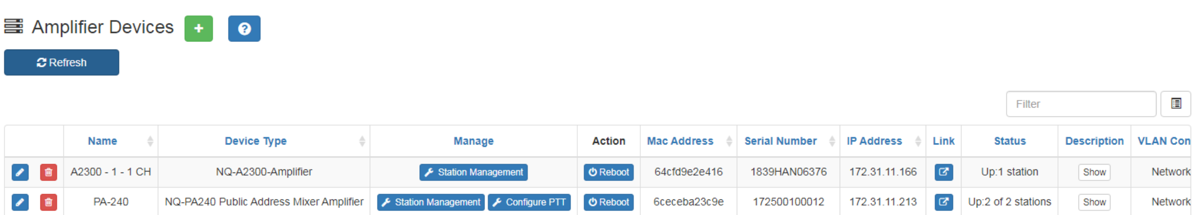


Figure 5-1, Amplifier Devices

To view amplifiers attached to your network:

On the navigation bar, select **Amplifier Devices**.

Parameters for each amplifier are described in the following table:

Table 5-1, Amplifier Devices Page

Name	Provides a name for the amplifier.
Device Type	Provides the type of device, such as NQ-A2120-Amplifier.
Manage	Provides a link to the **Station Management** tools for the amplifier.
Action	Provides a **Reboot** button to select the if amplifier needs to be rebooted.
MAC Address	Provides the MAC address for the amplifier.
Serial Number	Provides the serial number of the amplifier.
IP Address	Provides the IP address of the amplifier.
Link	Provides link to the amplifier's UI.
Status	Provides the status of the amplifier. Possible statuses include: • **Unknown**. The server is unable to determine the state of the device. • **Unreachable**. The server is unable to ping the device. • **Registering**. More than one IP address has been found. Stations may still be registering with new IP addresses. • **Up: # of # stations**. Indicates the number of registered available stations attached to the amplifier. If the numbers do not match, then one or more stations attached to the amplifier is not available for service. The station or stations may be in the process of registering, or if the condition persists, there may be a configuration error.

Table 5-1, Amplifier Devices Page (Continued)

Description	Select **Show** to view the user-provided description of the device.
VLAN Configura-tion	Provides how the VLAN configuration is set. Options are: • Server • Network/Device • Disabled
VLAN ID	Provides the VLAN for the amplifier. The LAN ID parameters range from 2 through 4094 and pertain to the amplifier's network inter-face (not to the ports or stations). **Note:** This field can only be changed when the **Server** option is used for **VLAN Config-uration**.
VLAN Priority	Provides the priority for the port. Values range from 0 through 7. **Note:** This field can only be changed when the **Server** option is used for **VLAN Config-uration**.
Web Username	Provides the username for logging into the amplifier's web UI.
Web Password	Provides the password for logging into the amplifier's web UI. Select **Show** to reveal a previously set password.
Firmware	Provides information about firmware that is loaded onto the amplifier.

Table 5-1, Amplifier Devices Page (Continued)

Number of Stations	Provides the number of stations associated to the device. This number limits the number of associated stations that can be added to the amplifier. The number is usually provided by the amplifier during device discovery so changing the number is not necessary. Do not change this number unless you are manually adding the amplifier (not using device discovery) or have been instructed to change it.
Channels	Displays the channels configured on the amplifier via the switch.

5.2 Adding an Amplifier

From the Add Amplifier Device page, you can add a new audio power amplifier to your Nyquist system.

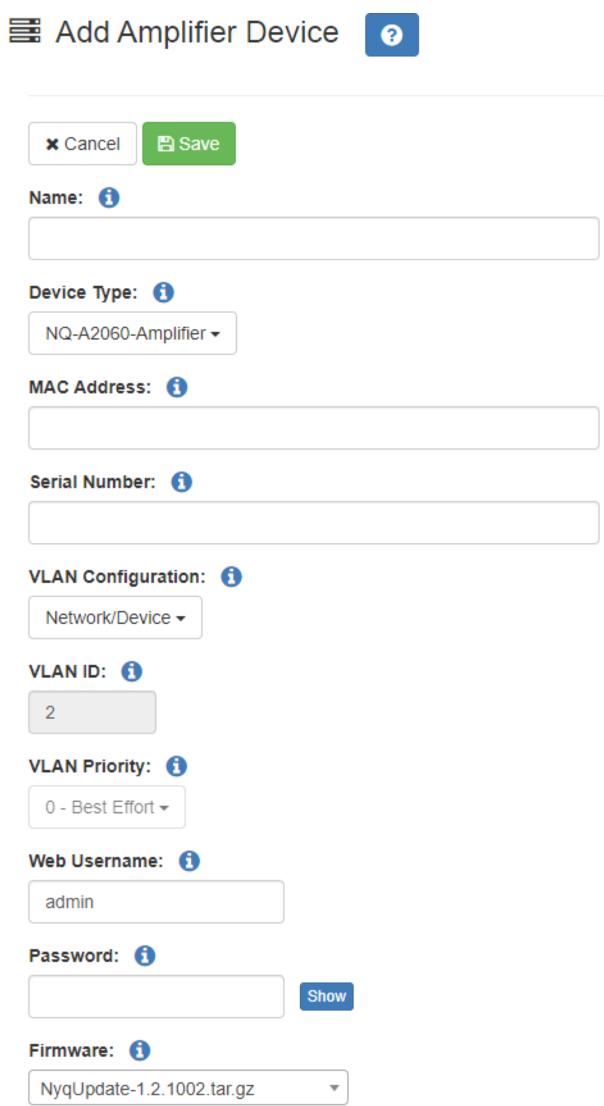


Figure 5-2, Add Amplifier

To add an amplifier:

Step 1 On the navigation bar, select **Amplifier Devices**.

Step 2 On the Amplifier Devices page, select the **Add** icon.

Step 3 Complete the parameters on the Add Amplifier Device page. (See "*Add Amplifier Parameters" on page 194*.)

Step 4 Select **Save**.

After you save the information, the Station Management page appears so that you can add stations and select the settings to apply to these stations assigned to the amplifier's ports.

Table 5-2, Add Amplifier Parameters

Name	Enter a name for the amplifier.
Device Type	Select the type of device, such as NQ-A2120-Amplifier.
MAC Address	Enter the MAC address for the amplifier.
Serial Number	Enter the serial number of the amplifier.
VLAN Configuration	Select how the VLAN configuration is set. Options are: • Server • Network/Device • Disabled
VLAN ID	Select the VLAN for the amplifier. The LAN ID parameters range from 2 through 4094 and pertain to the amplifier's network interface (not to the ports or stations). **Note:** This field can only be changed when the **Server** option is used for **VLAN Configuration**.
VLAN Priority	Select the priority for the port. Values range from 0 through 7. **Note:** This field can only be changed when the **Server** option is used for **VLAN Configuration**.
Web Username	Provide a username for logging into the amplifier's web UI.
Password	Provide a password for logging into the amplifier's web UI. Select **Show** to reveal a previously set password.

Table 5-2, Add Amplifier Parameters (Continued)

Firmware	Provides information about firmware that is loaded onto the amplifier.
Number of Stations	Show how many stations are associated to the device based on the number of ports.
Channels	Provide channels configured on amplifier via switch position.
Description	Provide a description of the device.

5.3 Editing an Amplifier

The Edit Amplifier Device page allows you to change parameters for an amplifier. You can also select the **Station Management** button to associate stations to the amplifier.

To edit an amplifier:

Step 1 On the navigation bar, select **Amplifier Devices**.

Step 2 On the Amplifier Devices page, select the **Edit** icon.

Step 3 Complete the parameters on the Edit Amplifier Device page. The are the same parameters found on the Add Amplifier page. (See *"Add Amplifier Parameters" on page 194*.)

Step 4 Select **Save**.

5.4 Configuring Push to Talk for a Public Address/ Mixer Amplifier

Like with the Matrix Mixer Pre-Amp, configuring a Public Address/ Mixer Amplifier for Push To Talk is a two-step process. The first part is done through the Admin Web UI and pertains to enabling a **Push To Talk Channel** and selecting a **Push To Talk Type**.

The second step is done through the appliance's web UI and involves enabling the Line Out for the selected channel.

For the first step, see "*Configuring Device for Push To Talk" on page 139*.

For the second step, refer to the appropriate appliance configuration manual.

If you select **Analog** for **PTT Stream Source for Mixer Output** on the server side, you must disable Line-Out and Speaker-Out for channel 4 (**A4-LO** and **A4-SO**) on the appliance's DSP **Router** to prevent hearing PTT on both the speaker and line-out.

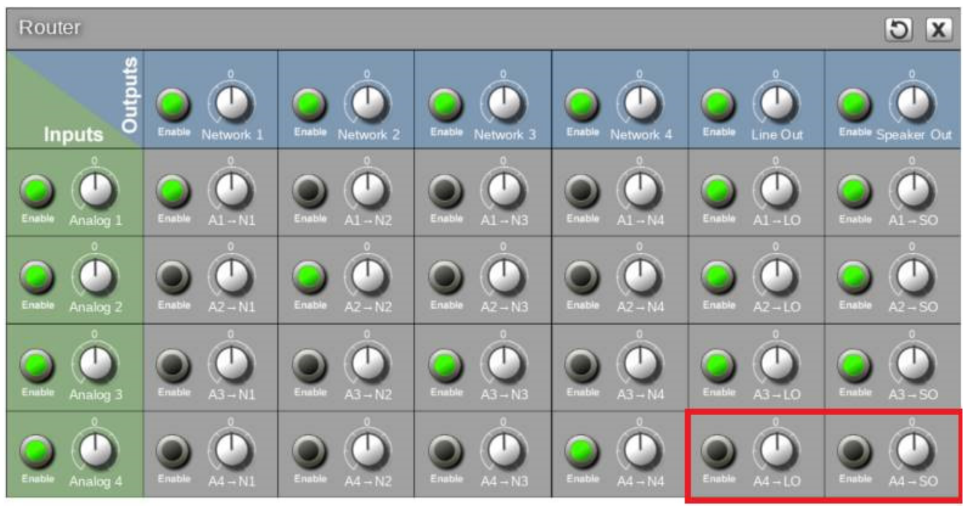


Figure 5-3, Router Settings on Appliance UI

When Line-Out and Speaker-Out are disabled on the router, the **PTT Output** set on the Edit Push To Talk Configuration page works (see "*Configuring Device for Push To Talk" on page 139*.

5.5 Using Station Management for Amplifiers

The number of ports that appear for an amplifier in the Station Management page depends on the number of ports allowed by the device type. For example, the A2120 Audio Power Amplifier will have only two ports appear on the Station Management page while the four-channel A4120 Audio Power Amplifier, will have four ports.

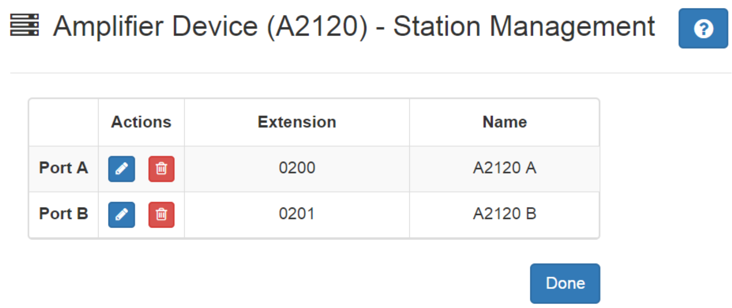


Figure 5-4, Station Management for Two-Channel Amplifier

If you select Station Management for a Public Address/Mixer Amplifier (NQ-PA120, NQ-PA240, or NQ-PA600), the Speaker Out and Line Out appear.

> **Note:** The Station Management page for amplifiers automatically appears when you create a new amplifier. See "*Adding an Amplifier" on page 193*.

To use Station Management for amplifiers:

Step 1 On the navigation bar, select **Amplifier Devices**.

Step 2 Select **Station Management** for the desired amplifier.

Step 3 If you want to delete a port:

a Select the **Delete** icon next to the port.

b When prompted, select **Delete**.

Step 4 If you want to edit a station, select the Edit icon next to the port and follow the steps for editing a station (see "*Editing Station Configuration Settings" on page 118*).

5.6 Deleting an Amplifier Device

You can delete an amplifier device through the Amplifier Devices page.

To delete an amplifier:

Step 1	On the navigation bar, select **Amplifier Devices**.
Step 2	On the Amplifier Devices page, select the **Delete** icon next to the amplifier that you want to delete.
Step 3	When prompted, select **Delete**.

6 Managing Roles and Users

Managing Roles and Users

Nyquist uses roles to control system configuration, access, and use. When you create a user, you assign a role that determines what the user sees from the dashboard and what tasks the user can perform.

Nyquist provides four default roles. These roles can be edited or deleted by anyone assigned permissions to do so. Of the default roles, only the **Admin** role has the ability to add users and to add, edit, and delete roles.

Table 6-1, Default Roles

Admin	Has access to the entire system and can perform all tasks.
OpTech	Can operate the system and view, but not change, system configurations.
Operator	Can operate the system, but cannot view or change system configurations.
User	Can only operate specific parts of the system.

6.1 Viewing Roles

The default roles of Admin and OpTech can view existing roles. If you are assigned one of these roles or a user created role that allows it, you can assign View Roles permissions to other roles.

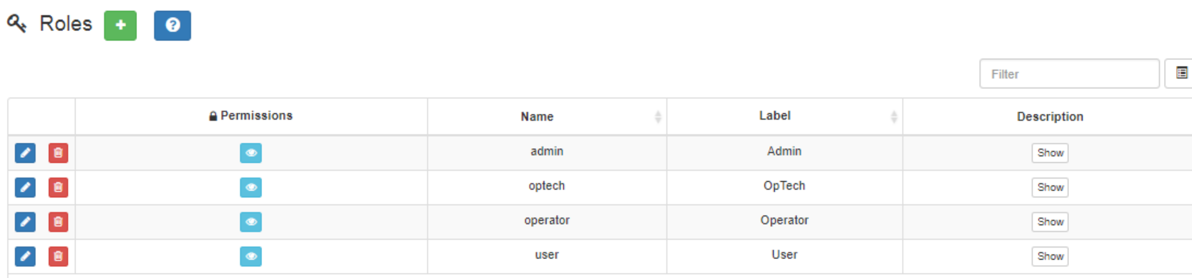


Figure 6-1, Roles Page

To view roles:

On the navigation bar, select **Roles**.

The Roles page appears. The following table describes the parameters that appear on this page.

Table 6-2, Roles Page Parameters

Permissions	When the icon is selected, displays the Edit Admin Permissions page where the permissions assigned to this role can be viewed or changed.
Name	Displays the nomenclature created for the role. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.

Table 6-2, Roles Page Parameters (Continued)

Label	Displays the role name that is used when creating a user. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Description	When the **Show** button is selected, displays a brief description of the role. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.

6.2 Adding a Role

If none of the default roles have the exact permissions that you want for a role, you can edit the permissions for a default role or create a new role. For example, only the Admin default role has the ability to create a new station and to add a new user. You could edit the permissions for an existing role or create a new role specifically for use when adding stations or users. (For information about adding stations, see "*Adding a Station" on page 153*.)

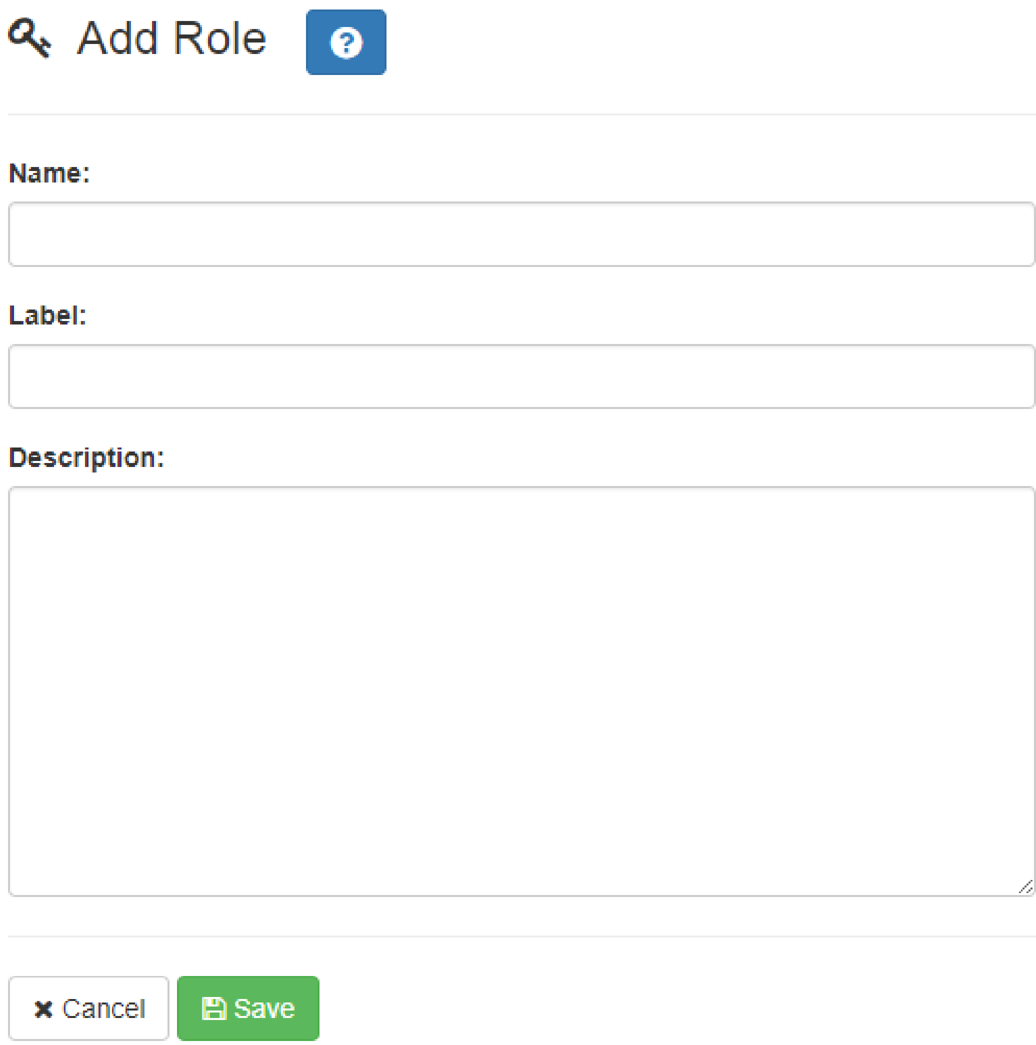


Figure 6-2, Add Role Page

> **Note:** To perform this task, you must be logged in with a role that has permission to add other roles.

To add a role:

Step 1 On the navigation bar, select **Roles**.

Step 2 On the Roles page, select the **Add** icon.

Step 3	On the Add Role page, add the name, label, and description for this role. (See "*Roles Page Parameters" on page 200*.)
Step 4	Select **Save**.
Step 5	On the Roles page, select the **Permissions** icon for the role just added.
Step 6	Set permissions for this role. (See "*Assigning and Editing Permissions" on page 203*.)
Step 7	Select **Save**.

6.3 Editing a Role

You may want to change the names, labels, and descriptions assigned to a role for clarity purposes. For example, you could rename the default role "User" to "Agent." In some cases, you may want to change the permissions assigned to an existing role. In both of these scenarios, you would edit a role.

> **Note:** To perform this task, you must be logged in with a role that has permission to edit other roles.

To edit a role:

Step 1	On the navigation bar, select **Roles**.
Step 2	On the Roles page, select the **Edit** icon next to the role that you want to edit.
Step 3	On the Edit Role page, make any desired changes to the Name, Label, and Description fields. (See "*Roles Page Parameters" on page 200*.)
Step 4	Select **Save**.
Step 5	On the Roles page, select the **Permissions** icon.
Step 6	On the Edit Permissions page, make desired changes.
Step 7	Select **Save**.

6.3.1 Assigning and Editing Permissions

Selecting the **Permissions** icon for a role displays the Edit Permissions page, which allows you to set parameters such as the ability to edit or view Schedule Settings. Permission parameters differ depending upon the option. For example, permissions for the Dashboard and for most Dashboard features are limited to View while available permissions for Schedule Announcements include Create, Delete, Edit, and View.

Table 6-3, Color Coding for Permission Buttons

Create	Allows you to create a new item, such as a new user.
Delete	Allows you to delete an item.
Edit	Allows you to edit an item.
View	Allows you to view an item.
Manage	Allows you to manage items. This option pertains only to playlists.
Import/Export	Allows you to import or export a system backup file.
Settings	Allows you to set parameters for system backupjobs.
Restart Server	Allows you to restart the Nyquist server.
Restore	Allows you to restore a system backup.
Sort Menu	Allows you to change the order of the navigation bar menu.
System Update	Allows you to import a system update.

Note: To perform this task, you must be logged in with a role that has permission to assign or edit permissions.

To assign or edit permissions:

Step 1	On the navigation bar, select **Roles**.
Step 2	On the Roles page, select the **Permissions** icon next to the role for which you are assigning or editing permissions.
Step 3	On the Edit Permissions page, select the appropriate buttons to assign permissions to the role.
Step 4	Select **Save**.

6.4 Deleting a Role

If a role is not being used by your organization or the Nyquist system, you can delete the role, provided that role is not associated with a user.

Note: A warning appears if you attempt to delete a role that is associated with a user.

To delete a role:

Step 1	On the navigation bar, select **Roles**.
Step 2	On the Roles page, select the **Delete** icon next to the role that you want to delete.
Step 3	When prompted, select **Delete**.

6.5 Viewing Users

Users are personnel who are authorized to use Nyquist. When you create a user, you assign the user a role that determines what the user sees from the Dashboard and what tasks the user can perform on the Nyquist system. You can only create a user if you have been assigned the default Admin role or a new role that provides permissions to create a user.

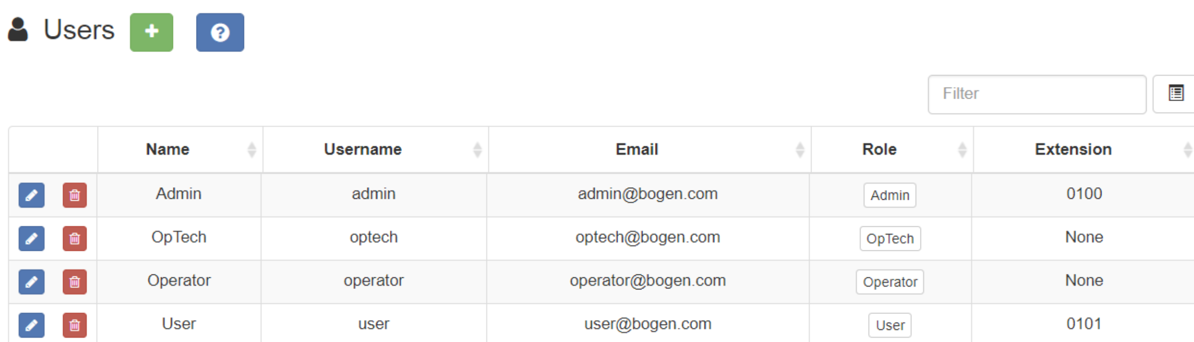


Figure 6-3, Users Page

To view users:

On the navigation bar, select **Users**.

The following table describes the information displayed for each user.

Table 6-4, User Page Parameters

Name	Displays the name of the user.
Username	Displays the username used by this user to log onto the system.
Email	Displays the email address for the user.
Role	Displays the role assigned to the user.
Extension	Displays the extension used by the user.

6.6 Adding a User

When you add a user, you assign a role, which provides a set of permissions for the user. (See *"Viewing Roles" on page 200*.)

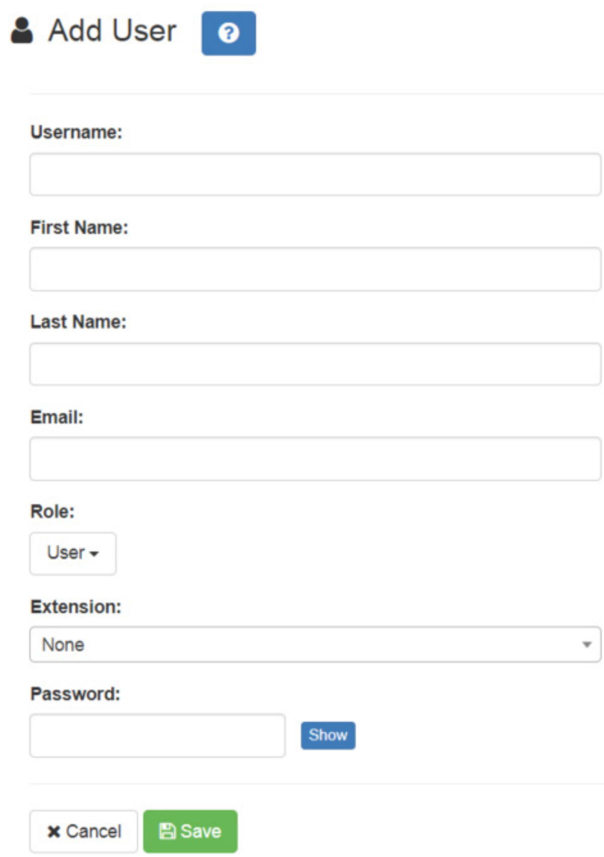


Figure 6-4, Add User Page

Note: You must have permissions to create a user before performing this procedure. (See *"Assigning and Editing Permissions" on page 203*.)

To add a user:

Step 1 On the navigation bar, select **Users**.

Step 2 On the Users page, select the **Add** icon.

Step 3 Complete the parameters on the Add User page.

Step 4 Select **Save**.

6.6.1 Understanding User Information

The following information parameters appear when adding or editing user information.

Table 6-5, Add or Edit User Page Parameters

Username	Provide the username used by this user to log onto the system. **Note:** The username field is case sensitive.
First Name	Provide the first name of the user.
Last Name	Provide the last name of the user.
Email	Provide the email address of the user.
Role	Select the user's role from the drop-down menu.
Extension	Select the station extension for the user from the drop-down menu.
Password or **Change Password**	Enter the new password. **Note:** The password field is case sensitive.

6.7 Deleting a User

You should delete a user when they are no longer authorized to use the Nyquist system. For example, if a receptionist accepts a position at another site, the receptionist's user account should be deleted from your Nyquist system.

To delete a user:

Step 1 On the navigation bar, select **Users**.

Step 2 On the Users page, select the **Delete** icon next to the user that you want to delete.

Step 3 When prompted, select **Delete**.

6.8 Editing User Information

If you have Admin permissions, you can change a user's information, including email address, password, and role.

To edit a user's information:

Step 1	On the navigation bar, select **Users**.
Step 2	On the Users page, select the **Edit** icon next to the user whose information you want to change.
Step 3	On the Edit User page, make the desired changes. (See *"Add or Edit User Page Parameters" on page 208*.)
Step 4	Select **Save**.

7 Using Admin Groups

You can place Admin Stations into Admin Groups, which are used if incoming calls are not answered by the assigned Admin Station or the Day or Night Admin associated with the Admin Station. Admin Groups act as an always answer feature by providing an alternate list of Admin Stations. If an incoming call is not answered by the assigned Admin Station within 30 seconds for normal calls or 15 seconds for emergency calls, all Admin Stations in the Admin Group will ring.

If Call Forwarding is enabled at the Admin Station, Nyquist tries the forwarded extension. If that station does not answer or is busy, the call timeout is reduced to 15 seconds. After 15 seconds, the call rolls over to the Admin Group.

In addition, if an emergency level call receives no answer, the Admin Group will ring if the Day Admin or Night Admin does not answer.

You can assign Admin Stations to multiple Admin Groups. A Day or Night Admin can also be assigned to one or more Admin Groups.

7.1 Viewing Admin Groups

Through the Admin Groups page, you can view, add, edit, or delete Admin Groups.

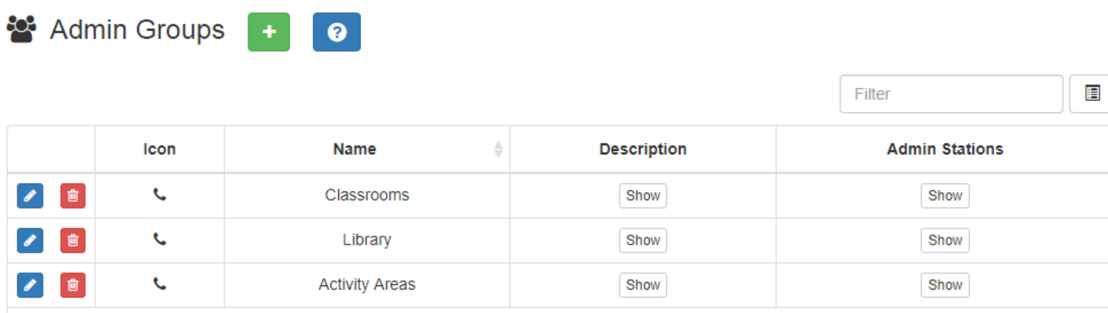


Figure 7-1, Admin Groups Page

To view Admin Groups:

On the navigation bar, select **Admin Groups**.

The following table describes the information that appears on the Admin Groups page:

Table 7-1, Admin Groups Page Parameters

Icon	Displays the icon that is associated with the Admin Group.
Name	Identifies the name of the Admin Group. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Description	Provides a description of the Admin Group when the **Show** icon is selected. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Admin Stations	Provides a list of the Admin Stations in the group when the **Show** icon is selected.

7.2 Editing an Admin Group

You can use the Edit Admin Group page to change the name, icon, and description of an Admin Group. You can also use this page to add or delete Admin Stations from the Admin Group.

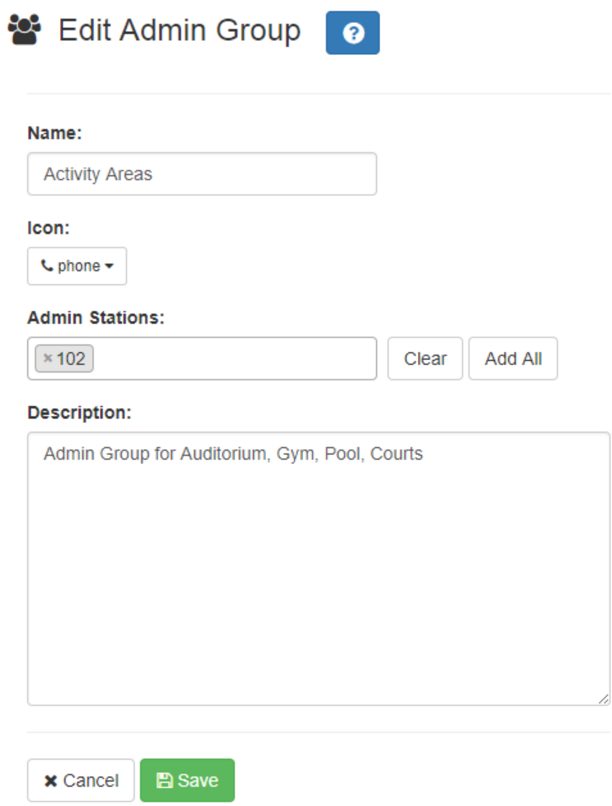


Figure 7-2, Edit Admin Group Page

> **Note:** Nyquist does not display the Admin Group parameter when adding or editing an I/O Controller or Matrix Mixer Pre-Amp as a station.

You can also add an Admin Station to an Admin Group when adding or editing a station. (See "*Adding a Station" on page 153* and "*Editing Station Configuration Settings" on page 118*.)

To edit an Admin Group:

Step 1 Select the **Edit** icon next to the group that you want to edit.

Step 2 On the Edit Admin Group page, make desired changes.

Step 3 After all changes have been made, select **Save**.

Table 7-2, Edit Admin Group Page Parameters

Name	Type the name of the Admin Group. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Icon	Use the drop-down menu to select the icon that you want associated with the Admin Group.
Admin Stations	Provide a list of the Admin Stations you want to have in this group. You can select **Add All** to select all Admin Stations, or you can select the Admin Stations list to view all available Admin Stations and select the ones you want to include in this group.
Description	Provide a description of the Admin Group. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.

7.3 Deleting an Admin Group

You cannot delete an Admin Group if it is associated to a station, an outside line, or a Day or Night Admin. If necessary, first edit a station, an outside line, or a Day or Night Admin to delete the station before attempting to delete the Admin Group. (See *"Editing Outside Lines" on page 87*, *"Setting System Parameters" on page 53*, or *"Editing Station Configuration Settings" on page 118*.)

To delete an Admin Group:

Step 1 Select the **Delete** icon next to the group that you want to delete.

Step 2 When prompted, select **Delete**.

7.4 Adding an Admin Group

You can create an Admin Group and assign Admin Stations to it. No limit exists for the number of Admin Groups that you can create, and an Admin Station can belong to multiple Admin Groups.

If you want to route 911 calls from an extension (station) to an Emergency Group, create an Admin Group called Emergency. Then, configure the station to use this group for its **911 Route**. (See *"Editing Station Configuration Settings" on page 118*.)

To add an Admin Group:

Step 1	On the navigation bar, select **Admin Groups**.
Step 2	On the Admin Groups page, select the **Add** icon.
Step 3	Enter the parameters on the Add Admin Groups page.
Step 4	Select **Save**.

Table 7-3, Add Admin Groups Page Parameters

Name	Enter the name of the Admin Group. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Icon	Select an icon associated with an Admin Group. Associating an icon to an Admin Group offers a visual key to the type of group.
Admin Stations	Provide a list of Admin Stations that are to be included in this Admin Group. Only Admin Station types, such as a Web Admin UI or an Admin Phone, can be selected.
Description	Provide a description of the Admin Group. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.

8 Managing Schedules

Managing Schedules

The Schedules feature allows you to set tones and announcements to be played at specific times and in specific zones, set up holiday schedules, maintain calendar features, and schedule announcements, including recurring announcements.

Through the web-based UI, you can associate events (such as a tone that signals the end of visiting hours) to a schedule, select how a schedule appears on your dashboard, and edit event settings that include:

- Event name
- Signal time
- Zone
- Tone
- Scheduled Audio

8.1 Adding a School

Through the Schools page, you can select start and end dates for a schedule or choose to create a non-ending schedule, select a name for the school, and select a color that appears for the school schedule on the dashboard.

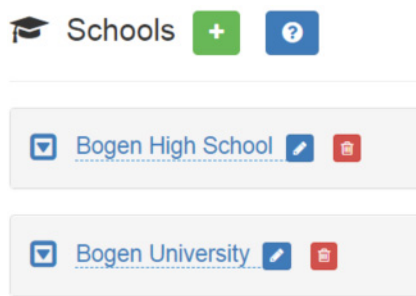


Figure 8-1, Schools Page

You can then create one or more schedules and select the appropriate schedule for specific days of the week.

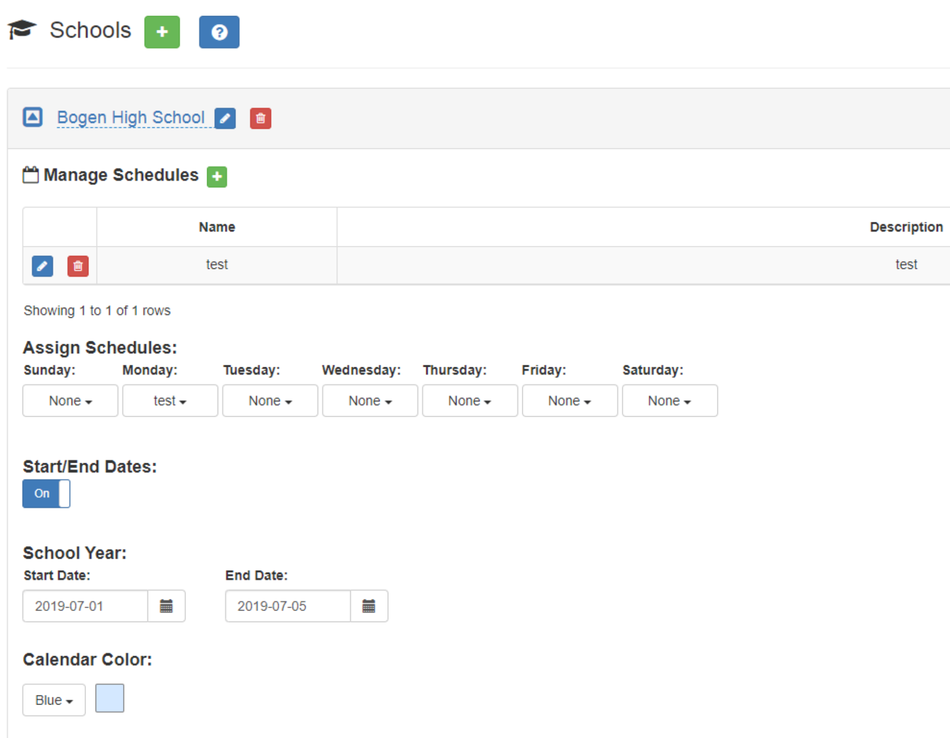


Figure 8-2, Creating a Schedule

To create a schedule:

Step 1 On the navigation bar, expand **Schedules**.

Step 2 Select **Schools**.

Step 3 Select the **Add** icon.
Your School is created.

Step 4 If you want, rename Your School by selecting the **Edit** icon next to the school name, and then typing the new name in the Edit School Name popup.

> **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.

Step 5 Select the arrow next to the school name and then select appropriate settings for this school. (See "*Settings Page Parameters" on page 219*.)

8.1.1 Using School Settings

The Schools page provides parameters under Manage Schedules that can be added, viewed, and changed for a schedule. The following table describes these parameters:

Table 8-1, Settings Page Parameters

Day of the Week	Under Assign Schedules, select the schedule that is to be used for that day from the drop-down menu.
Start/End Dates	Use the slider to set to **On** if you want to enter start and end dates. If set to **Off**, the schedule continues indefinitely.
Start Date	**Note:** This option only appears if **Start/End Dates** is set to **On**. Under School Year, use the calendar to select the start date for this schedule. By default, today's date appears. When selecting a new Start Date, the date cannot be before the End Date.
End Date	**Note:** This option only appears if **Start/End Dates** is set to **On**. Under School Year, use the calendar to select the end date for this schedule. By default, today's date appears. The End Date must be after the Start Date.
Calendar Color	Use the drop-down menu to select the color for this schedule that is used when the schedule appears on the dashboard's calendar view.

From the Schools page, you can also view, add, edit, or delete a schedule for a facility or view events for a schedule.

8.2 Renaming a School

You can rename a school to quickly identify the facility or school that the schedule is for.

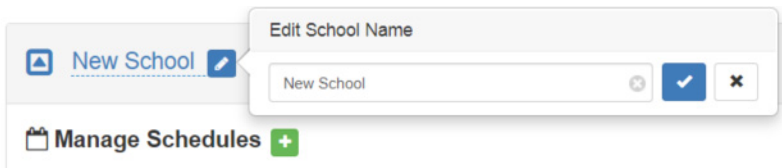


Figure 8-3, Edit School Name

To rename a school:

Step 1 On the navigation bar, expand **Schedules**.

Step 2 Select **Schools**.

Step 3 Select the Edit icon next to the name of the school that you want to rename.

Step 4 In the Edit School Name popup box, type the new name.

> **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.

Step 5 When done, select the **Check** icon.

8.3 Adding a Schedule

You can add multiple schedules for a site. For example, you may have different schedules set up for Tuesday and Thursday than you have for the rest of the week.

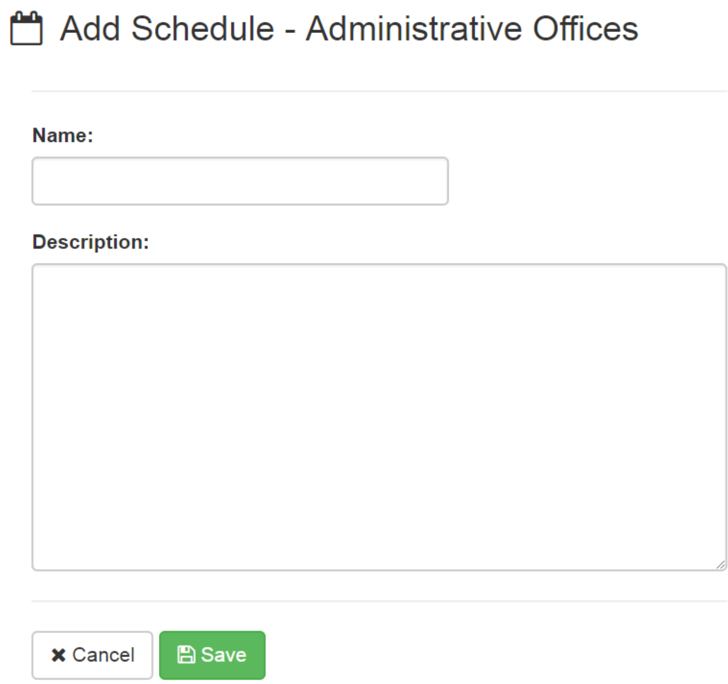


Figure 8-4, Add Schedule Page

To add a schedule:

Step 1 On the navigation bar, expand **Schedules**.

Step 2 Select **Schools**.

Step 3 Select the down arrow next to the school name.

Step 4 Select the **Add** icon next to **Manage Schedules**.

Step 5 On the Add Schedule page, enter the **Name** and **Description** for the schedule.

Note: Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.

Step 6 Select **Save**.

8.4 Replacing a Schedule

If you attempt to delete a schedule that is in use, you are provided a chance to replace the schedule with another. If you select to delete rather than replace, then all matching default schedules and calendar exceptions are set to **None**. (See *"Deleting a Schedule" on page 230*.)

To replace a schedule:

Step 1 On the navigation bar, expand **Schedules**.

Step 2 Select **Schools**.

Step 3 Select the down arrow next to the site name.

Step 4 Select the **Delete** icon for the schedule.

Step 5 When prompted, select **Replace**.

Step 6 When prompted, use the drop-down menu to select the replacement schedule.

Step 7 Select **Confirm Replace**.

8.5 Reviewing and Editing a Schedule

Through the Schools page, you can select the start and end dates for the schedules, a name for the site, and a color that appears for the site schedule on the dashboard. You can then create one or more schedules and select the appropriate schedule for specific days of the week.

Any changes made to the Schools page affect the schedule going forward. For example, if you change the schedule for Tuesday and Thursday from Regular Day to Early Day, all Tuesdays and Thursdays until the End Date will use the Early Day schedule. If you want to change the schedule for days in a specific week, then you use the Calendars feature to create an exception. (See *"Using the Calendars Feature" on page 230*.)

To review and edit a schedule:

Step 1 On the navigation bar, expand **Schedules**.

Step 2 Select **Schools**.

Step 3 Select the down arrow next to the site name.

Step 4 Make desired changes to the Schools settings. (See "*Using School Settings" on page 219*.)

8.6 Viewing Events for a Schedule

An event is the scheduled sounding of a tone or the playing of Scheduled Audio. You add events to a schedule. For example, you can schedule a tone to sound at 8 am as an event such as the start of a shift. You can add a second event that has the tone sound at 10 am for a scheduled break.

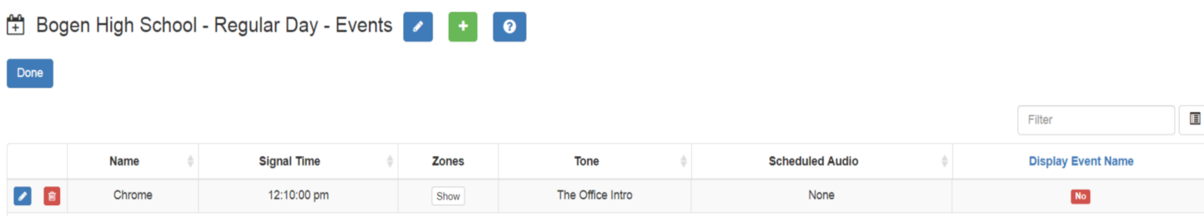


Figure 8-5, Events Page

To review events for a schedule:

Step 1 On the navigation bar, expand **Schedules**.

Step 2 Select **Schools**.

Step 3 Select the down arrow next to the site name. Schedules that are associated with the site appear on the Edit Settings page.

Step 4 To view the events for a schedule, select the **Edit** icon for a schedule.

The Events page appears. The following table describes the parameters for this page:

Table 8-2, Events Page Parameters

Name	Specifies the name for the event. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Signal Time	Specifies the time for this event to launch using the HH:MM:SS format.
Zone	Specifies the zones to be included in this event. **Note:** If you want tones to play during active pages, you must create separate page and time zones and the time zones must be created first. Creating time zones first sets the priority of time zones over page zones. Stations can be in multiple zones. See *"Adding a Zone" on page 169*. **Note:** You can select **Add All** to have all zones appear in the zone field, and then remove a zone by selecting the **X** for a zone. You can also delete zones by placing your cursor in the Zones field and pressing the **Delete** key.
Tone	Select the desired tone for this event.
Scheduled Audio	Specifies if the event includes Scheduled Audio, and if so, what playlist, Matrix Mixer Pre-Amp channel, or amplifier is used for this event. If an Airable/SOUNDMACHINE source is selected, the Scheduled Audio list includes selections to start or stop the audio stream.
Display Event Name	Specifies if the event name will appear on the GA10PV displays associated to the event zone or zones. **Note:** If you schedule an event with **Display Event Name** enabled, the event remains on the display connected to the NQ-GA10PV until the next scheduled event replaces it. To clear the event name from the display, create another scheduled event with the **Name** set to **No-Event**.

8.7 Editing Name and Description for a Schedule

You may want to edit a schedule's name and description to make it more descriptive. For example, if you originally created a schedule called Wednesday for an early release day, you may want to rename it Early Release.

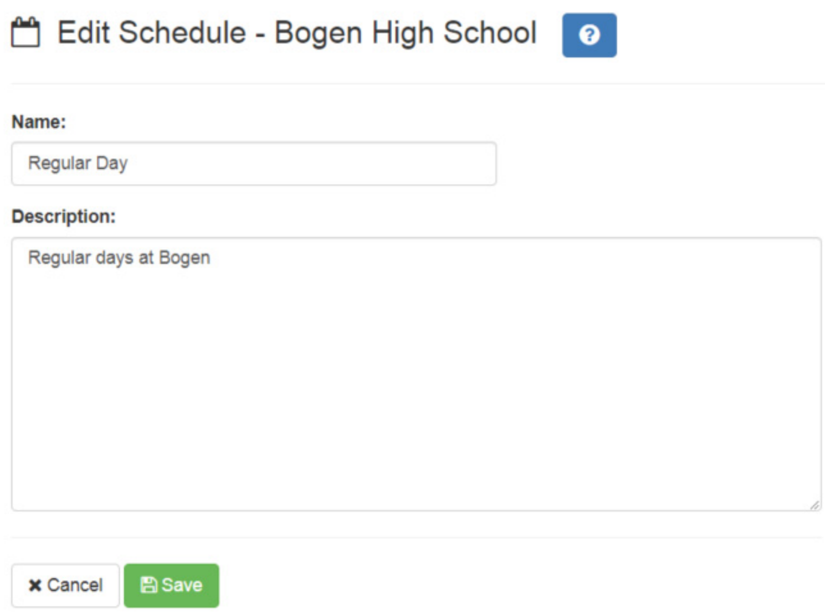


Figure 8-6, Edit Schedule Page

To edit a schedule's name and description:

Step 1	On the navigation bar, expand **Schedules**.
Step 2	Select **Schools**.
Step 3	Select the down arrow next to the site's name.
Step 4	Under Manage Schedules, select the **Edit** icon for the schedule.
Step 5	On the Events page, select the **Edit** icon for the schedule.
Step 6	On the Edit Schedule page, make the desired changes to the **Name** and **Description** fields.

Note: Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.

Step 7 Select **Save**.

8.8 Editing an Event

The Edit Event page allows you to change the parameters for events. For example, you may want to change the playlist for Scheduled Audio for the lunch period. Or, you might want to add or remove zones affected by an event.

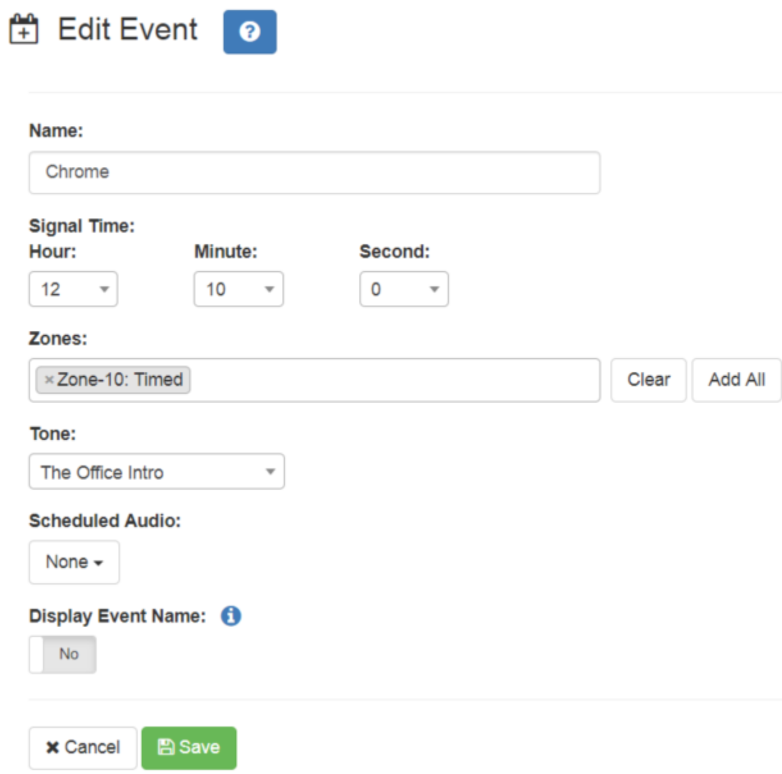


Figure 8-7, Edit Event Page

To edit an event:

Step 1 On the navigation bar, expand **Schedules**.

Step 2 Select **Schools**.

Step 3 Select the down arrow next to the site name.

Step 4 Select the **Edit** icon for the schedule.

Step 5 On the Events page for the schedule, select the **Edit** icon for the event that you want to edit.

Step 6	On the Edit Event page, make the desired changes. (See "*Understanding Event Settings" on page 228*.)
Step 7	Select **Save**.

8.9 Deleting an Event

You can delete an event from a schedule when the event is no longer needed or wanted. For example, suppose your site's schedule was set up to have warning bells that ring five minutes before a shift starts. If you decide to end the use of warning bells, you would delete each warning bell event from the schedule.

To delete an event:

Step 1	On the navigation bar, expand **Schedules**.
Step 2	Select **Schools**.
Step 3	Select the down arrow next to the site name.
Step 4	Select the **Edit** icon for the schedule. Events that are associated with the schedule appear on the Events page.
Step 5	Select the **Delete** icon for the event that you want to delete from the schedule.
Step 6	When prompted, select **Delete**.

8.10 Adding an Event

When a schedule is created, it has no events, which are specific times when tones play. After you create a schedule, you add events through the Add Event page.

To add an event to a schedule:

Step 1	On the navigation bar, expand **Schedules**.
Step 2	Select **Schools**.
Step 3	Select the down arrow next to the site name.
Step 4	Select the **Edit** icon for the schedule you want to add an event to.
Step 5	Select the **Add** icon.

Step 6 Complete the parameters on the Add Event page. (See "*Understanding Event Settings" on page 228*.)

Step 7 When completed, select **Save**, or if you want to add another event to this schedule, select **Save and Create Another** and return to Step 6.

8.10.1 Understanding Event Settings

Event settings appear when adding or editing an event.

Table 8-3, Event Settings Page Parameters

Name	Specifies the name for the event. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Signal Time	Specifies the time for this event to launch using the HH:MM:SS format. If you want the event to start at 08:15:15, you would use the down arrows to make the appropriate selections in the **Hour**, **Minute**, and **Second** fields.
Zone	Specifies the zones to be included in this event. If an audio distribution entry from the **Scheduled Audio** menu is selected, this field is not required. **Note:** You can select **Add All** to have all zones appear in the zone field, and then remove a zone by selecting the **X** for a zone. You can also delete zones by placing your cursor in the Zones field and pressing the **Delete** key.
Tone	Select the desired tone for this event. If an audio distribution entry from the **Scheduled Audio** menu is selected, this field is not required.

Table 8-3, Event Settings Page Parameters (Continued)

Scheduled Audio	Specifies if the event includes Scheduled Audio, and if so, what playlist, Matrix Mixer Pre-Amp channel, or amplifier is used for this event. You can also select to stop the Scheduled Audio by selecting **Stop Playlist** or **Stop Line-Input**. If an Airable/SOUNDMACHINE source is selected, the Scheduled Audio list includes selections to start or stop the audio stream. This list only includes Airable/SOUNDMACHINE selections that apply to the specific time zone. If the Audio Distribution zone selected includes a time zone and another zone type, such as Paging, that is not for time, the audio distribution does not appear in this **Scheduled Audio** list.
Display Event Name	Specifies if the event name will appear on the GA10PV displays associated to the event zone or zones. **Note:** If you schedule an event with **Display Event Name** enabled, the event remains on the display connected to the NQ-GA10PV until the next scheduled event replaces it. To clear the event name from the display, create another scheduled event with the **Name** set to **No-Event**.
Amplifiers/Matrix Mixers	Specifies the amplifiers or Matrix Mixer Pre-Amp and its associated station number. This parameter only appears if **Scheduled Audio** is set to **Start Line-Input**.
Input Channel	Specifies the matrix channel being used for input. This parameter only appears if **Scheduled Audio** is set to **Start Line-Input**.

An event with **Stop Playlist**, **Stop Line-Input**, or **Stop <Airable/ SOUNDMACHINE source>** should be created for each Scheduled Audio start command to ensure the Scheduled Audio stops when you want. If an associated **Stop** event is not in the schedule, Scheduled Audio started by a scheduled event will not stop playing.

If you want to start Scheduled Audio without also playing a tone, set **Tone** to **No Tone**.

You can use the scheduling feature to schedule audio distribution using Scheduled Audio; when using Scheduled Audio in a scheduled event to schedule audio distribution, set **Tone** to **No Tone**. Zone numbers are not required.

If several overlapping scheduled events use Scheduled Audio and have overlapping zones defined, a scheduled Scheduled Audio event will not start the audio if an existing Scheduled Audio event is already playing to a zone defined in the scheduled event. Error messages will be displayed on the dashboard whenever overlapping zones prevent Scheduled Audio from starting. Ensure that scheduled events with Scheduled Audio do not use the same zones during the same time frames.

8.11 Deleting a Schedule

If you have the correct permissions, you can delete a schedule that is no longer being used. When you delete a schedule, you delete all associated schedules, ed events, and schedule exceptions.

To delete a schedule:

Step 1	On the navigation bar, expand **Schedules**.
Step 2	Select **Schools**.
Step 3	Select the **Delete** icon next to the schedule that you want to delete.
Step 4	When prompted, select **Delete**.

8.12 Using the Calendars Feature

Nyquist provides a calendar view of the schedule used for past days, the schedule for the current and future days, and the scheduled holidays. The view is for the current month, but you can use the **<Prev>** and **<Next>** buttons to display other months.

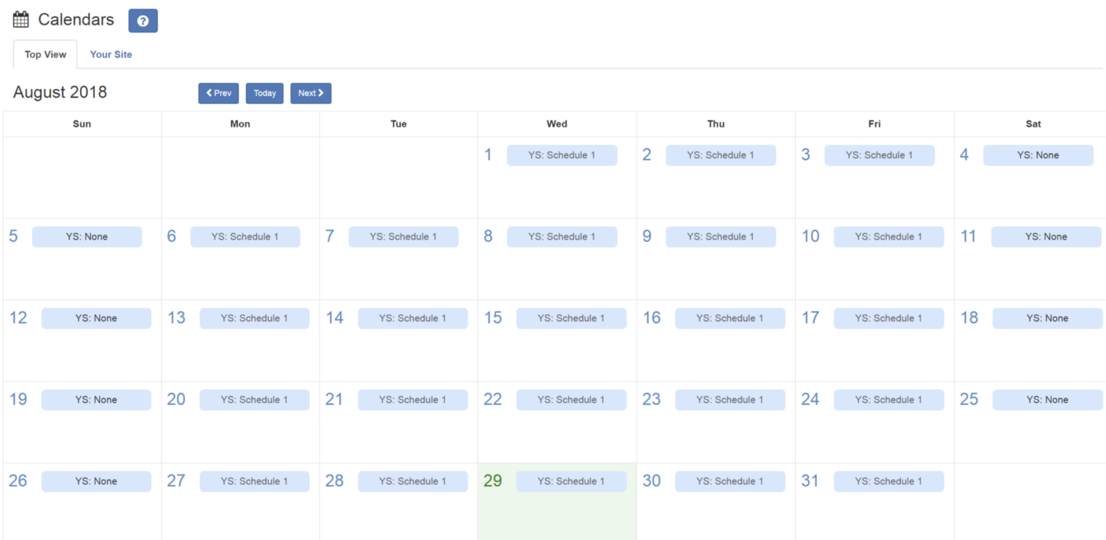


Figure 8-8, Calendars Page

The Calendars feature also provides a quick way to change the schedule. For example, if you normally use an Early Release schedule for Wednesdays but want to use this schedule for Monday through Friday for the last week of the year, you can use the Calendars feature to create exceptions for your schedule.

To view or change a monthly calendar:

Step 1 On the navigation bar, expand **Schedules**.

Step 2 Under Schedules, select **Calendars**.

Step 3 Select either **Top View** or the tab that displays your site's name.

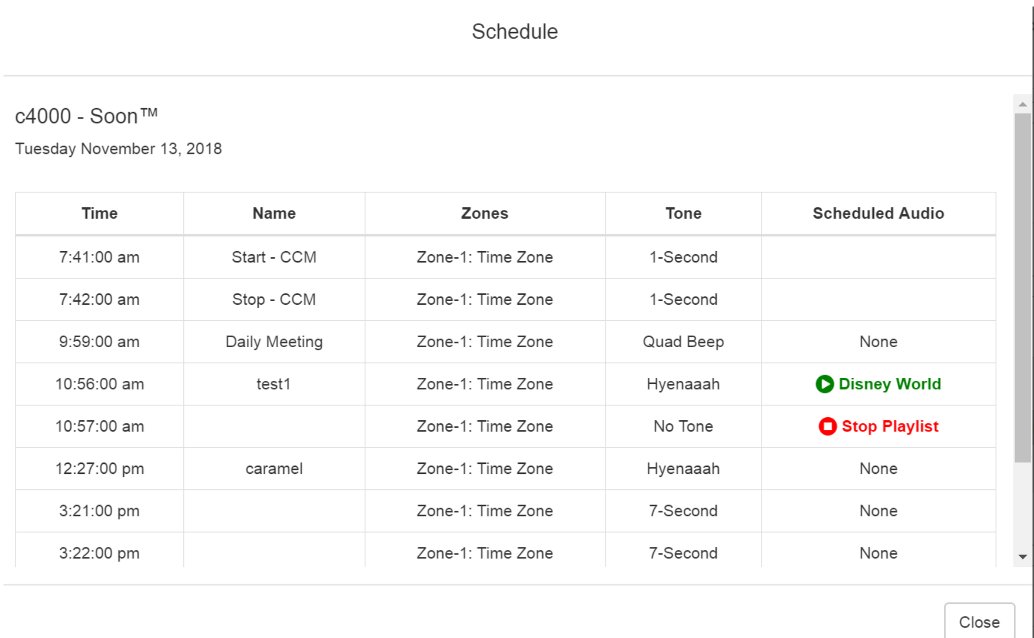
Step 4 To change the schedule for the current or future dates, make sure you are the tab for your site and use the drop-down menu for the date or dates to select the replacement schedule.

Step 5 To view events scheduled for a date, make sure you are on the **Top View** tab and select the date. Events for the schedule are detailed in the Schedule page that appears.

Step 6 When done viewing events, select **Close**.

8.12.1 Schedule Page Parameters

The Schedule page appears when viewing events for a date from either the monthly view (see section *"Using the Calendars Feature" on page 230)* or from the dashboard's This Week's Schedules section (see *"Viewing the Schedule for the Week" on page 352*).



Time	Name	Zones	Tone	Scheduled Audio
7:41:00 am	Start - CCM	Zone-1: Time Zone	1-Second	
7:42:00 am	Stop - CCM	Zone-1: Time Zone	1-Second	
9:59:00 am	Daily Meeting	Zone-1: Time Zone	Quad Beep	None
10:56:00 am	test1	Zone-1: Time Zone	Hyenaaah	Disney World
10:57:00 am		Zone-1: Time Zone	No Tone	Stop Playlist
12:27:00 pm	caramel	Zone-1: Time Zone	Hyenaaah	None
3:21:00 pm		Zone-1: Time Zone	7-Second	None
3:22:00 pm		Zone-1: Time Zone	7-Second	None

Figure 8-9, Schedule Page

The Schedule page displays the name, the day, and the date of the schedule. It also contains the following parameters:

Table 8-4, Schedule Page Parameters

Time	Identifies the time of the event start in HH:MM:SS format.
Name	Identifies the user provided name for the event. **Note:** Valid characters include uppercase letters (A-Z), low-ercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Zones	Identifies the zones and types of zones that are specified for this event.

Table 8-4, Schedule Page Parameters (Continued)

Tone	Identifies the name of the tone used for this event.
Scheduled Audio	Identifies a playlist, Matrix Mixer Pre-Amp channel, amplifier, or Airable/SOUNDMACHINE source to use if the Scheduled Audio feature is used for this event. Otherwise, the option appears as **None**.

8.13 Using the Holidays Management Tool

Holidays, which can be a single day or a range of dates, often require changes in schedule assignments. The holidays management tool allows you to enter ranges of days when all schedules are turned off and to add these holidays to the calendar via the Schedules feature. You can also export a holiday schedule as a .csv file and import the holiday schedule file to another Nyquist server.

Holidays override other schedules that are set for a date range.

8.13.1 Viewing Holidays

Holidays affect the schedule of each facility managed by your Nyquist server. The Holidays page displays a list of all holidays that have been set up for the Nyquist system. Holidays take precedent over regular schedules. For example, suppose you configure Mondays to use a schedule called Regular that has tones sounding throughout the day to mark the ending and beginning of shift changes. If you set a holiday for Monday, May 28, then the holiday "overrules" the Regular schedule and tones do not sound during that day.

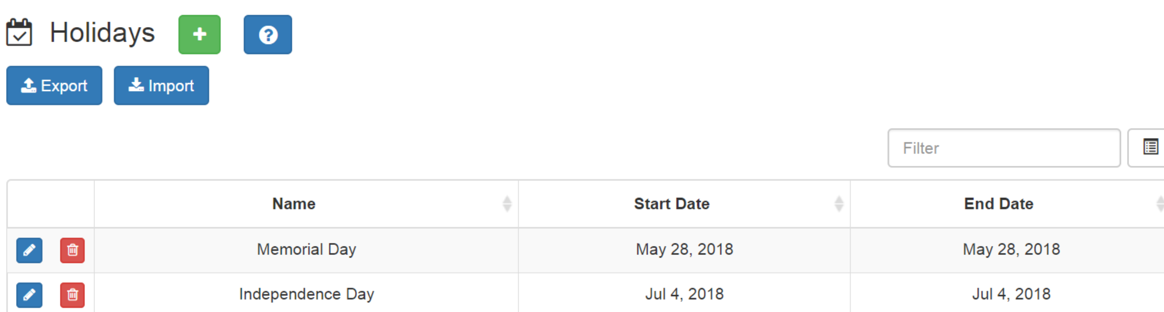


Figure 8-10, Holidays Page

To view holidays:

Step 1 On the navigation bar, expand **Schedules**.

Step 2 Select **Holidays**.
A listing of holidays and the parameters associated with these holidays appears.

The following table describes these parameters:

Table 8-5, Holiday Parameters

Name	Provides the name of the holiday.
Multiple Days	**Note:** Appears only when adding or editing a holiday. Indicates if the holiday includes multiple days (such as spring break). If No is selected, then the **Start Date** appears as **Date** and **End Date** does not appear.
Start Date	Provides the start date of the holiday. **Note:** For holidays that do not involve multiple days, this field appears as **Date**.
End Date	Provides the end date of the holiday. **Note:** For holidays that do not involve multiple days, this field does not appear.

The Holidays page also contains **Export** and **Import** buttons that allows you to easily capture holiday settings and import them to other System Controllers.

8.13.2 Adding a Holiday

You can create a holiday for any day that the schedule should be turned off, including state and federal holidays. Holidays automatically appear on the dashboard and on the Calendar views.

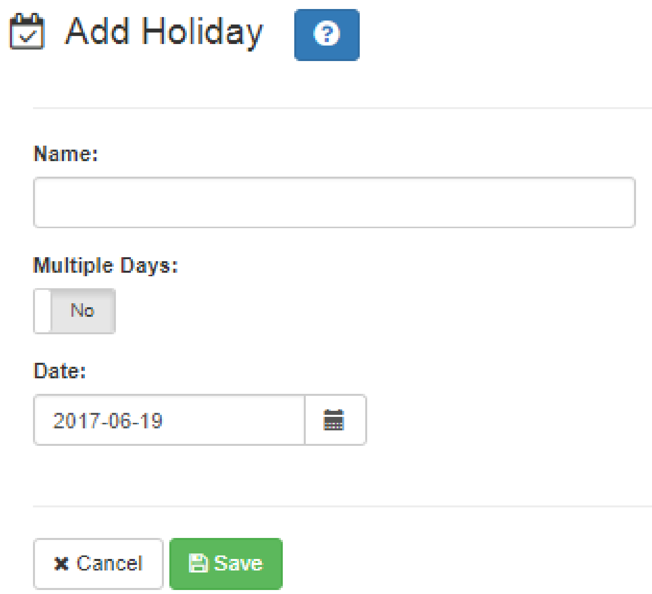


Figure 8-11, Add Holiday Page

To add a holiday:

Step 1 On the navigation bar, expand **Schedules**.

Step 2 Select **Holidays**.

Step 3 On the Holidays page, select the **Add** icon.

Step 4 Enter the parameters for the holiday. (See "*Holiday Parameters" on page 235*.)

Step 5 Select **Save**.

8.13.3 Deleting a Holiday

You may need to delete a holiday in cases such as when a manager's workday is rescheduled to a regular day to make up for an earlier site closure due to inclement weather.

To delete a holiday:

Step 1 On the navigation bar, expand **Schedules**.

Step 2 Select **Holidays**.

Step 3 On the Holidays page, select the **Delete** icon next to the holiday that you want to delete.

Step 4 When prompted, select **Delete**.

8.13.4 Editing a Holiday

You can edit a holiday if you need to change the name or start or end dates for the holiday.

To edit a holiday:

Step 1 On the navigation bar, expand **Schedules**.

Step 2 Select **Holidays**.

Step 3 On the Holidays page, select the **Edit** icon next to the holiday that you want to edit.

Step 4 On the Edit Holiday page, make the desired changes. Parameters for the holiday are described in *"Holiday Parameters" on page 235*.

Step 5 After all changes have been made, select **Save**.

8.13.5 Exporting Holidays

To aid in configuring multiple Nyquist servers or System Controllers that share the same holiday schedule, Nyquist allows you to export the holiday schedule to a .csv file.

To export the holiday schedule:

Step 1 On the navigation bar, expand **Schedules**.

Step 2 Select **Holidays**.

Step 3 Select **Export**.
The holidays.csv file will be sent to your Downloads folder.

8.13.6 Importing Holidays

If you have exported a holiday schedule created at one Nyquist server System Controller, you can import that schedule to another Nyquist server or System Controller.

You can also create a custom holiday .csv file using the following conventions:

- Create four columns with each column separated by commas.
- Insert a line return at the end of each row.
- Set the first column 0 because it will be replaced by an auto-generated value when the file is imported into the database.
- For first, second, and third columns, enclose the entries in double quotes (").
- In the second column, provide the holiday name.
- Enter the start date in the third column using the format YYYY-MM-DD.
- Enter the end date in the fourth column using the format YYYY-MM-DD. For a one day holiday, the start and end dates will be the same.

To import a holiday schedule:

Step 1	On the navigation bar, expand **Schedules**.
Step 2	Select **Holidays**.
Step 3	Select **Import**.
Step 4	Select **Choose file** and navigate to select the .csv file that you want to import.
Step 5	If you want to delete all existing holidays before importing the file, use the slider to select **Yes**.
Step 6	Select **Import**.

8.14 Using the Schedule Announcement Feature

After an announcement has been created via the Audio feature, you can schedule it to play via the Schedules feature. For information about the Audio feature, refer to "*Managing Audio" on page 247*.

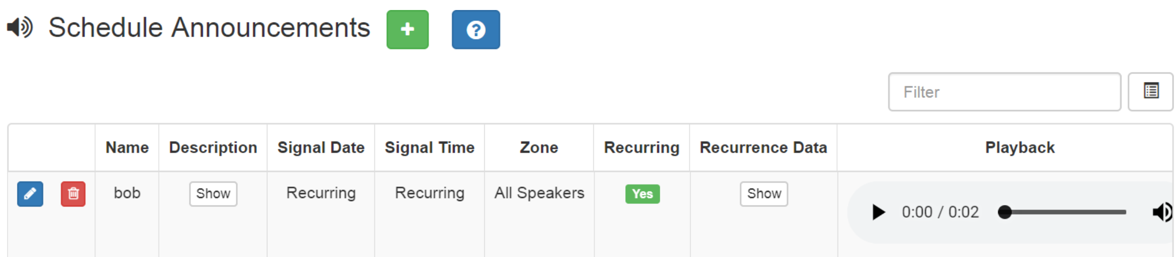


Figure 8-12, Schedule Announcements Page

To view schedule announcements:

Step 1 On the navigation bar, expand **Schedules**.

Step 2 Select **Schedule Announcements**.

The Schedule Announcements page appears. This page displays the following information about all scheduled announcements:

Table 8-6, Schedule Announcements Page Parameters

Name	Displays the name of the announcement. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Description	Displays the description of the announcement. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Signal Date	Displays the date that the announcement is to play.
Signal Time	Displays the time the announcement is to play in HH:MM:SS format.
Zone	Displays the zone that is to receive this announcement.

Table 8-6, Schedule Announcements Page Parameters (Continued)

Recurring	**Note:** If an announcement is already playing, a recurring announcement will not play until its next scheduled occurrence. Indicates if the announcement is scheduled to reoccur.
Recurrence Data	Displays data, such as the start and end dates, for the recurring announcement when you roll over or select the **Show** button.
Playback	Allows you to manually play the announcement. Selecting the down arrow in this field also allows you to download and save the announcement.

8.14.1 Adding a Schedule Announcement

On the Schedule Announcements page you can create a schedule announcement. When you schedule an announcement, you select the date and time the announcement plays, how many times it plays, and the zone that it plays in. Instead of selecting a single zone, you can select **All Speakers**.

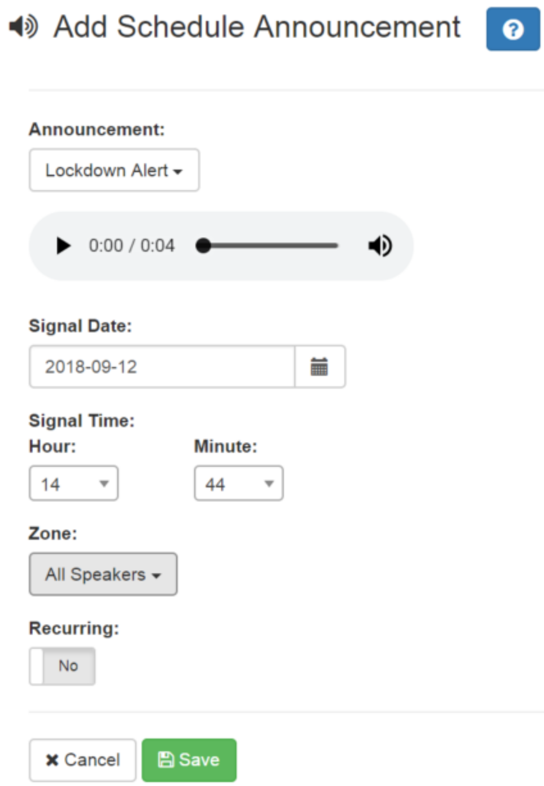


Figure 8-13, Add Schedule Announcement Page

> **Note:** You must create an announcement before you can create a schedule announcement. (See *"Adding an Announcement" on page 284*.)

To add a schedule announcement:

Step 1	On the navigation bar, expand **Schedules**.
Step 2	Select **Schedule Announcements**.
Step 3	On the Schedule Announcements page, select the **Plus** icon.
Step 4	On the Add Schedule Announcement page, complete the parameters.
Step 5	Select **Save**.

Table 8-7, Add Schedule Announcement Parameters

Announcement	Use the drop-down menu to select the announcement that you want to schedule.
Signal Date	**Note:** This field only appears if **Recurring** has been set to **No**. Use the calendar or type to select the date that the announcement is to play.
Signal Time	**Note:** This field only appears if **Recurring** has been set to **No**. Select the **Hour** and **Minute** from the corresponding drop-down menus.
Zone	Select either **All Speakers** or a specific zone that is to receive this announcement.
Recurring	Use the slider to indicate if the announcement will be scheduled to recur.
Recurrence Start Date	**Note:** This field only appears if **Recurring** has been set to **Yes**. Use the calendar or type to select the start date for this recurring announcement.
Recurrence End Date	**Note:** This field only appears if **Recurring** has been set to **Yes**. Use the calendar or type to select the end date for this recurring announcement.
No End Date	Use the slider to select **Yes** if you want this announcement to recur indefinitely.
Recurrence Second	**Note:** This field only appears if **Recurring** has been set to **Yes**. Select the **Second** from the corresponding drop-down menu.
Recurrence Minute	**Note:** This field only appears if **Recurring** has been set to **Yes**. Select the **Minute** from the corresponding drop-down menu. If you do not select a minute, the default will be every minute.

Table 8-7, Add Schedule Announcement Parameters (Continued)

Recurrence Hour	**Note:** This field only appears if **Recurring** has been set to **Yes**. Select the **Hour** from the corresponding drop-down menu. If you do not select an hour, the default will be every hour.
Recurrence Day	**Note:** This field only appears if **Recurring** has been set to **Yes**. Use the drop-down menu to select the day of the month that the announcement will recur. Not selecting a day will default to every day.
Recurrence Month	**Note:** This field only appears if **Recurring** has been set to **Yes**. Use the drop-down menu to select the month that the announcement will play. Not selecting a month will default to the announcement playing every month.
Recurrence Day of the Week	**Note:** This field only appears if **Recurring** has been set to **Yes**. Use the drop-down menu to select the day of the week that the announcement will play. No selecting a **Recurrence Day of the Week** will default to the announcement playing on each day.

8.14.2 Deleting a Schedule Announcement

To delete a schedule announcement:

Step 1 On the navigation bar, expand **Schedules**.

Step 2 Select **Schedule Announcements**.

The Schedule Announcements page appears. This page displays information about all scheduled announcements.

Step 3 Select the **Delete** icon next to the schedule that you want to delete.

Step 4 When prompted, select **Delete**.

8.14.3 Editing a Schedule Announcement

From the Edit Schedule Announcement page, you can change the selected announcement, the date and time the announcement is set to play, and the zones in which the announcement is scheduled to play.

Note that if you change the zone for a Schedule Announcement that is currently playing, the announcement will play to both the original zone and to the new zone. To stop the announcement from playing to the original zone, you must use the stop announcement feature (see *"Managing Announcements Via the Dashboard" on page 347*).

To edit an announcement:

Step 1	On the navigation bar, expand **Schedules**.
Step 2	Select **Schedule Announcements**.
Step 3	Select the **Edit** icon next to the schedule that you want to edit.
Step 4	Make the desired changes. (See *"Add Schedule Announcement Parameters" on page 242*.)
Step 5	After making the desired changes, select **Save**.

8.15 Retrieving First and Last Scheduled Events

You can retrieve an .xml file that provides the first and last events for a daily schedule or shows that the active schedule for the day is a holiday. This information could be used to schedule the opening of facility doors before the first scheduled event and the closing of facility doors after the last scheduled event.

To retrieve this information:

Step 1	On your browser, type the IP address of your Nyquist server followed by the following:

:8088/static/schedules-boundary.xml

> **Note:** Do not include a space between the server’s IP address and the colon (:).

Step 2 Press **Enter**.

If your Nyquist server manages multiple schools, the start and end events appear for each school. (See "*Figure 8-14, Schedules Information for Multiple Schools,*" *on page 245*.) If the day has been scheduled as a holiday, the word “Holiday” appears in the .xml file. (See "*Figure 8-15, XML Output for a Holiday,*" *on page 246*.)


```
▼<Schedules>
  ▼<School>
     <Name>Markham Woods Middle School</Name>
    ▼<Schedule>
       <Name>Early Day</Name>
       <First-Event>07:20:00</First-Event>
       <Last-Event>13:16:00</Last-Event>
     </Schedule>
   </School>
  ▼<School>
     <Name>Heathrow Elementary School</Name>
    ▼<Schedule>
       <Name>Wednesday</Name>
       <First-Event>09:13:00</First-Event>
       <Last-Event>14:55:00</Last-Event>
     </Schedule>
   </School>
  ▼<School>
     <Name>Test School</Name>
    ▼<Schedule>
       <Name>test</Name>
       <First-Event>10:55:00</First-Event>
       <Last-Event>12:00:00</Last-Event>
     </Schedule>
   </School>
 </Schedules>
```


Figure 8-14, Schedules Information for Multiple Schools

```
<Schedules>
  <Holiday>
    <Name>Teacher Work Day</Name>
    <Start-Date>2018-05-02</Start-Date>
    <End-Date>2018-05-02</End-Date>
  </Holiday>
</Schedules>
```


Figure 8-15, XML Output for a Holiday

9 Managing Audio

Managing Audio

With Nyquist's audio file management feature, you can:

- Specify an audio program for distribution to stations or zones.
- Record and play tones and announcements to stations or zones.
- Manage recordings of telephone calls made to and from stations.

Audio programs for distribution to stations or zones can include line-input from the MMPA, Nyquist 2-channel or 4-channel amplifiers, user supplied songs or playlists, and Internet Radio Services. The Audio Distribution, tones, and announcement files added through the audio file management feature can be set through the Schedules feature to automatically play during specified times. (See "*Managing Schedules" on page 217*.) Through the Internet Radio Services, you can listen to live radio stations and add media catalogs and music services without updating devices or software.

Default tone and song files include white noise and pink noise that allows you to tune paging and audio distribution volumes.

> **Note:** Before using the audio file management feature, make sure that stations and zones have been configured (see "*Managing Stations, Zones, and Queues" on page 105*) and that the station you are using to launch announcements, tones, or Audio Distribution has the appropriate CoS parameters set (see "*Using CoS Configuration" on page 63*).

9.1 Audio Distribution

Suppose you want to use an audio source, such as a radio station accessed via the Internet, in a cafeteria but prevent that source from being played in a conference room. This feature, called Audio Distribution, can be turned on by zone (an area or group of stations) or stations (group of devices such as VoIP speakers). You can add the speakers, or stations, in the cafeteria to a zone that allows Audio Distribution while the speakers in a conference room would not be placed into that zone.

Audio Distribution involves creating a playlist or selecting an input source and specifying which zones hear the playlist or input source. Through the Scheduled Audio feature, Audio Distribution can be tied to a specific event in a schedule (see *"Adding an Event" on page 227*).

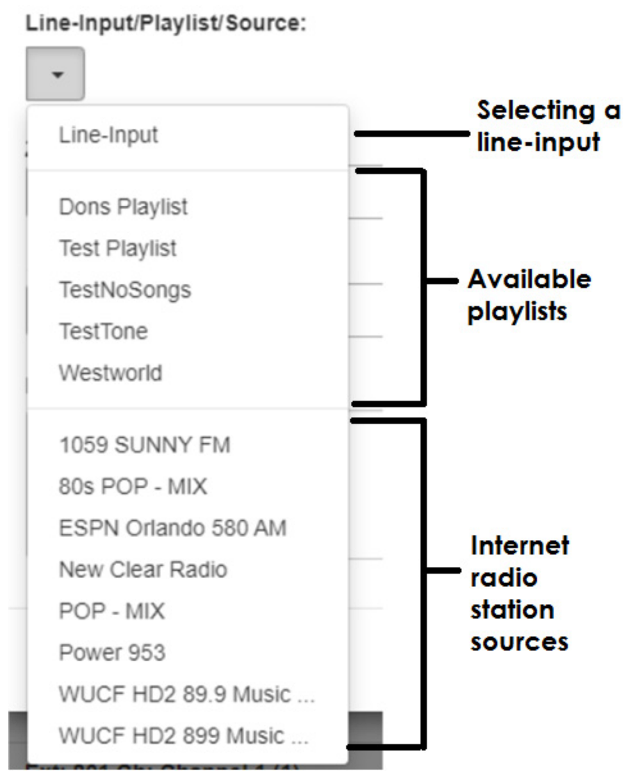


Figure 9-1, Audio Distribution Sources

Audio Distribution sources can include:

- Audio from two-channel or four-channel audio power amplifiers or MMPAs Line Inputs
- User supplied music (songs and playlists)
- Internet Radio Services
- SoundMachine Stations

9.1.1 Managing Line-Input Sources

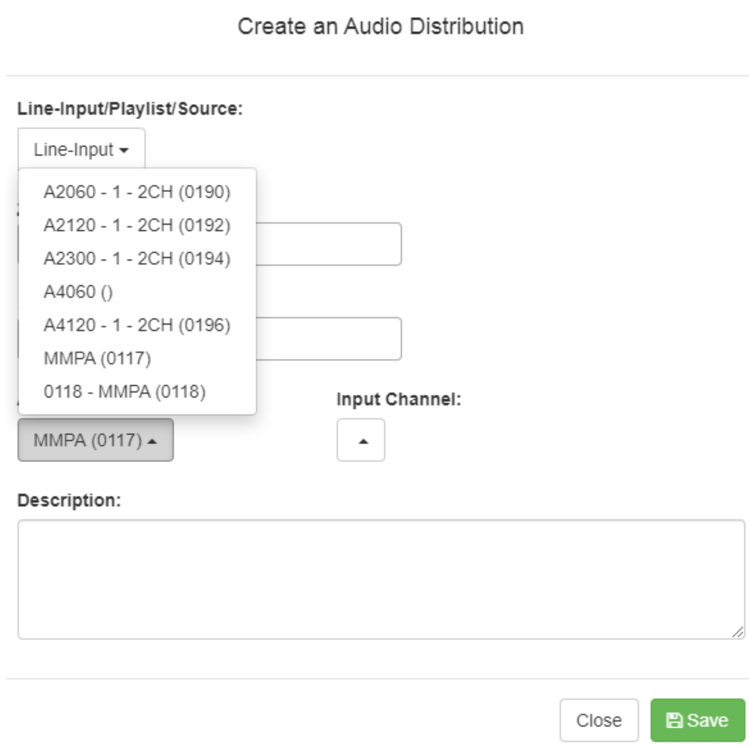


Figure 9-2, Line-Input Sources

If your Nyquist system uses two-channel or four-channel audio power amplifiers or MMPAs, these stations will appear as sources for

Line-Input when creating Audio Distribution.

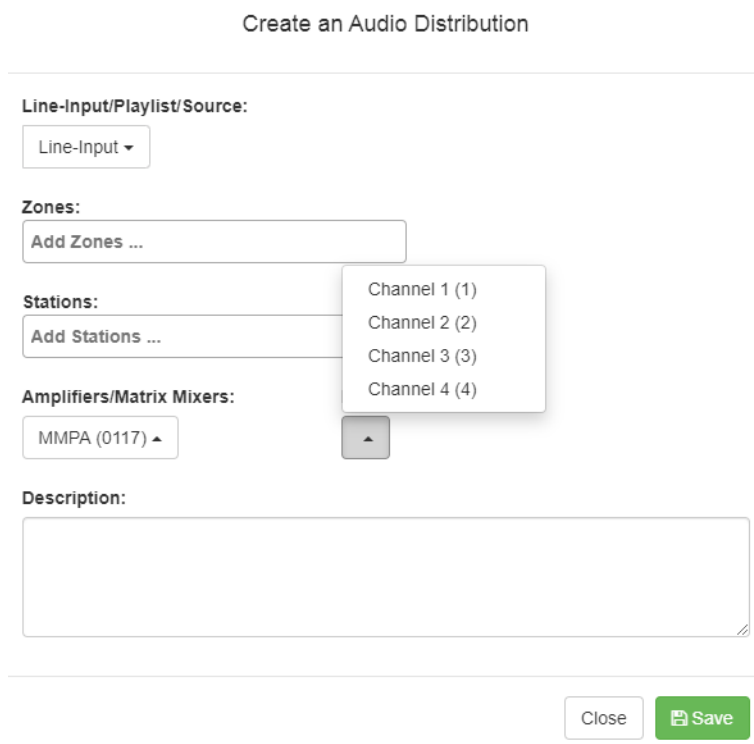


Figure 9-3, Available Channels for an MMPA

The available Input Channel selections can range from 1 or 2 for an amplifier or 1 to 4 for an MMPA.

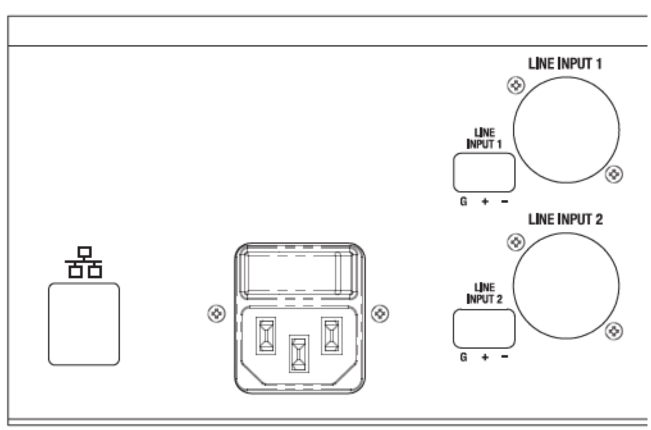


Figure 9-4, Line Input for NQ-A4300 Audio Power Amplifier

The amplifiers and MMPAs must be configured at the device, using either XLR or Phoenix (but not both) as the input.

The Amplifiers/Matrix Mixers and Input Channel selections are made when creating an audio distribution.

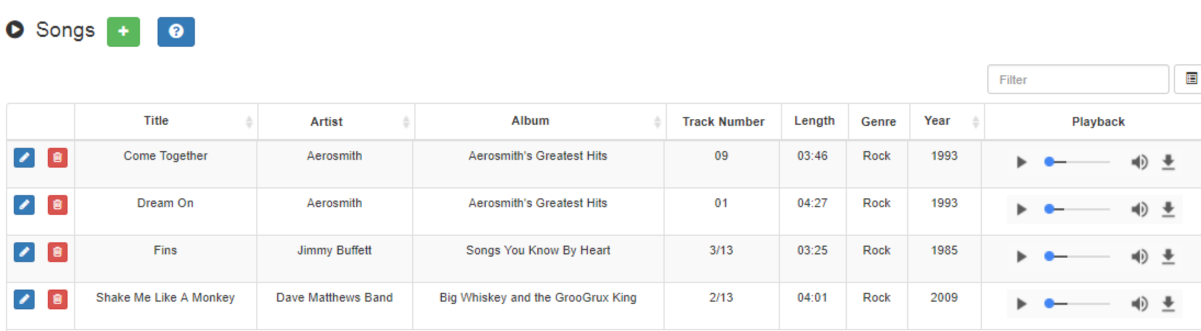
9.1.2 Managing Songs

The songs feature allows you to select songs that can be added to a playlist; the playlist can then be selected to play manually or during scheduled events such as class changes. You upload a song similar to how you upload an announcement file or tone.

By default, white noise and pink noise songs are provided to help tune the volume of an audio distribution zone. (See "*Tuning Volume with White or Pink Noise" on page 321*.)

9.1.3 Viewing the Song List

From the Songs page, you can add, edit, or delete a song. If you delete a song that is in a Playlist, the song is automatically removed from the Playlist.



	Title	Artist	Album	Track Number	Length	Genre	Year	Playback
	Come Together	Aerosmith	Aerosmith's Greatest Hits	09	03:46	Rock	1993	
	Dream On	Aerosmith	Aerosmith's Greatest Hits	01	04:27	Rock	1993	
	Fins	Jimmy Buffett	Songs You Know By Heart	3/13	03:25	Rock	1985	
	Shake Me Like A Monkey	Dave Matthews Band	Big Whiskey and the GrooGrux King	2/13	04:01	Rock	2009	

Figure 9-5, Songs Page

To view the song list:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Songs**.

The following table describes the information provided about each song:

Table 9-1, Songs Page Parameters

Title	Displays the user provided song title.
Artist	Displays the name of the musician performing the song.
Album	Displays the name of the album the song is from.
Track Number	Displays the track on the album for the song.
Length	Provides the length of the song in seconds.
Genre	Displays the music genre, or category, for the song.
Year	Displays the year the song was recorded.
Playback	Allows you to manually play the song. Selecting the **Menu** icon in this field also allows you to download and save the song.

9.1.4 Playing Songs Directly from a USB Memory Stick

You can use a USB memory stick as storage for songs that can be played via the playlists feature.

To add songs and create a playlist for a USB memory stick, you must create a root file on the USB memory stick called MusicLibrary.txt. This file can contain the following entries:

- playlistname=<text entered by customer>
- createplaylist=no
- useexistingplaylist=yes

If **createplaylist=no** is found in MusicLibrary.txt, a playlist is not created for the imported files.

If **useexistingplaylist=yes** is used, new songs will be added to the playlist defined by the playlistname option.

Music files must be on the root directory of the USB memory stick. Valid formats for these files are mp3, wav, and aac.

The Nyquist server automatically mounts the USB memory stick, adds all songs found in the root directory to the songs list, and creates a playlist for the added songs. The default name for the playlist is **USB Music Library**.

> **Note:** If you use a USB memory stick as storage for songs on a playlist and the USB memory stick is removed from the USB drive, the meta data for the songs and the playlist still resides in the Nyquist song list and playlist, but Audio Distribution cannot play. For this reason, we recommend never removing the memory stick from the computer.

9.1.5 Uploading Songs from a USB Memory Stick

You can upload songs to the Nyquist system from a USB memory stick.

To upload songs from a USB memory stick:

Step 1	On the navigation bar, expand **Audio**.
Step 2	Select **Songs**.
Step 3	Select the **Add** icon.
Step 4	From the Add Song page, ensure **Multiple Songs** is set to **Yes**.
Step 5	Insert the memory stick.
Step 6	For the **File Upload** parameter, select **Choose file** and navigate to the USB memory stick.
Step 7	Select **Save**.
Step 8	Select **Save**.

9.1.6 Adding Songs

You can add songs from your local computer or from removable media, such as a Flash drive. You can add a song to playlists as part of the Add Song process or you can add a song to a playlist later through the **Playlists** menu.

You can select to add one song or multiple songs.

Nyquist can use any ID3 tag data and save that automatically. An ID3 tag acts as a container file within an MP3 audio file and commonly contains the title, artist name, album, track data, year, and genre.

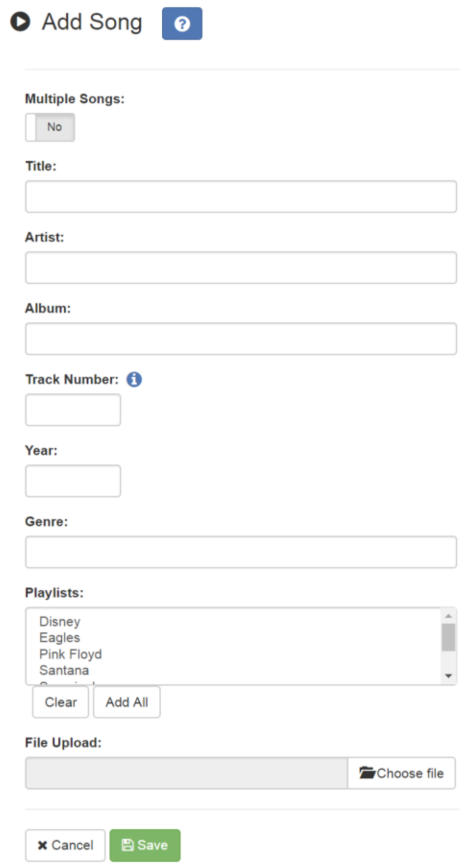


Figure 9-6, Add Song Page

To add a song file:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Songs**.

Step 3 On the Songs page, select the **Add** icon.

Note: If the imported song file contains meta data, Nyquist automatically fills in the Title, Artist, Album, Track Number, Year, and Genre after you press the Save button. If no meta data exists, the song Title is set to Untitled and the other parameters are left blank. Most MP3 files do contain meta data. You can also choose to not fill in the parameters.

Step 4 On the Add Song page, complete the parameters.

If you want to add multiple songs, ensure that you select **Yes** for **Multiple Songs**. Then, use the Shift or Control keys when selecting multiple files.

Step 5 After completing all changes, select **Save**. The song or songs will be copied onto the Nyquist system.

Table 9-2, Add Song Page Parameters

Multiple Songs	Allows you to select multiple songs.
Title	Displays the user provided song title.
Artist	Displays the name of the musician performing the song.
Album	Displays the name of the album the song is from.
Track Number	Displays the track on the album for the song.
Year	Displays the year the song was recorded.
Genre	Displays the music genre, or category, for the song.
File Upload	Allows you to select the song that you want to upload.
Playlists	Select the playlists that you want to add the song to. You can select multiple playlists, select all playlists by selecting **Add All**, or use the **Clear** button to remove the playlists.
File Upload	Select **Choose file** and navigate to select the file to upload. This option allows you to select files not only from your computer but also from a USB flash drive inserted in your computer.

9.1.7 Editing Song Information

Through the Edit Song page, you can edit the information that appears on the Songs page for a particular song or replace the downloaded file with another.

To edit the information associated with the song file:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Songs**.

Step 3 On the Songs page, select the **Edit** icon next to the song that you want to edit information for.

Step 4 On the Edit Song page, make changes to the parameters.

Step 5 After completing all changes, select **Save**.

Table 9-3, Edit Song Page Parameters

Title	Displays the user provided song title.
Artist	Displays the name of the musician performing the song.
Album	Displays the name of the album the song is from.
Track Number	Displays the track on the album for the song.
Year	Displays the year the song was recorded.
Genre	Displays the music genre, or category, for the song.
File Upload	Allows you to select the song that you want to upload.
Playlists	Allows you to add or remove the song from playlists.

9.1.8 Deleting a Song

Through the Songs page, you can delete a song from your Nyquist system. If you delete a song that is in a Playlist, the song is automatically removed from the Playlist.

To delete a song:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Songs**.

Step 3 On the Songs page, select the **Delete** icon next to the song that you want to delete.

Step 4 When prompted, select **Delete**.

9.1.9 Managing Playlists

You can create and manage playlists that contain multiple songs to use for scheduled events and dashboard Audio Distribution entries. You can select a playlist when creating an event. (See section "*Adding an Event" on page 227.)* Specifying the audio program for stations or zones is known as audio distribution.

9.1.9.1 Viewing Playlists

Through the Playlists page, you can view all playlists available to your Nyquist system and create, delete, and manage a playlist. With the

Manage Playlist feature, you can add, delete, or change the order of a playlist's songs.

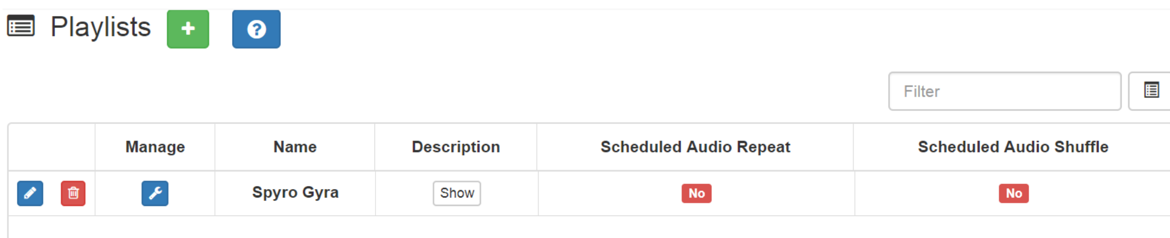


Figure 9-7, Playlists Page

To view playlists:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Playlists**.

The Playlists page appears. The following table describes the information that appears on this page:

Table 9-4, Playlists Page Parameters

Manage	When selected, this option displays the songs that can be dragged and dropped to and from the playlist.
Name	Displays the user provided name for the playlist. This field can contain a maximum of 40 characters. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Description	When **Show** is selected, the user provided description of the play list appears. This field can contain a maximum of 256 characters. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.

Table 9-4, Playlists Page Parameters (Continued)

Scheduled Audio Repeat	When enabled, the playlist audio will be repeated after all songs have been played. When disabled, Scheduled Audio will automatically stop after the last song has been played from the playlist. When disabled, a corresponding stop event is not needed when Scheduled Audio is started via the schedule. **Note:** When playlists are being used by the Audio Distribution feature, the Scheduled Audio options are ignored.
Scheduled Audio Shuffle	When enabled, the order in which the songs are played is shuffled. When disabled, the playlist songs will be played in the order that they appear in the playlist. **Note:** When playlists are being used by the Audio Distribution feature, the Scheduled Audio options are ignored.

9.1.9.2 Creating a Playlist

When you add a playlist, you first create the playlist container and then you use the Manage tool to add songs to the playlist. To add songs to a playlist, you must have access to songs that have been downloaded to your Nyquist network or to removable media, such as a Flash drive.

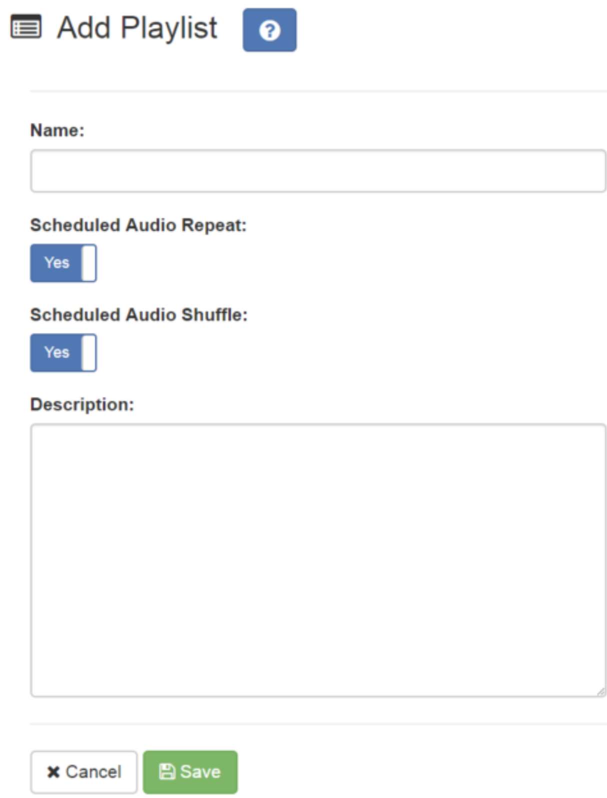


Figure 9-8, Add Playlist Page

To add a playlist:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Playlists**.

Step 3 Select the **Add** icon.

Step 4 On the Add Playlist page, complete parameters for this playlist. (See "*Add Playlist Parameters" on page 261*.)

Step 5 Select **Save**.

Table 9-5, Add Playlist Parameters

Name	Displays the user provided name for the playlist. This field can contain a maximum of 40 characters. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Scheduled Audio Repeat	When enabled, the playlist audio will be repeated after all songs have been played. When disabled, Scheduled Audio will automatically stop after the last song has been played from the playlist. When disabled, a corresponding stop event is not needed when Scheduled Audio is started via the schedule. **Note:** When playlists are being used by the Audio Distribution feature, the Scheduled Audio options are ignored.
Scheduled Audio Shuffle	When enabled, the order in which the songs are played is shuffled. When disabled, the playlist songs will be played in the order that they appear in the playlist. **Note:** When playlists are being used by the Audio Distribution feature, the Scheduled Audio options are ignored.
Description	When **Show** is selected, the user provided description of the play list appears. This field can contain a maximum of 256 characters. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.

9.1.9.3 Adding Songs to a Playlist

After you create a playlist, use the Manage tool to add songs to the playlist.

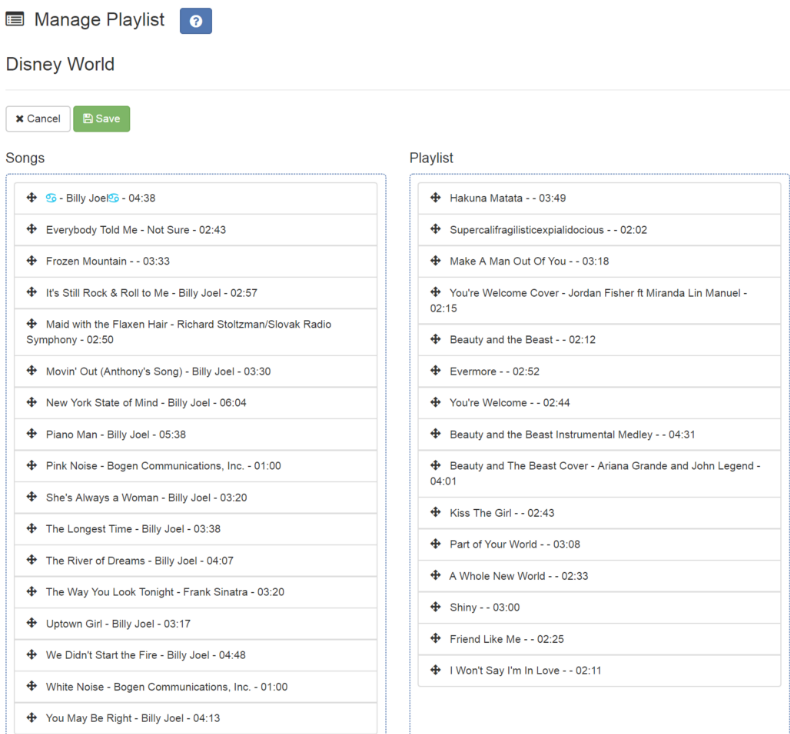


Figure 9-9, Manage Playlist Page

To add songs to a playlist:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Playlists**.

Step 3 On the Playlists page, select the **Manage** icon next to the playlist that you want to add songs to.

Step 4 On the Manage Playlists page, drag and drop the song you want to add from the Songs field to the Playlist field.

Step 5 After all desired songs have been added to the Playlist, select **Save**.

9.1.9.4 Changing Song Order in a Playlist

You can use the Manage tool to change the order of songs in a playlist.

To change the song order:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Playlists**.

Step 3 On the Playlists page, select the **Manage** icon next to the playlist for which you want to change song order.

Step 4 On the Manage Playlists page, drag and drop the songs into the order that you want.

Step 5 Select **Save**.

9.1.9.5 Deleting a Song from a Playlist

You can use the Manage tool to remove a song from a playlist.

To delete a song from a playlist:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Playlists**.

Step 3 On the Playlists page, select the **Manage** icon next to the playlist.

Step 4 Drag and drop the song from the Playlist field to the Songs field.

Step 5 After all desired changes are completed, select **Save**.

9.1.9.6 Editing a Playlist

The **Edit** icon allows you to edit the parameters for a playlist. To change the order of songs in a playlist, see "*Adding Songs to a Playlist" on page 262*. To delete a song from a song list, see "*Deleting a Song from a Playlist" on page 263*.

To edit a playlist:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Playlists**.

Step 3 Select the **Edit** icon next to the playlist.

Step 4	On the Edit Playlist page, make desired changes to the parameters. (For more information about the parameters, see *"Add Playlist Parameters" on page 261*.)
Step 5	Select **Save**.

9.1.9.7 Deleting a Playlist

You can delete a playlist provided the playlist is not being used with an I/O Controller Input or Output Rule.

To delete a playlist:

Step 1	On the navigation bar, expand **Audio**.
Step 2	Select **Playlists**.
Step 3	Select the **Delete** icon next to the playlist.
Step 4	When prompted, select **Delete**.

9.1.10 Using Internet Radio Services

Through the Internet Radio Services, you can add online content, such as music services and Internet radio, using Airable by TuneIn. With this service, you can listen to live radio stations and add media catalogs and music services without updating devices or software.

You can navigate through the catalog of radio stations by:

- Genre
- Language
- Location
- Quality
- Popularity

You can also search the catalog for particular artists or songs.

Being able to use the Internet Radio Services feature depends on the permissions assigned to the role you are associated with.

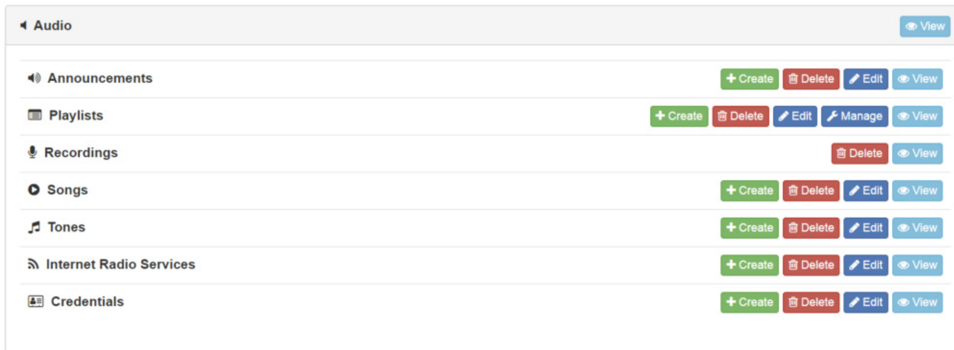


Figure 9-10, Internet Radio Services Permissions

For information about assigning permissions to roles, see *"Assigning and Editing Permissions" on page 203*.

9.1.10.1 Viewing Internet Radio Services

If you have **View** permission for the Internet Radio Services, you can view a list of radio stations that can be accessed through your system as well as information about each station. Through the Internet Radio Services page, you can also select to manage credentials for services such as SOUNDMACHINE. (See *"Managing Credentials" on page 269*.)

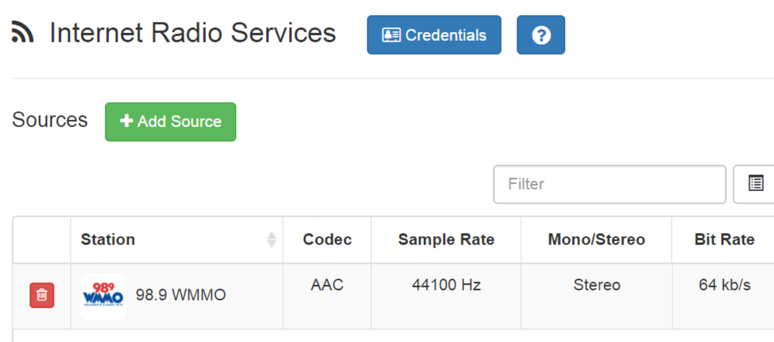


Figure 9-11, Internet Radio Services View

To view Internet Radio Services added to your system:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Internet Radio Services**.

The following parameters appear for each source configured for your Nyquist system:

Table 9-6, Internet Radio Services

Station	Displays the icon, name, and description of the radio station.
Codec	Displays how the streaming media is compressed and decompressed.
Sample Rate	Displays the number of samples of audio carried per second.
Mono/Stereo	Displays if the signal is being transmitted by a single channel (mono) or by two channels (stereo).
Bit Rate	Displays the bit rate used to transmit the streaming media.

9.1.10.2 Adding a Source

You can select to add an Internet radio source or a service, such as SOUNDMACHINE. The screen that appears when you select **Add Sources** also allows you to manage credentials or sign up for SOUNDMACHINE.

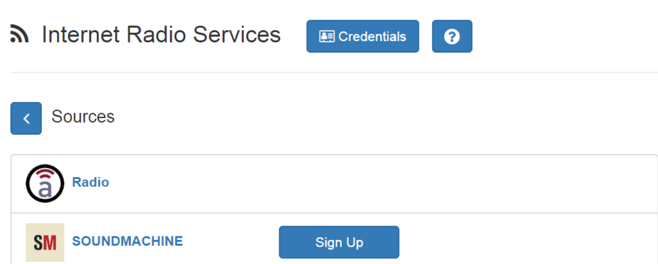


Figure 9-12, Add Source Page

To add a source:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Internet Radio Services**.

Step 3 On the Internet Radio Services window, select **Add Sources**.

Step 4 Select from the list of Sources.

Step 5 If you select **Radio**, do the following:

a Select how you want to select a source. Options are:

Local stations	Select to view a list of stations near your location.
Popular stations	Select to view stations considered to be the most popular.
Trending	Select to view the stations that are gaining momentum.
High quality	Select to view the stations with a high sound quality.
New stations	Select to filter the list of stations by new stations added to Internet Radio Services.
Filter	Select to filter the list of stations by **Location**, **Language**, or **Genre**.
Search	Select to enter a search term.

b When the list of stations that meet the selected criteria appear, select the station that you want.

c Select **Add Source** for each source (aac or mp3) that you want.

Step 6 If you select **SOUNDMACHINE**, do the following:

a Select how you want to open a source. Selections are:

Genres	Displays a list of genres, such as **Blues** and **Pop**, which you can select to drill down genre choice even further.
Stations	Displays categories for stations, such as **Country**, which you can select to drill down to select a specific album or song.
My Stations	Displays radio stations that you added through the SOUNDMACHINE web site.
Mixes	Displays categories of stations that combine, or mix, music genres. You can select to drill down to a specific album or song.
Music Selection Schedules	Displays the Schedules that have been created through SOUNDMACHINE. (See "*Using SOUNDMACHINE Music Selection Schedules" on page 273*.) Schedules allow the playing of specific stations or mixes during specific times of the day. For example, you can play soft jazz music during morning hours and select a different genre mix for mid-day. When you create a Music Selection Schedule, you cannot have any empty time periods or audio distribution will stop when the empty time period is encountered. The Music Selection Schedules that you create appear as **Line-Input/Playlist/Source** selections for Audio Distribution. (See "*Using Audio Distribution" on page 353*.)
Logout	Select to log out of SOUNDMACHINE.

b Drill down until you can select a specific album or song.

c Select **Add Source**.

9.1.10.3 Deleting a Source

To delete a source:

Step 1	On the navigation bar, expand **Audio**.
Step 2	Select **Internet Radio Services**.
Step 3	On the Internet Radio Services window, select the **Delete** icon next to the source that you want to delete.
Step 4	When prompted, select **Delete**.

9.1.10.4 Managing Credentials

If you have been assigned permissions, you can view, add, edit, and delete logon credentials needed to access the SOUNDMACHINE service.

For information about roles and permissions, see "*Assigning and Editing Permissions" on page 203*.

9.1.10.5 Viewing Credentials

The Credentials list allows a quick view of the users who have logon credentials.

To view the Credentials list:

Step 1	On the navigation bar, expand **Audio**.
Step 2	Select **Internet Radio Services**.
Step 3	Select **Credentials**.

The Credentials list displays the following information:

Table 9-7, Credentials Parameters

Name	Displays the name of the service, such as SOUNDMACHINE.
Enabled	Indicates if the account is enabled for this service.
Username	Provides the **Username** for the account.

9.1.10.6 Add Credentials

You can create a user account that allows a user to use an Internet Radio Service, such as SOUNDMACHINE. You can also use the Add Credential page to sign up for SOUNDMACHINE.

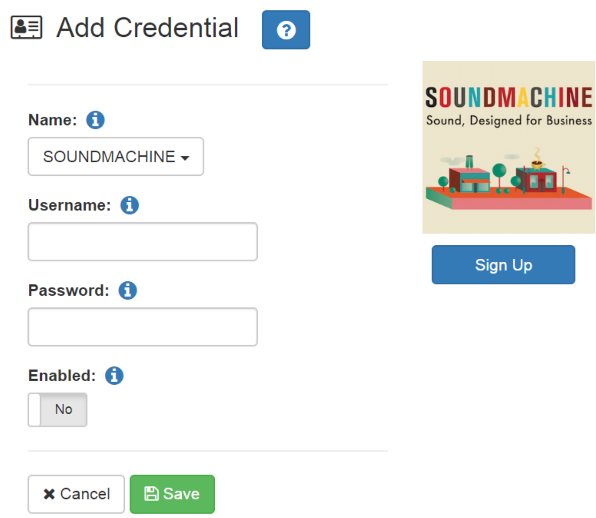


Figure 9-13, Add Credential

To create an account:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Internet Radio Services**.

Step 3 Select **Credentials**.

Step 4 Select the **Add** icon.

Step 5 Complete the following parameters:

Table 9-8, Add Credential Parameters

Name	Use the drop-down arrow to select the name of the service.
Username	Enter the username for this account.
Password	Enter the password for this account.
Enabled	Select **Yes** to enable this account.

9.1.10.7 Edit Credential

If you have the appropriate permissions, you can edit a user's credentials for accessing SOUNDMACHINE, including viewing or changing a user's password and enabling or disabling their use of the service.

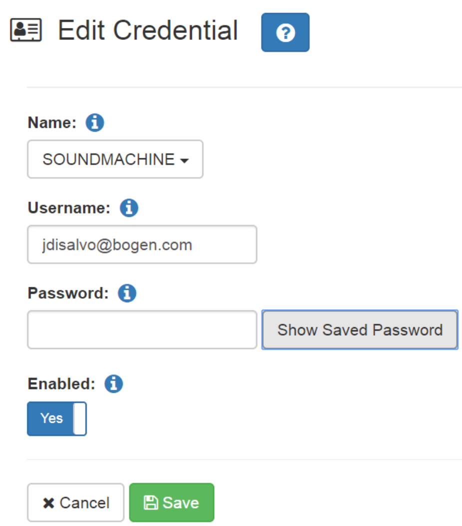


Figure 9-14, Edit Credential

To edit an account:

Step 1	On the navigation bar, expand **Audio**.
Step 2	Select **Internet Radio Services**.
Step 3	Select **Credentials**.
Step 4	Select the **Edit** icon next to the account that you want to edit.
Step 5	Make the desired changes. (See "*Edit Credentials Parameters" on page 271*.)
Step 6	Select **Save**.

Table 9-9, Edit Credentials Parameters

Name	Use the drop-down arrow to select the name of the service.
Username	Enter the username for this account.

Table 9-9, Edit Credentials Parameters

Password	Enter the password for this account. Select **Show Saved Password** to view an existing password for the account being edited.
Enabled	Select **Yes** to enable this account.

9.1.10.8 Delete Credentials

You can delete a user's credentials to access SOUNDMACHINE.

To delete an account:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Internet Radio Services**.

Step 3 Select **Credentials**.

Step 4 Select the **Delete** icon next to the account that you want to edit.

Step 5 When prompted, select **Delete**.

9.1.10.9 SOUNDMACHINE Sign Up

You can sign up for SOUNDMACHINE via the Add Source (see *"Adding a Source" on page 266*) or Add Credential (see *"Add Credentials" on page 270*) windows.

To sign up for SOUNDMACHINE:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Internet Radio Services**.

Step 3 Do one of the following:

- Select **Add Source**.
- Select **Credentials** and then select the **Add** icon.

Step 4 Select **Sign Up**.

Step 5 When the SOUNDMACHINE and BOGEN page appears, follow the on-screen instructions.

9.1.10.10 Using SOUNDMACHINE Music Selection Schedules

Schedules that you create using the SOUNDMACHINE web-based user interface appear as **Music Selection Schedules** in the Nyquist Admin Web UI. You can select a Music Selection Schedule to play as audio distribution. (See "*Using Audio Distribution" on page 353*.)

When you create a Music Selection Schedule, you cannot have any empty time periods or audio distribution will stop when the empty time period is encountered.

You cannot name a Music Selection Schedule using all special characters; the name must contain at least one alpha or numeric character or the Music Selection Schedule will not appear.

Scheduled Audio takes priority over a Music Selection Schedule. For information about Scheduled Audio, refer to "*Understanding Event Settings" on page 228*.

9.1.11 Creating an Audio Distribution

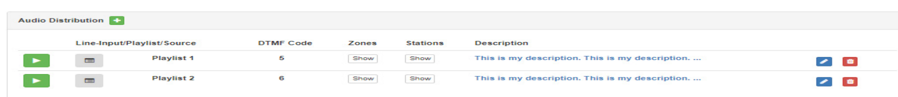
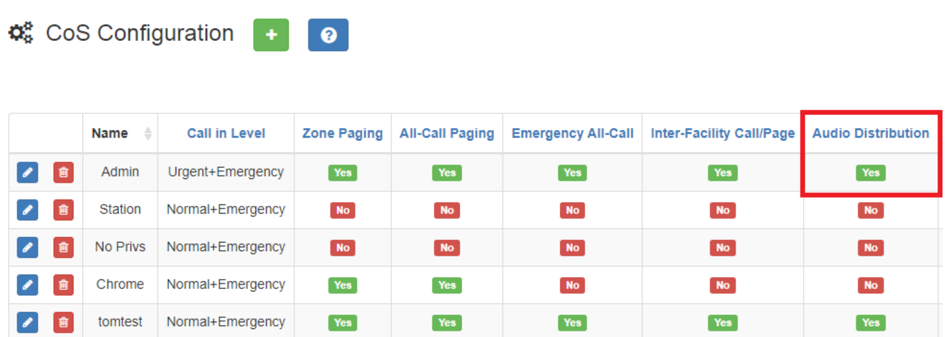


Figure 9-15, Audio Distribution Portion of Dashboard

To use the Audio Distribution feature, you must have the proper CoS configuration on your station. See "*Editing CoS Parameters for a Station" on page 66* if you need to change your station's CoS.


CoS Configuration

Name	Call in Level	Zone Paging	All-Call Paging	Emergency All-Call	Inter-Facility Call/Page	Audio Distribution
Admin	Urgent+Emergency	Yes	Yes	Yes	Yes	Yes
Station	Normal+Emergency	No	No	No	No	No
No Privs	Normal+Emergency	No	No	No	No	No
Chrome	Normal+Emergency	Yes	Yes	No	No	No
tomtest	Normal+Emergency	Yes	Yes	Yes	Yes	Yes

Figure 9-16, Audio Distribution Set in CoS

You must also be assigned a Role that has permissions to create Audio Distribution.

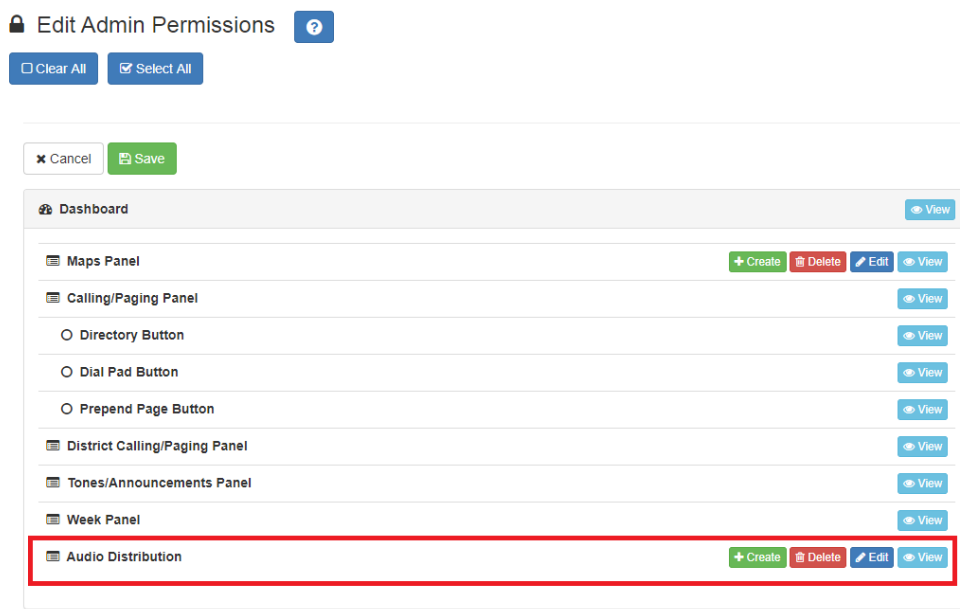


Figure 9-17, Role Permissions for Audio Distribution

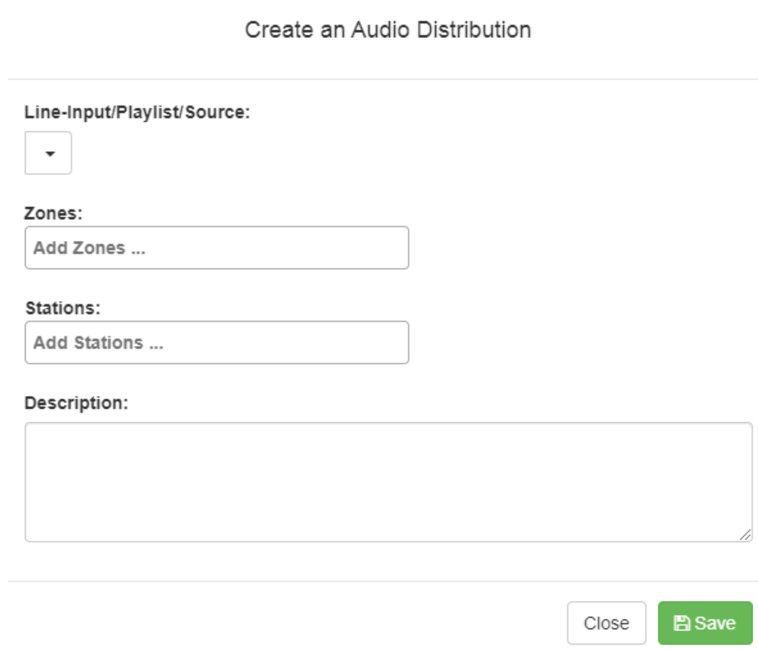


Figure 9-18, Create an Audio Distribution

To create an Audio Distribution:

Step 1	If not already on your dashboard, select **Dashboard** from the navigation bar.
Step 2	Select the **Add** icon next to **Audio Distribution**.
Step 3	Complete the Create an Audio Distribution parameters (see "*Create an Audio Distribution Parameters" on page 275*).

Note: If you are using at least one Nyquist Matrix Mixer Pre-Amp, Line-Input appears as a Line-Input/Playlist/Source option.

Step 4	Select the **Zones** and **Stations**.
Step 5	If you select **Line-Input** as the Input Source/Playlist, select the **Amplifiers/Matrix Mixers** and **Input Channel**.
Step 6	If you select a playlist and want to shuffle the song order, set **Shuffle** to **Yes**.
Step 7	Select **Save**.
Step 8	To end the playing of audio, select the **Stop** icon next to the playlist.

Table 9-10, Create an Audio Distribution Parameters

Line-Input/Playlist/Source	Use the **Line-Input/Playlist/Source** drop-down menu to select the audio source. Audio sources can include a line-input from an MMPA or amplifier, available playlists previously created for your system, or Internet radio station sources.
Zones	Select **All Speakers** or a specific zone or zones where you want the audio to play.
Stations	Select the stations where you want the audio to play.

Table 9-10, Create an Audio Distribution Parameters (Continued)

Shuffle	If you select a playlist and want to shuffle the song order, set **Shuffle** to **Yes**.
Description	Add a description for the Audio Distribution. For example, you may want to note that the audio is for lunchtime.

9.1.12 Starting and Stopping Audio Distribution

Starting and stopping Audio Distribution can be done either manually via your dashboard or automatically either through scheduled events or routines.

A list of existing Audio Distributions appears on the dashboard. An existing Audio Distribution can be edited or deleted, provided it is not currently playing, by selecting the **Edit** or **Delete** icon next to the Audio Distribution.

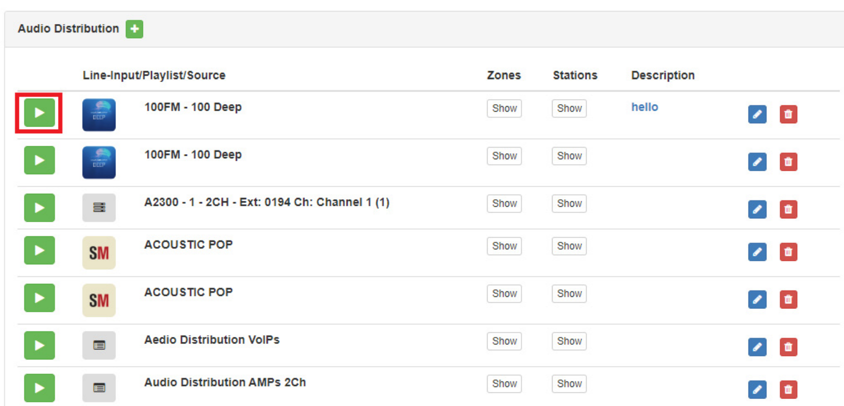


Figure 9-19, Audio Distribution Play Icon

To manually start and stop Audio Distribution:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Select the **Play** icon next to the Audio Distribution that you want to launch.

Step 3 To end the playing of audio, select the **Stop** icon next to the playlist.

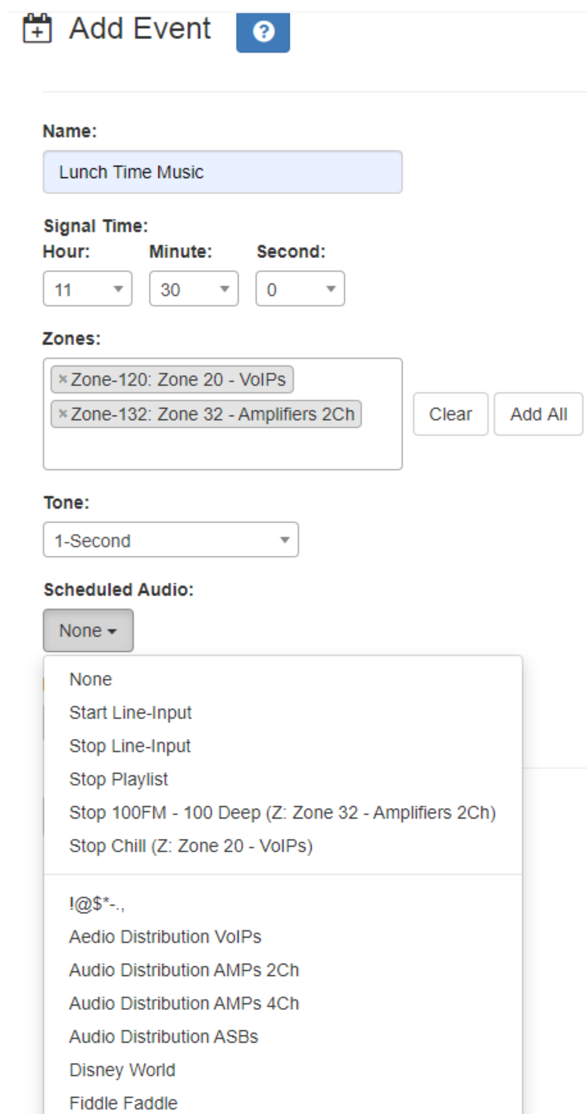


Figure 9-20, Adding Scheduled Audio

To automatically schedule audio as part of an event, follow the steps for creating an event, ensuring that you set the **Scheduled Audio** for the playlist, Matrix Mixer Pre-Amp channel, or amplifier to be used for this event. For more information, see "*Adding an Event" on page 227*.

You can also select to stop the **Scheduled Audio** by selecting **Stop Playlist** or **Stop Line-Input**.

If an Airable/SOUNDMACHINE source is selected, the Scheduled Audio list includes selections to start or stop the audio stream. This list only includes Airable/SOUNDMACHINE selections that apply to the specific zone. If the Audio Distribution zone selected includes a time zone and another zone type, such as Paging, that is not for time, the audio distribution does not appear in this **Scheduled Audio** list.

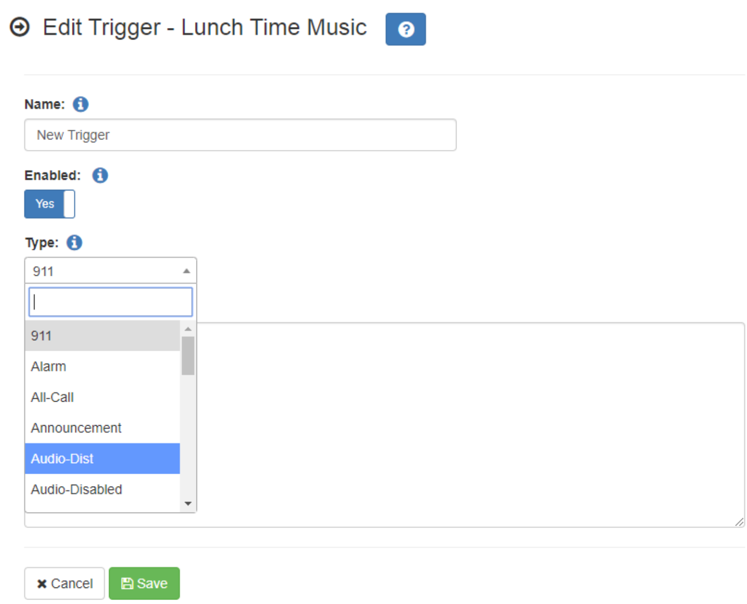


Figure 9-21, Adding Audio-Dist Trigger

The Routines feature lets you automatically launch one or more actions using Audio Distribution (Audio-Dist) as a trigger. For example, maybe you want a bell or tone to sound in the kitchen when the lunchtime music begins to alert kitchen staff that orders will soon be coming. To do this, you can create a routine, add an **Audio-Dist** trigger **Type**, and then create an action that plays a tone. See *"Adding a Routine" on page 387* for more information about creating a routine.

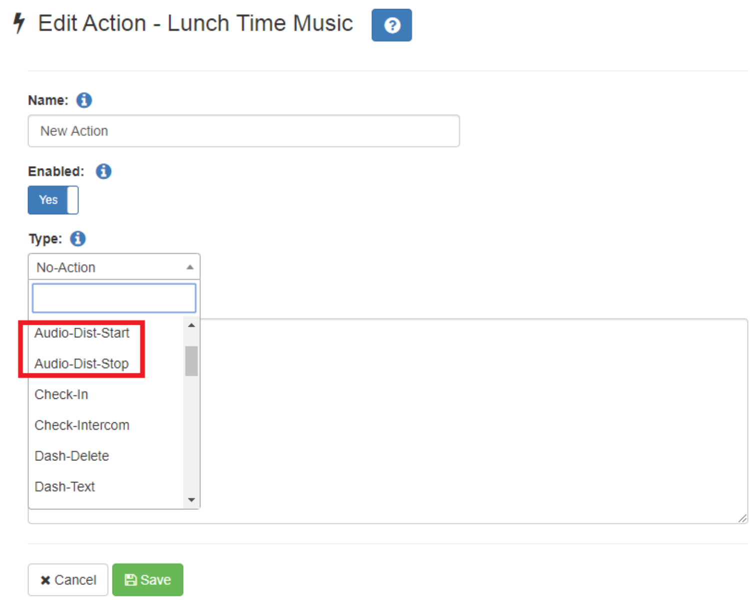


Figure 9-22, Audio Distribution Actions

You can create a routine with an action of either **Audio-Dist-Start** to start audio distribution or **Audio-Dist-Stop** to stop audio distribution.

You can also allow third-party systems, such as access control systems, to launch a routine via I/O Controller Input Contact closure, or you can remotely launch a routine using the Routines API.

For more information about using routines, see "*Using Routines" on page 381*.

9.1.13 Other Features and Audio Distribution

Audio Distribution will be paused automatically by higher priority feature activation (for example, All-Call Page, Paging, Tones) and will automatically resume when the higher priority feature is finished.

Audio Distribution volume to all speakers can be changed by setting **Audio Distribution Cut Level (dB)**, available in **System Parameters**. The Audio Distribution volume to zones can be changed by setting **Audio Distribution Cut Level (dB)** in **Edit Zone**. For information about editing a zone, see "*Editing Zone Configuration" on page 165*.

All Nyquist stations are pre-programmed to receive Audio Distribution to All Stations. To disable Audio Distribution to a specific station, change **Multicast Audio Distribution** to **No** on the Edit Station page (see "*Editing Station Configuration Settings" on page 118*).

Any Admin web UI user may stop the Audio Distribution if his or her station has the **Audio Distribution** CoS Configuration parameter enabled.

Scheduled Audio has a higher priority than Audio Distribution. If you are playing Audio Distribution and an event with Scheduled Audio interrupts, the Audio Distribution briefly plays between the tone and the Scheduled Audio.

A playlist will continue playing until manually stopped.

9.1.14 Audio Distribution Status

When you start Audio Distribution, a popup window appears letting you know that Audio Distribution was enabled.

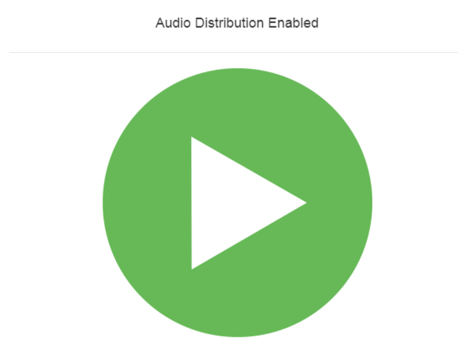


Figure 9-23, Audio Distribution Enabled

A popup window also appears when you stop Audio Distribution.

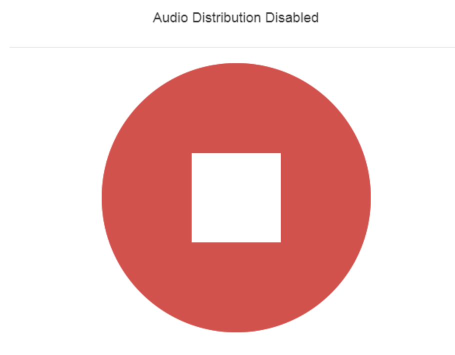


Figure 9-24, Audio Distribution Disabled

When Audio Distribution is enabled, an informational message appears in the Messages window of the Admin Web UI dashboard, indicating the song that is currently playing and to which speakers (all or selected) and to which zones audio is playing to.

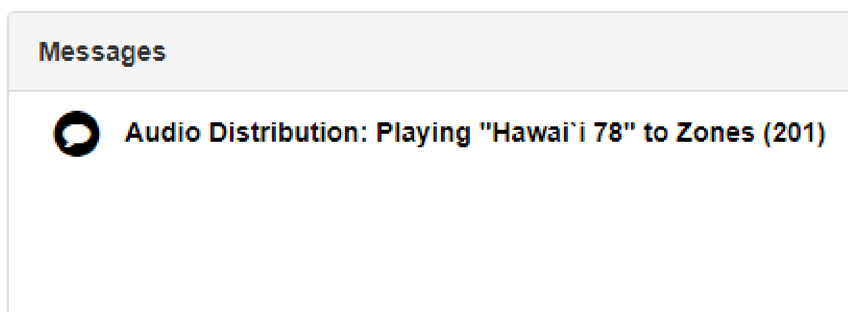


Figure 9-25, Audio Distribution Status

9.1.15 Using the Admin Phone

If you are using a Nyquist NQ-T1100 appliance as an admin phone, you can start and stop a specified Audio Distribution or stop all Audio Distribution using the phone’s Audio Distribution menu.

Figure 9-26, Admin Phone Display

For more information, refer to the Nyquist NQ-T1000’s *Admin Phone User Manual*.

9.2 Using Announcements

Announcements are pre-recorded audio files that can be scheduled to play during specific times and in specific zones, played manually via the dashboard or played via routine actions. Announcements can be either normal announcements, such as pre-recorded announcements about upcoming site events, or emergency announcements, such as pre-recorded shelter in place announcements that can be played during events such as tornado warnings or active shooter scenarios.

Announcements can also precede a page.

Through the Nyquist web-based UI, you can add, edit, delete, and play announcements.

9.2.1 Announcements, Zones, and Priorities

You can select a zone for an announcement to play or select to play an announcement to all speakers. The Nyquist system also supports the simultaneous playing of multiple announcements to different zones.

However, there are some set rules and priorities that govern how and when announcements play. For example, announcements played via an I/O controller can be played to a selected zone but not to **All Speakers**.

When you attempt to play a non-emergency, or **Normal**, announcement to a zone, you will receive a busy signal if any of the following are true:

- An announcement, page, or recorded page is being played on the zone.
- An announcement is being played to **All Speakers**.
- An Alarm, Tone, All-Call, or Emergency All-Call is being played.

A **Normal** announcement plays to **All Speakers** only if all zones are idle and no higher level audio is playing. You will receive a busy signal if any of the following are true:

- A **Normal** or **Emergency** announcement is already playing to **All Speakers**.
- An announcement is already playing to a zone.
- A page or queued page is already playing to a zone.
- An Emergency-All-Call, All-Call, Alarm, or Tone is already playing.

If you attempt to play an emergency announcement to a zone or to **All Speakers**, you will receive a busy signal if any of the following are true:

- An emergency announcement is already playing to the zone or to **All Speakers**.
- An Emergency All-Call is already playing.

If you attempt to play an emergency announcement to a zone or to **All Speakers** that is already playing a non-emergency announcement, an alarm or tone, a page or queued page, or an All-Call, the emergency announcement takes priority. A currently playing non-emergency announcement, alarm or tone, page or queued page, or All-Call will stop playing.

An **Emergency** announcement can be played on a zone while a Normal announcement plays on a different zone. Multiple **Emergency** and **Normal** announcements can be played to different zones (but not to **All Speakers**).

9.2.2 Adding an Announcement

You can upload an announcement, which can be an audio recording, such as a message or tone. The announcement can be scheduled to play at certain times and in certain zones.

Through the Add Announcement page, you can also enter text to be converted into speech provided your Nyquist license allows this option.

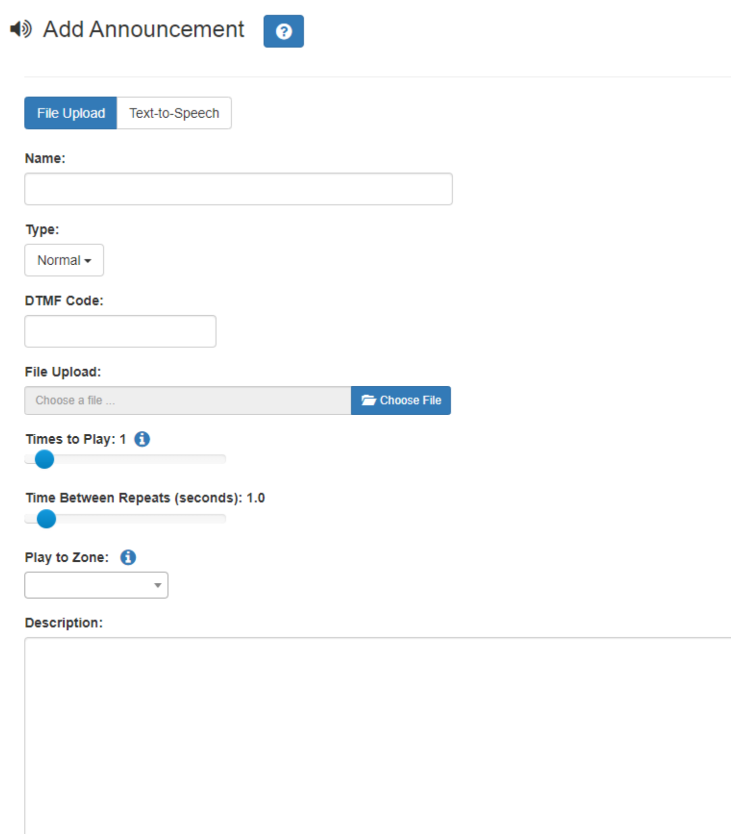


Figure 9-27, Add Announcement Page

To upload an announcement file:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Announcements**.

Step 3 On the Announcements page, select the **Add** icon.

Step 4 Complete the parameters on the Add Announcement page. (See *"Add Announcement Page Parameters" on page 285*.)

Step 5 Select **Save**.

Table 9-11, Add Announcement Page Parameters

Name	Provide a name for the announcement. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Type	Use the drop-down menu to select if the announcement is Normal or Emergency.
DTMF Code	Provide a DTMF code for this announcement to use when manually starting the announcement from an Admin Phone. The number can have from 1 to 10 digits. You cannot assign the same DTMF code to multiple announcements. **Note:** When you record an announcement by dialing *990 or by selecting **Record Announcement** on the Admin phone's **Announce** menu, the initial DTMF Code for the recorded and saved announcement will be set to the announcement's row ID. You can change the DTMF Code after the announcement is saved by editing the announcement in the web interface **Announcements** view. The saved announcement has **Play to Zone** set to blank (no zone selected). This means that when you play an announcement via an IP phone **Announcement** menu selection, you will be asked to enter a zone number (where 0 = All Speakers). You can define a permanent zone number for the saved announcement by updating **Play to Zone** after the recorded announcement has been saved.
File Upload	Select **Choose File**, navigate to the audio file for this announcement, and then select the file. Nyquist supports both WAV and MP3 file formats. **Note:** This option only appears if you have selected the **File Upload** tab.

Table 9-11, Add Announcement Page Parameters (Continued)

Times to Play	Select the number of times the announcement will play. Parameters are between 0 and 10. **Note:** A setting of 0 results in the playing continuously until it is manually stopped via the dashboard.
Time Between Repeats (seconds)	Select the time in seconds between replaying of the announcement. You can select between 0.5 to 5 in 0.5 increments.
Text-To-Speech	Type the text that you want converted to speech for this announcement. Ensure that the **File Upload** parameter is blank. The system will generate a .wav file. **Note:** This field only appears if your Nyquist license allows this option.
Play to Zone	Select either **All Speakers** or a specific zone for this announcement to play. **Note:** If the **Type** for the station is set to **Admin Web Interface**, **Admin Phone**, **IP Phone**, **Analog Phone**, or **Mobile Device** and an **Announcement Zone** was set for the station, the **Announcement Zone** overrides the **Play to Zone**.
Description	Provide a description of the announcement. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.

9.2.3 Using SSML for Text-to-Speech Entries

You can use Speech Synthesis Markup Language (SSML), an XML-based markup language for speech synthesis applications, when typing text that you want converted to speech for announcements. You can use SSML formatting to insert pauses, adjust speech rate, adjust voice pitch, adjust output volume, add emphasis to speech, or spell words phonetically. The following table provides examples of SSML formats that can be used when adding announcements.

Table 9-12, SSML Formats for Text-to-Speech Entries

Insert Silence/Pauses	• This is not <break strength='none' /> a pause.
	• This is a <break strength='x-weak' /> phrase break.
	• This is a <break strength='weak' /> phrase break.
	• This is a <break strength='medium' /> sentence break.
	• This is a <break strength='strong' /> paragraph break.
	• This is a <break strength='x-strong' /> paragraph break.
	• This is a <break time='3s' /> three second pause.
	• This is a <break time='4500ms' /> 4.5 second pause.
	• This is a <break /> sentence break.
Adjust Speech Rate	• I am now <prosody rate='x-slow'>speaking at half speed.</prosody>
	• I am now <prosody rate='slow'>speaking at 2/3 speed.</prosody>
	• I am now <prosody rate='medium'>speaking at normal speed.</prosody>
	• I am now <prosody rate='fast'>speaking 33% faster.</prosody>
	• I am now <prosody rate='x-fast'>speaking twice as fast</prosody>
	• I am now <prosody rate='default'>speaking at normal speed.</prosody>
	• I am now <prosody rate='.42'>speaking at 42% of normal speed.</prosody>
	• I am now <prosody rate='2.8'>speaking 2.8 times as fast</prosody>
	• I am now <prosody rate='-0.3'>speaking 30% more slowly.</prosody>
	• I am now <prosody rate='+0.3'>speaking 30% faster.</prosody>

Table 9-12, SSML Formats for Text-to-Speech Entries (Continued)

Adjust Voice Pitch	• <prosody pitch='x-low'>This is half-pitch</prosody> • <prosody pitch='low'>This is 3/4 pitch.</prosody> • <prosody pitch='medium'>This is normal pitch.</prosody> • <prosody pitch='high'>This is twice as high.</prosody> • <prosody pitch='x-high'>This is three times as high.</prosody> • <prosody pitch='default'>This is normal pitch.</prosody> <prosody pitch='-50%'>This is 50% lower.</prosody> • <prosody pitch='+50%'>This is 50% higher.</prosody> • <prosody pitch='-6st'>This is six semitones lower.</prosody> • <prosody pitch='+6st'>This is six semitones higher.</prosody> • <prosody pitch='-25Hz'>This has a pitch mean 25 Hertz lower.</prosody> • <prosody pitch='+25Hz'>This has a pitch mean 25 Hertz higher.</prosody> • <prosody pitch='75Hz'>This has a pitch mean of 75 Hertz.</prosody>
Adjust Output Volume	• <prosody volume='silent'>This is silent.</prosody> • <prosody volume='x-soft'>This is 25% as loud.</prosody> • <prosody volume='soft'>This is 50% as loud.</prosody> • <prosody volume='medium'>This is the default volume.</prosody> • <prosody volume='loud'>This is 50% louder.</prosody> • <prosody volume='x-loud'>This is 100% louder.</prosody> • <prosody volume='default'>This is the default volume.</prosody> • <prosody volume='-33%'>This is 33% softer.</prosody> • <prosody volume='+33%'>This is 33% louder.</prosody> • <prosody volume='33%'>This is 33% louder.</prosody> • <prosody volume='33'>This is 33% of normal volume.</prosody>
Add Emphasis to Speech	• This is <emphasis level='strong'>stronger</emphasis> than the rest. • This is <emphasis level='moderate'>stronger</emphasis> than the rest. • This is <emphasis level='none'>the same as</emphasis> than the rest.
Spell Words Phonetically	You say <phoneme ph='t ah0 m ey1 t ow0'>tomato</phoneme>, I say <phoneme ph='t ah0 m aa1 t ow0'>tomato</phoneme>

9.2.4 Viewing Announcements

Through the Announcements page, you can view a list of all announcements that are available for scheduling, delete an announcement, and select to edit or add an announcement.

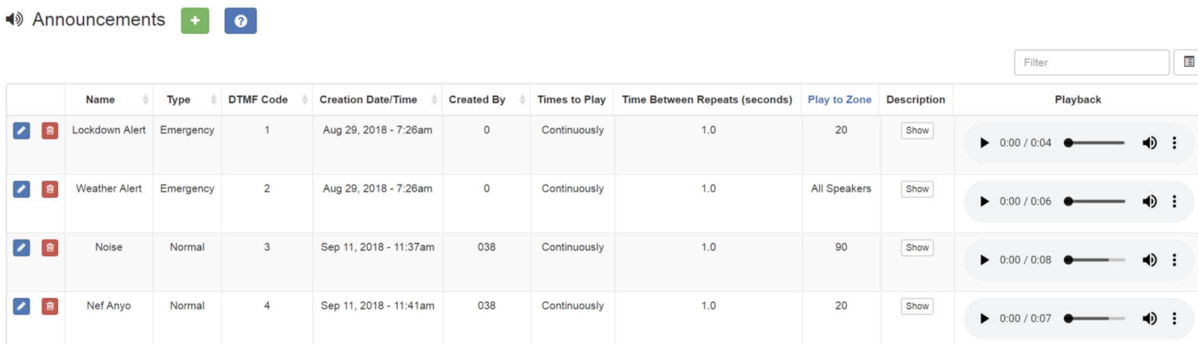


Figure 9-28, Announcements Page

To view a list of all announcements that are available for scheduling:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Announcements**.

The following parameters appear for each announcement file:

Table 9-13, Announcements Page Parameters

Name	Displays the user provided name of the announcement file. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Type	Displays if the announcement is a **Normal** or an **Emergency** announcement.
DTMF Code	Displays the DTMF code used with manual dial pad announcement or tone activation.
Creation Date/Time	Displays when the announcement was created.
Created By	Displays the extension that is to be considered the source of the announcement for CoS considerations.

Table 9-13, Announcements Page Parameters (Continued)

Times to Play	Displays the number of times the announcement will play. This number can range from 0 through 10. **Note:** A setting of 0 results in the announcement playing continuously until it is manually stopped via the dashboard.
Times Between Repeats (seconds)	Displays the time in seconds before replaying the announcement.
Play to Zone	Displays either **All Speakers** or a specific zone for this announcement to play. **Note:** If the **Type** for the station is set to **Admin Web Interface**, **Admin Phone**, **IP Phone**, **Analog Phone**, or **Mobile Device** and an **Announcement Zone** was set for the station, the **Announcement Zone** overrides the **Play to Zone**.
Description	Provides a description of the announcement. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Playback	Allows you to manually play the announcement. Selecting the **Menu** icon and then the down arrow in this field also allows you to download and save the announcement.

9.2.5 Editing Announcements

From the Edit Announcement page, you can edit an audio file's parameters such as times to play.

To edit an announcement:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Announcements**.

Step 3 On the Announcements page, select the **Edit** icon next to the announcement that you want to edit.

Step 4 Make the desired changes.

Step 5 Select **Save**.

Table 9-14, Edit Announcement Page Parameters

Name	Displays the user provided name of the announcement file. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Type	Indicates if the announcement is a **Normal** or an **Emergency** announcement.
DTMF Code	DTMF code for this announcement to use when manually starting the announcement from an Admin Phone. The number can have from 1 to 10 digits. You cannot assign the same DTMF code to multiple announcements. **Note:** When you record an announcement by dialing *990 or by selecting **Record Announcement** on the Admin phone's **Announce** menu, the initial DTMF Code for the recorded and saved announcement will be set to the announcement's row ID. You can change the DTMF Code after the announcement is saved by editing the announcement in the web interface **Announcements** view. The saved announcement has **Play to Zone** set to blank (no zone selected). This means that when you play an announcement via an IP phone **Announcement** menu selection, you will be asked to enter a zone number (where 0 = All Speakers). You can define a permanent zone number for the saved announcement by updating **Play to Zone** after the recorded announcement has been saved.
Created By	Displays the number for the station used to create or download the announcement. **Note:** This field cannot be edited.
Times to Play	Select the number of times the announcement will play. Parameters are between 0 and 10. **Note:** A setting of 0 results in the playing continuously until it is manually stopped via the dashboard.
Times Between Repeats (seconds)	Select the time in seconds between replaying of the announcement. You can select between 0.5 to 5 in 0.5 increments.

Table 9-14, **Edit Announcement Page Parameters (Continued)**

Play to Zone	Select either **All Speakers** or a specific zone for this announcement to play. **Note:** If the **Type** for the station is set to **Admin Web Interface**, **Admin Phone**, **IP Phone**, **Analog Phone**, or **Mobile Device** and an **Announcement Zone** was set for the station, the **Announcement Zone** overrides the **Play to Zone**.
Description	Provides a description of the announcement. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.

9.2.6 Deleting an Announcement

Note: You cannot delete an announcement that is used in a routine with an **Announcement** action **Type** (see *"Understanding Action Parameters" on page 406*).

To delete an announcement that is associated with a schedule, you must delete the schedule announcement first and then delete the announcement. To delete the schedule announcement, see *"Using the Schedule Announcement Feature" on page 239*.

To delete an announcement:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Announcements**.

Step 3 On the Announcements page, select the **Delete** icon next to the announcement that you want to delete.

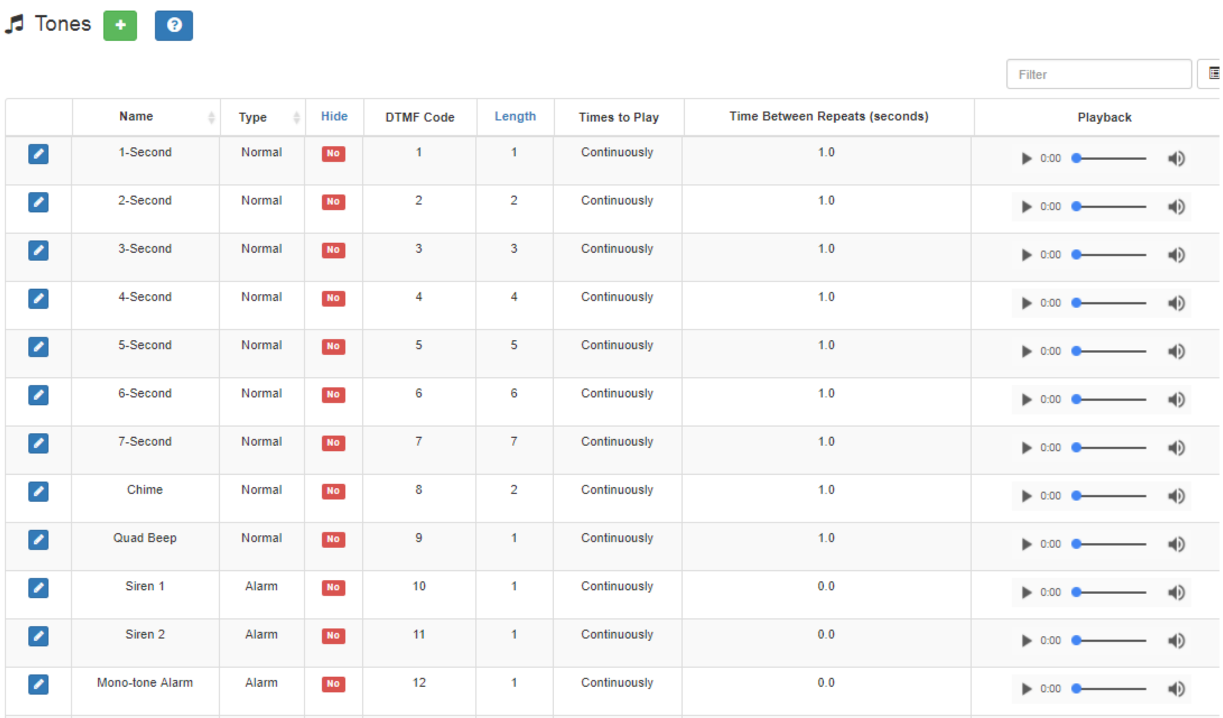
Step 4 When prompted, select **Delete**.

9.3 Managing Tones

Nyquist provides tones that can be used with events, such as schedules, or as audio indicators, such as alarms. You can also download and generate customized tones or select to use a line input channel as the tone source. Default tones include white noise and pink noise that you can use to tune paging volumes for time-based zones. (See "*Tuning Volume with White or Pink Noise" on page 321*.)

9.3.1 Viewing Available Tones

Through the Tones page, you can view a list of available tones, delete user-provided tones, or select to add or edit a tone. You cannot delete a default tone, but you can prevent it from being viewed on the dashboard or on Admin Phones that have a tones/alarms menu. A hidden tone still appears on the Tones page.



Tones

	Name	Type	Hide	DTMF Code	Length	Times to Play	Time Between Repeats (seconds)	Playback
	1-Second	Normal	No	1	1	Continuously	1.0	0:00
	2-Second	Normal	No	2	2	Continuously	1.0	0:00
	3-Second	Normal	No	3	3	Continuously	1.0	0:00
	4-Second	Normal	No	4	4	Continuously	1.0	0:00
	5-Second	Normal	No	5	5	Continuously	1.0	0:00
	6-Second	Normal	No	6	6	Continuously	1.0	0:00
	7-Second	Normal	No	7	7	Continuously	1.0	0:00
	Chime	Normal	No	8	2	Continuously	1.0	0:00
	Quad Beep	Normal	No	9	1	Continuously	1.0	0:00
	Siren 1	Alarm	No	10	1	Continuously	0.0	0:00
	Siren 2	Alarm	No	11	1	Continuously	0.0	0:00
	Mono-tone Alarm	Alarm	No	12	1	Continuously	0.0	0:00

Figure 9-29, Tones Page

To view tones:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Tones**.

The following table describes the tones parameters that appear.

Table 9-15, Tones Page Parameters

Name	Provides a name for the announcement file. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Type	Displays the tone type as Normal or Alarm.
Hide	Specifies if the tone should be hidden from the dashboard view or Admin Phone menu.
DTMF Code	Provides the DTMF code used with manual dial pad announcement or tone activation.
Length	Time in seconds that the tone plays.
Times to Play	Displays the number of times the tone plays. Parameters are 0 to 10. **Note:** A setting of 0 results in the tone playing continuously until it is manually stopped via the dashboard.
Time Between Repeats (seconds)	Displays the time in seconds before the tone is replayed. You can select between 0.5 to 5 in 0.5 increments.
Playback	Allows you to manually play the tone. Selecting the **Menu** icon in this field also allows you to download and save the announcement.

9.3.2 Uploading Tones

Nyquist provides three ways of adding a tone:

- Uploading a file that has been copied to a location on your network, local computer, or to removable media, such as a Flash drive, that you have access to
- Generating a one frequency tone that can be saved (See "*Generating Tones" on page 297*.)
- Selecting a Matrix Mixer Pre-Amp or amplifier and the input channel to generate a tone

In each scenario, you are adding a tone to your Nyquist system that can be used later via either a schedule (see "*Understanding Event Set-*

tings" on page 228*) or manual tone activation (see "*Managing Tones Via the Dashboard" on page 346*).

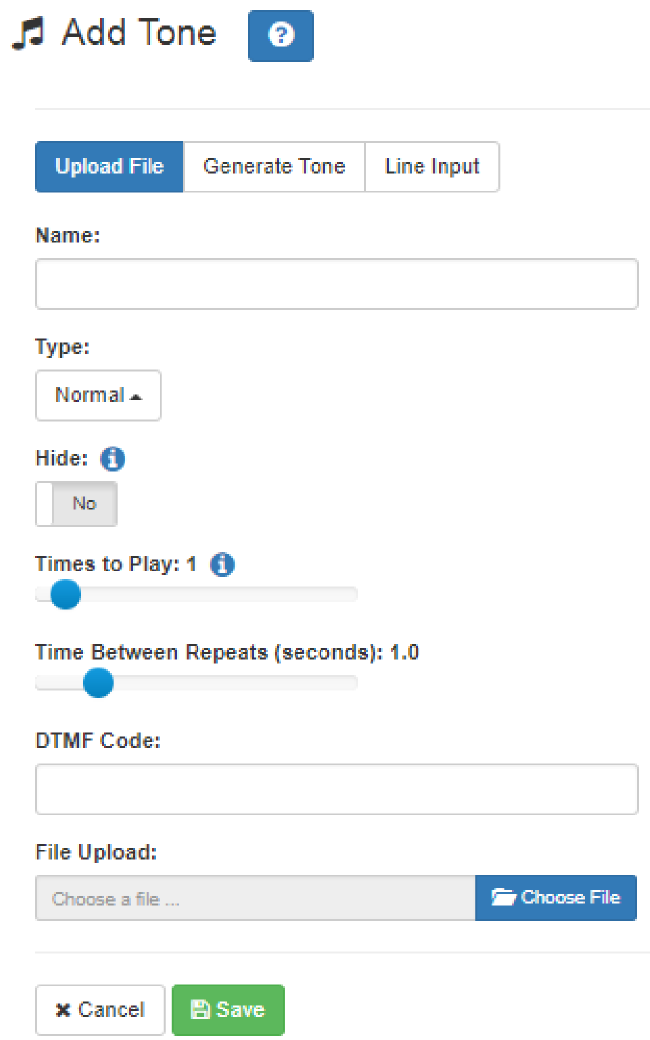


Figure 9-30, Add Tone – Upload File

To upload a tone:

Step 1	On the navigation bar, expand **Audio**.
Step 2	Select **Tones**.
Step 3	On the Tones page, select the **Add** icon.
Step 4	On the Add Tone page, ensure **Upload File** is selected.
Step 5	Complete the parameters.
Step 6	Select **Save**.

Table 9-16, Add Tone Page Parameters (Upload)

Name	Provide a name for this tone. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Type	Use the drop-down menu to select if the tone is **Normal** or **Alarm**.
Hide	Specify if the tone is to be hidden or displayed on the dashboard view.
Times to Play	Select the number of times the tone will play. Parameters are 0 through 10. **Note:** A setting of 0 results in the tone playing continuously until it is manually stopped via the dashboard.
Time Between Repeats (Seconds)	Select the time in seconds between replaying of the tone. You can select between 0.5 to 5 in 0.5 increments.
DTMF Code	Provide the DTMF code used with manual dial pad announcement or tone activation.
File Upload	Select **Choose File**, navigate to the audio file, and then select the file.

9.3.3 Generating Tones

Generating a one frequency tone is another way add a tone if you do not want to use the default tones and do not have a way to upload a tone from a network or removable media location.

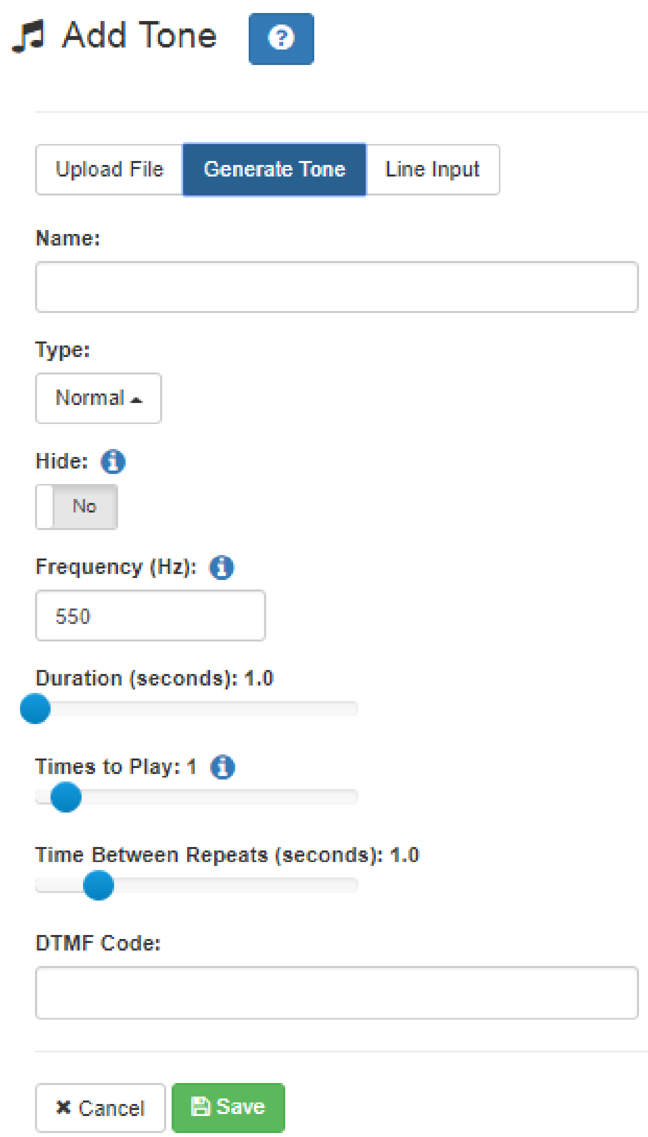


Figure 9-31, Add Tone – Generate Tone

To generate a tone:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Tones**.

Step 3 On the Tones page, select the **Add** icon.

Step 4 On the Add Tone page, select **Generate Tone**.

Step 5 Complete the parameters.

Step 6 Select **Save**.

Table 9-17, Add Tone Page Parameters (Generate)

Name	Provide a name for this tone. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Type	Select if the announcement to follow is a normal or an emergency announcement.
Hide	Specify if the tone is to be hidden or displayed on the dashboard view.
Frequency (Hz)	Enter the frequency for the tone. You can select a frequency from 300 to 2000 Hz.
Duration (seconds)	Enter the time in seconds that the tone is to play.
Times to Play	Select the number of times the file will play. Parameters are 0 through 10. **Note:** A setting of 0 results in the file playing continuously until it is manually stopped via the dashboard.
Time Between Repeats (seconds)	Select the time in seconds between replaying of the file. You can select between 0.5 to 5 in 0.5 increments.
DTMF Code	Provide the DTMF code used with manual dial pad announcement or tone activation.

9.3.4 Using Line Input for Tones

Selecting **Line Input** from the Add Tone page allows you to select a Matrix Mixer Pre-Amp or amplifier channel to use as a source for a tone.

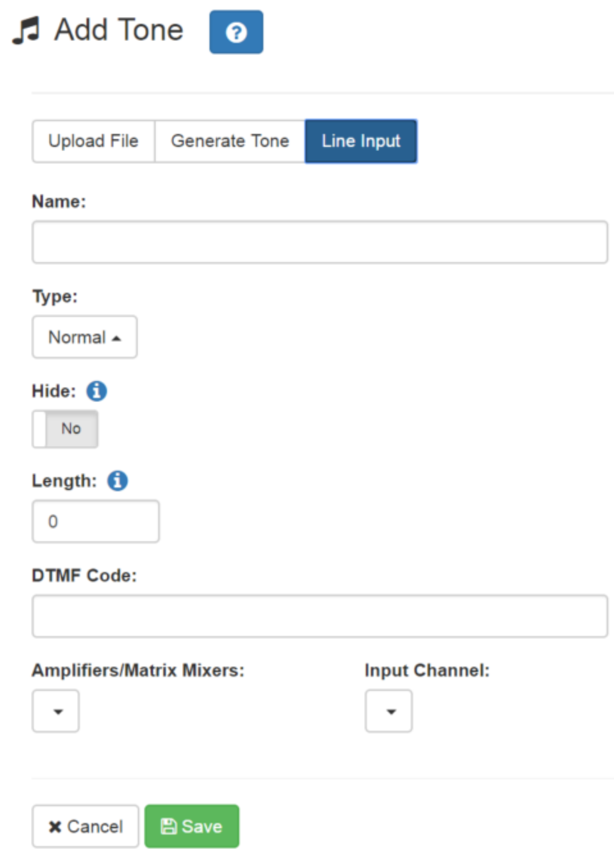


Figure 9-32, Add Tone – Line Input

To add a line input tone:

Step 1	On the navigation bar, expand **Audio**.
Step 2	Select **Tones**.
Step 3	On the Tones page, select the **Add** icon.
Step 4	On the Add Tone page, select **Line Input**.
Step 5	Complete the parameters.
Step 6	Select **Save**.

Table 9-18, Add Tone Page Parameters (Line Input)

Name	Provide a name for this tone. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Type	Select if the announcement to follow is a normal or an emergency announcement.
Hide	Specify if the tone is to be hidden or displayed on the dashboard view.
Length	Enter the number of seconds for the tone to play. The length can range from 0 to 999999. **Note:** A setting of 0 results in the file playing continuously until it is manually stopped via the dashboard.
DTMF Code	Provide the DTMF code used with manual dial pad announcement or tone activation.
Amplifiers/Matrix Mixers	Use the drop-down menu to select the Matrix Mixer Pre-Amp or amplifier and its associated station number.
Input Channel	Specify the matrix channel being used for input.

9.3.5 Editing Tones

You can edit parameters of existing tones, but which parameters can be changed depends on whether the tone is a default tone or a user added tone. For example, you cannot change the **Name** for a default tone, but you can change that parameter for a tone that you added. Some parameters only appear for Line Input tones. You also cannot change the **Type** of a tone if it is used in a routine (see "*Understanding Trigger Parameters" on page 395* and "*Understanding Action Parameters" on page 406*).

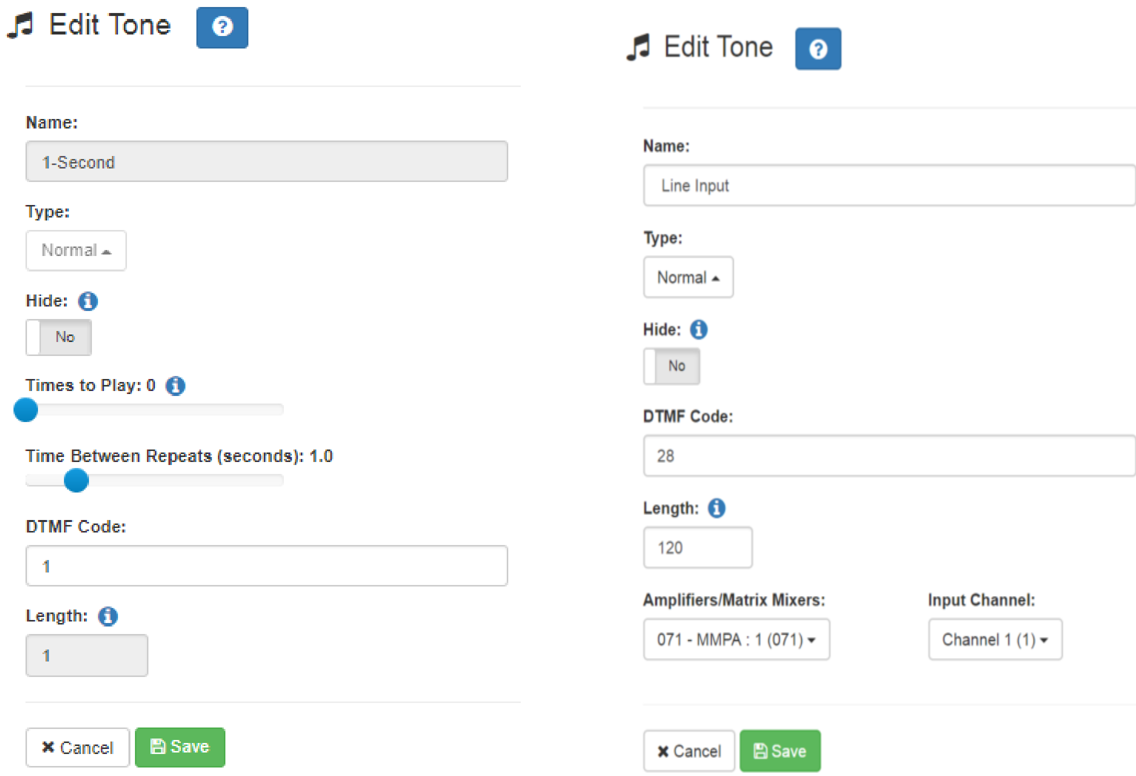


Figure 9-33, Edit Tone Pages

To edit a tone:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Tones**.

Step 3 On the Tones page, select the **Edit** icon.

Step 4 On the Edit Tone page, make changes to the parameters.

Step 5 After completing all changes, select **Save**.

Table 9-19, Edit Tone Page Parameters

Name	Displays the name for this tone. **Note:** This parameter cannot be changed for default system Tones. **Note:** Valid characters include uppercase letters (A-Z), lowercase letters (a-z), numerals (0-9), space, and the following special characters: **!@$*?-.,**.
Type	Use the drop-down menu to select if the tone is Normal or Alarm.
Hide	Specifies if the tone is to be hidden from the dashboard view.
Times to Play	Displays the number of times the tone will play. Parameters are 0 through 10. **Note:** A setting of 0 results in the tone playing continuously until it is manually stopped via the dashboard. This parameter does not appear for Line Input tones.
Time Between Repeats (second)	Displays the time in seconds between replaying of the tone. You can select between 0.5 to 5 in 0.5 increments. **Note:** This parameter does not appear for Line Input tones.
DTMF Code	Provides the DTMF code used with manual dial pad announcement or tone activation.
Length	Provides the length of the tone. **Note:** This parameter cannot be changed except for Line Input tones.
File Upload	Select **Choose File**, navigate to the audio file, and then select the file if you want to choose a new file. **Note:** This parameter only appears for user-provided tones but not for Line Input tones.

Table 9-19, Edit Tone Page Parameters (Continued)

Amplifiers/Matrix Mixers	Specifies the amplifier or Matrix Mixer Pre-Amp and its associated station number. **Note:** This parameter only appears for Line Input tones.
Input Channel	Specifies the matrix channel being used for input. **Note:** This parameter only appears for Line Input tones.

9.3.6 Deleting a Tone

Note: You cannot delete a tone that is used in a routine with a **tone** action **Type** or if the tone is used as an alarm in an **Alarm** action **Type** (see "*Understanding Action Parameters" on page 406*).

You can only delete user added tones.

To delete a tone:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Tones**.

Step 3 On the Tones page, select the **Delete** icon next to the tone that you want to delete.

Step 4 When prompted, select **Delete**.

9.4 Managing Recordings

If your Nyquist systems allow call recording and one or more stations have been configured for recording telephone calls, then you can manage these recordings through Nyquist’s audio file management feature.

For more information about configuring Nyquist for call recording, see "*Using the Edit System Parameters Page" on page 54*. For information about configuring a station for call recording, see "*Station Configuration Page Parameters" on page 107*.

Through the audio file management feature, you can playback an individual call, delete selected recordings, or delete all recordings.

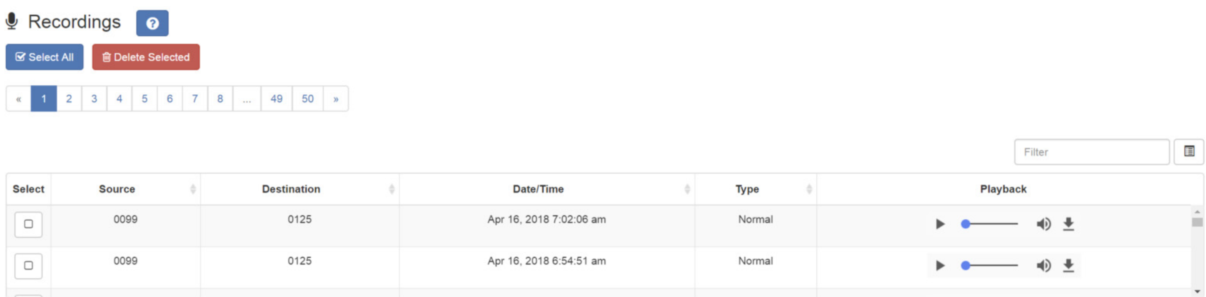


Figure 9-34, Recordings Page

To manage recordings:

Step 1 On the navigation bar, expand **Audio**.

Step 2 Select **Recordings**.

Step 3 To playback a call, select the **Play** button in the Playback column for the call that you want to hear.

Step 4 To delete a selected call or multiple calls, select the check box in the Select column for each call that you want to delete, and then select **Delete Selected**.

Step 5 To delete all calls, select **Select All**, and then select **Delete Selected**.

The Recordings page provides the following information for recorded calls:

Table 9-20, Recordings Page Parameters

Select	Allows you to use the check box to select a call for deletion.
Source	Identifies the extension or number that placed the call.
Destination	Identifies the extension that received the call.
Date/Time	Identifies the date and time that the call was received.
Type	Identifies the type of call, such as Normal.
Playback	Allows you to play the recording.

10 Maintenance and Troubleshooting

Maintenance and Troubleshooting

This section provides detail instructions on several of the Nyquist features that are designed to help maintain and troubleshoot your system.

10.1 Backing Up Your E7000 System and Files

You can create a full system backup of all configuration settings, back up only voice mail files, or back up only recordings. You can also schedule an automatic full system backup. Information backed up during a full system backup includes any custom alarm, tones, announcements, and music files. Phone calls and location recordings are not backed up.

You should do a system backup after a change is made to system programming, including station and zone configuration.

You can set retention periods for each type of backup. (See "*Setting System Parameters" on page 53*.)

10.1.1 Viewing System Backup Files

The System Backup/Restore page allows you to see all backup files available for restore.

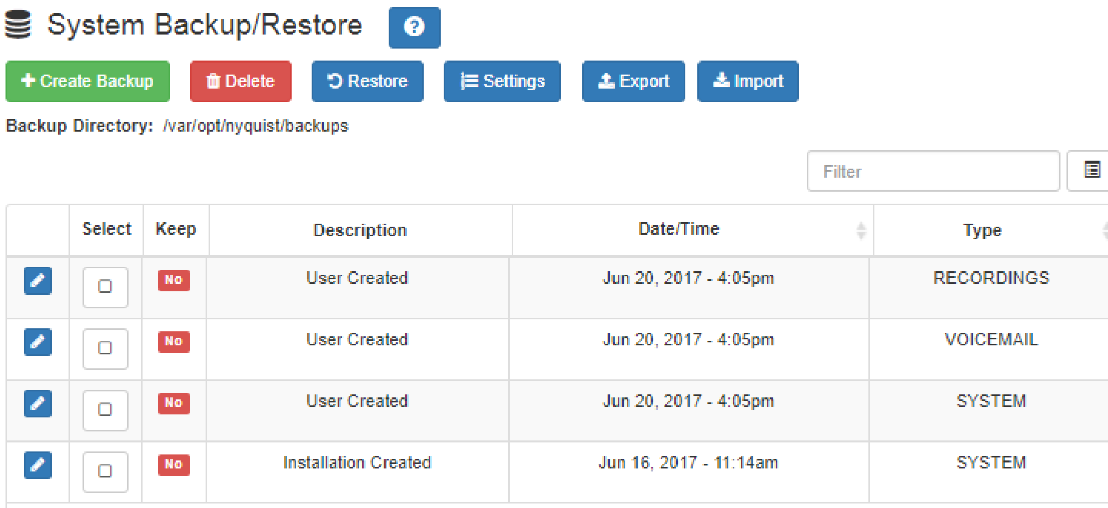


Figure 10-1, System Backup/Restore Page

To view system backup files:

On the navigation bar, select **System Backup/Restore**.

The following table describes the information that appears for each file:

Table 10-1, Viewing Backup File Data

Select	Indicates if the file has been selected for restore, export, edit, or delete.
Keep	Indicates if the backup file is to be kept even if older than the retention period. See "*Using the Edit System Parameters Page" on page 54* for information about setting retention periods of for system, recordings, or voicemail backups.
Description	Indicates if the backup was created by Nyquist or the user.
Date/Time	Provides the month, day, year, and time that the job was created.
Type	Indicates what data was backed up. Options are System, Recordings, and Voicemail.

10.1.2 Creating a Backup File

You can manually create a backup of all system files, voicemail files, or recordings.

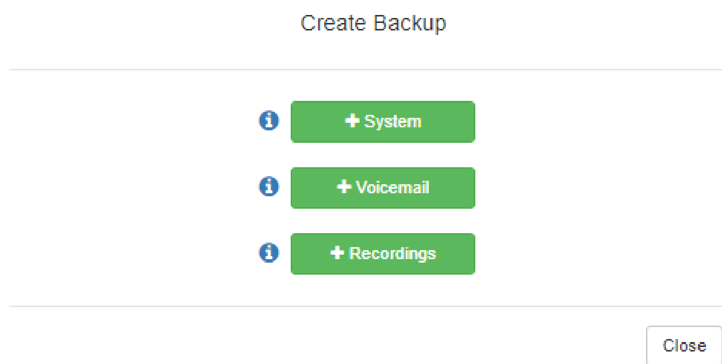


Figure 10-2, Create Backup Page

To create a backup file:

Step 1 On the navigation bar, select **System Backup/Restore**.

Step 2 On the System Backup/Restore page, select **Create Backup**.

Step 3 On the Create Backup popup window, select one of the following options:

•System

•Voicemail

•Recordings

The new backup file appears in the System Backup/Restore list.

10.1.3 Deleting a Backup File

You can delete a single backup file or select to delete multiple backup files. By default, Nyquist does not automatically purge a backup file, even if the file has passed its retention period (see "*Using the Edit System Parameters Page" on page 54*). However, you can select to delete any files; the system will warn you if you select to delete a file marked to keep.

To delete a backup file:

Step 1 On the navigation bar, select **System Backup/Restore**.

Step 2 On the System Backup/Restore page, select the backup file or files that you want to delete.

Step 3 Select **Delete**.

Step 4 When prompted, select **Delete**.

10.1.4 Editing System Backup/Restore Information

You can edit the description of user, system, and installation created backup or restore files.

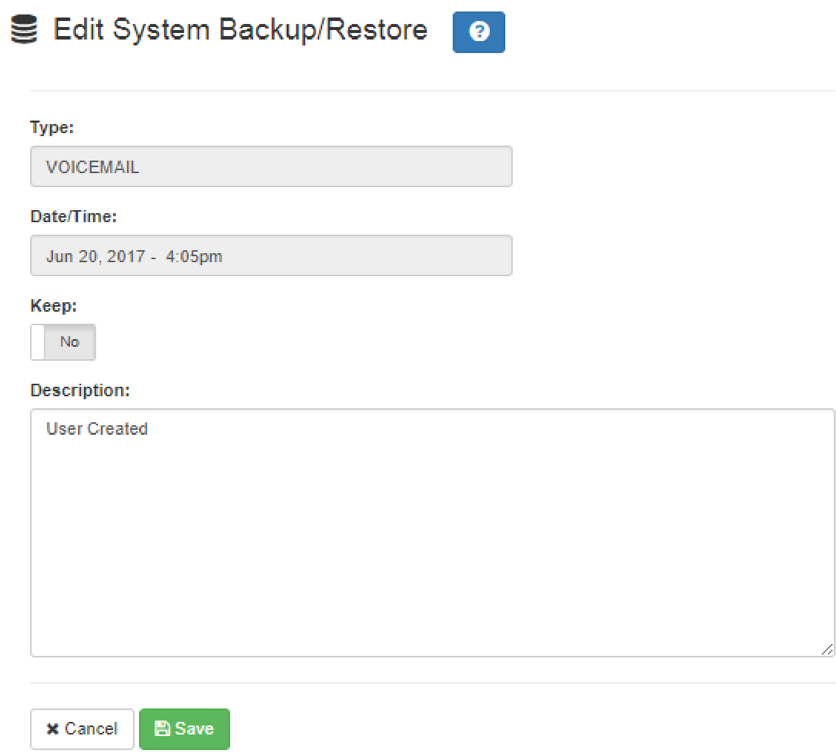


Figure 10-3, Edit System Backup/Restore Page

To edit the file's description:

Step 1 On the navigation bar, select **System Backup/Restore**.

Step 2 On the System Backup/Restore page, select the **Edit** icon next to the desired file.

Step 3 Edit the description.

Step 4 Select **Save**.

Table 10-2, Edit System Backup/Restore Parameters

Type	Displays the file type, such as **FULL** for a full backup. This parameter cannot be edited.
Date/Time	Displays the date and time that the file was created. This parameter cannot be edited.
Keep	Select **Yes** if you want to have Nyquist keep the file even if the retention period has expired. Nyquist keep at least one backup file even if the retention period has expired.
Description	Provides a system or user provided description. By default, the description is **User Created** for user created backup or restore files, **System Created** for backups automatically created based on specified settings, or **Installation Created** for backups created via the installation process

10.1.5 Editing Backup Settings

Backup settings allow you to schedule an automatic backup and set specific backup parameters for system backups, including the backup directory where the files will be stored.

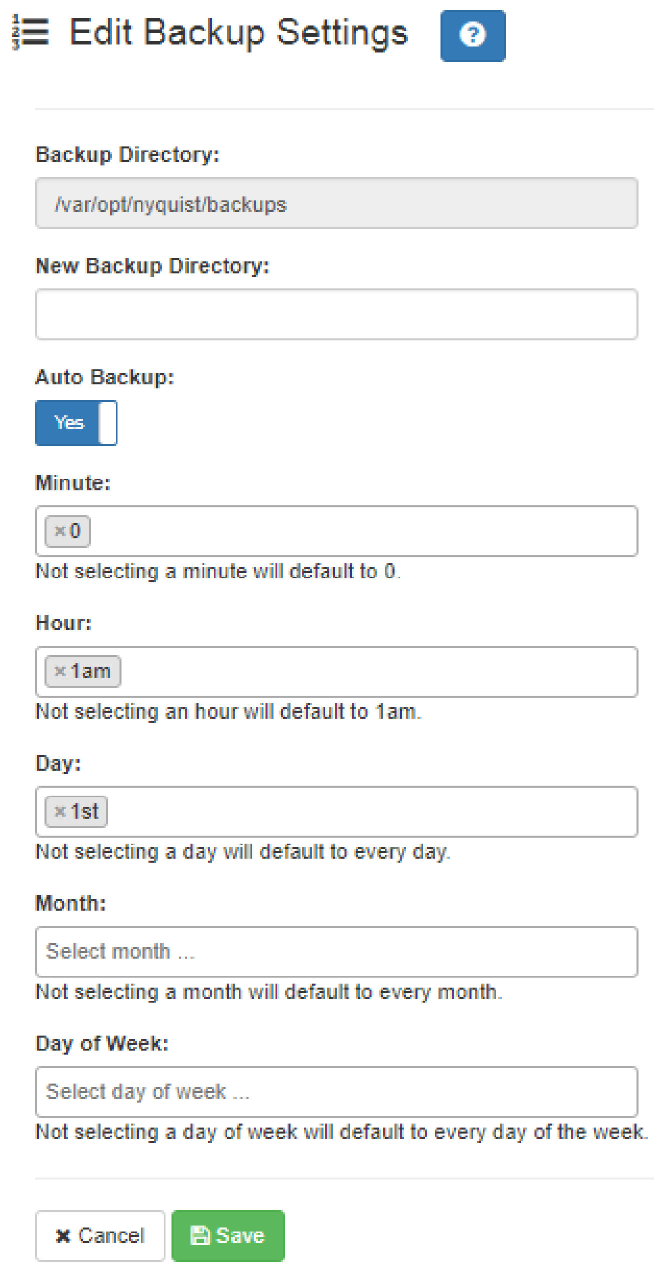


Figure 10-4, Edit Backup Settings Page

To edit backup settings:

Step 1	On the navigation bar, select **System Backup/Restore**.
Step 2	On the System Backup/Restore page, select **Settings**.
Step 3	Make desired changes.
Step 4	Select **Save**.

Table 10-3, Backup Settings Page Parameters

Backup Directory	Displays current path for backup file.
New Backup Directory	Enter new path for backup file, if applicable.
Auto Backup	Indicates if the backup is to be automatically generated.
Minute	Specifies the minute the backup job runs. If you do not select a minute, the system defaults to 0.
Hour	Specifies the hour that the backup job runs. Selections are formatted with the hour and either am or pm. The default setting is 1 am.
Day	Specifies the day of the month that the backup job runs. The system defaults to every day.
Month	Specifies the month the job is to run. The system defaults to every month.
Day of the Week	Specifies the day of the week that the job is to run. The system defaults to every day.

10.1.6 Exporting a Backup File

You can export a backup file as a .gz file, which can be stored on the Admin Station or downloaded to removable media, such as a thumb drive, to be stored off site.

To export a backup file:

Step 1	On the navigation bar, select **System Backup/Restore**.
Step 2	On the System Backup/Restore page, select the backup file that you want to export.
Step 3	Select **Export**.

Once saved, an **Excel** icon with the downloaded report name appears in the lower left section of the Windows or MAC OS X web browser window, giving you the option to open the report. For Android devices, files are automatically downloaded and saved to the device's Download folder.

10.2 Restoring a Backup File

> **Note:** System backups created by older versions of the System Controller software are not compatible with the newer releases and should **not** be used to restore configuration data.

You can restore the facility configuration to that saved during a system backup. You can also restore voicemail or recordings back-ups.

To restore a file:

Step 1	On the navigation bar, select **System Backup/Restore**.
Step 2	On the System Backup/Restore page, select the backup file that you want to restore.
Step 3	Select **Restore**.
Step 4	When prompted, select **Restore**.

10.2.1 Importing a Backup File

You can import a backup file that was previously exported. You can then select to restore this file.

To import a backup file:

Step 1	On the navigation bar, select **System Backup/Restore**.
Step 2	On the System Backup/Restore page, select **Import**.
Step 3	Select **Choose file**, and then navigate to the backup file that you want to import.
Step 4	Select **Open**.
Step 5	Select **Import**.

10.3 Using System Log Files

A log file records either events or messages that occur when software runs and is used when troubleshooting the system. The following parts of the Nyquist system generate log files:

- Server (This provides access to the Debian Linux OS server log files.)
- Nyquist E7000 (This provides access to the Nyquist application log files.)
- Web Server (This provides access to the web server log files.)

From the web-based UI, system logs can be viewed directly or exported via download to your PC, Mac, or Android device and then copied to removable media or attached to an email to technical support.

Table 10-4, System Logs

File	Description
Server	
mysql.log	Contains a general record of what mysql is doing (connect, disconnect, queries).
btmp	Contains information about failed login attempts.
auth.log	Contains system authorization information, including user logins and authentication methods that were used.
messages	Contains global system messages, including the messages that are logged during system startup. Items logged in the messages file include cron, daemon, kern, auth, and so on.
debug	Contains errors and debug information.
daemon.log	Contains information logged by the various background daemons that run on the system.
alternatives.log	Contains information by the update-alternatives, which maintain symbolic s determining default commands.

Table 10-4, System Logs (Continued)

File	Description
mysql.err	Contains a record of mysql errors that occur when the server is running.
dpkg.log	Contains information that is logged when a package is installed or removed using dpkg command.
dmesg	Contains kernel ring buffer information. When the system boots up, the screen displays information about the hardware devices that the kernel detects during the boot process. These messages are available in the kernel ring buffer, and whenever a new message comes, the old message gets overwritten.
user.log	Contains information about all user level logs.
fontconfig.log	Logs use of fontconfig program to configure or substitute fonts to other programs.
kern.log	Contains information logged by the kernel and recent login information for all users.
syslog	Contains list of errors that occur when the server is running and server start and stop records.
lastlog	Contains information on the last login of each user.
aptitude	Records information about packages installed or upgraded on the server.
faillog	Contains user failed login attempts.
wtmp	Contains historical record of users logins at which terminals, logouts, system events, and current status of the system, and system boot time
Nyquist E7000	
checkin	Contains historical record of actions that occurred during a Check-In (see *"Check-In Log and Call Detail Records" on page 458*).

Table 10-4, System Logs (Continued)

File	Description
messages	Contains messages generated by E7000.
Web Server	
error.log	Contains information about errors that the web server encountered when processing requests, such as when files are missing.
other_vhosts_access.log	Contains access records for vhosts that don't define their own logfiles.
access.log	Contains access records for the web server.
checkin.log	Contains events recorded for the Station Check-In process. These include times and data for Check-In Start, Stop, Reset, Done, Vacancy Add, Vacancy Delete, and individual stations’ Check-in.

10.3.1 Viewing System Log Files

You can view a specific log for the Linux server, Nyquist server, or web server.

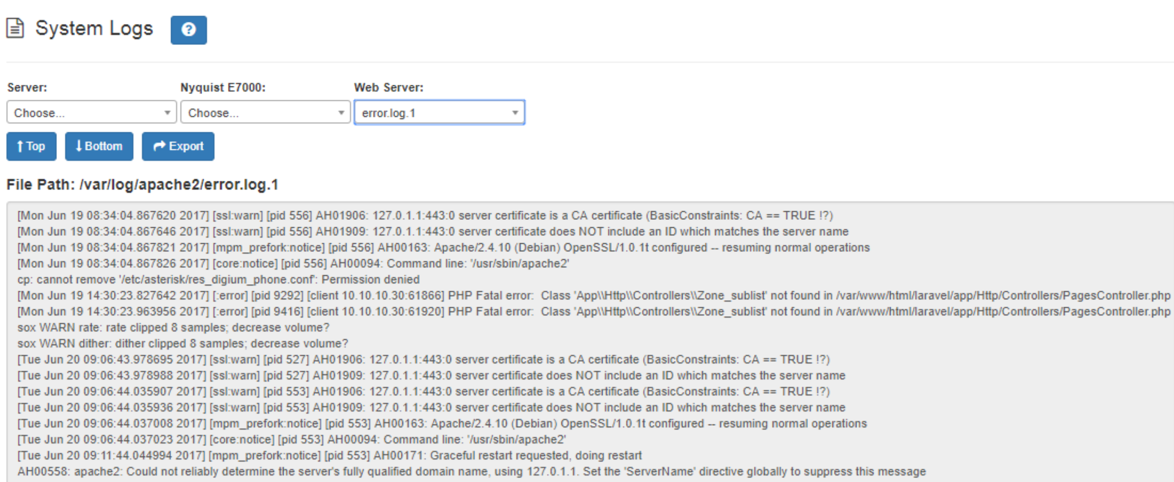


Figure 10-5, System Logs

To view a log file:

Step 1 On the navigation bar, select **System Logs**.

Step 2 Use the drop-down menu of the desired server to select the specific log file that you want to view.

The file path and contents appear on the System Logs page.

10.3.2 Exporting a Log File

To export a log file:

Step 1 On the navigation bar, select **System Logs**.

Step 2 Use the drop-down menu of the desired server to select the log file that you want to export.

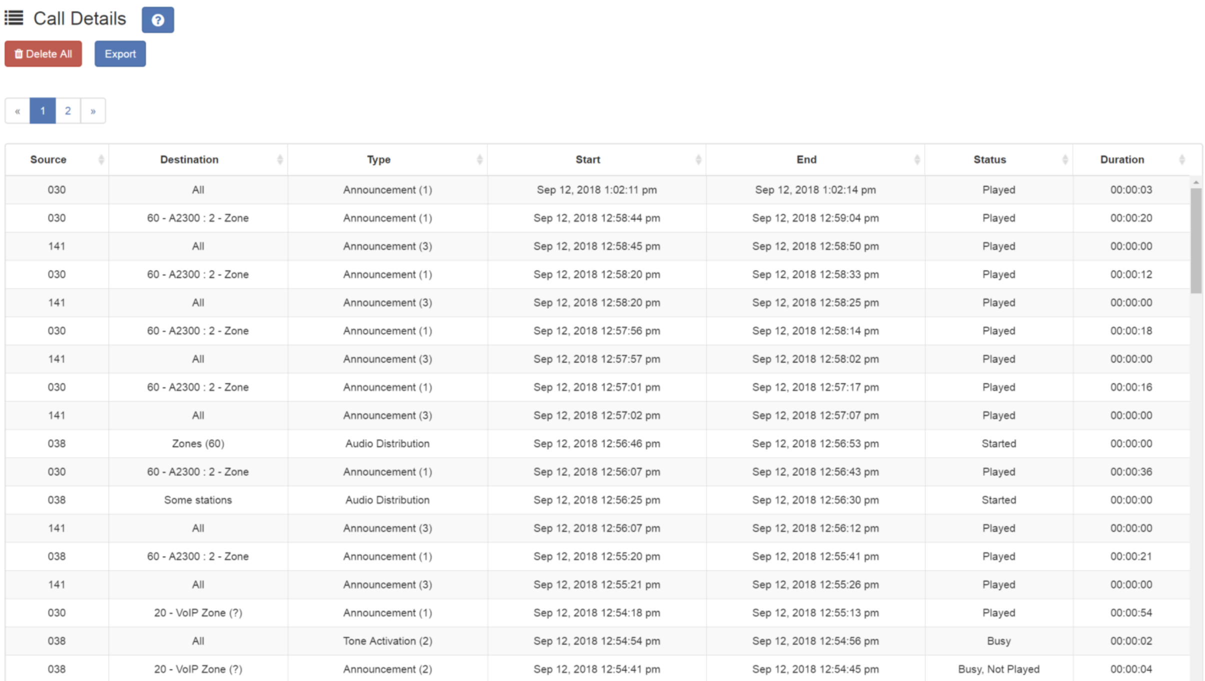
Step 3 Select **Export**.

When the Save As dialog box appears, you can select where to download or save the log file.

Once saved, an **Excel** icon with the downloaded report name appears in the lower left section of the Windows or MAC OS X web browser window, giving you the option to open the report. (See "*Exporting a Report" on page 32*.) For Android devices, files are automatically downloaded and saved to the device's Download folder.

10.4 Using the Call Details Feature

The Call Details feature allows you to view or print detail records of every call in a facility in a call log format. Calls include scheduled announcements, paging, and internally and externally made or received telephone calls.


Call Details
Delete All
Export
« 1 2 »

Source	Destination	Type	Start	End	Status	Duration
030	All	Announcement (1)	Sep 12, 2018 1:02:11 pm	Sep 12, 2018 1:02:14 pm	Played	00:00:03
030	60 - A2300 : 2 - Zone	Announcement (1)	Sep 12, 2018 12:58:44 pm	Sep 12, 2018 12:59:04 pm	Played	00:00:20
141	All	Announcement (3)	Sep 12, 2018 12:58:45 pm	Sep 12, 2018 12:58:50 pm	Played	00:00:00
030	60 - A2300 : 2 - Zone	Announcement (1)	Sep 12, 2018 12:58:20 pm	Sep 12, 2018 12:58:33 pm	Played	00:00:12
141	All	Announcement (3)	Sep 12, 2018 12:58:20 pm	Sep 12, 2018 12:58:25 pm	Played	00:00:00
030	60 - A2300 : 2 - Zone	Announcement (1)	Sep 12, 2018 12:57:56 pm	Sep 12, 2018 12:58:14 pm	Played	00:00:18
141	All	Announcement (3)	Sep 12, 2018 12:57:57 pm	Sep 12, 2018 12:58:02 pm	Played	00:00:00
030	60 - A2300 : 2 - Zone	Announcement (1)	Sep 12, 2018 12:57:01 pm	Sep 12, 2018 12:57:17 pm	Played	00:00:16
141	All	Announcement (3)	Sep 12, 2018 12:57:02 pm	Sep 12, 2018 12:57:07 pm	Played	00:00:00
038	Zones (60)	Audio Distribution	Sep 12, 2018 12:56:46 pm	Sep 12, 2018 12:56:53 pm	Started	00:00:00
030	60 - A2300 : 2 - Zone	Announcement (1)	Sep 12, 2018 12:56:07 pm	Sep 12, 2018 12:56:43 pm	Played	00:00:36
038	Some stations	Audio Distribution	Sep 12, 2018 12:56:25 pm	Sep 12, 2018 12:56:30 pm	Started	00:00:00
141	All	Announcement (3)	Sep 12, 2018 12:56:07 pm	Sep 12, 2018 12:56:12 pm	Played	00:00:00
038	60 - A2300 : 2 - Zone	Announcement (1)	Sep 12, 2018 12:55:20 pm	Sep 12, 2018 12:55:41 pm	Played	00:00:21
141	All	Announcement (3)	Sep 12, 2018 12:55:21 pm	Sep 12, 2018 12:55:26 pm	Played	00:00:00
030	20 - VoIP Zone (?)	Announcement (1)	Sep 12, 2018 12:54:18 pm	Sep 12, 2018 12:55:13 pm	Played	00:00:54
038	All	Tone Activation (2)	Sep 12, 2018 12:54:54 pm	Sep 12, 2018 12:54:56 pm	Busy	00:00:02
038	20 - VoIP Zone (?)	Announcement (2)	Sep 12, 2018 12:54:41 pm	Sep 12, 2018 12:54:45 pm	Busy, Not Played	00:00:04

Figure 10-6, Call Details Page

10.4.1 Viewing Call Detail Records

To view the call detail records for the facility:

On the navigation bar, select **Call Details**.

The following table describes the Call Details parameters:

Table 10-5, Call Details Page Parameters

Source	Provides the extension where the call originated or the station that recorded a page for page queuing.
Destination	Provides the extension where the call is directed, the zone selected for page queuing, or the zone selected for a zone announcement. A **Destination** of **None entered** means that an invalid zone was entered.
Type	Provides the type of call, such as Emergency Call, Admin Call, Announcement, and so on.
Start	Provides the date and time that the call began.

Table 10-5, Call Details Page Parameters (Continued)

End	Provides the date and time that the call ended.
Status	Provides information about whether the call was answered or not answered. For queued pages, the status could be: • **Played** – Page was successfully recorded and was played to the specified zone. • **Queued** – Page was successfully recorded and is queued for playing to the specified zone. • **Not Recorded** – Either zone was not defined or the user hung up without pressing # after the recording. • **Timed Out** – Page timed out and was not saved either because there was more than 60 seconds of silence or because the recording exceeded 60 minutes in length. • **Requeued** – Page message was interrupted while being played and was returned to the queue.
Duration	Provides the number of hours, minutes, and seconds that the call lasted.

10.4.2 Exporting and Printing a Call Log

To export and print a call details report:

Step 1 On the navigation bar, select **Call Details**.

Step 2 Select **Export**.
When the Save As dialog box appears, you can name the report and select where the report is to be downloaded or saved. The default name is call_details_(date in the yyyymmddhhhmmss format).csv.

Step 3 On the lower left of the page, select the Excel spreadsheet.

Step 4 On the Excel spreadsheet, select **Page Layout** and set the desired parameters.

Step 5 Select **File**, and then select **Print**.

For more Excel parameters, refer to the Microsoft documentation or Microsoft Help.

10.4.3 Deleting All Call Records

To delete all call detail records:

Step 1 On the navigation bar, select **Call Details**.

Step 2 Select **Delete All**.

Step 3 When prompted, select **Delete**.

10.5 Tuning Volume with White or Pink Noise

Nyquist provides white noise and pink noise files to help tune, or adjust, the volume of speakers in a zone.

White noise has equal energy for each frequency that the human ear can hear. Pink noise sounds less harsh than white noise because humans hear in octaves (the doubling of a frequency band). The energy in pink noise decreases by half as the frequency doubles, making the noise sound more balanced.

Both white and pink noise files are provided by default in Nyquist as both tones and songs. You can use the tone files as a tone generator to help adjust volume and frequency for pages in time-based zones. You can use the song files to help adjust volume and frequency in audio zones that play audio distribution.

Remember that when creating, editing, or viewing a zone, the **Type** identifies the zone as being able to receive paging, time, audio, or a combination of paging, time, or audio. (See "*Viewing Zone Information" on page 168*.)

To launch a white noise or pink noise file as a tone, follow the steps listed in "*Managing Tones Via the Dashboard" on page 346*, selecting either the White Noise or Pink Noise file.

To play a white noise or pink noise file to a zone that plays audio distribution, first create a playlist that contains the white or pink noise song (see "*Creating a Playlist" on page 259*) and then follow the steps listed in "*Using Audio Distribution" on page 353* to launch the audio distribution.

If the zone can receive a combination of paging, time, and audio, you should use both the tone files and the song files to tune the speaker volume.

10.6 Troubleshooting Common Issues

The following table provides some possible causes and solutions for common Nyquist issues.

Table 10-6, Common Issues

Issue	Possible Cause	Possible Solution
Day calls are not being routed to the proper Admin Station.	The system parameters that affect day calls being routed to an Admin Station may be incorrectly set.	On the navigation bar, select **System Parameters**, and then review the Day Start time. If the time is not properly set to when the Admin Station should receive the day calls, select the **Edit** icon and enter the correct time for Day Start.
Night calls are not being routed to the proper Admin Station.	The system parameters that affect night calls being routed to an Admin Station may be incorrectly set.	On the navigation bar, select **System Parameters**, and then review the Night Start time. If the time is not properly set to when the Admin Station should receive the day calls, select the **Edit** icon and enter the correct time for Night Start.

Table 10-6, Common Issues (Continued)

Issue	Possible Cause	Possible Solution
The Nyquist server is not getting the correct date and time.	Either the Network Time Server being used is incorrect or the server date and time is incorrect.	On the navigation bar, select **System Parameters**, and then review the parameters set for the NTP server and for the server date/time. Select the **Edit** icon and make any necessary changes.
An extension is not able to initiate non-emergency calls during the day.	The station may not have the correct CoS assigned to allow Normal+Emergency calls.	On the navigation bar, select **CoS Configuration**. Note which configurations allow a Call in Level of Normal+Emergency. Next, select **Stations**, navigate to the station's extension number, and then use the slider to determine what the station's Day CoS is. If the station's Day CoS does not allow the correct Call in Level, select the **Edit** icon, and then select a CoS configuration that has the correct Call in Level.

Table 10-6, Common Issues (Continued)

Issue	Possible Cause	Possible Solution
The station is not receiving Audio Distribution.	The station is on the Paging Exclusion list.	Remove the station from the Paging Exclusion list. (See "*Excluding Stations from Paging" on page 162*.)
	The station is not a member of audio distribution zone.	Add the station to an audio distribution zone. (See "*Editing Zone Configuration" on page 173*.)
	The station's **Multicast Audio Distribution** parameter is disabled.	Enable the station's **Multicast Audio Distribution** parameter. (See "*Editing Station Configuration Settings" on page 118*.)
	Multicast IP packets are being blocked or not routed.	Ensure that multicast IP packets are flowing between the Nyquist server and Nyquist stations.
When the button on the DCS is touched, the DCS's LED changes from solid blue to solid green as if a normal call is being made. However, no call is made.	The DCS may be attached to a device that is not configured to support the **Digital Call Switch & Speaker** station **Type**.	Determine what **Device Type** the DCS is attached to and use the Stations list to determine if the **Type** is set as **Digital Call Switch & Speaker**. (See "*Viewing Station Configuration Settings" on page 106*.)

10.7 Dashboard Messages

The Admin web UI dashboard and the Admin Phone display error, warning, and information messages during Nyquist operations. Error and warning messages include notices that an operation failed and information about why the failure occurred. You can delete these messages if a Delete icon appears, but you may want to note the error and pass the information about the error to system administrator or information technology personnel.

Informational messages often provide status about an operation or condition and are usually cleared automatically when an operation completes. The following table describes the informational messages that may appear:

Table 10-7, Dashboard Informational Messages

Message	Meaning
Alarm active (<extension>): <alarm-name>	The listed extension is launching at alarm.
Tone active (<extension>): <tone-name>	The listed extension is launching a tone.
Page active (<extension>): Zone: <zone-number> - <zone-name>	The listed extension is launching a page for the listed zone.
Announcement active (<extension>): <announcement-name>	The listed extension is launching the listed announcement.
Emergency Announcement active (<extension>): <e-announcement-name>	The listed extension is launching the listed emergency announcement.
All-Call active (<extension >)	The listed extension is launching an All-Call page.
Emergency All-Call (<extension>)	The listed extension is launching an Emergency All-Call page.
Scheduled Announcement active	A scheduled announcement is playing.
Multi-Site Emergency All-Call active (<extension>)	The listed extension is launching a multiple site Emergency All-Call page.
Multi-Site All-Call active (<extension>)	The listed extension is launching a multiple site All-Call page.
Facility All-Call active (<extension>) -> <facility-name>	The listed extension is launching a facility-wide All-Call page.

Table 10-7, Dashboard Informational Messages (Continued)

Message	Meaning
Audio Distribution: Playing <song-name> to Zone (<zone-number(s)>)	The Audio Distribution feature is playing the listed song to the listed zone. The message may optionally include "and All Speakers" or "and selected stations."
Audio Enabled	Audio (paging, Scheduled Audio, audio distribution) is enabled. See *"Enabling and Disabling Audio" on page 356* for more information.
Audio Disabled	Audio (paging, Scheduled Audio, audio distribution) is disabled. See *"Enabling and Disabling Audio" on page 356* for more information.
System is running in demonstration mode	All Nyquist functions are enabled but the maximum station count is set to 6 and the maximum number of simultaneous calls is set to 2.

User-created messages set up for I/O Controller rules also appear on the dashboard. See *"Configuring I/O Controller Input Rules" on page 126* and *"Configuring I/O Controller Output Rules" on page 130* for additional information.

10.7.1 911 Call Errors

The following errors may occur when an extension attempts to place a 911 call:

- Call to 911 from <extension> failed due to no outbound lines available.
- Call to 911 from <extension> failed due to no 911 access.

The first message means that all outbound lines from the facility are currently busy. To prevent this error from occurring, set the **Bump on 911** system parameter to **Yes**. (See *"Using the System Parameters Page" on page 24*.) You also want to ensure that outside line access is enabled. (See *"Editing Outside Lines" on page 87*.)

If the second error message appears, then the station, or extension, attempting to make the 911 call does not have the 911 Route parameter and Outside Access parameters correctly set. (See *"Editing Station Configuration Settings" on page 118*.)

10.7.2 Maximum Concurrent Call Error

If you reach your maximum concurrent call limit, the following error message appears:

Maximum concurrent calls reached. Contact Customer Service to increase maximum concurrent calls limit.

In this case, calls include telephone calls, pages, tones, alarms, and announcements.

To view the concurrent call limit set for your system:

From the navigation bar, select **System Parameters**.

The limit is based on your licensing set up and can only be changed by contacting Customer Service.

If you are using the Record Page feature, you must be below your concurrent calls limit by two calls for the page to play. Otherwise, the page remains in the queue.

10.7.3 Equipment Errors

The following table describes equipment error messages that may appear:

Table 10-8, Equipment Related Errors

Error	Cause
NOTICE: Server was restarted due to error. Contact Technical Support.	The server probably experienced a crash. Contact Technical Support to ensure that the crash did not cause any issues. Note that the server may also restart during an install or upgrade.
<date time> Extension <extension number> not available, check device status.	You may be experiencing connectivity issues that prevents the station from being registered with the Nyquist server. You may want to reboot the device to see if that takes care of the problem.

Table 10-8, Equipment Related Errors (Continued)

Line-Input busy (Matrix Mixer: <mixer extension>. Channel: <mixer channel number>.	You are attempting to use an input channel that is already in use.
WARNING: I/O Controller - <name> (<controller extension>) is Unavailable.	If it is listed as unavailable, the device is not registered with the Nyquist server.
WARNING: I/O Controller - <name> (<controller extension>) is Unknown.	The server is unable to determine the state of the device.
WARNING: I/O Controller - <name> (<controller extension>) is Unreachable.	The device is registered with the Nyquist server but cannot be reached (communication to device fails). This situation is probably due to a network or cable issue or the device is rebooting.

10.7.4 Facility Error Conditions

If you cannot reach a facility that is listed and enabled in the Facilities list, the following error messages appear on the Admin dashboard or the Bogen Admin IP phone:

- WARNING: Not registered with Facility: <Facility-Name>
- WARNING: Remote Facility not registered: <Facility-Name>
- WARNING: Remote facility not registered with this Facility: <Facility-Name>

Error messages also appear when multi-site and facility calls are initiated but cannot be completed due to issues with the remote facility.

To troubleshoot these error messages:

Step 1 On the navigation bar, select **Facilities**.

Step 2 Ensure the **Status** for the facility appears as **Enabled** and that the following facility parameters are correct:

- Password
- Name
- Host (Host Name or IP address)

Step 3 If parameters are incorrect, select the **Edit** icon for the facility and make the necessary changes. (See "*Editing a Facility" on page 102*.)

In addition to performing the troubleshooting steps through the Nyquist Admin Web UI, do the following:

- Check for network issues (Local Area Network (LAN), Wide Area Network (WAN), VLAN, ports) that are preventing facility servers from communicating with each other.
- Ensure that you can access and operate the remote Nyquist facility server by logging on to the Admin Web UI for that server and attempting to initiate a call or page.

11 Performing Tasks Via the Dashboard

Performing Tasks Via the Dashboard

> **Note:** This section is intended as a quick operations guide for personnel who use the E7000 dashboard. For information about launching routines, refer to "*Using Routines" on page 381*. For information about managing Check-In, refer to "*Manage Check-In" on page 447*.

You can use the dashboard for most daily tasks, such as:

- Launching intercom pages
- Recording pages
- Starting or stopping alarms, tones, or announcements
- Placing, answering, or disconnecting telephone calls
- Using page exclusion
- Viewing the schedules for the week
- Performing audio distribution
- Managing display messages
- Managing check-in
- Launching routines

Note: For information about managing display messages, see "*Managing Display Messages" on page 437*. For information about launching routines, see "*Using Routines" on page 381*. For information about managing check-in, see "*Manage Check-In" on page 447*.

What items appear on your dashboard depends on your assigned permissions and the station's CoS. (See "*Managing Roles and Users" on page 199* and "*Using CoS Configuration" on page 63*.)

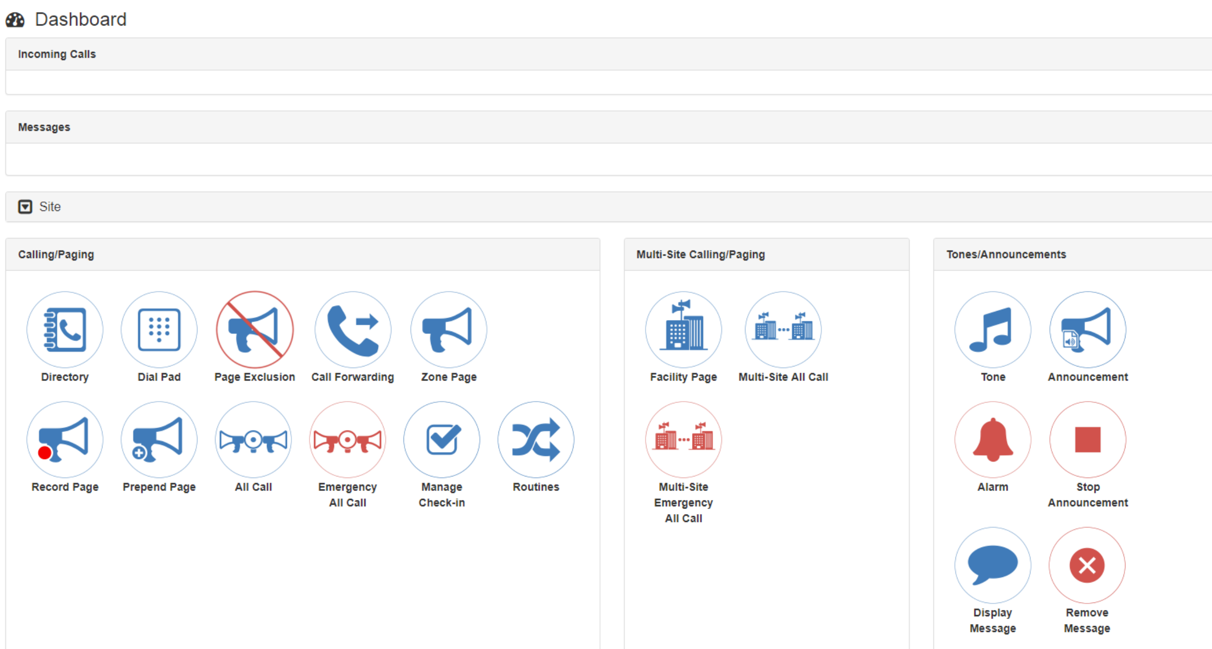


Figure 11-1, Nyquist Dashboard

11.1 Launching Pages

Depending on how your Nyquist system is set up, you can launch Normal, All Call, and Emergency All Call pages for a specific zone, the entire facility, or multiple sites. You can also select an announcement to play before you make a page.

11.1.1 Single-Zone Paging

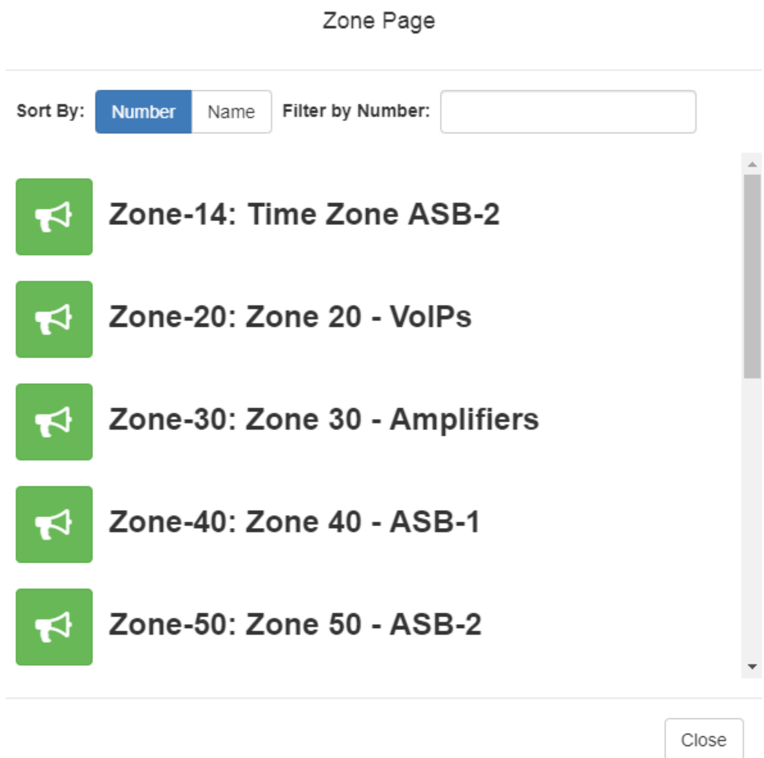


Figure 11-2, Paging Single Zone

To make a single-zone page via the dashboard:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Under Calling/Paging, select **Zone Page**.

Step 3 On the Zone Page popup, select the zone that you want to page.

Note: You can sort the zones by Name or Number.	

Step 4 If you must enter a password to complete this task, select **Dial Pad** and enter the 4-digit password.

Step 5 If prompted, enter 1 for confirmation.

Step 6 If prompted, allow Nyquist to use the microphone associated with your station.

Warning	**If you turn off the microphone on your computer, then you cannot launch audio distribution, tones, alarms, and so on. When attempting to making a call with the computer's microphone turned off, Nyquist automatically hangs up the call. If you make a second call, the dashboard displays a message that the phone is in use. Also, when the microphone is off and a bell tone comes in, Nyquist rings as opposed to auto answering.**

Step 7 After you hear the tone, speak into the microphone.

Step 8 Select **End Call** to end the page.

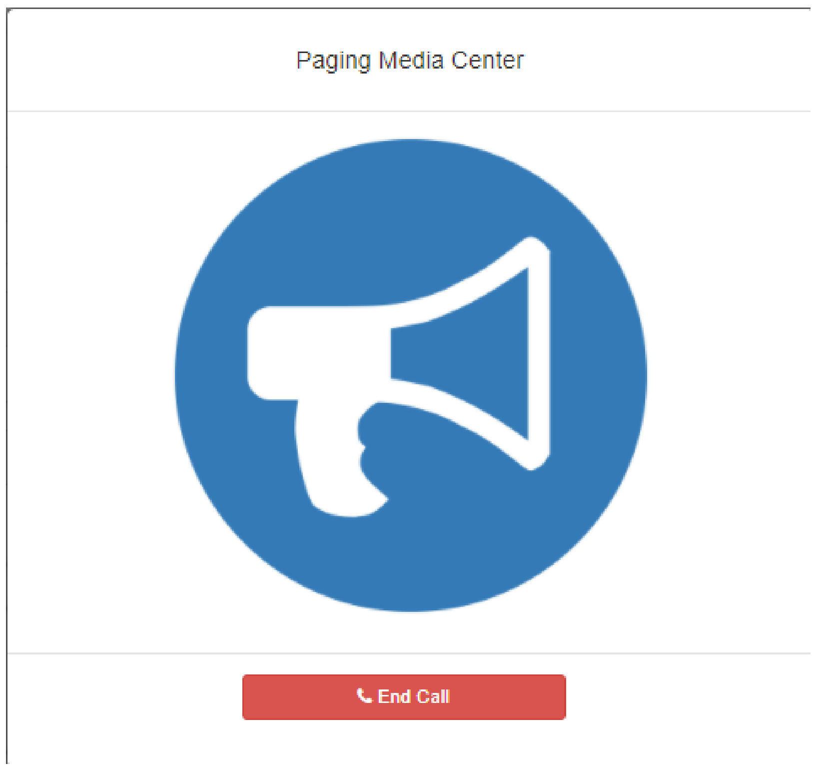


Figure 11-3, End Call

11.1.2 Record Page

You can record a page to be added to a zone queue. (For information about queues, see "*Viewing Queues" on page 174*.) The maximum recording time for a page is 60 minutes; if the recording exceeds 60 minutes, it will time out and not be saved. If the recording is silent for 60 seconds, it will time out and not be saved.

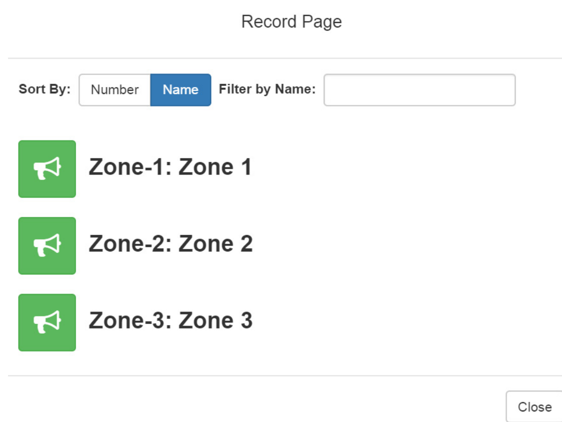


Figure 11-4, Record Page

The pages in the zone's queue are played in the order that they are placed in the queue.

A live page started on a zone that is playing a recorded page will cause the recorded page to be terminated and sent back to the queue. The interrupted message will play again, from the beginning of the message, when the zone becomes idle. Multi-Site Emergency-All-Call, Multi-Site All-Call, Emergency All-Call, All-Call, Alarm, Tone, and Emergency Announcement will also interrupt any playing recorded zone messages. All re-queued interrupted messages will play again, from the beginning of the message, when the zones becomes idle.

Selecting **Disable Audio** will cause all recorded messages to stop. The messages will resume play from the beginning when audio is re-enabled.

To record a page for page queuing:

Step 1	If not already on your dashboard, select **Dashboard** from the navigation bar.
Step 2	Under Calling/Paging, select **Record Page**.
Step 3	On the Record Page popup, select the queue that you want to page.

Note: You can sort the queues by Name or Number.

Step 4	Wait for the tone and then record your message.
Step 5	Hang up to end the recording.

Note: Pressing any key terminates the recording without adding the page to the queue.

11.1.3 Prepend Page

You can prepend a page with a special announcement. For example, if you have a pre-recorded weather alert announcement, you can prepend that announcement file so that it plays first as you prepare to make a page.

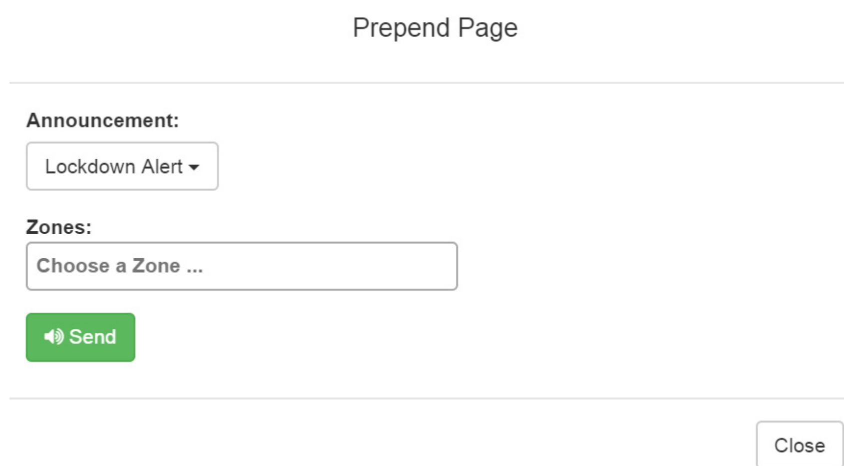


Figure 11-5, Prepend Page

To prepend a page:

Step 1	If not already on your dashboard, select **Dashboard** from the navigation bar.
Step 2	Under Calling/Paging, select **Prepend Page**.
Step 3	Select the Announcement that you want to prepend a page for.
Step 4	On the Prepend Page popup, select the zone that you want to page.

Note: You can sort the zones by Name or Number.

Step 5	If you must enter a password to complete this task, select **Dial Pad** and enter the 4-digit password.
Step 6	If prompted, enter 1 for confirmation.
Step 7	If prompted, allow Nyquist to use the microphone associated with your station.
Step 8	After the prepend announcement ends, speak into the microphone.
Step 9	Select **End Call** to end the page

11.1.4 All Call Paging

All Call paging is a simultaneous page to all facility stations, unless the station has been excluded from pages. An All Call page takes higher priority over normal paging.

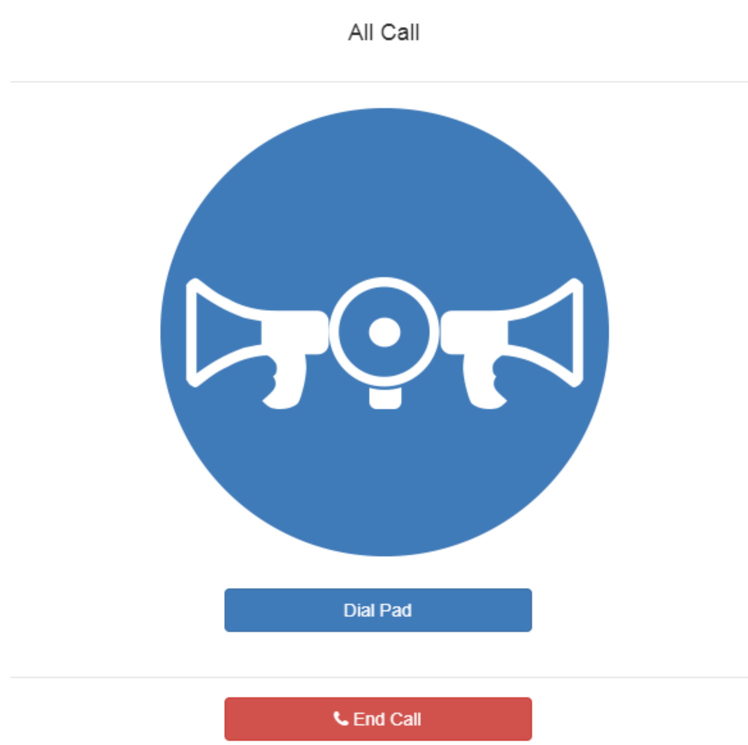


Figure 11-6, All Call

To launch an All Call page:

Step 1	If not already on your dashboard, select **Dashboard** from the navigation bar.
Step 2	Under Calling/Paging, select **All Call**.
Step 3	If you must enter a password to complete this task, select **Dial Pad** and enter the 4-digit password.
Step 4	If prompted, enter 1 for confirmation.
Step 5	If prompted, allow Nyquist to use the microphone associated with your station.

Warning **If you turn off the microphone on your computer, then you cannot launch audio distribution, tones, alarms, and so on. When attempting to making a call with the computer's microphone turned off, Nyquist automatically hangs up the call. If you make a second call, the dashboard displays a message that the phone is in use. Also, when the microphone is off and a bell tone comes in, Nyquist rings as opposed to auto answering.**

Step 6	After you hear the tone, speak into the microphone.
Step 7	Select **End Call** to end the page.

11.1.5 Emergency All Call Paging

An Emergency All Call page is a high priority page that is transmitted to all stations, even those stations that have been set up for page exclusion.

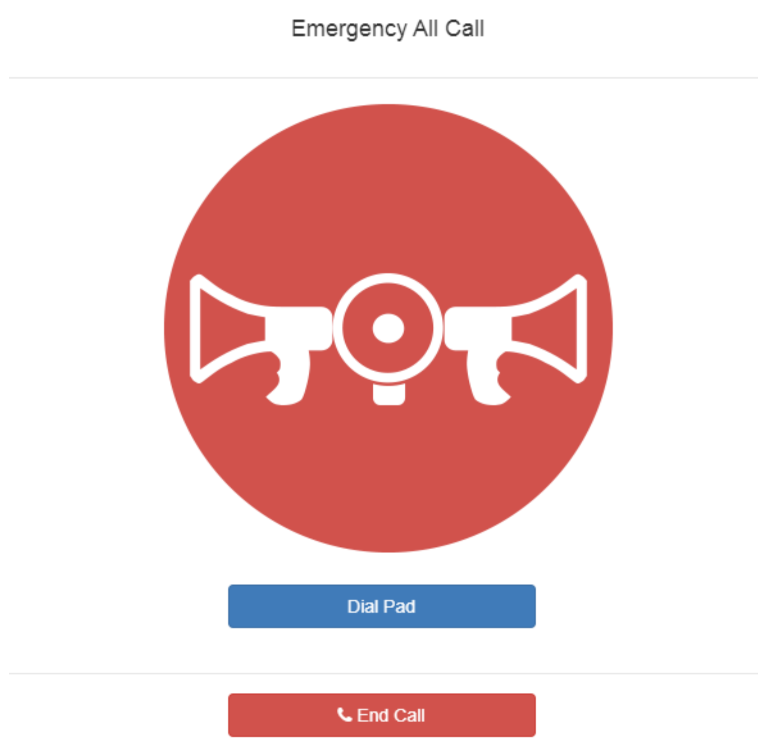


Figure 11-7, Emergency All Call

To launch an Emergency All Call page:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Under Calling/Paging, select **Emergency All Call**.

Step 3 If you must enter a password to complete this task, select **Dial Pad** and enter the 4-digit password.

Step 4 If prompted, enter 1 for confirmation.

Step 5 If prompted, allow Nyquist to use the microphone associated with your station.

Warning	**If you turn off the microphone on your computer, then you cannot launch audio distribution, tones,**

alarms, and so on. When attempting to making a call with the computer's microphone turned off, Nyquist automatically hangs up the call. If you make a second call, the dashboard displays a message that the phone is in use. Also, when the microphone is off and a bell tone comes in, Nyquist rings as opposed to auto answering.

Step 6	After you hear the tone, speak into the microphone.
Step 7	Select **End Call** to end the page.

11.1.6 Facility Paging

If your system is configured to use multiple facilities, you can launch a Facility Page. For information about configuring facilities, see *"Configuring Facilities" on page 98*.

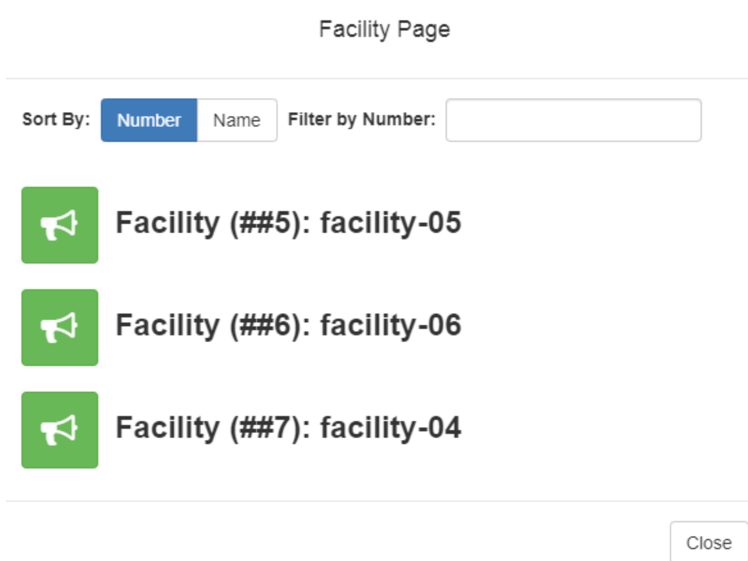


Figure 11-8, Facility Page

To launch a facility page:

Step 1	If not already on your dashboard, select **Dashboard** from the navigation bar.
Step 2	Under Multi-Site Calling/Paging, select **Facility Page**.
Step 3	On the Facilities page, select the facility that you want to page. Note that you can sort the facilities by Name or Number.

Step 4 If you must enter a password to complete this task, select **Dial Pad** and enter the 4-digit password.

Step 5 If prompted, enter 1 for confirmation.

Step 6 If prompted, allow Nyquist to use the microphone associated with your station.

Warning	**If you turn off the microphone on your computer, then you cannot launch audio distribution, tones, alarms, and so on. When attempting to making a call with the computer's microphone turned off, Nyquist automatically hangs up the call. If you make a second call, the dashboard displays a message that the phone is in use. Also, when the microphone is off and a bell tone comes in, Nyquist rings as opposed to auto answering.**

Step 7 After you hear the tone, speak into the microphone.

Step 8 Select **End Call** to end the page.

11.1.7 Multi-Site All Call Paging

If your station's CoS allows multi-site paging, you can launch a Multi-Site All Call page. (See *"Using CoS Configuration" on page 63* for information about setting up CoS for multi-site paging.)

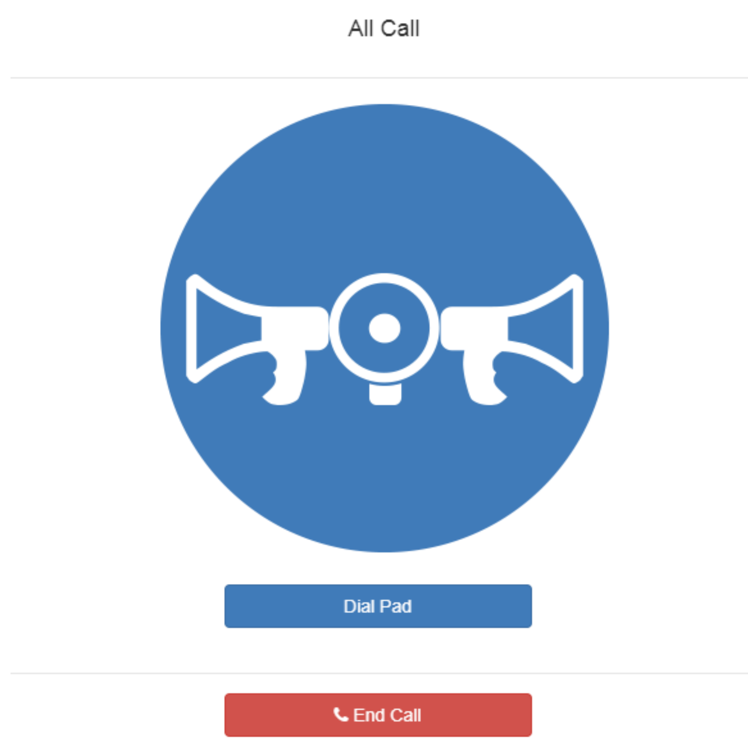


Figure 11-9, Multi-Site All Call

To launch a Multi-Site All Call page:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Under Multi-Site Calling/Paging, select **Multi-Site All Call**.

Step 3 If you must enter a password to complete this task, select **Dial Pad** and enter the 4-digit password.

Step 4 If prompted, enter 1 for confirmation.

Step 5 If prompted, allow Nyquist to use the microphone associated with your station.

Warning	**If you turn off the microphone on your computer, then you cannot launch audio distribution, tones, alarms, and so on. When attempting to making a call with the computer's microphone turned off, Nyquist automatically hangs up the call. If you make a second call, the dashboard displays a message that the phone is in use. Also, when the microphone is off and a bell tone comes in, Nyquist rings as opposed to auto answering.fter you hear the tone, speak into the microphone.**

Step 6 Select **End Call** to end the page.

11.1.8 Multi-Site Emergency All Call

If your station's CoS allows multi-site paging, you can launch a Multi-Site Emergency All Call page. A Multi-Site Emergency All Call page has priority over any other pages. (See "*Using CoS Configuration" on page 63* for information about setting up CoS for multi-site paging.)

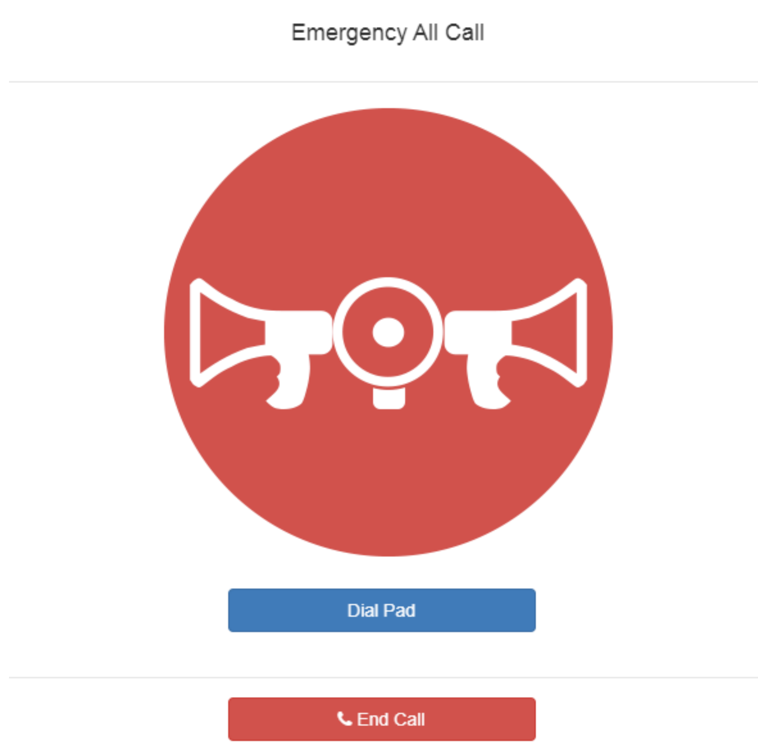


Figure 11-10, Multi-Site Emergency All Call

To launch a Multi-Site Emergency All Call page:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Under Multi-Site Calling/Paging, select **Multi-Site Emergency All Call**.

Step 3 If you must enter a password to complete this task, select **Dial Pad** and enter the 4-digit password.

Step 4 If prompted, enter 1 for confirmation.

Step 5 If prompted, allow Nyquist to use the microphone associated with your station.

Warning	**If you turn off the microphone on your computer, then you cannot launch audio distribution, tones, alarms, and so on. When attempting to making a call with the computer's microphone turned off, Nyquist automatically hangs up the call. If you make a second call, the dashboard displays a message that the phone is in use. Also, when the microphone is off and a bell tone comes in, Nyquist rings as opposed to auto answering.**

Step 6 When the Emergency page appears, select **OK**.

Step 7 After you hear the tone, speak into the microphone.

Step 8 Select **End Call** to end the page.

11.2 Managing Alarms Via the Dashboard

Alarms are audio files used to indicate a situation, such as a fire. When you elect to sound an alarm, only the tones with a type of Alarm appear in the selection list.

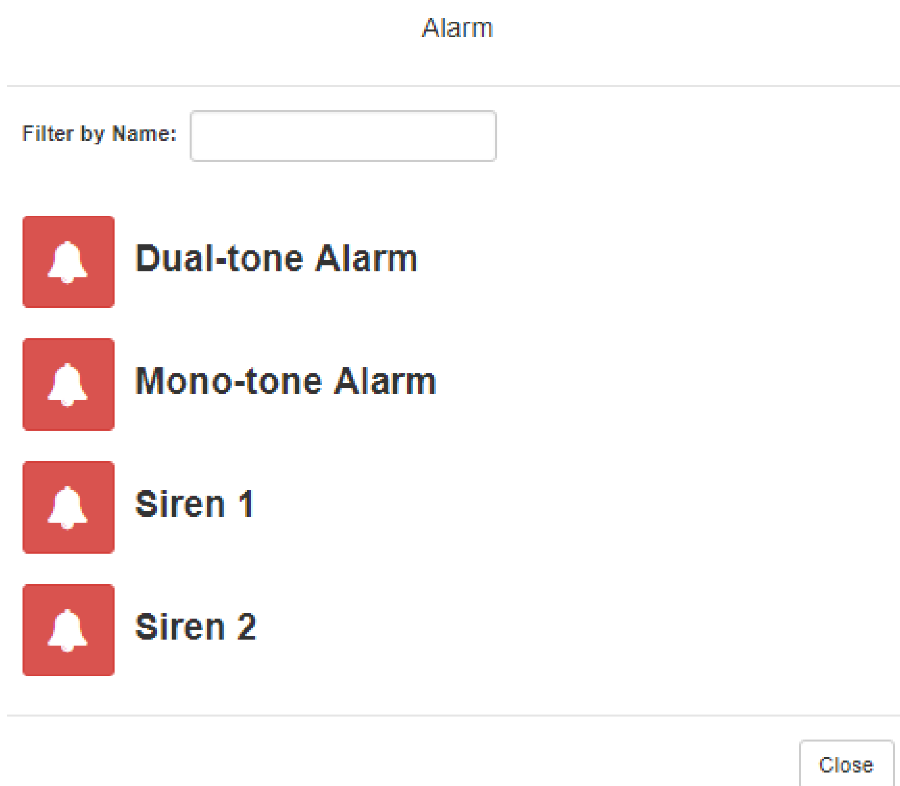


Figure 11-11, Alarm Page

To start and stop an alarm:

Step 1	On the navigation bar, select **Dashboard**.
Step 2	Under Tones/Announcements, select **Alarm**.
Step 3	On the Alarm page, select the alarm that you want to sound. The **Alarm** icon changes from a red bell to a red box.
Step 4	If you must enter a password to complete this task, select **Dial Pad** and enter the 4-digit password.
Step 5	If prompted, enter 1 for confirmation.
Step 6	Select the **Alarm** icon to end the alarm.

11.3 Managing Tones Via the Dashboard

Tones are similar to alarms, but are usually used to signal an announcement or time-based event. Launching a tone, sends a tone to all zones with a **Type** of **Time** or a combination of **Time** and **Paging**, **Audio**, or both.

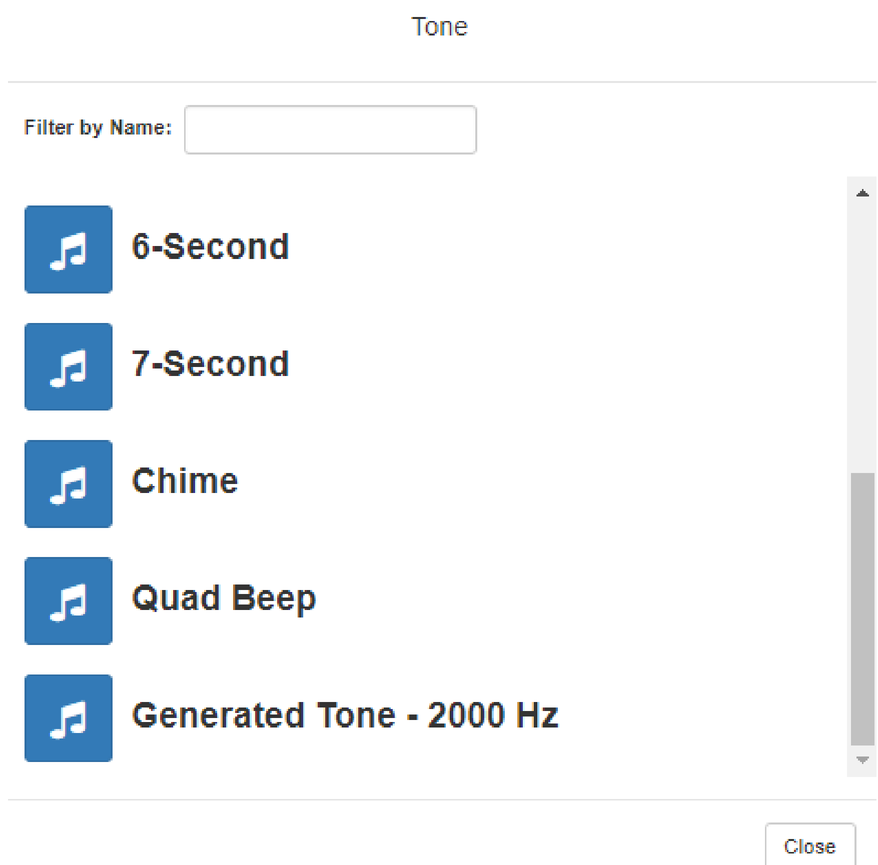


Figure 11-12, Tone Page

To start and stop a tone:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Under Tones/Announcements, select **Tone**.

Step 3 On the Tone page, select the tone that you want to sound.

Only tones that have not be hidden appear. (See "*Man-*

aging Tones" on page 292 for information about hiding tones.)

The **Tone** icon changes from blue notes to a red box.

> **Note:** Tones play continuously if one of three conditions exist: Its **Type** is **Alarm**, times to play is set to 0, or length is set to 0.

Step 4 If you must enter a password to complete this task, select **Dial Pad** and enter the 4-digit password.

Step 5 If prompted, enter 1 for confirmation.

Step 6 Select the **Tone** icon to end the tone.
A tone will stop playing automatically after it has reached its number of times to play. (See "*Managing Tones" on page 292.)*

11.4 Managing Announcements Via the Dashboard

You can launch previously recorded announcements from the dashboard and select the zone where the announcement will play.

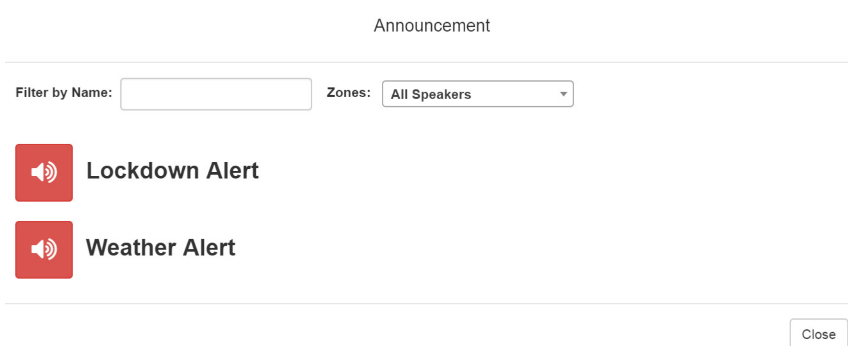


Figure 11-13, Announcement Page

To start and stop an announcement:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Under **Tones/Announcements**, select **Announcement**.

Step 3	On the Announcement page, use the **Zones** drop-down menu to select the zone where the announcement will play.
Step 4	Select the announcement that you want to launch.
Step 5	If you must enter a password to complete this task, select **Dial Pad** and enter the 4-digit password.
Step 6	If prompted, enter 1 for confirmation.
Step 7	To end the announcement, select **Stop**.
Step 8	You can also stop an announcement by performing the following steps: a Under **Tones/Announcements**, select **Stop Announcement**. b Follow screen prompts.

An announcement will end automatically after it has reached its number of times to play. (See *"Using Announcements" on page 282*.)

If multiple announcements are playing, you can select to stop a specific announcement or to stop all active announcements.

To stop an announcement when multiple announcements are running:

Step 1	If not already on your dashboard, select **Dashboard** from the navigation bar.
Step 2	Under **Tones/Announcements**, select **Stop Announcement**.
Step 3	On the Stop Announcement page, select the announcement that you want to stop or select **Stop All Announcements**.

11.5 Managing Calls Via the Dashboard

Nyquist provides two ways to place a call via the dashboard:

- Through the use of a directory
- Through the use of a dial pad

11.5.1 Placing Call Using Directory

The Nyquist directory is a list of all stations that can receive calls. These can include computers with the Admin Web UI, telephones, VoIP speakers, or digital call switches and speakers.

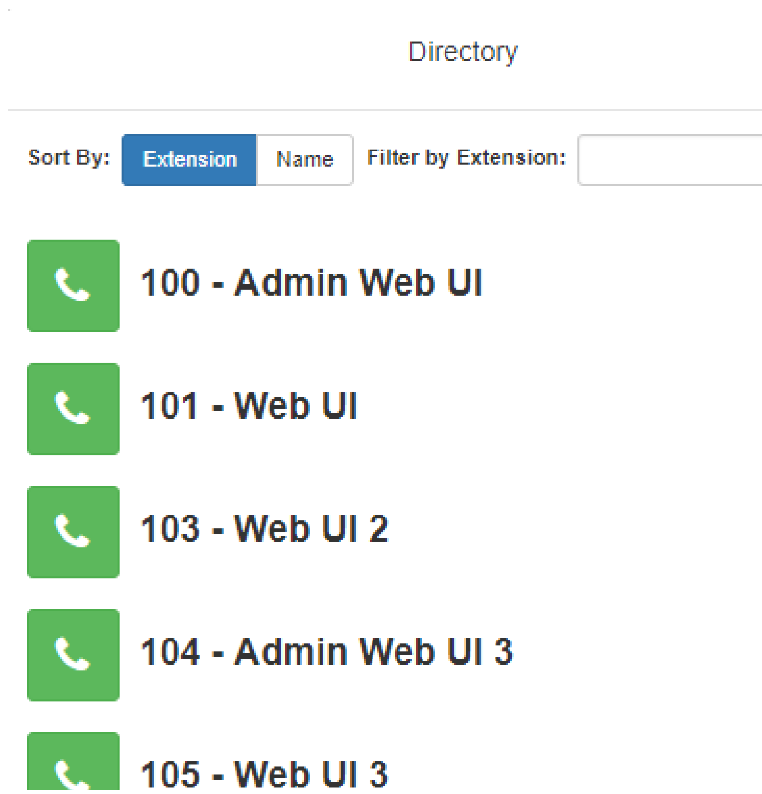


Figure 11-14, Directory Page

To place a call using the directory:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Under Calling/Paging, select **Directory**.

Step 3 On the Directory popup, select the extension that you want to call.
Note that you can sort the list of extensions by extension number or name.

Step 4 Select **End Call** to end the call.

11.5.2 Placing Call Using Dial Pad

To place a call using the Dial Pad:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Under Calling/Paging, select **Dial Pad**.

Step 3 Dial the extension or number that you want and select **Send**.

Step 4 Select **End Call** to end the call.

To answer a call from another extension:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Select **Answer**.

Step 3 Select **End Call** to end the call.

11.6 Using Page Exclusion

You can exclude stations from paging except for Emergency-Level All-Call pages. The Emergency-Level-All-Call pages will be sent and heard at the station even if that station is set to exclude paging.

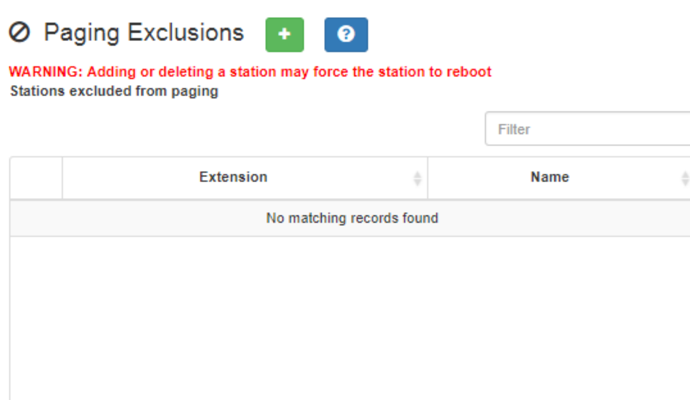


Figure 11-15, Paging Exclusions Page

To exclude a station from paging via the dashboard:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Under Calling/Paging, select **Page Exclusion**.

Step 3 Select the **Add** icon to add a station to the page exclusion list.

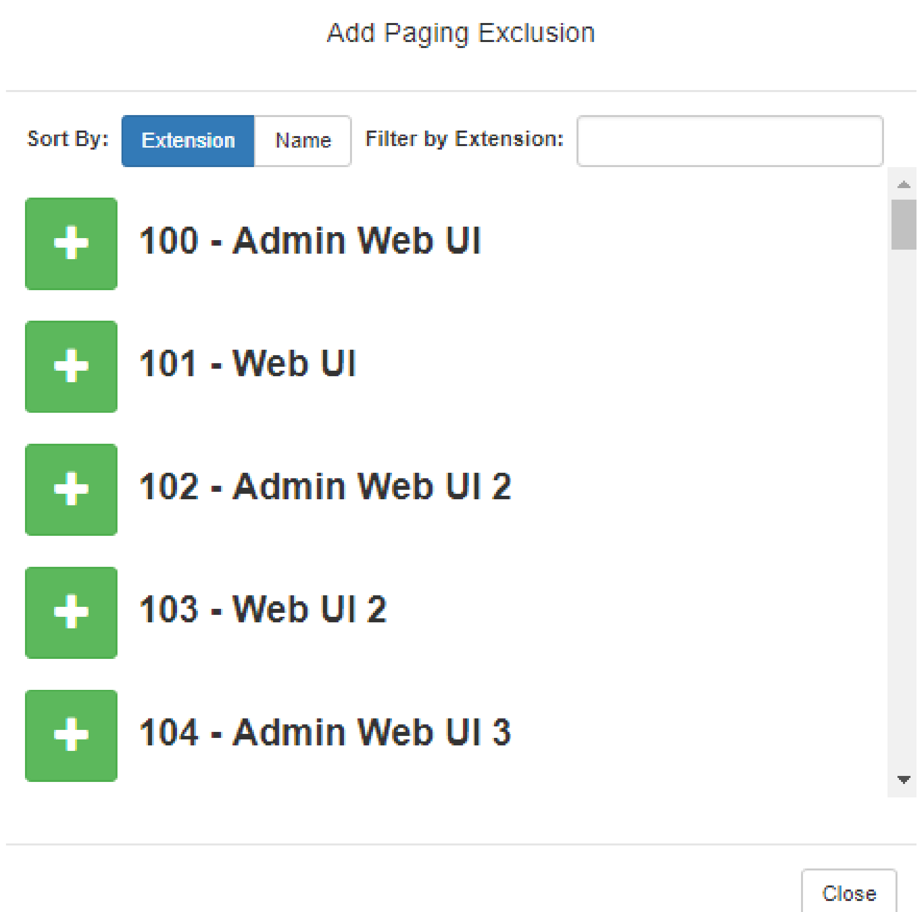


Figure 11-16, Add Paging Exclusion Page

Warning	**Adding or deleting a station from the page exclusions list may force the station to reboot.**

11.6.1 Deleting From Page Exclusion List

To delete an extension from the Page Exclusion list:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

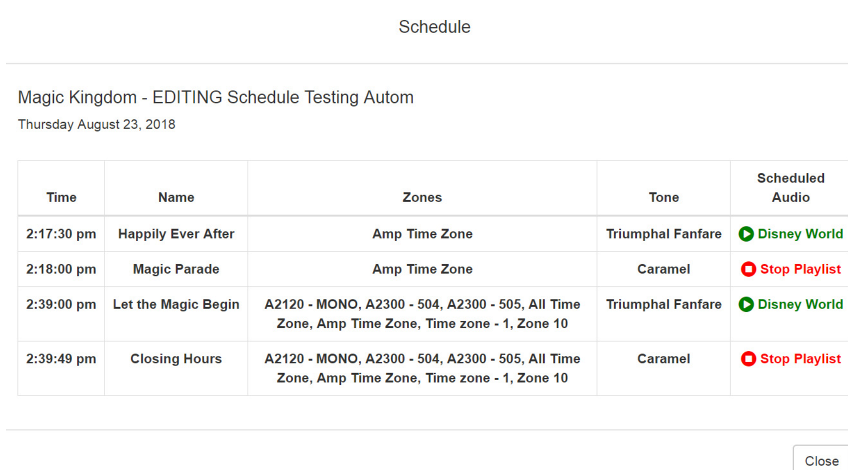
Step 2 Under Calling/Paging, select **Page Exclusion**.

Step 3 Select the **Delete** icon next to the page that you want to remove from the Paging Exclusions list.

Step 4 When prompted, select **Delete**.

11.7 Viewing the Schedule for the Week

From the dashboard, you can view this week's schedule or use the **Prev** and **Next** buttons to view the schedule for other weeks. If you select a specific schedule for a day, you can also view details of that schedule.


Schedule

Magic Kingdom - EDITING Schedule Testing Autom
Thursday August 23, 2018

Time	Name	Zones	Tone	Scheduled Audio
2:17:30 pm	Happily Ever After	Amp Time Zone	Triumphal Fanfare	Disney World
2:18:00 pm	Magic Parade	Amp Time Zone	Caramel	Stop Playlist
2:39:00 pm	Let the Magic Begin	A2120 - MONO, A2300 - 504, A2300 - 505, All Time Zone, Amp Time Zone, Time zone - 1, Zone 10	Triumphal Fanfare	Disney World
2:39:49 pm	Closing Hours	A2120 - MONO, A2300 - 504, A2300 - 505, All Time Zone, Amp Time Zone, Time zone - 1, Zone 10	Caramel	Stop Playlist

Close

Figure 11-17, Schedule Page

To view this week's schedule:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Scroll to the This Week's Schedules section.

Step 3 To view details of a schedule, select a schedule listed or use the **Prev** or **Next** buttons to navigate to the desired schedule and select that schedule.

The Schedule page appears. (See *"Schedule Page Parameters" on page 232*.)

Step 4 Select **Close** when done viewing.

11.8 Using Audio Distribution

> **Note:** Before using the Audio Distribution feature, make sure that stations and zones have been configured and that the station you are using to launch Audio Distribution has the appropriate Class of Service (CoS) parameters set.

Audio distribution is specifying an audio program for distribution to stations or zones. It involves creating a playlist or selecting an input source and specifying which zones or stations hear the playlist or input source. Through the Scheduled Audio feature, audio distribution can be tied to a specific event in a schedule. For information about the Scheduled Audio feature, *"Understanding Event Settings" on page 228***.**

> **Note:** If an audio distribution playlist that has a station assigned to it is playing, you cannot play another audio distribution playlist with a station assigned.

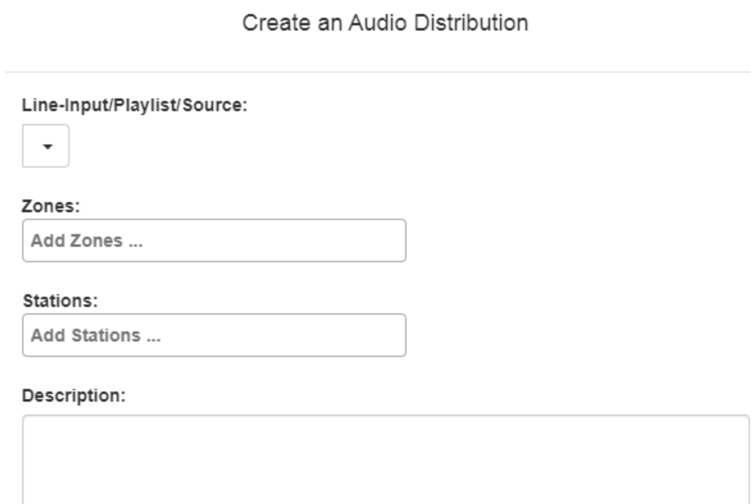


Figure 11-18, Create an Audio Distribution

To create an audio distribution:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

> **Note:** If you are using at least one Nyquist Matrix Mixer Pre-Amp, Line-Input appears as a Input Source/Playlist option.

Step 2 Select the **Add** icon.

Step 3 Use the **Line-Input/Playlist/Source** drop-down menu to select the audio source.

Step 4 Select the **Zones** and **Stations**.

Step 5 If you select **Line-Input** as the Input Source/Playlist, select the **Amplifiers/Matrix Mixers** and **Input Channel**.

Step 6 If you select a playlist and want to shuffle the song order, set **Shuffle** to **Yes**.

Step 7 Select **Save**.

Step 8 To end the playing of audio, select the **Stop** icon next to the playlist.

To launch a previously created audio distribution:

Step 1	If not already on your dashboard, select **Dashboard** from the navigation bar.
Step 2	Select the Play icon next to the audio distribution that you want to launch.
Step 3	To end the playing of audio, select the **Stop** icon next to the playlist. An existing Audio Distribution can be edited or deleted, provided it is not currently playing or linked to a routine, by selecting the **Edit** or **Delete** icon next to the Audio Distribution.

When Audio Distribution is enabled, an informational message appears in the Messages window of the Admin Web UI dashboard, indicating the song that is currently playing and to which speakers (all or selected) and to which zones audio is playing to.

Audio distribution will be paused automatically by higher priority feature activation (for example, All-Call Page, Paging, Tones) and will automatically resume when the higher priority feature is finished.

When another system feature pauses Audio Distribution, the message on the dashboard messages window includes PAUSED to remind you that Audio Distribution is still enabled but is currently paused.

Audio Distribution may also be started or stopped using Admin Phones. (Audio Distribution is available on the Admin Phone by selecting **Directory** and then selecting **Features**.)

If you select **Set** after making selections in the Audio Distribution panel of the dashboard, the displayed settings are updated on the server to allow Admin IP Phones to start Audio Distribution using the displayed settings. Selecting **Set** only updates the settings; it does not start the audio distribution.

Audio Distribution volume can be changed by setting **Audio Distribution Volume**, available in **System Parameters**.

All Nyquist stations are pre-programmed to receive Audio Distribution to All Stations. To disable Audio Distribution to a specific station, change **Multicast Audio Distribution** to **No** on the Edit Station page.

When Audio Distribution is started via the Admin Phone, any Admin web UI or Admin phone user may stop the Audio Distribution if his or her station has the **Audio Distribution** CoS Configuration parameter enabled.

Scheduled Audio has a higher priority than Audio Distribution. If you are playing Audio Distribution and an event with Scheduled Audio interrupts, the Audio Distribution briefly plays between the tone and the Scheduled Audio.

A playlist will continue playing until manually stopped.

If you use a USB memory stick as storage for songs on a playlist and the USB memory stick is removed from the USB drive, the metadata for the songs and the playlist still resides in the Nyquist song list and playlist, but audio distribution cannot play.

11.9 Enabling and Disabling Audio

If a station's CoS has been set up to enable and disable audio, then **Enable Audio** and **Disable Audio** icons appear in the lower section of the dashboard. These icons allow a station to control audio for the system during events such as fire alarms. Selecting **Disable Audio** stops all audio output on the system– such as Scheduled Audio, audio distribution, and paging – and prevents future audio output until **Enable Audio** is selected. If you select **Disable Audio**, you must select **Continue** when prompted to stop audio.

11.10 Manually Controlling Output Contacts

If you are using the Nyquist I/O Controller to recognize third-party contact closures, you can manually control output contacts.

Prerequisites for using manual controls are adding an I/O Controller as a station and configuring a controller rule for at least one output contact with the Action set as Manual. (See "*Configuring I/O Controller Output Rules" on page 130*.)

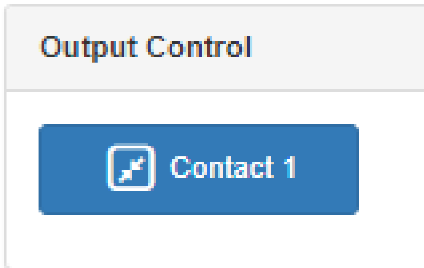


Figure 11-19, Output Control Section

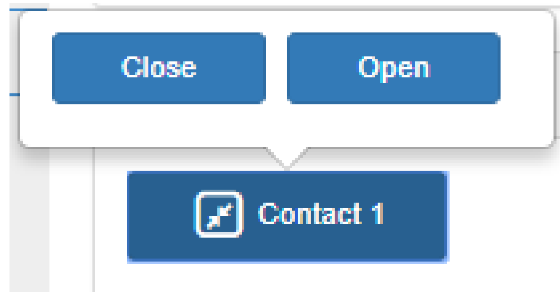


Figure 11-20, Manual Control Buttons

To manually control an output contact:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 In the Output Contact Control section, select the desired contact.

> **Note:** If you have set up a rule with a duration of 0, then selecting the contact displays two buttons–one for opening and one for closing the circuit. If duration is set to a number other than 0, you can only close the circuit.

Step 3 Select the button for the action that you want.
The button labels are set in the rule for the output contact.

12 Using the Maps Feature

With the Maps feature, you can select rooms, buildings, or other defined areas, such as bus loading zones or sports fields, from a graphic image to launch intercom calls or pages. You can use the Maps view to display Check-In status, listen to classrooms, and if the classroom has a camera, view video of the classroom. You can also create buttons to open a URL or execute a previously created routine.

To use the Maps feature, you must have the appropriate permissions (see *"Assigning Maps Panel Permissions" on page 361*).

When setting maps up in a Nyquist system environment, you can import JPEG or PNG graphics of your facility, buildings, rooms, or objects, such as icons or landmarks. You can then set up various defined action objects. Action objects are interactive shapes on the map that allow the launching of intercom calls or zone pages.

Nyquist also supports multiple maps for multi-site campuses. Each site can define its own map objects and restrict calls and paging to its own administrator.

Maps can have an unlimited number of levels, so, for example, an office administrator could navigate to a building, a specific floor in the building, and a specific room on the selected floor. For locations that are frequently called or paged, a defined action object can be placed as a button on a top level or sub level view so that navigating through multiple levels of maps is not required to initiate a call or page.

12.1 Maps Panel Overview

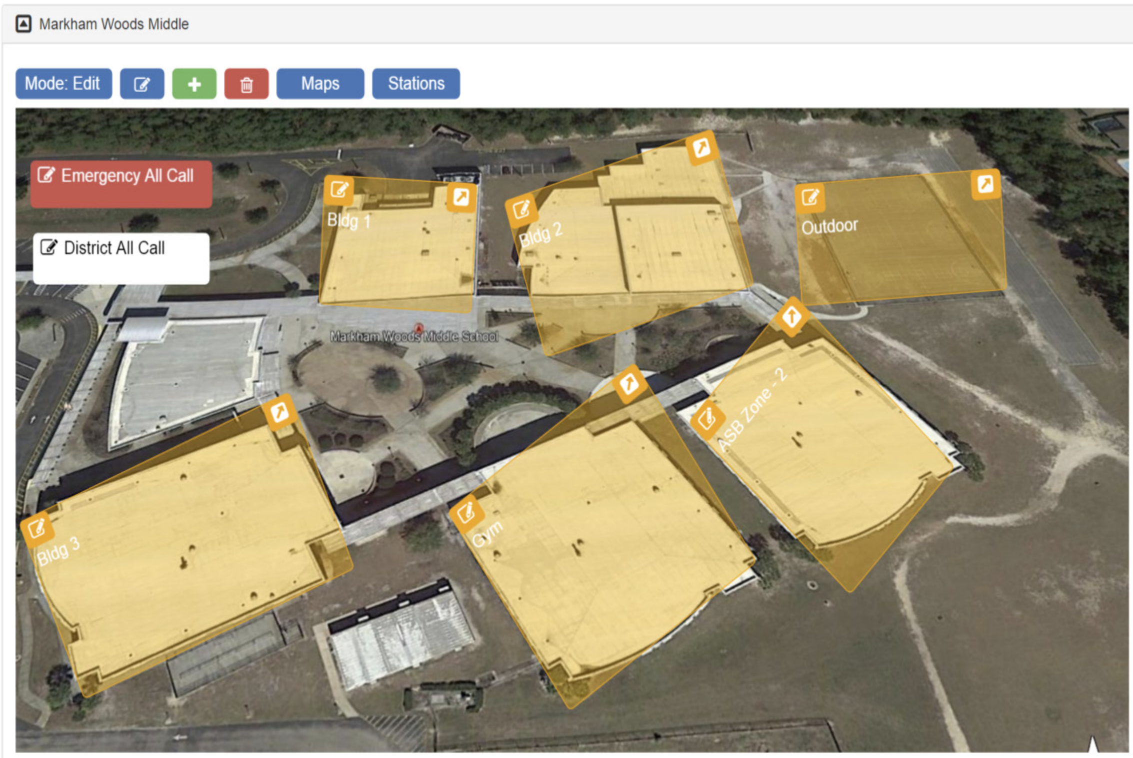


Figure 12-1, Maps Panel

When Maps is configured for a Nyquist system, you can view the Maps Panel from the Dashboard. In addition to the site map and defined action objects, various buttons and icons appear on the area above the graphic. These buttons can vary depending on the various parameters set for your system. Possible buttons and icons are as follows:

Indicates which mode your system is in. The **Mode** can be either **Edit** or **Live**. If you are not authorized to edit the Maps parameters or to set up defined action objects, the Mode button does not appear.

Select this **Edit** icon if you want to edit the top level map. This icon does not appear if you are in **Live** mode.

Select this **Add** icon if you want to add a new map. This icon does not appear if you are in **Live** mode.

Select this **Delete** icon if you want to delete a map. This icon does not appear if you are in **Live** mode.

Select the **Maps** button to select which map you want to have appear on the Dashboard.

Select the **Stations** button to view which stations are allowed to add defined action objects or make other changes to the map. This icon does not appear if you are in **Live** mode.

12.2 Configuring Parameters for the Maps Feature

To use the Maps feature:

- You must have the correct Maps Panel permissions set.
- You must be associated to a station that has the necessary CoS configuration.
- The station **Type** for the associated station must be either an **Admin Web Interface** or a **Web Interface**.
- You must select a map on the associated station.

12.2.1 Assigning Maps Panel Permissions

Importing graphics and creating defined action objects are restricted to users associated with roles with **Create** and **Edit** Maps Panel permissions. A user only requires **View** Maps Panel permissions to use the Maps feature for initiating pages and calls and viewing Check-In status.

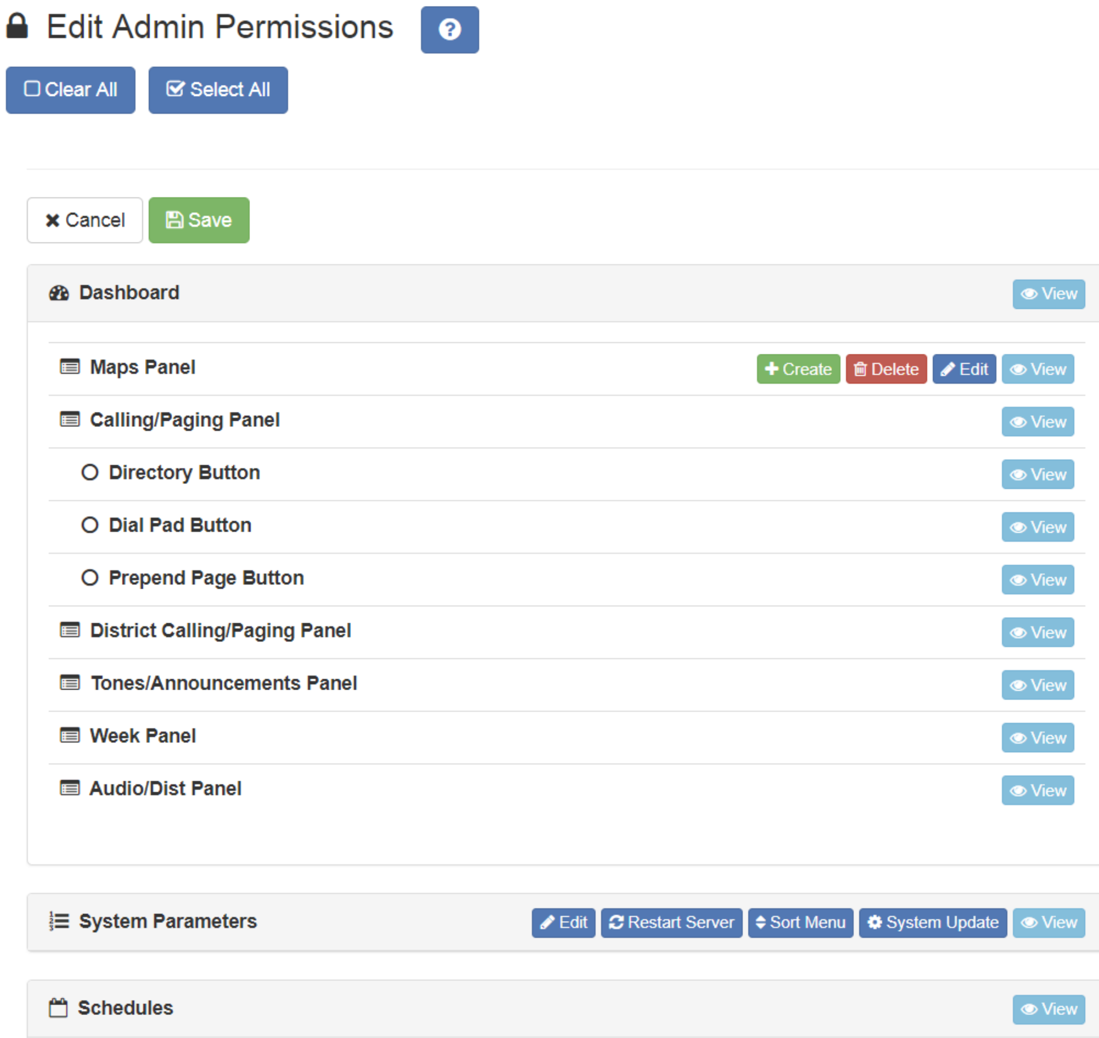


Figure 12-2, Edit Admin Permissions

To set Maps Panel Permissions:

Step 1 On the navigation bar, select **Roles**.

Note: To perform this task, you must be logged in with a role that has permission to assign or edit permissions.

Step 2 On the Roles page, select the **Permissions** icon next to the role for which you are assigning or editing permissions.

Step 3 On the Edit Permissions page, select the appropriate buttons to assign Maps Panel permissions to the role.

Step 4 Select **Save**.

12.2.2 Setting CoS Configurations for the Station

The **All Call** and **Emergency All Call** buttons do not appear in the Maps panel section of the Dashboard if the correct CoS parameters are not set for the station. The ability to call any station or to initiate zone paging are also set for the station through **CoS Configuration**.

To set CoS Parameters for the Map Feature:

Step 1 On the navigation bar, select **CoS Configuration**.

Step 2 Select the **Add** icon.

Step 3 Complete Parameters for the station.

For information about the settings, see "*CoS Configuration Page Parameters" on page 64*.

Step 4 After all changes are made, select **Save**.

12.2.3 Assigning the Default Map

Your Dashboard will not show the Maps Panel until you have selected at least one map for your station. You must assign the default map (Site) to the station first. You can then create a new map for your station.

To assign the default map:

Step 1 On the navigation bar, select **Stations**.

Step 2 If you are adding your station, select the **Add** icon and ensure that the **Type** is **Admin Web Interface** or **Web Interface**. Then, complete all of the options for your station.

Step 3 If you are editing your station, select the **Edit** icon next to your station.

Step 4 Scroll to the **Maps** parameter and select the default map.

Step 5 Select **Save**.

12.3 Adding a Site Graphic

You can add a site graphic to your Nyquist system UI by uploading a PNG or JPEG file.

To add a graphic:

Step 1 Ensure the **Mode** is **Edit**.

Note: If you do not have create or edit permissions, the **Mode** button does not appear.

Step 2 Select the **Edit** icon.

Step 3 Enter the parameters (see "*Edit Image Parameters" on page 365*).

Step 4 Select **Choose file** and navigate to the desired file.

Step 5 Select **Save**.

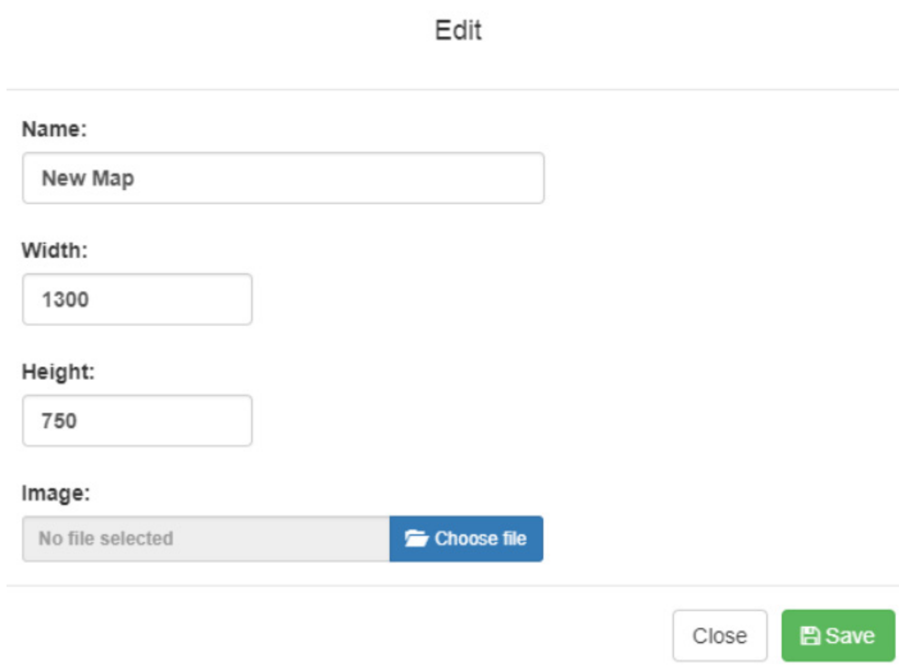


Figure 12-3, Edit Dialog Box

Table 12-1, Edit Image Parameters

Name	Enter a name for the image, such as the name of the site. The maximum character length for this parameter is 20.
Width	Enter the width for the image canvas. This width will be the canvas size for all views that appear when drilling down into the map.
Height	Enter the height for the image canvas. This height will be the canvas size for all views that appear when drilling down into the map.
Image	Displays the file name for the image. Select **Choose** file to navigate to the desired file.

12.4 Adding a Defined Action Object

> **Note:** If you move a defined action object or button outside of the map's dimensions or too far to the edge of the map image, you may not be able to use or even see the button. In this situation, you must edit the map's dimensions to view the object or button and then move it to within the map image.

After the top level graphic has been added, you can create defined action objects on the graphic map and then select files to appear when the object is selected. For example, if your top level graphic is a site graphic that shows multiple buildings you might want to make each building a defined action object. Each building could then have multiple defined action objects, such as multiple zones or stations.

> **Note:** Stations and zones must first be added to your Nyquist system before they can be added to a graphic as a defined action object.

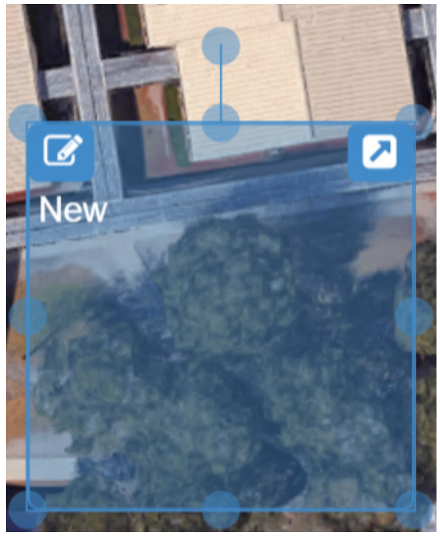


Figure 12-4, Selectable Object

Note: Stations and zones must first be added to your Nyquist system before they can be added to a graphic as a defined action object.

To add a defined action object to a graphic:

Step 1 From the dashboard, ensure the **Mode** is **Edit**.

Step 2 Double-click the map.
A rectangle appears.

Step 3 Drag the rectangle to the desired location.

Step 4 Resize the rectangle by selecting a point marked by circle and dragging the point. You can select circle outside the rectangle to rotate the image as needed.

Step 5 Repeat steps 1-4 for each selectable object desired.

12.4.1 Assigning an Image to Defined Action Object

You can assign an image to a defined action object. For example, if the main image is of a site, you can add a defined action object for a building on the site graphic. The selectable object for the building can be assigned a graphic that depicts rooms inside the building.

To assign an image to a defined action object:

Step 1 From the dashboard, ensure the **Mode** is **Edit**.

Step 2 Select the arrow on the top right of the selectable object to “go into” the object.

Step 3 Select the **Edit** icon.

Step 4 On the Edit screen that appears, provide a name for the object and then select **Choose file** and navigate to the location of the image file.

Step 5 Select **Save**.

12.4.2 Editing a Defined Action Object

Editing a defined action object allows you to choose how the object appears on the Map panel and what action is assigned to the object.

Figure 12-5, Defined Action Object With Edit Icon (Left Corner)

To edit a defined action object:

Step 1 From the dashboard, ensure the **Mode** is **Edit**.

Step 2 Click the **Edit** icon on the selectable object.

Step 3 Complete the Edit parameters.

Step 4 Select **Save**.

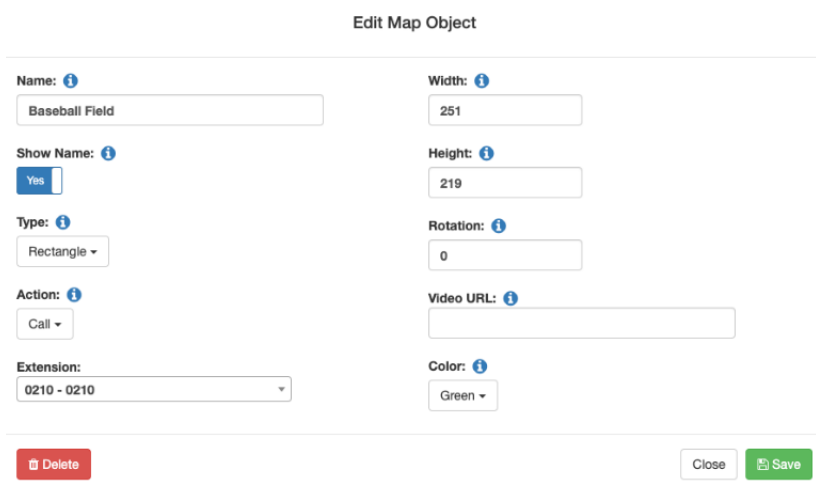


Figure 12-6, Edit Dialog Box

Table 12-2, Edit Parameters

Name	Enter a name for the selectable object.
Show Name	Select **No** if you do not want the name to appear on the map. The default is **Yes**.
Type	Select **Rectangle** if you want the object to cover a building or site. Select **Button** if you want the object to become a button that is associated with an action. For more information about buttons, see "*Creating a Defined Action Object "Button"" on page 371*.

Table 12-2, Edit Parameters (Continued)

Action	Select what action is to be assigned to this object. Options are: • **None**. By default, no action is associated with the object. • **Call**. If you select this option, a drop-down menu appears so that you can select an **Extension** for the object. Extensions must have previously been associated to a Nyquist system station when stations were created. • **Page**. If you select this option, a drop-down menu appears so that you can select a **Paging Zone** for this option. Zones must have previously been created and stations added to the zones before a zone can be associated to a defined action object. • **All Call**. Creates a button to use for making an All Call page. • **Emergency All Call**. Creates a button to use for making an Emergency All Call page. • **Multi-Site All Call**. Creates a button to use for making a Multi-Site All Call page. • **Multi-Site Emergency All Call**. Creates a button to use for making a Multi-Site Emergency All Call page. • **Facility All-Call Page**. Creates a button to use for making a Facility All-Call Page. If this option is selected, you must also select a **Facility**. • **Facility Zone Page**. Creates a button to use for making a Facility Zone Page. If this option is selected, you must also select a **Facility**. • **Facility Station Call**. Creates a button to use for calling a specific station in a facility. If this option is selected, you must also select a **Facility** and an **Extension**. • **Open URL**. Creates a button to use to open a URL. If this option is selected, you must also enter the web address or other web resource that you want the button to open in the **URL** field. • **Execute Routine**. Creates a button that launches a specified routine. If this option is selected, you must also select the specific **Routine**.

Table 12-2, Edit Parameters (Continued)

Extension	Use the drop-down menu to select an extension. This object only appears if **Action** is set to **Call**, **Page**, or **Facility Station Page**.
Width	Enter the desired width in pixels. Width must be a number 70 or above.
Height	Enter the desired height in pixels. Height must be a number 30 or above.
Rotation	Enter the desired angle of the object in degrees. The available range is 0 to 359.
Facility	Use the drop-down menu to select the desired facility. This option only appears if Action is set to **Facility All-Call Page**, **Facility Zone Page**, or **Facility Station Call**.
URL	Enter the full name of the URL that you want to open when this button is clicked. This option only appears if **Action** is set to **Open URL**..
Video URL	Enter the full name of the URL for a room camera.
Routine	Select the routine that you want to execute when this button is selected. This option only appears if **Action** is set to **Execute Routine**.
Color	Use the drop-down menu to select a color for this object. The default color is Green. Other options are: • Blue • Brown • Gray • Orange • Pink • Purple • Red • White • Yellow

12.4.2.1 Creating a Defined Action Object "Button"

Instead of associating a defined action object to a particular object on a map or a graphic, you can create a defined action object that serves as a button. For example, suppose you have layers of maps that include the buildings and each floor in a building, but you most frequently call one or two extensions. Rather than drilling down multiple maps or objects each time you call an extension, you can create a defined action object that is associated with that extension. The selectable object can be named for the extension and placed on the first level graphic.

Another reason for creating a defined action object that serves as a button would be if your Nyquist system server is managing multiple sites on a single campus. All Call and Emergency All Call pages would go to all stations on the Nyquist system. If you want to make a page to all stations of a single site in a multiple site campus, you can create a defined action object that launches a page to all stations in that site only.

12.4.2.2 Opening a URL

If you select **Open URL** as the **Action** for a defined action option button, you can use the button to open a specific web page or to reference a specific application, such as a video feed from a classroom. The full name, or path of the URL, must be entered in the URL field (see *Table 12-2, "Edit Parameters," on page 369*). For example, to access the main Bogen web site, you would enter **http://www.bogen.com/**.

When the **Open URL** button is selected in **Live** mode, the web page opens a new tab in the browser.

12.4.2.3 Execute Routine

If you select **Execute Routine** as the **Action** for a defined action option button, you can use the button to manually launch a routine.

Only routines that have been previously created, are **Enabled**, and have **Allow DTMF** set to **Yes** appear in the **Routine** list on the Edit Map Object popup (see *Table 12-2, "Edit Parameters," on page 369*). For more information about enabling routines and the **Allow DTMF** option, see *Table 13-1, "Routines Parameters," on page 385*.

12.5 Launching Pages Via the Map Feature

Depending on the parameters set, you can launch pages to an individual zone, launch All Call pages, or launch Emergency All Call pages.

Zones must be created and stations added to the zones before the zones can be associated to a defined action object or paged via the Maps feature. For information about creating zones, see "*Managing Stations, Zones, and Queues" on page 105*.

12.5.1 Page an Individual Zone

If the **Action** for a defined action object is set to **Page**, then a **Page** icon appears in the left side of a defined action object.

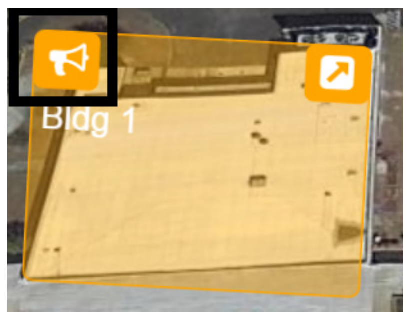


Figure 12-7, Page Icon

To page an individual zone using the Maps feature:

Step 1 From the dashboard, ensure the **Mode** is **Live**.

Step 2 Click the **Page** icon on the defined action object.

12.5.2 Launch All Call or Emergency All Call Pages

CoS parameters must be set before you can create **All Call** and **Emergency All Call** buttons that will appear in the Maps panel section of the Dashboard. (See "*Setting CoS Configurations for the Station" on page 363*.)

An All Call page is made to all zones associated with your Nyquist system server unless a zone is excluded from paging. An Emergency All Call page is made to all zones associated with the Nyquist system server; page exclusion does not affect Emergency All Call pages.

If you are using the same server on a multiple site campus and do not want the pages to go to all sites, you can create a zone for all stations in an individual site.

To launch an All Call or Emergency All Call page:

Step 1 From the dashboard, ensure the **Mode** is **Live**.

Step 2 Select either **All Call** or **Emergency All Call**.

12.6 Calling an Extension Via the Maps Feature

If the **Action** for a defined action object is set to **Call**, then a **Call** icon appears in the left side of a defined action object.

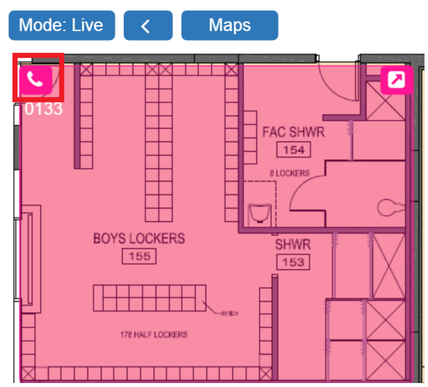


Figure 12-8, Call Icon

To call an extension using the Maps feature:

Step 1 From the dashboard, ensure the **Mode** is **Live**.

Step 2 Click the **Call** icon on the defined action object.

12.7 Using Maps for Check-In

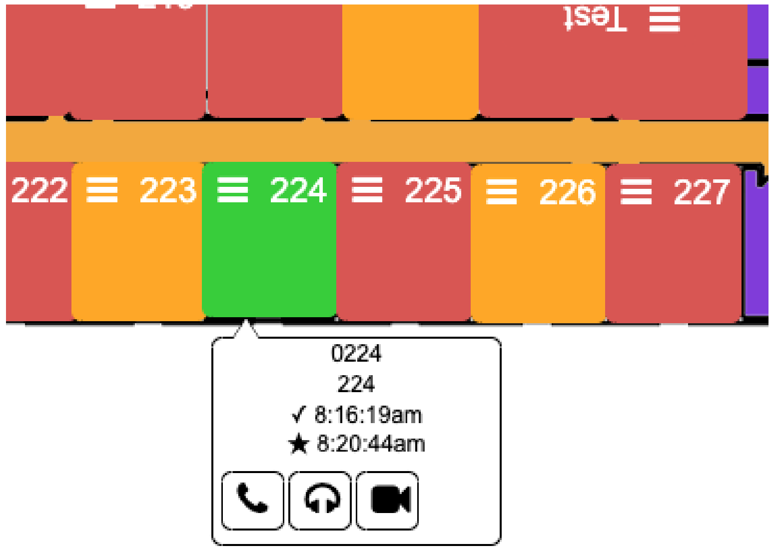


Figure 12-9, Maps Check-In View

From the Maps view, you can monitor Check-In or launch a routine that starts or stops Check-In.

To use Maps for Check-In, the following conditions must be met:

- You have permissions configured to view maps (see "*Assigning and Editing Permissions" on page 203*).
- Your station Type is **Admin Web Interface** or **Web Interface** (see "*Editing Station Configuration Settings" on page 118*).
- Check-In has been configured for your system (see "*Configuring Check-In" on page 453*).
- You have an available map that shows the rooms or areas that you want to monitor (see "*Adding a Site Graphic" on page 364*).
- You have created a map object for each station that you want to monitor (see "*Creating a Map Object for Check-In" on page 376*).

To use a routine to start or stop Check-In, the routine must have been previously created with either a trigger or an action Type of Check-In. (see"*Adding a Routine" on page 387*).

Note: You can only listen in areas or rooms that allow two-way communications; in other words, the station in that room must be associated with a speaker with a microphone.

12.7.1 Creating a Map Object for Check-In

To create a map object for an area or room, first follow the steps for adding an action object to your map (see *"Adding a Defined Action Object" on page 365*).

To edit a defined action object:

Step 1 From the dashboard, ensure the **Mode** is **Edit**.

Step 2 Click the **Edit** icon on the selectable object.

Step 3 Complete the Edit parameters, ensuring that **Action** is set as **Call**. (See *Table 12-2, "Edit Parameters," on page 369* for more information about the available parameters.

Step 4 Select **Save**.

Note: You must create a defined action object for each room or area that you want to monitor.

12.7.2 Monitoring Check-In

Figure 12-10, Map Object in Live Mode

When Check-In is active, the Map panel changes to **Live** Mode and the Map objects for all stations being monitored will no longer show the **Edit** icon. Instead, you will see icons for Call, Listen, Video, and Information.

The **Listen** icon only works if the station is associated with a speaker that allows two-way communication. The **Video** icon only works with Map objects that have been configured with a Video URL (see *Table 12-2, "Edit Parameters," on page 369*). If the Map object isn't large enough to display the icons, a hamburger menu (also known as a three-line menu or menu button) appears in the top right corner.

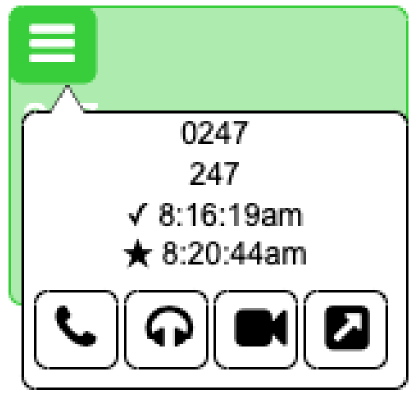


Figure 12-11, Map Object With Hamburger Menu

From the hamburger menu, you can select the desired action.

During Check-In, the colors on the station map objects will change to reflect what appears on the Check-In view:

Color	Status
Green	Checked in
Red	Not checked in
Gray	Check-in is not expected because the station is either on the vacant or excluded lists.

A vacant station can check in. The text **Was Vacant** will then appear in the button information.

12.7.3 Using Check-In Routines from Maps View

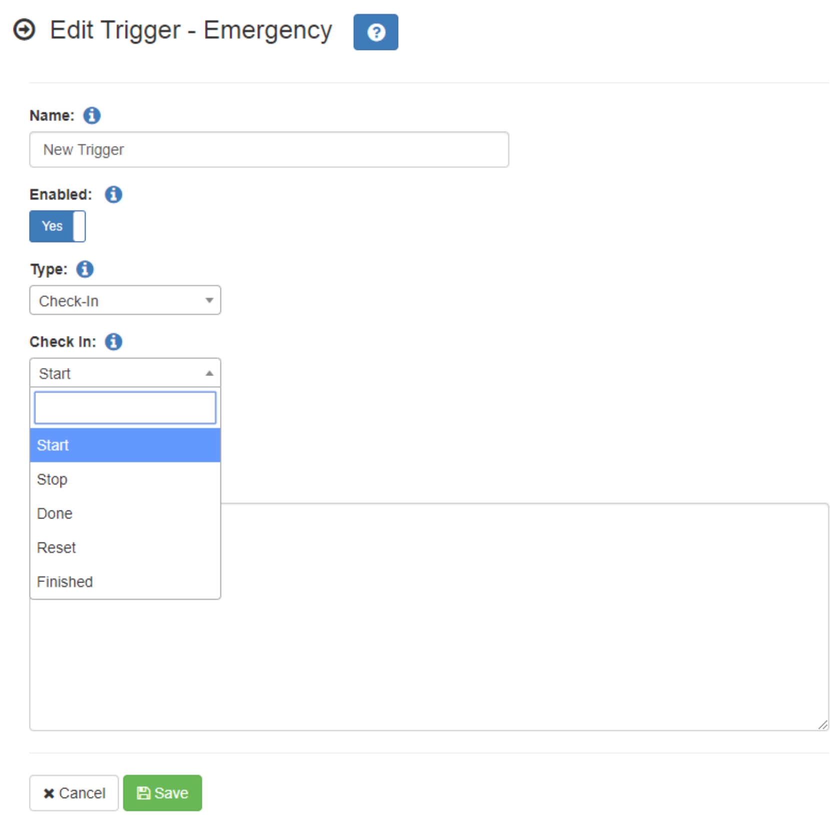


Figure 12-12, Check-In Options for Trigger

Provided routines have been created for either trigger or action Check-In types, you can launch a routine to do one of the following:

- Start check-in.
- Stop check-in.
- Change check-in status to **Done**.
- Reset check-in status of stations.
- Change check-in status to **Finished**.

Routines must be created in the Routines view and **Execute Routine** must be selected as the Maps object's **Action** (see "*Execute Routine" on page 372*).

12.8 Deleting a Defined Action Object

If you have delete permission for the Maps feature, you can delete a defined action object.

To delete a defined action object:

Step 1	From the dashboard, ensure the **Mode** is **Edit**.
Step 2	Double-click the **Menu** icon in the defined action object that you want to delete.
Step 3	Select **Delete**.
Step 4	When prompted, select **Delete** again.

12.9 Deleting a Map

If you have delete permission for the Maps feature, you can delete a map. Deleting a map also deletes all associated objects and images.

To delete a graphic:

Step 1	From the dashboard, ensure the **Mode** is **Edit**.
Step 2	Select the **Delete** icon.
Step 3	From the Delete Map prompt, select **Delete**.

13 Using Routines

A routine automatically launches a procedure, or sequence of actions, that the Nyquist system executes as a result of an input trigger. Routines can support your crisis plans for situations such as school lockdown, weather events, or emergency evacuation.

> **Note:** You should *always* run a test of a routine after creating or editing it.

A routine can be started manually via the Admin Phone or the Admin Web UI.

A routine can also be automatically launched:

- By an event, such as playing a specific announcement
- Via third-party switch contact closures recognized by the Nyquist I/O Controller
- Via a Routines API that can be used by third-party systems, including fire systems, access control systems, and video security systems

A routine that has **Allow DTMF** enabled does not need a trigger. However, most routines will have at least one associated trigger and one or more actions. For example, if an administrator manually triggers a lockdown routine, several actions could result, such as:

- Play a lockdown announcement.
- Display lockdown instructions on monitors connected to NQ-GA10PV devices.
- Close I/O controller output contacts to trigger third-party systems that lock doors.
- Initiate the check-in process.

- Launch an emergency all call announcement.

To use the Routines feature, you must have the appropriate permissions (see *"Assigning and Editing Permissions" on page 176*) and the station being used to launch the routine must have the CoS parameter **Execute Routines** enabled. (see *"Using CoS Configuration" on page 61*).

To allow a third-party system to launch a routine via the Routines API, you must enable **Allow API** for the routine.

You can import or export routines by selecting the appropriate button from the **Routines** view. When importing a routine, the routine file must have a .sql extension. See *"Exporting a Routine" on page 433* or *"Importing a Routine" on page 435* for more information.

13.1 Launching and Stopping a Routine from the Admin Web UI

You can manually launch a routine that has **Allow DTMF** enabled and stop a running routine from the Admin Web UI.

In addition to the routine needing **Allow DTMF** enabled, the Admin Web UI must have **Execute Routines** CoS enabled (see *"Using CoS Configuration" on page 61*).

To launch a routine from the Admin Web UI:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Under Calling/Paging, select **Routines**.

Step 3 Select one of the listed routines.

To stop a routine from the Admin Web UI:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Under Calling/Paging, select **Routines**.

Step 3 Select **Routines Manager**.

Step 4 Select the routine that you want to stop.

> **Note:** Stopping a routine does not reverse any actions that the routine has already started. You may need to clear the actions manually.

Step 5 Select **Yes**.

13.2 Launching a Routine from the Admin Phone

You can manually launch a routine that has **Allow DTMF** enabled from an Admin Phone by doing one of the following:

- Dial *94<Routine-DTMF-Code>.
- Select the **Routines** menu from the Admin Phone and then select the routine that you want to launch.

> **Note:** Only routines with **Allow DTMF** enabled appear in the menu.

In addition to the routine needing **Allow DTMF** enabled, the Admin Phone must have **Execute Routines** CoS enabled (see "*Using CoS Configuration" on page 61*).

If you disconnect the call during a routine, the routine continues until finished. If the routine includes **Pause** actions, the call will not disconnect until all **Pause** actions have been executed.

A routine launched from the Admin Phone may end with any of the following page commands, provided the Admin Phone has the appropriate CoS enabled:

- All-Call
- Emergency-All-Call
- Facility-Page
- Multi-Site-All-Call
- Multi-Site-Emergency-All-Call
- Zone-Page

13.3 Using the Routines API

You can allow third-party systems, such as access control systems, to launch a routine, or you can remotely launch a routine using the Routines API.

The routine must be created from an Admin Station that has the CoS parameter **Execute Routines** enabled (see "*Using CoS Configuration" on page 61*).

The routine must have the **Allow API** parameter enabled (see "*Editing a Routine" on page 387*).

> **Note:** The routine cannot end with a paging action or any call type action that requires a user to speak.

To remotely launch a routine using the Routines API:

Step 1 On the browser's address line, type:

http://<server_ip_address>/routine/api/<routine_dtmf_code>/<password>/<delay_flag>

where:

<server_ip_address> is replaced by the Nyquist server's IP address

<routine_dtmf_code> is replaced by the routine's DTMF code

<password> is replaced by the password associated with the extension defined in the routine.

<delay_flag> is replaced by either 1 or 0. A setting of 1 returns the status to the remote station after the routine finishes while a setting of 0 returns the status immediately after the routine launches.

13.4 Viewing Routines

Selecting **Routines** from the navigation bar allows you to view and edit existing routines and to create new routines.

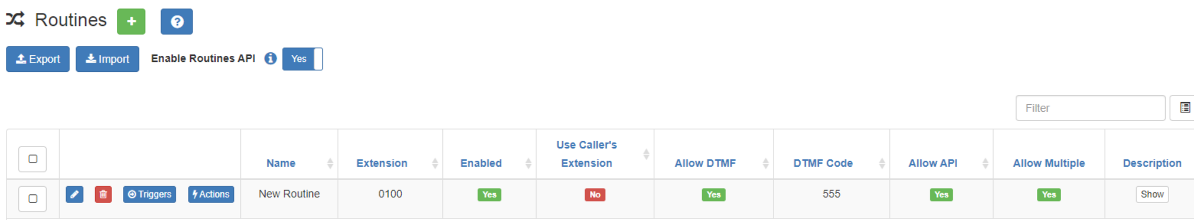


Figure 13-1, Routines

To view existing routines:

On the navigation bar, select **Routines.**

The Routines page displays the following parameters for each routine:

Table 13-1, Routines Parameters

Name	Displays the routine's name.
Extension	For routine actions that require a CoS permission, this is the station extension to use for granting the required permissions. The extension is also used as the Caller ID wherever Caller ID is displayed. If the caller's extension is used, this field must be blank. **Note:** Either this field or **Use Callers Extension** must be set or the routine is invalid.
Enabled	Specifies if the routine is enabled. Routine is disabled by default.

Table 13-1, Routines Parameters (Continued)

Use Caller's Extension	Specifies that the caller's extension is to be used instead of the station extension. This option may be appropriate when a routine is expected to be executed by a caller dialing a DTMF code or when a routine trigger is associated with an event that involves a caller (for example, All-Call, Zone Page) who has sufficient CoS permissions to execute the routine's actions. If **Extension** is used, this field must not be set. This field is enabled by default. **Note:** Either this field or **Extension** must be set or the routine is invalid.
Allow DTMF	Specifies if the routine can be manually started by dialing the routine's DTMF code from an Admin Phone. This field is disabled by default.
DTMF Code	Specifies the number to use when manually starting the routine from an Admin Phone or by the Routine API. The number can have from 1 to 10 digits. You cannot assign the same DTMF code to multiple routines.
Allow API	Specifies if the routine can be executed via the Routines API. The Routines API is an application programming interface that allows a third-party application, such as a fire alarm system, to launch a Nyquist routine.
Allow Multiple	Specifies if multiple instances of the routine can run at the same time. This field is enabled by default. If disabled, the system allows only one instance of the routine to execute regardless of how many times a routine might be triggered while already executing.
Description	Select **Show** to view a description of the routine.

You can also select the **Triggers** button to select or add triggers to launch the routine or select the **Actions** button to select or add **Actions** that will occur as part of the routine.

13.5 Adding a Routine

Adding a routine creates a **New Routine** on the Routines page. By default, this new routine is not enabled. It also has no **Triggers** or **Actions**.

To add a routine:

Step 1 On the navigation bar, select **Routines**.

Step 2 On the Routines page, select the **Add** icon.

The Edit Routine page appears (see "*Editing a Routine" on page 387*).

> **Note:** When a Routine is added, edited, or deleted, all Admin phones will automatically be rebooted to update their **Routines** menu.

13.6 Editing a Routine

Editing a routine allows you to change the **Name** from **New Routine** to a more descriptive name. The Edit Routine page allows you to set other parameters for the routine (see *Table 13-1, "Routines Parameters," on page 385*).

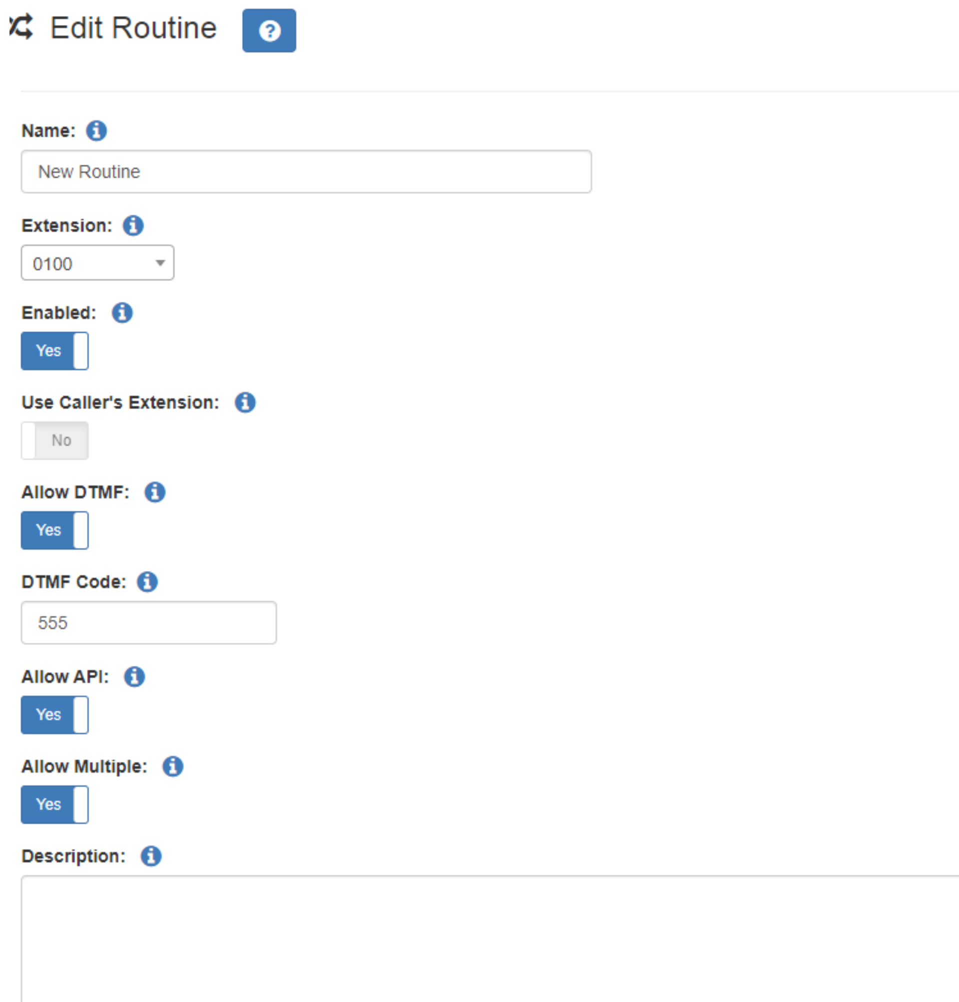


Figure 13-2, Edit Routine

To edit a routine:

Step 1 On the navigation bar, select **Routines**.

Step 2 On the Routines page, select the **Edit** icon.

Step 3 Complete the changes for the parameters on the Edit Routines page (see "*Routines Parameters" on page 385*).

Step 4 Select **Save**.

13.7 Deleting a Routine

Use caution when deleting routines. If you delete a routine and then recreate it, you may need to assign a new DTMF Code if the previous code was assigned to another routine.

To delete a routine:

Step 1	On the navigation bar, select **Routines**.
Step 2	On the Routines page, select the **Delete** icon next to the routine that you want to delete.
Step 3	When prompted, select **Delete**.

13.8 Creating and Executing Multi-Site Routines

You can create a routine to be launched on one or more remote sites, such as a lockdown routine to be launched at all sites in a district.

To create such a routine, you would select the **Routine** action **Type** (see "*Actions" on page 402* and "*Understanding Action Parameters" on page 406*). You can select to execute the action on the local facility, a specific facility, or all facility. If you want to execute the routine or multiple, but not all, facilities, you must create a separate action for each facility (using **Routine** action **Type**).

When you select a specific facility, you can enter the DTMF code of the routine. A routine with that DTMF code must exist on that facility.

Routines that are triggered by another site will not execute calling or paging type actions. Also, the receiving facility must have **Use Caller Extension** disabled.

> **Note:** There will be a one-second delay between execution of one **Routine** action and another **Routine** action. So, if you execute a multi-site routine for 10 sites, there will be 10-second delay between when the routine starts on the first facility and when it starts on the tenth facility. To eliminate this delay, you can select **All Facilities** and then ensure that a routine with the specified DTMF does not exist on the sites that you do not want to run the routine. If **All Facilities** is selected, the remote routines start at the same time.

13.8.1 Call Detail Records

Call Detail Records (CDRs) are created when a routine is started. When started on a local facility, the **Destination** field will show **Local Facility** and the **Type** field will show **Start Routine (<routine-DTMF-code>)**.

When a routine is started on a selected remote facility, the CDR will show the remote facility name in the **Destination** field and **Start Remote Routine (<routine-DTMF-code>)** in the **Type** field.

When a routine is started on all facilities, the CDR will show **All Facilities** in the **Destination** field and **Start Remote Routine (<routine-DTMF-code>)** in the **Type** field.

For more information about view CDRs, see *"Viewing Call Detail Records" on page 319*.

13.9 Allowing Input Contact Closure to Initiate Ring-Tone to Speakers

Through the Routines feature, you can let an input contact closure initiate the playing of a ringtone to designated stations.

To do this, create a routine (see *"Adding a Routine" on page 387*) that uses **Play-Ringtone** as the action **Type** (see *"Understanding Action Parameters" on page 406*). For the **Action**, select **Start**. Select the **Zones** that contain the speakers you want to play the ringtone.

To stop the ringtone, create a second routine that is triggered when the contact opens and uses the **Stop** for the **Action**.

13.10 Using Triggers

A trigger is an event that starts a routine. By default, when you create a routine, it has no trigger or actions.

A trigger can have up to two parameters. For example, you can create a trigger that uses a specific Announcement. The first parameter would be the **Announcement Type** (Number) and the second parameter would be the **Announcement**.

13.10.1 Viewing Triggers for a Routine

Figure 13-3, Triggers

To view triggers for a routine:

Step 1 On the navigation bar, select **Routines**.

Step 2 Select **Triggers** for the routine that you want to view triggers for.

If a trigger has been added for the selected routine, information about the trigger appears (see *Table 13-2, "Triggers," on page 391*).

From the Triggers page, you can also add a trigger or select the **Actions** button to add actions that the selected routine will perform.

Step 3 Select **Done** when finished viewing.

Table 13-2, Triggers

Name	Displays the user-provided name for the trigger.
Enabled	Specifies if the trigger is enabled. When enabled, the trigger will cause the routine to begin when the trigger event occurs.

Table 13-2, Triggers (Continued)

Type	Displays the system event that triggers the routine. Type can be one of the following: • 911 • Alarm • All-Call • Announcement • Audio-Disabled • Audio-Enabled • Audio-Dist (Audio Distribution) • Check-in • Emergency-Call • Emerg-All-Call • Facility Page • Facility Status Down • Incoming-Call • Input-Contact-Closed • Input-Contact-Opened • Intercom-Call • Multi-Site-All-Call • Multi-Site-E-All-Call • Night-Ring • Reboot • Sched-Event (Scheduled Event) • Station-Status-Up • Station-Status-Down • Tone • Urgent-Call • Zone-Page

Table 13-2, Triggers (Continued)

Parameter 1	Displays the first parameter for the specified trigger if required. For example, if a trigger involves the closing of a contact on an I/O Controller, Parameter 1 is the name of the I/O Controller. For more information about Parameter 1 options, see *"Understanding Trigger Parameters" on page 395*.
Parameter 2	Displays the second parameter for the specified trigger if required. For example, if a trigger involves the closing of a contact on an I/O Controller, Parameter 2 is the specific contact or contacts of the device. For more information about Parameter 2 options, see *"Understanding Trigger Parameters" on page 395*.
Description	Displays the description entered by the user for the selected trigger.

13.10.2 Adding a Trigger

One or more triggers, which are events that launch a routine, can be added to a routine. When adding a trigger, you can set up to two parameters for the trigger (see *"Understanding Trigger Parameters" on page 395*).

To add a trigger:

Step 1 On the navigation bar, select **Routines**.

Step 2 Select **Triggers** for the routine that you want to add a trigger for.

Step 3 Select the **Add** icon.

The Edit Trigger page appears.

Step 4 Complete the parameters for the new trigger (see *"Editing a Trigger" on page 394*).

Step 5 Select **Save**.

13.10.3 Editing a Trigger

Editing a trigger allows you to change the **Name** from **New Trigger** to a more descriptive name, such as Fire Alarm Activated. The Edit Trigger page allows you to set other parameters for the trigger.

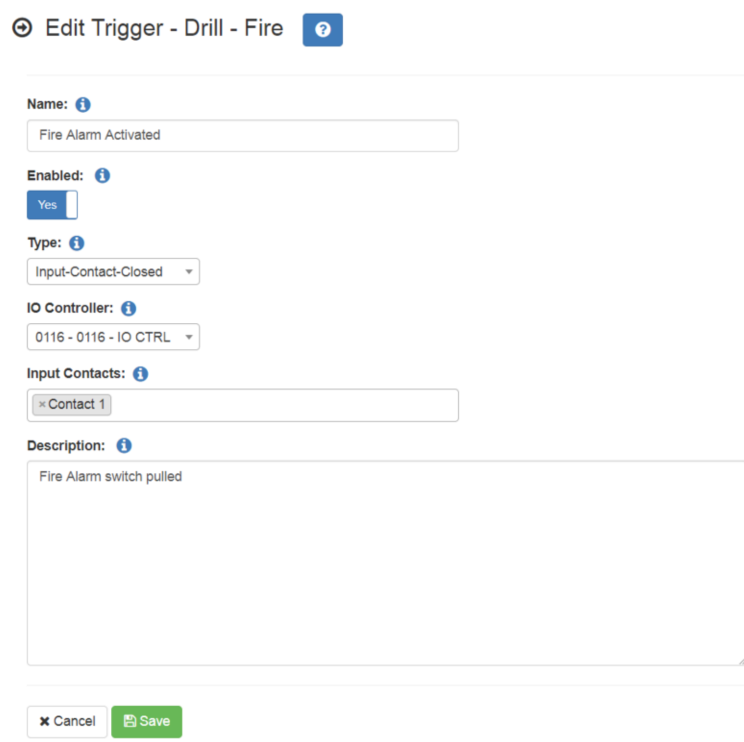


Figure 13-4, Edit Trigger

To edit a trigger:

Step 1 On the navigation bar, select **Routines**.

Step 2 Select **Triggers** for the routine that you want to edit a trigger for.

Step 3 Select the **Edit** icon.

Step 4 Complete parameters for the trigger. (See *Table 13-2, "Triggers," on page 391*.)

Step 5 Select **Save**.

13.10.4 Deleting a Trigger

To delete a trigger:

Step 1 On the navigation bar, select **Routines**.

Step 2 Select the Delete icon next to the trigger that you want to delete.

Step 3 When prompted, select **Delete**.

13.10.5 Understanding Trigger Parameters

A trigger can have up to two parameters, depending on the **Type** selected.

When viewing triggers, the parameters appear as **Parameter 1** and **Parameter 2**. On the Edit Trigger page, though, the parameter names and available selections change based on the **Type**. For example, if **Alarm** is selected as **Type**, a field called **Alarm** appears with a drop-down menu that shows all of the tones with **Type** set to **Alarm** on the Tones page (see "*Viewing Available Tones" on page 256*).

If you select the trigger **Type** to **Announcement**, the **Announcement Type** field appears. The selection for **Announcement Type** will appear as **Parameter 1** on the Triggers page. For some Announcement Types, additional information is needed. For instance, if you select **Normal-Zone** as the **Announcement Type** on the Edit Trigger page, the **Zone** field appears. From the Zone field, you can select **All Speakers**, **Any Zone**, or a specific zone.

Some triggers have no parameters. For example, if you select **Emerg-All-Call** for **Type**, no parameters are applicable.

The following table describes the trigger **Type** and any applicable parameters.

Table 13-3, Trigger Types and Parameters

Type	Parameter 1	Parameter 2
911	None	None
Alarm	Alarm • Selected alarm • Any	None
All-Call	None	None

Table 13-3, Trigger Types and Parameters (Continued)

Type	Parameter 1	Parameter 2
Announcement	Announcement type	
	• Any	None
	• Number	Announcement
	• Normal-Any	None
	• Normal-Zone	Zone • All Speakers • Any Zone • Selected Zone
	• Emergency-Any	None
	• Emergency-Zone	Zone • All Speakers • Any Zone • Selected Zone
Audio-Dist **Note:** This type of routine must have an extension defined and **Use Caller's Extension** must be set to **No**. If you want to trigger on a Scheduled Audio that uses a playlist, make the playlist an Audio Distribution selection and then schedule the Audio Distribution instead of the playlist.	Audio Distribution Command • Start • Stop	Audio Distribution Selection • Any • Selected Audio Distribution
Audio Disabled	None	None

Table 13-3, Trigger Types and Parameters (Continued)

Type	Parameter 1	Parameter 2
Audio Enabled	None	None
Check-In **Note:** Done indicates that all stations that were expected to check in have done so. Finished indicates that the check-in process was manually finished by an admin user at the completion of check-in.	Check In • Start • Stop • Done • Finished • Reset	Stations • Any • Selected station or stations
Emergency-Call **Note:** When both Callers and Called are specified, the trigger will occur when an intercom call involves a specified caller OR a specified called party.	Callers • Any • Selected station or stations	Called • Any • Selected station or stations
Emerg-All-Call	None	None
Facility Page	Facility • Any • Selected facility number	None

Table 13-3, Trigger Types and Parameters (Continued)

Type	Parameter 1	Parameter 2
Facility Status Down **Note:** This type of routine must have an extension defined and Use Caller's Extension must be set to No. If displaying messages, delete messages first using IDENT, then create messages with IDENT set. **Warning Routines will be triggered every 60 seconds. Make sure that repeating actions make sense.**	Facility • Any • Selected facility number	None
Incoming-Call **Note:** Incoming-Call triggers on incoming calls from the PSTN (from SIP or DAHDI trunks) that are received by an Admin station. (The Admin station rings and the call must be answered). Incoming-Call does not trigger on incoming DISA or Security DISA calls.	None	None

Table 13-3, Trigger Types and Parameters (Continued)

Type	Parameter 1	Parameter 2
Input-Contact-Closed **Note:** If it is possible for the input contact to be repeatedly closed or opened in a very short time frame, consider setting **Allow Multiple** to **No** so the routine prevents multiple invocations from simultaneously occurring.	IO Controller • Selected IO Controller	Input Contacts • Selected input contact or contacts
Input-Contact-Opened **Note:** If it is possible for the input contact to be repeatedly closed or opened in a very short time frame, consider setting **Allow Multiple** to **No** so the routine prevents multiple invocations from simultaneously occurring.	IO Controller • Selected IO Controller	Input Contacts • Selected input contact or contacts
Intercom-Call	Callers • Any • Selected station or stations	Called • Any • Selected station or stations
Multi-Site-All-Call	None	None
Multi-Site-E-All-Call	None	None

Table 13-3, Trigger Types and Parameters (Continued)

Type	Parameter 1	Parameter 2
Night-Ring **Note:** Use the Action **Ring-Wait** to detect when a call has been answered or disconnected. See *"Understanding Action Parameters" on page 406* for more information. A routine that uses the night-ring trigger *must* have **Use Caller's Extension** disabled and an assigned Extension with the proper CoS.	None	None
Reboot **Note:** Routines with this trigger will execute whenever the Nyquist server reboots. This trigger is intended to start routines that are normally started via DTMF or API calls. To use this trigger, you must have an extension defined and disable **Use Caller's Extension**.	None	None
Scheduled-Event	Scheduled Event • Any • Selected event	None

Table 13-3, Trigger Types and Parameters (Continued)

Type	Parameter 1	Parameter 2
Station-Status-Up **Note:** You must define an extension in the routine and disable **Use Caller's Extension**.	Stations • Any • Selected station or stations	None
Station-Status-Down **Note:** This type of routine must have an extension defined and **Use Caller's Extension** must be set to **No**.	Stations • Any • Selected station or stations	None
Tone	Tone • Any • Selected tone	None
Urgent-Call **Note:** When Callers and Called are both specified, the trigger will occur when intercom call involves a specified caller OR a specified called party	Callers • Any • Selected station or stations	Called • Any • Selected station or stations
Zone-Page	Zone • Any • Selected zone	None

13.11 Actions

An action is an activity or task that the system performs as the result of a trigger launching a routine. For example, a routine that uses a selected tone for the trigger could have audio distribution start as the action.

13.11.1 Viewing Actions for a Routine

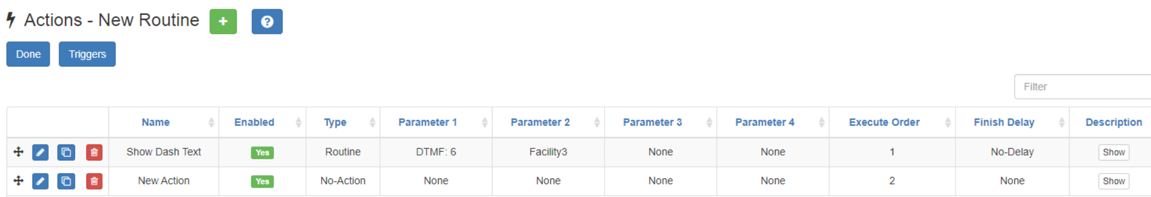


Figure 13-5, Actions

To view actions for a routine:

Step 1 On the navigation bar, select **Routines**.

Step 2 Select **Actions** for the routine that you want to view actions for.

If an action has been added for the selected routine, information about the action appears (see *Table 13-4, "Actions," on page 402*).

From the Actions page, you can also add an action or select the **Triggers** button to add triggers that the selected routine will perform.

Step 3 Select **Done** when finished viewing.

Table 13-4, Actions

Name	Displays Name of the action.
Enabled	Move the slider to **Yes** to enable this action.

Table 13-4, Actions (Continued)

Type **Note:** Depending on the Type, additional parameters may be set (see *"Understanding Action Parameters" on page 406*).	Displays the type of action. Type can be one of the following: • Alarm • All-Call • Announcement • Audio-Dist-Start (Audio Distribution Start) • Audio-Dist-Stop (Audio Distribution Stop) • Call-And-Announce • Check-In • Check-intercom • Dash-Delete (Dashboard Text Delete) • Dash-Text (Dashboard Text) • Disable-Audio • Display-Msg (Display NQ-GA10PV Message) • Display-Msg-Delete (Delete NQ-GA10PV Message) • Enable-Audio • Email • Emergency-Call • Emerg-All-Call (Emergency All-Call) • Facility-Page • Feature-Wait • Intercom-Call • Intercom-Wait • Multi-Site-All-Call • Multi-Site-E-All-Call • No-Action • Output-Contact-Close • Output-Contact-Open • Page-Exclusion • Pause • Play-Ringtone • Ring-Wait • Routine • Tone • Urgent Call • Zone-Page

Table 13-4, Actions (Continued)

Parameter 1	Displays the first parameter for the specified action type if required. For example, if Routine is selected as action **Type**, then the DTMF Code for the routine appears as Parameter 1.
Parameter 2	Displays the second parameter for the specified action type if required. For example, if **Routine** is selected as the action **Type**, then either **Local** or a specific facility appears as Parameter 2.
Parameter 3	Displays the third parameter for the specified action type if required.
Parameter 4	Displays the fourth parameter for the specified action type if required.
Execute Order	Displays the order that the action should be executed.
Finish Delay	Specifies if the routine should wait until this action is completed before starting the next action.
Description	Displays the user provided description for the action.

13.11.2 Adding an Action

One or more actions can be added to a routine. When adding an action, you can set up to four parameters for the action (see "*Understanding Action Parameters" on page 406*).

To add a trigger:

Step 1 On the navigation bar, select **Routines**.

Step 2 Select **Actions** for the routine that you want to add an action for.

Step 3 Select the **Add** icon.

The Edit Action page appears.

Step 4 Complete the parameters for the new action (see *"Actions" on page 402*).

Step 5 Select **Save**.

13.11.3 Editing an Action

Editing an action allows you to change the **Name** from **New Action** to a more descriptive name, such as Announcement. The Edit Action page allows you to set other parameters for the action.

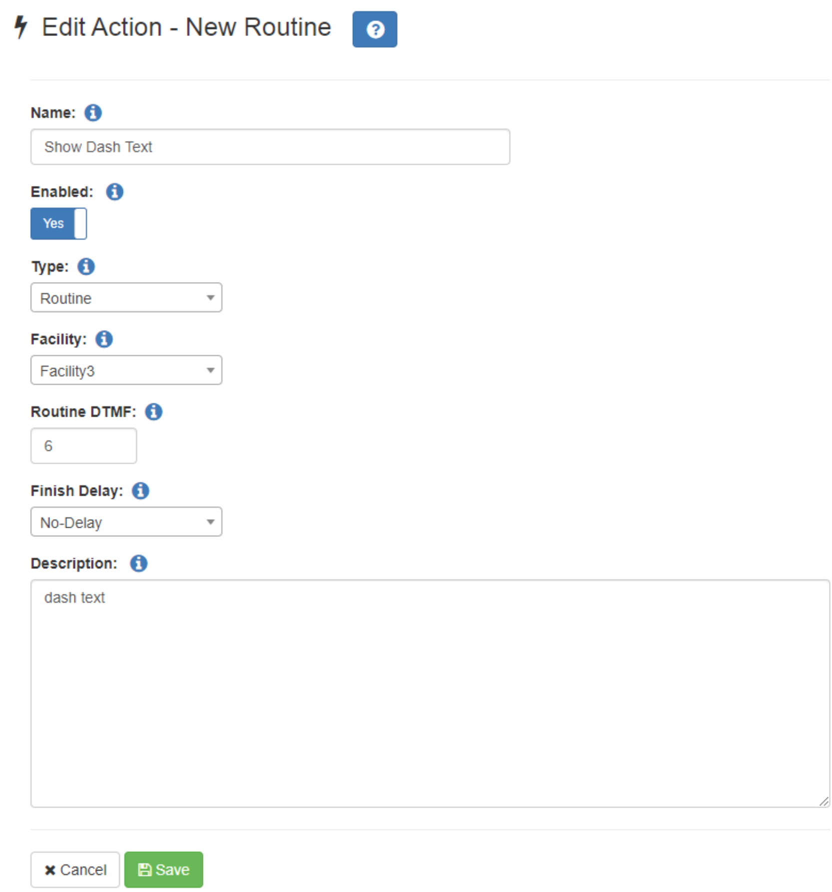


Figure 13-6, Edit Action

To edit an action:

Step 1 On the navigation bar, select **Routines**.

Step 2 Select **Actions** for the routine that you want to edit an action for.

Step 3 Select the **Add** icon.

The Edit Action page appears.

Step 4 Complete the parameters for the action (see "*Actions*" *on page 402*).

Step 5 Select **Save**.

13.11.4 Cloning an Action

If an action is used more than once in a routine, you might want to clone the action rather than create a new action. Cloning an action creates a duplicate of the selected action and places the duplicate at the end of the action list.

You can edit a cloned action if you want to change any of the parameters, such as duration.

To clone an action:

Step 1 On the navigation bar, select **Routines**.

Step 2 Select **Actions** for the routine that has the action you want to clone.

Step 3 Select the **Clone** button ( ) for the action that you want to duplicate.

13.11.5 Understanding Action Parameters

An action can have up to four parameters, depending on the **Type** selected.

When viewing actions, the parameters appear as **Parameter 1**, **Parameter 2**, **Parameter 3**, and **Parameter 4**. On the Edit Action page, though, the parameter names and available selections change based on the **Type**. For example, if **Alarm** is selected as **Type**, a field called **Alarm** appears with a drop-down menu that shows all of the tones with **Type** set to **Alarm** on the Tones page (see "*Viewing Available Tones" on page 256*). With this type of action, you can also set the **Duration**, which appears on the Actions page as **Parameter 3**. Parameters 2 and 4 are not used for this type of action, but you can set a **Finish Delay**, which establishes if the routine should wait until this action is completed before starting the next action.

Some actions have no parameters. For example, if you select **All-Call** for **Type**, no parameters are applicable.

The following table describes the action **Type** and any applicable parameters.

Table 13-5, Action Types and Parameters

Type	Parameter 1	Parameter 2	Parameter 3	Parameter 4
Alarm **Note:** In addition to the parameters, you can also set a **Finish Delay**, of either **No-Delay** or **Wait-Until-Done**.	Alarm • Selected alarm	None	Duration • Number of seconds for action to continue; default is 86400 seconds (24 hours)	None
All-Call **Note:** All-Call must be the last action in a routine. In addition to the parameters, you can also set a **Finish Delay**, of either **No-Delay** or **Wait-Until-Done**.	None	None	None	None
Announcement **Note:** In addition to the parameters, you can also set a **Finish Delay**, of either **No-Delay** or **Wait-Until-Done**.	Announcement • Selected announcement	Zone • All speakers • Selected zone	Duration • Number of seconds for action to continue; default is 86400 seconds (24 hours) **Note:** The announcement will stop when the duration length is reached, regardless of the length of the announcement.	None
Audio-Dist-Start **Note:** In addition to the parameters, you can also set a **Finish Delay**, of either **No-Delay** or **Wait-Until-Done**	Audio Distribution • Selected Audio Distribution	None	None	None

Table 13-5, Action Types and Parameters (Continued)

Type	Parameter 1	Parameter 2	Parameter 3	Parameter 4
Audio-Dist-Stop **Note:** In addition to the parameters, you can also set a **Finish Delay**, of either **No-Delay** or **Wait-Until-Done**	Audio Distribution • Selected Audio Distribution • All	None	None	None
Call-And-Announce	Number to Call • 911 • Station Extension • A local 7-digit phone number prefixed with 98 • A local 10-digit phone number prefixed with 98 • A long distance 10-digit phone number prefixed with 981 **Note:** If the specified number to call is not a station extension, then at least one outgoing SIP trunk or Outside Line DAHDI port must be available, and the CoS of the Routine extension must match the extension defined by the SIP trunk or Outside Line DAHDI port.	Announcement to Play • Selected announcement	Play Count • Continuous Play • Number of times to play **Note:** If left blank or set to zero (0), the announcement plays continuously until the called number hangs up. If you are playing the announcement to a station that cannot disconnect the call (such as a speaker), specify the number of times to play the announcement.	None

Table 13-5, Action Types and Parameters (Continued)

Type	Parameter 1	Parameter 2	Parameter 3	Parameter 4
Check-In **Note:** In addition to the parameters, you can also set a **Finish Delay**, of either **No-Delay** or **Wait-Until-Done**	Check In • Start • Stop • Done • Finish • Wait • Station • Vacancy-Add • Vacancy-Delete • Reset • Exclude-Add • Exclude-Delete	Stations • Selected Stations **Note:** Used when Parameter 1 is Station, Vacancy-Add, Vacancy-Delete, Exclude-Add, or Exclude-Delete.	None	None
Check-Intercom	None	None	None	None
Dash-Delete **Note:** This action type is for deleting messages from the web interface dashboard. When calls are placed from outside the system, displays the phone number of the caller. The number used for Number is based on the order the message was created; the third message created would be identified as number 3.	Dash Delete			
	• LIFO (Last In, First Out)	None	None	None
	• FIFO (First In, First Out)	None	None	None
	• IDENT	Identifier The following variables can be used: $caller $called $facility $eventid $eventname $station $zone	None	None
	• Number	Number	None	None

Table 13-5, Action Types and Parameters (Continued)

Type	Parameter 1	Parameter 2	Parameter 3	Parameter 4
Dash-Text **Note:** This action type is for adding messages to web interface dash-boards.	Style • Basic • Danger • Info • Success • Warning	Identifier The following vari-ables can be used: $caller $called $df-avail $facility $eventid $eventname $station $uptime $zone **Note:** This param-eter is optional.	Scope • All • Admin	Text **Note:** When entering the text to display, you can use variables, such as $caller. When $caller is used in the Text parameter for dashboard and NQ-GA10PV dis-play messages, the variable is replaced by the ID of the caller that triggered the rou-tine. When calls are placed from outside the sys-tem, displays the phone number of the caller. The following vari-ables can be used: $caller $called $facility $eventid $eventname $namecaller $namecalled $station $zone
Disable Audio **Note:** In addition to the parame-ters, you can also set a **Finish Delay**, of either **No-Delay** or **Wait-Until-Done**	None	None	None	None

Table 13-5, Action Types and Parameters (Continued)

Type	Parameter 1	Parameter 2	Parameter 3	Parameter 4
Display-Msg **Note:** Use this action **Type** to create a routine for displaying emergency alerts from the National Weather Service (NWS). See "*Setting Variables for the Display Message" on page 426* for descriptions about the variables used in an Alerts routine. This action Type allows you to set the Display Time in seconds, Priority, text, and message style settings (background color, font, font size, font color, font styles). For more information about message settings, see "Using Color in Display Messages" on page 365.	Zones • All Displays • Selected zone or zones	Identifier **Note:** This parameter is optional and is designed for use to identify a message for deletion. The following variables can be used: $caller $called $df-avail $facility $eventid $eventname $station $uptime $zone	Stations • Selected NQ-GA10PV station • $called **Note:** Using the $called variable allows a single Intercom-call triggered routine to handle all NQ-GA10PV displays.	Additionally entered parameters are automatically placed in this parameter. The following variables can be used: $caller $called $facility $eventid $eventname $namecaller $namecalled $station $zone

Table 13-5, Action Types and Parameters (Continued)

Type	Parameter 1	Parameter 2	Parameter 3	Parameter 4
If you plan to use **Display Message Delete** to delete display message manually, set duration to 0 (which means do not automatically delete message.) When entering the text to display, you can use variables, such as $caller. When $caller is used in the Text parameter for dashboard and NQ-GA10PV display messages, the variable is replaced by the ID of the caller that triggered the routine. When calls are placed from outside the system, displays the phone number of the caller. You can also use basic HTML tags, such as: • <b> for bold • <i> for italic • <u> for underline				

Table 13-5, Action Types and Parameters (Continued)

<table>
<tr><th>Type</th><th>Parameter 1</th><th>Parameter 2</th><th>Parameter 3</th><th>Parameter 4</th></tr>
<tr><td rowspan="6">Display-Msg-Delete

Note: GA10PV Display Messages created by a Routine that expire during the Routine's execution remain in the undeleted messages list until deleted with a Display-Msg-Delete action. When using LIFO, FIFO, or NUMBER to delete display messages, you will still need to execute a delete command for any display messages that have expired during the Routine's execution.</td><td>Display Message Delete</td><td></td><td></td><td></td></tr>
<tr><td>• LIFO</td><td>None</td><td>None</td><td>None</td></tr>
<tr><td>• FIFO</td><td>None</td><td>None</td><td>None</td></tr>
<tr><td>• IDENT</td><td>Identifier

The following variables can be used:
$caller
$called
$facility
$eventid
$eventname
$station
$zone</td><td>None</td><td>None</td></tr>
<tr><td>• PARAM</td><td>Zones

Note: This field is optional.</td><td>Stations

Note: This field is optional.</td><td>None</td></tr>
<tr><td>• NUMBER</td><td>Number</td><td>None</td><td>None</td></tr>
<tr><td>Enable-Audio

Note: You can set a Finish Delay, of either No-Delay or Wait-Until-Done.</td><td>None</td><td>None</td><td>None</td><td>None</td></tr>
</table>

Table 13-5, Action Types and Parameters (Continued)

Type	Parameter 1	Parameter 2	Parameter 3	Parameter 4
Email **Note:** In addition to the parameters, you can also set a **Finish Delay**, of either **No-Delay** or **Wait-Until-Done**.	Send Email To • None • Default **Note:** This field cannot be edited when **Use Email Configuration** is set to **Yes**. You can use this parameter to send a text message to a cellphone (see *"Using Email Action to Send Text Message" on page 419*.	Subject The following variables can be used: $caller $called $df-avail $facility $eventid $eventname $namecaller $namecalled $station $uptime $zone **Note:** The availability of variables is based on the trigger type.	Text The following variables can be used: $caller $called $facility $eventid $eventname $namecaller $namecalled $station $zone **Note:** The availability of variables is based on the trigger type.	None
Emergency-Call	Placed by • Calling Station • Selected Station **Note:** If Calling Station is used, this action must be the last action in the routine and must be executed via DTMF code.	None	None	None
Emerg-All-Call **Note:** This action must be the last action in a routine.	None	None	None	None
Facility-Page **Note:** This action must be the last action in a routine.	Facility • Selected facility	None	None	None

Table 13-5, Action Types and Parameters (Continued)

Type	Parameter 1	Parameter 2	Parameter 3	Parameter 4
Feature-Wait	Feature Wait • 911 **Note:** 911 waits for the specific caller to discon-nect. • Alarm • Announce-ment • All-Call • Disable-Audio • Emerg-All-Call • Facility-Page **Note:** Facility-Page should only be used when the trigger is also Facility-Page. • Multi-Site-All-Call • Multi-Site-E-All-Call • Tone • Zone-Page	Maximum Wait Time • Number of seconds to wait for feature to complete; default is 86400 seconds (24 hours) **Note:** A value of 0 means to wait until the feature has completed regardles of the time it takes to complete. If the feature is not active, the routine continues to the next action.	None	None
Intercom-Call	Placed by • Calling Station • Selected Sta-tion **Note:** If Calling Station is used, this action must be the last action in the routine and must be executed via DTMF code.	Received by • Station that received the call	None	None

Table 13-5, Action Types and Parameters (Continued)

Type	Parameter 1	Parameter 2	Parameter 3	Parameter 4
Intercom-Wait **Note:** This action can be used to wait for an Intercom Call to be disconnected or for the end of a Real-Time (not queued) Zone Page by caller.	None	None	None	None
Multi-Site-All-Call **Note:** This must be the last action in a routine.	None	None	None	None
Multi-Site-E-All-Call **Note:** This must be the last action in a routine.	None	None	None	None
No-Action	None	None	None	None
Output-Contact-Close	IO Controller • Selected IO Controller	Output Contacts • Selected output contact or contacts	Duration • Number of seconds for action to continue **Note:** Duration of 0 will cause the contact or contacts to momentarily close. Leaving Duration blank will cause the contact to stay close; use **Output-Contact-Open** to reopen the contact.	None
Output-Contact-Open	IO Controller • Selected IO Controller	Output Contacts • Selected output contact or contacts	None	None

Table 13-5, Action Types and Parameters (Continued)

Type	Parameter 1	Parameter 2	Parameter 3	Parameter 4
Page-Exclusion	Page Exclusion • Add • Delete	Stations • Selected station or stations	None	None
Pause **Note:** If pausing is used in a DTMF-based routine that ends with paging, the page will not start until all pauses have bee executed. If a DTMF-based routine does not end in a page, the call will not disconnect until all pauses have been executed.	Duration • Number of seconds to pause	None	None	None
Play-Ringtone **Note:** Using this action type will not trigger a routine that has a night-ring trigger.	Action • Start • Stop	Zones • All speakers • Selected zone	Timeout (Seconds) **Note:** Blank or 0 means no timeout.	
Ring-Wait **Note:** Waits for caller's ring to end.	None	None	None	None

Table 13-5, Action Types and Parameters (Continued)

Type	Parameter 1	Parameter 2	Parameter 3	Parameter 4
Routine **Note:** In addition to the parameters, you can also set a **Finish Delay**, of either **No-Delay** or **Wait-Until-Done**. All trigger parameters and trigger types from the selected routine pass to the new routine so both routines have the same trigger context.	Routine • Selected Routine If Facility is selected as Parameter 2, then Parameter 1 changes to: Routine DTMF • DTMF of selected routine	Facility • Local • All Facilities • Selected facility	None	None
Tone **Note:** In addition to the parameters, you can also set a **Finish Delay**, of either **No-Delay** or **Wait-Until-Done**.	Tone • Selected tone	None	Duration • Number of seconds for action to continue; default is 86400 seconds (24 hours)	None
Urgent Call	Placed by • Calling Station • Selected Station **Note:** If Calling Station is used, this action must be the last action in the routine and must be executed via DTMF code.	None	None	None

Table 13-5, Action Types and Parameters (Continued)

Type	Parameter 1	Parameter 2	Parameter 3	Parameter 4
Zone-Page **Note:** This must be the last action of the routine. Dashboard messages created during the routine will be deleted when the user disconnects the call.	Zone • Selected zone	None	None	None

13.11.6 Using Email Action to Send Text Message

You can use the **Email** action **Type** to send a situation specific message an email address outside the Nyquist system and to send a text message to a cellphone. For text messages, the cellular server provider receives the email message and converts it to text.

The following table provides formats to use in the **Send Email To** field when creating or editing an **Email** action **Type**:

Table 13-6, Email Address Formats for Cellular Carriers

Cellular Carrier	Format
AT&T	<phone number>@txt.att.net
T-Mobile	<phone number>@tmomail.net
Sprint	<phone number>@messaging.sprintpcs.com
Verizon	<phone number>@vtext.com ***OR*** <phone number>@vzwpix.com
Virgin Mobile	<phone number>@vmobl.com

13.11.7 How Actions Impact Other Actions

When creating a routine, you must take into account how an action impacts other actions in the routine. For example, if you want an announcement to play after an alarm, you want to ensure that the alarm ends before the announcement begins. Otherwise, the announcement may not be heard. In this scenario, you would want to ensure that the action to play an announcement *waits* until the alarm ends.

13.11.7.1 Check-Intercom, Intercom-Wait, Ring-Wait Action Types

If a routine's trigger **Type** is **Intercom-Call**, the routine's action **Type** could be **Check-Intercom**, **Intercom-Wait**, or **Ring-Wait**. Each of these action types depend on the status of the **Callers** – parameter 1 for the trigger (see *"Understanding Trigger Parameters" on page 395*).

The **Check-Intercom** action **Type** checks to see if the trigger caller is on an active intercom call. If the trigger caller is on an active intercom call, the routine executes subsequent actions. If the trigger caller is not on an active intercom call, the routine terminates and remaining actions will not be executed. You may want a routine to execute a **Check-Intercom** action **Type** before executing **Intercom-Wait** to ensure that the trigger caller is on an active intercom call.

The **Intercom-Wait** action **Type** waits for the trigger caller's call to finish. After the call finishes, the routine executes subsequent actions. If the call finishes before **Intercom-Wait** action **Type** is executed, the routine executes subsequent actions without delay.

The **Ring-Wait** action **Type** waits for the trigger caller's ringing to finish. After the ringing stage of a call ends, the routine executes subsequent actions. If the call is answered before the **Ring-Wait** action **Type** executes, the routine executes subsequent actions without delay.

A sample scenario using these three actions is a routine that is executed by the Intercom-Call trigger Type. The routine contains actions to be performed to indicate a ringing call The routine waits for the ring to finish (Ring-Wait action Type). When the ring finishes, the routine executes additional actions and then checks to see if the call was answered (Check-Intercom action Type). If the call was not answered (no active intercom call), the routine terminates. Otherwise, it executes additional actions before waiting for the call to finish (Intercom-Wait action Type), and then when the call is finished, the routine executes the remaining actions.

> **Note:** The check and wait actions described in this section are always related to the caller that triggered the routine. The routine settings for **Extension** and **Use Caller's Extension** are not related to these wait actions; the check and wait actions will always be evaluated based on the trigger caller regardless of the routine's **Extension** or **User Caller's Extension** settings.

13.11.7.2 Check-In Action Type with Check In Set to Wait

When the routine includes a **Check-In** action **Type** and **Check-In** (parameter 1) is **Wait**, the routine pauses the execution of subsequent actions until the Check-in process is no longer active. When the Check-In process is **Finished** or you select **Stop**, **Finish**, or **Reset**, the routine resumes executing actions that follow a finished Check-In process such as: announcing Check-In completed to Admin Station speakers or displaying Check-in completion messages on web interface dashboards or GA10PV displays.

Check-In action **Type** with **Check-In** set to **Wait** does not differentiate between the Check-in process moving to the **Finished** state or having been manually stopped or finished.

> **Note:** If you want to execute routine Actions after all stations have checked in (**Check-In** status is **Done**), create a routine with trigger **Type** set to **Check-In** and **Parameter 1** set to **Done**.

For more information about the Check-In process, see *"Manage Check-In" on page 409*.

13.11.7.3 Feature-Wait Action Type with 911

You may want to include the **Feature-Wait** action **Type** in a routine that is triggered by a 911 call to pause subsequent actions until the 911 call ends. In this scenario, set **Feature Wait** (parameter 1 of the **Feature-Wait** action **Type**) to **911**.

After the 911 call ends, the routine executes subsequent actions. The **911** trigger **Type** can execute routines when any caller dials 911, so multiple routines (one for each active 911 call) could execute.

13.11.7.4 Feature-Wait Action Type with Alarm

If you want to pause subsequent routine actions until the alarm finishes playing, use the **Feature-Wait** action **Type** with **Feature Wait** (parameter 1) set to **Alarm**. If no alarm is playing when the **Feature Wait** action executes, the routine does not wait for an alarm. Instead, it continues executing subsequent actions.

If you want to ensure that the routine includes an active alarm, use **Alarm** as the trigger **Type** (see "*Understanding Trigger Parameters" on page 395*).

If you do not need the routine to wait until the alarm finishes, you can still use **Feature-Wait** as the action **Type** and **Alarm** as **Feature Wait** and set **Maximum Wait Time** (action parameter 2) to the desired amount of time to wait.

13.11.7.5 Feature-Wait Action Type with Announcement

If you want *all* active Normal and Emergency announcements to complete before continue with subsequent routine actions, use the **Feature-Wait** action **Type** with **Feature Wait** (parameter 1) set to **Announcement**.

This action will not allow you to specify which announcement type or which announcement to wait for. The **Announcement** trigger **Type** does allow you to specify an announcement type or number (see "*Understanding Trigger Parameters" on page 395*). However, if the routine uses **Feature-Wait** action **Type** with **Feature Wait** set to **Announcement** and multiple announcements start, then the routine will pause until *all* announcements have completed.

13.11.7.6 Feature-Wait Action Type with All-Call

If you want a routine to pause until an active All-Call page completes, use the **Feature-Wait** action **Type** with **Feature Wait** (parameter 1) set to **All-Call**.

If no All-Call page is playing when the **Feature Wait** action executes, the routine does not wait for an All-Call page. Instead, it continues executing subsequent actions.

If you want to ensure that the routine includes an All-Call page, use **All-Call** as the trigger **Type**.

If you do not need the routine to wait until the All-Call page finishes, you can still use **Feature-Wait** as the action **Type** and **All-Call** as

Feature Wait and set **Maximum Wait Time** (action parameter 2) to the desired amount of time to wait.

13.11.7.7 Feature-Wait Action Type with Disable-Audio

If you want a routine to pause until audio is re-enabled, use the F**eature-Wait** action **Type** with **Feature Wait** (parameter 1) set to **Disable-Audio**.

If audio is enabled when the **Feature Wait** action executes, the routine does not wait for audio to be disabled. Instead, it continues executing subsequent actions.

13.11.7.8 Feature-Wait Action Type with Emerg-All-Call

If you want a routine to pause until an active Emergency All-Call page completes, use the **Feature-Wait** action **Type** with **Feature Wait** (parameter 1) set to **Emerg-All-Call**.

If no Emergency-All-Call page is playing when the **Feature Wait** action executes, the routine does not wait for an Emergency-All-Call page. Instead, it continues executing subsequent actions.

If you want to ensure that the routine includes an Emergency-All-Call page, use **Emerg-All-Call** as the trigger **Type**.

If you do not need the routine to wait until the Emergency-All-Call page finishes, you can still use **Feature-Wait** as the action **Type** and **Emerg-All-Call** as **Feature Wait** and set **Maximum Wait Time** (action parameter 2) to the desired amount of time to wait.

13.11.7.9 Feature-Wait Action Type with Facility-Page

You can use the **Feature-Wait** action **Type** with **Feature Wait** (parameter 1) set to **Facility-Page** in a routine that is triggered by a facility page. The routine will pause subsequent actions until the facility page completes. If no facility page is playing when the Feature Wait action executes, the routine does not wait for a facility page. Instead, it continues executing subsequent actions.

> **Note:** Only routines with the trigger **Type** set to **Facility Page** can use this action.

If you do not need the routine to wait until the facility page finishes, you can still use **Feature-Wait** as the action **Type** and **Facility Page** as **Feature Wait** and set **Maximum Wait Time** (action parameter 2) to the desired amount of time to wait.

13.11.7.10 Feature-Wait Action Type with Multi-Site-All-Call

If you want a routine to pause until a Multi-Site-All-Call page completes, use the **Feature-Wait** action **Type** with **Feature Wait** (parameter 1) set to **Multi-Site-All-Call**.

If no Multi-Site-All-Call page is playing when the **Feature Wait** action executes, the routine does not wait for a Multi-Site-All-Call page. Instead, it continues executing subsequent actions.

If you want to ensure that the routine includes a Multi-Site-All-Call page, use **Multi-Site-All-Call** as the trigger **Type**.

This action will only wait on a Nyquist system that starts the Multi-Site-All-Call. Remote sites that are included in a Multi-Site-All-Call only see a playing All-Call; they do not see it as a Multi-Site call. In this case, this action will have no affect.

If you do not need the routine to wait until the Multi-Site-All-Call page finishes, you can still use **Feature-Wait** as the action **Type** and **Multi-Site-All-Call** as **Feature Wait** and set **Maximum Wait Time** (action parameter 2) to the desired amount of time to wait.

13.11.7.11 Feature-Wait Action Type with Multi-Site-E-All-Call

If you want a routine to pause until a Multi-Site Emergency All-Call page completes, use the **Feature-Wait** action **Type** with **Feature Wait** (parameter 1) set to **Multi-Site-E-All-Call**.

If no Multi-Site Emergency All-Call page is playing when the **Feature Wait** action executes, the routine does not wait for a Multi-Site Emergency All-Call page. Instead, it continues executing subsequent actions.

If you want to ensure that the routine includes a Multi-Site Emergency All-Call page, use **Multi-Site-E-All-Call** as the trigger **Type**.

This action will only wait on a Nyquist system that starts the Multi-Site Emergency All-Call. Remote sites that are included in a Multi-Site Emergency All-Call only see a playing Emergency-All-Call; they do not see it as a Multi-Site Emergency All-Call. In this case, this action will have no affect.

If you do not need the routine to wait until the Multi-Site-Emergency-All-Call page finishes, you can still use **Feature-Wait** as the action **Type** and **Multi-Site-E-All-Call** as **Feature Wait** and set **Maximum Wait Time** (action parameter 2) to the desired amount of time to wait.

13.11.7.12 Feature-Wait Action Type with Tone

If you want a routine to pause until a tone finishes, use the **Feature-Wait** action **Type** with **Feature Wait** (parameter 1) set to **Tone**.

If no tone is playing when the **Feature Wait** action executes, the routine does not wait for a tone to start. Instead, it continues executing subsequent actions.

If you want to ensure that the routine includes the playing of a tone, use **Tone** as the trigger **Type**.

If you do not need the routine to wait until the tone finishes, you can sill use **Feature-Wait** as the action **Type** and **Tone** as **Feature Wait** and set **Maximum Wait Time** (action parameter 2) to the desired amount of time to wait.

13.11.7.13 Feature-Wait Action Type with Zone

If you want all zone pages to complete before continuing with subsequent routine actions, use the **Feature-Wait** action **Type** with **Feature Wait** (parameter 1) set to **Zone**.

This action will not allow you to specify a zone. The **Announcement** trigger **Type** does allow you to specify a zone (see "*Understanding Trigger Parameters" on page 395*). However, if multiple routines triggered by a zone page use **Feature-Wait** action **Type** with **Feature Wait** set to **Zone** and multiple zone pages start, then all routines triggered by the start of a zone page will pause until the multiple zone pages have completed.

13.11.8 Zones and Stations Parameters for Deleting Display Messages

If you set Parameter 1 of **Display-Msg-Delete** action **Type** to **PARAM**, the options used for Zones and Stations determine which messages, if any, a routine automatically deletes from the dashboard and NG-GA10PV video displays. For example, if you leave **Zones** blank and set **Stations** to All, then messages that have no zones defined but do have stations defined will be deleted.

The following table describes how the combination of **Zones** and **Stations** settings are used to select messages for deletion:

Table 13-7, Selecting Messages for Deleting

Zones	Stations	Messages Selected for Deletion
<blank>	<blank>	No messages
<blank>	All	Messages that have no zones defined and any stations defined
Any	<blank>	Messages that have any zones defined and no stations defined
Any	All	All Messages
Selected zone or zones	<blank>	Messages that have specified zones defined and no stations defined
Selected zone or zones	All	Messages that have specified zones defined and any stations defined (including none)
Selected zone or zones	Selected station or stations	Messages that have specified zones defined and specified stations defined
<blank>	Selected station or stations	Messages that have no zones defined and specified stations defined
Any	Selected station or stations	Messages that have any zones defined (including none) and specified stations defined

13.11.9 Using Variables for Dashboard and NQ-GA10PV Text Parameters

You can add variables to text messages for the Admin Web UI dashboard, the video display connected to the NQ-GA10PV, and email messages. When a trigger launches a routine that includes a text message for display, the variable is replaced. For example, if the routine uses the variable $date1, that variable is replaced by the current date in the format YYYY-MM-DD when the routine is launched.

The availability of specific variables is based on the trigger that started the routine (see *Table 13-8, "Variables, Definitions, and Availability," on page 427*).

When using variables, be sure to allow enough room for the message text, including the new text replaced by the variable. For dashboard messages, the maximum text that can be displayed is 255 characters per message. The character limit for the NQ-GA10PV display is 4096 characters, but the actual limit will vary due to font style and size. You should test your message display to ensure it fits into the available space.

Table 13-8, Variables, Definitions, and Availability

Variable	Definition	Routine Triggers Available For
$autobgcolor	When appended to the end of text, the message's background color automatically appears as red for Emergency-Call, yellow for Urgent-Call, or the font color set in Display-Msg action for Intercom-Call. **Note:** Use only $autobgcolor or $autofontcolor, but not both.	• Emergency-Call • Intercom-Call • Urgent-Call
$autofontcolor	When appended to the end of text, the message's font color automatically appears as red for Emergency-Call, yellow for Urgent-Call, or the font color set in Display-Msg action for Intercom-Call. **Note:** Use only $autobgcolor or $autofontcolor, but not both.	• Emergency-Call • Intercom-Call • Urgent-Call

Table 13-8, Variables, Definitions, and Availability (Continued)

Variable	Definition	Routine Triggers Available For
$autoprior-ity(E,U,N)	When appended to the end of text field, the message's priority is changed where E is replaced by a priority for Emergency calls, U is replaced by a priority for Urgent calls, and N is replaced by a priority for Normal calls. For example. $autopriority(5,4,3) will set Emergency-Call triggered Dash-Msg to priority 5, Urgent-Call triggered Dash-Msg to priority 4, and Inter-com-Call triggered Dash-Msg to priority 4.) If the (E,U,N) parameters are not present, the priorities will be 4,3,2.	• Emergency-Call • Intercom-Call • Urgent-Call

Table 13-8, Variables, Definitions, and Availability (Continued)

Variable	Definition	Routine Triggers Available For
$caller	Extension number of caller that triggered execution of the routine; when calls are placed from outside the system, displays the phone number of the caller	• Alarm • All-Call • Announcement • Check-In • Disable-Audio • Enabled-Audio • Emergency-Call • Emerg-All-Call • Facility Page • Incoming-Call • Intercom-Call • Multi-Site-All-Call • Multi-Site-E-All-Call • Night-Ring • Tone • Urgent-Call • Zone-Page
$called	Extension number of called station	• Emergency-Call • Intercom-Call • Urgent-Call
$calltypechar	Replaced by E for Emergency-Call, U for Urgent-Call, or left blank for Intercom-Call.	• Emergency-Call • Intercom-Call • Urgent-Call
$calltypelong	Replaced by Emergency for Emergency-Call, Urgent for Urgent-Call, or left blank for Intercom-Call.	• Emergency-Call • Intercom-Call • Urgent-Call

Table 13-8, Variables, Definitions, and Availability (Continued)

Variable	Definition	Routine Triggers Available For
$calltypeshort	Replaced by Emerg for Emergency-Call, Urg for Urgent-Call, or left blank for Intercom-Call.	• Emergency-Call • Intercom-Call • Urgent-Call
$contact	I/O Controller's input contact number that triggered execution of the routine	• Input-Contact-Closed • Input-Contact-Opened
$date1	Current date in YYYY-MM-DD format	Always available
$date2	Current date in MM-DD-YYYY format	Always available
$date3	Current date in DD-MM-YYYY format	Always available
$df-avail	Available disk space displayed in either M for megabytes or G for gigabytes.	
$eventid	Scheduled Event ID (integer)	Scheduled-Event
$eventname	Scheduled Event Name	Scheduled-Event
$facility	Name of facility that is being paged or that current status is being provided for	• Facility Page • Facility Status Up • Facility Status Down
$namecalled	Station name for caller that triggered execution of the routine	• Emergency-Call • Intercom-Call • Urgent-Call

Table 13-8, Variables, Definitions, and Availability (Continued)

Variable	Definition	Routine Triggers Available For
$namecaller	Called station's name	• Alarm • All-Call • Announcement • Check-In • Disable-Audio • Enabled-Audio • Emergency-Call • Emerg-All-Call • Facility Page • Intercom-Call • Multi-Site-All-Call • Multi-Site-E-All-Call • Night-Ring • Tone • Urgent-Call • Zone-Page
$station	Station, such as the I/O Controller, that triggered executon of the routine, or that current status is being provided for	• Input-Contact-Closed • Input-Contact-Opened • Station-Status-Up • Station-Status-Down
$time1	Current time in 12-hour format	Always available
$time2	Current time in 24-hour format	Always available
$zone	Announcement zone or page zone that triggered execution of the routine	• Announcement • Zone-Page

13.11.10 Using Variables in Dashboard and NQ-GA10PV Identifiers

You can use the following variables in the **Identifier** field (Parameter 2) of **Display-Msg**, **Display-Msg-Delete**, **Dash-Text**, and **Dash-Delete** action types:

- $caller
- $called
- $station
- $contact
- $facility
- $eventid
- $eventname
- $zone

An **Identifier** can have a maximum character length of 255 characters. When using variables, be sure the names that will replace the $facility and $zone variables to not exceed this maximum character length.

13.11.11 Using Variables in Display-Msg Text

> **Note:** This section describes variables that are only available for use in the **Display-Msg** action type if the routine trigger is **Intercom-Call**, **Urgent-Call**, or **Emergency-Call**.

You can use the following variables in the **Text** field of only the **Display-Msg** action type:

- $calltypechar
- $calltypeshort
- $calltypelong
- $autobgcolor
- $autofontcolor
- $autopriority(E,U,N)

These variables allow you to set the priority and appearance of the NQ-GA10PV display messages for emergency, urgent, or intercom calls. For more information about these variables, see "*Using Variables for Dashboard and NQ-GA10PV Text Parameters" on page 426*.

13.11.12 Reordering Actions

You can reorder actions in a routine but should exercise care. Some actions must be the last action in a routine (see "*Understanding Action Parameters" on page 406*).

To reorder an action:

Step 1 On the navigation bar, select **Routines**.

Step 2 Select **Actions** for the routine that you want to reorder actions for.

Step 3 Click the Move icon ( ) next to the action that you want to move and drag the action to the desired location.

Step 4 When you have completed reordering the actions, select **Done**.

13.12 Exporting a Routine

You can export routines to share with Bogen Technical Support for debugging issues or to later import them to other servers.

To export multiple routines, you must first add your server's IP address to Chrome settings.

To add your server's IP address:

Step 1 Open your Chrome browser and type the following in the address line:

chrome://settings/content/popups

Step 2 On the Search Setting pane, select **Add**.

Step 3 On the Add a site popup, type the server's IP address and select **Add**.

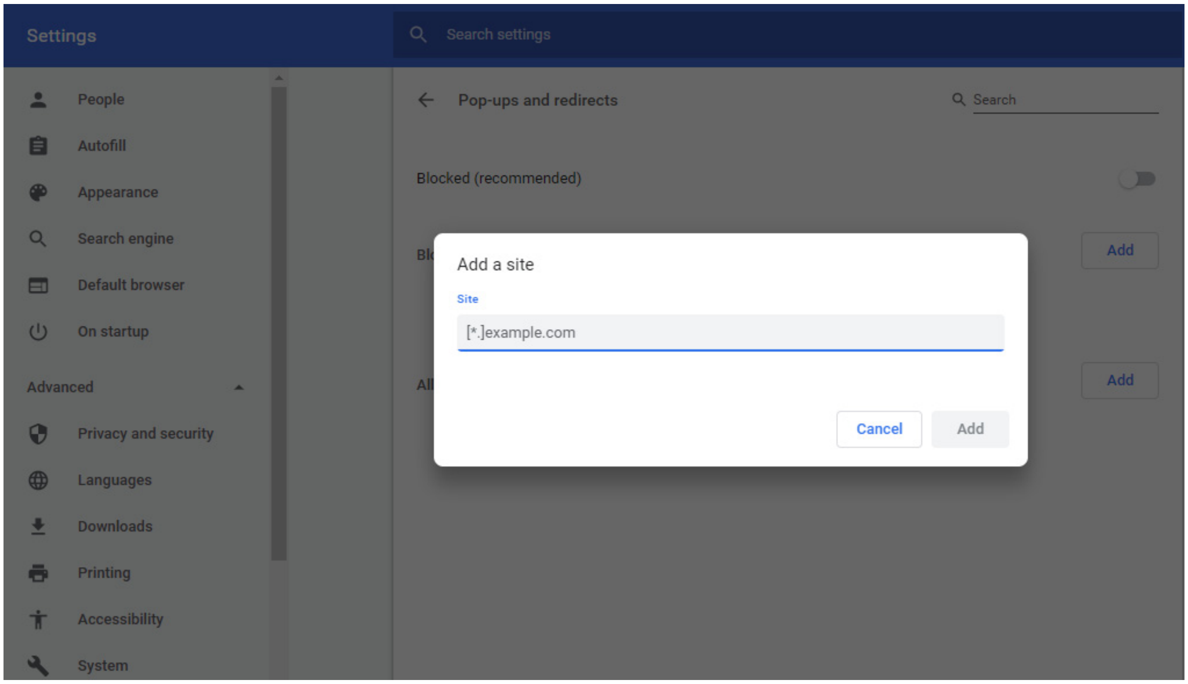


Figure 13-7, Add a Site

To export a routine:

Step 1 On the navigation bar, select **Routines**.

Step 2 Select the routine or routines that you want to export.

Step 3 Select **Export**.

The .sql file will be saved to the **Downloads** folder on the server and can then be copied to a shared directory or to removable media.

13.13 Importing a Routine

You can import a routine that was created from other Nyquist server to your Nyquist server.

Note: After importing a routine, you must ensure that parameters are correct for the server since the server that created the routine will not have the same station, zone, or audio files as the server to which you are importing the routine. Imported routines must be enabled and the DTMF code will need to be changed if the same code is already being used on the server.

To import a routine:

Step 1	On the navigation bar, select **Routines**.
Step 2	Select **Import**.
Step 3	From the Import popup window that appears, select **Choose file**.
Step 4	Use the browser window to select the routine that you want to import.
Step 5	Select **Import**.

14 Managing Display Messages

Managing Display Messages

The Display Message option allows you to create messages that will display on monitors connected to NQ-GA10PV devices in a selected zone, in multiple zones, or to specific devices. When creating the message, you can set several options, including when and how long the message is displayed and the appearance of the message. You can also remove messages from the message queue.

Figure 14-1, Example of Priority Message in Fullscreen

The station's **Display Configuration** option controls the overall appearance of the display (for example, what type of clock appears, whether an event or the date appears, and the background color of the screen). For information about setting the display configuration for an NQ-GA10PV, see "*Configuring Intercom HDMI Module Display Options" on page 146*.

14.1 Creating a Display Message

> **Note:** You can also add display messages through routine actions (see *"Adding an Action" on page 404*.)

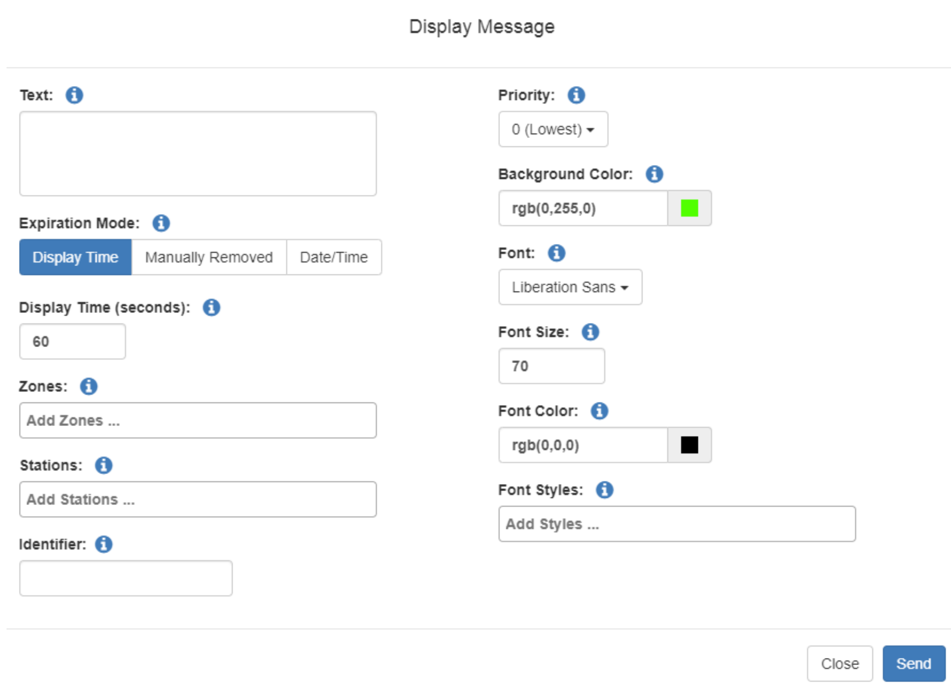


Figure 14-2, Display Message

To create a display message:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Under **Tones/Announcements**, select **Display Message.**

Step 3 On the Display Message page, complete the options for the new message.

Step 4 Select **Send**.

> **Note:** The options set through the Display Message page are for the message only. If you want to change how the clock, date, and other display features appear, you must set configuration options for the NQ-GA10PV station (see *"Configuring Intercom HDMI Module Display Options" on page 146*).

Table 14-1, Display Message Options

Text	Type the message that is to appear on the display monitor. You can format text using basic HTML tags, such as: • <b> for bold • <i> for italic • <u> for underline
Expiration Mode	Select the mode for setting the message's expiration. Options are: • **Display Time**. Uses **Display Time (seconds)** to set the expiration. • **Manually Removed**. Sets the expiration time to Never. You must use the **Remove Message** button remove a message from the message queue, or the message can be removed by a Routine Action using the display message **Identifier**. • **Date/Time**. By default, the current date and time appears in the **Date/Time** field.
Display Time (seconds)	Appears only if **Expiration Mode** is set to **Display Time**. Sets the length of time for the message to be displayed before it expires. Time can range from 1 to 99999.
Date/Time	Appears only if **Expiration Mode** is set to **Date/Time**. By default is set to the current date and time. To change the date, select the calendar and pick the date and time.
Zones	Select the zone or zones. Messages will be sent to the display devices in the selected zones.
Stations	The message is sent to the specified stations and any stations that belong to the specified zones.

Table 14-1, Display Message Options (Continued)

Identifier	Used to identify the message so it can be deleted by a Routine action.
Priority	Select the message priority, which can range from **0 (Lowest)** to **6 - (Fullscreen)**. Priority **6 - (Fullscreen)** is the highest priority, and when a message is assigned this priority, only the messages with this priority appear on the display with the Scheduled Event Name and Date being temporarily removed. If Priority **5 (Exclusive)** is selected, the Scheduled Event Name and Date remain on the display, but all other messages with lower priorities are removed.
Background Color	Select the color for the message background. You can select a color by: • Using the color picker • Entering a hex color (for example: #000000, for black) • Entering an RGB color (for example: rgb(0,0,0) for black) • Entering a color alias name (for example: red, blue, etc.) For more information, see "*Using Color in Display Messages" on page 441*.
Font	Select the down arrow to view a list of available fonts and then select the desired font for the message text. Available fonts are: Comic-Relief Courier-Prime Gelasio Liberation Sans Linux Libertine
Font Size	Enter the desired font size.

Table 14-1, Display Message Options (Continued)

Font Color	Select the color for the message text. You can select a color by: • Using the color picker • Entering a hex color (for example: #000000, for black) • Entering an RGB color (for example: rgb(0,0,0) for black) • Entering a color alias name (for example: red, blue, etc.) For more information, see "*Using Color in Display Messages" on page 441*.
Font Styles	Place your cursor in the **Add Styles** box to select **Bold** or **Italic**. Otherwise, the **Font Style** remains at Regular.

14.2 Using Color in Display Messages

You can select colors for display messages three different ways:

- Background, text, and time colors via GA10PV **Display Configuration** (see "*Configuring Intercom HDMI Module Display Options" on page 146*)
- Background and font colors for individual messages by selecting **Display Message** from the dashboard (see Table 14.1, "Creating a Display Message," on page 438)
- Background and font colors for individual messages via the **Display-Msg** routine action **Type** (see Table 13-5, "Action Types and Parameters," on page 407)

You can select colors by:

- Using the color picker
- Entering a hex color (for example: #000000, for black)
- Entering an RGB color (for example: rgb(0,0,0) for black)

- Entering a color alias name (for example: red, blue, etc.)

When you enter a color alias name, the corresponding hex color code appears in the text portion of the color field and the swatch (color box) portion changes to the selected color. When entering a color alias, you cannot use spaces, and the system only accepts the default color alias listed in the following table:

Table 14-2, Default Color Alias

Color Alias	Corresponding Hex Code	Color Alias	Corresponding Hex Code
aliceblue	f0f8ff	antiquewhite	faebd7
aqua	00ffff	aquamarine	7fffd4
azure	f0ffff	beige	f5f5dc
bisque	ffe4c4	black	#000000
blanchedalmond	ffebcd	blue	#0000ff
blueviolet	8a2be2	brown	a52a2a
burlywood	deb887	cadetblue	5f9ea0
chartreuse	7fff00	chocolate	d2691e
coral	ff7f50	cornflowerblue	6495ed
cornsilk	fff8dc	crimson	dc143c
cyan	00ffff	darkblue	00008b
darkcyan	008b8b	darkgoldenrod	b8860b
darkgray	a9a9a9	darkgreen	006400
darkkhaki	bdb76b	darkmagenta	8b008b
darkolivegreen	556b2f	darkorange	ff8c00
darkorchid	9932cc	darkred	8b0000
darksalmon	e9967a	darkseagreen	8fbc8f
darkslateblue	483d8b	darkslategray	2f4f4f
darkturquoise	00ced1	darkviolet	9400d3
deeppink	ff1493	deepskyblue	00bfff
dimgray	696969	dodgerblue	1e90ff
firebrick	b22222	floralwhite	fffaf0

Table 14-2, Default Color Alias (Continued)

Color Alias	Corresponding Hex Code	Color Alias	Corresponding Hex Code
forestgreen	228b22	fuchsia	ff00ff
gainsboro	dcdcdc	ghostwhite	f8f8ff
gold	ffd700	goldenrod	daa520
gray	#808080	green	#00ff00
greenyellow	adff2f	honeydew	f0fff0
hotpink	ff69b4	indianred	cd5c5c
indigo	4b0082	ivory	fffff0
khaki	f0e68c	lavender	e6e6fa
lavenderblush	fff0f5	lawngreen	7cfc00
lemonchiffon	fffacd	lightblue	add8e6
lightcoral	f08080	lightcyan	e0ffff
lightgoldenrodyellow	fafad2	lightgreen	90ee90
lightgrey	d3d3d3	lightpink	ffb6c1
lightsalmon	ffa07a	lightseagreen	20b2aa
lightskyblue	87cefa	lightslategray	778899
lightsteelblue	b0c4de	lightyellow	ffffe0
lime	00ff00	limegreen	32cd32
linen	faf0e6	magenta	ff00ff
maroon	800000	mediumaquamarine	66cdaa
mediumblue	0000cd	mediumorchid	ba55d3
mediumpurple	9370d8	mediumseagreen	3cb371
mediumslateblue	7b68ee	mediumspringgreen	00fa9a
mediumturquoise	48d1cc	mediumvioletred	c71585
midnightblue	191970	mintcream	f5fffa
mistyrose	ffe4e1	moccasin	ffe4b5
navajowhite	ffdead	navy	000080

Table 14-2, Default Color Alias (Continued)

Color Alias	Corresponding Hex Code	Color Alias	Corresponding Hex Code
oldlace	fdf5e6	olive	808000
olivedrab	6b8e23	orange	#ffa500
orangered	ff4500	orchid	da70d6
palegoldenrod	eee8aa	palegreen	98fb98
paleturquoise	afeeee	palevioletred	d87093
papayawhip	ffefd5	peachpuff	ffdab9
peru	cd853f	pink	ffc0cb
plum	dda0dd	powderblue	b0e0e6
purple	#800080	red	#ff0000
rosybrown	bc8f8f	royalblue	4169e1
saddlebrown	8b4513	salmon	fa8072
sandybrown	f4a460	seagreen	2e8b57
seashell	fff5ee	sienna	a0522d
silver	c0c0c0	skyblue	87ceeb
slateblue	6a5acd	slategray	708090
snow	fffafa	springgreen	00ff7f
steelblue	4682b4	tan	d2b48c
teal	008080	thistle	d8bfd8
tomato	ff6347	transparent	transparent
turquoise	40e0d0	violet	ee82ee
wheat	f5deb3	white	#ffffff
whitesmoke	f5f5f5	yellow	#ffff00
yellowgreen	9acd32		

14.3 Removing Messages

The Remove Message window allows you to remove any message from the display message queue. It is also the only way to expire a message that was created using **Manually Removed** as the **Expiration Mode**.

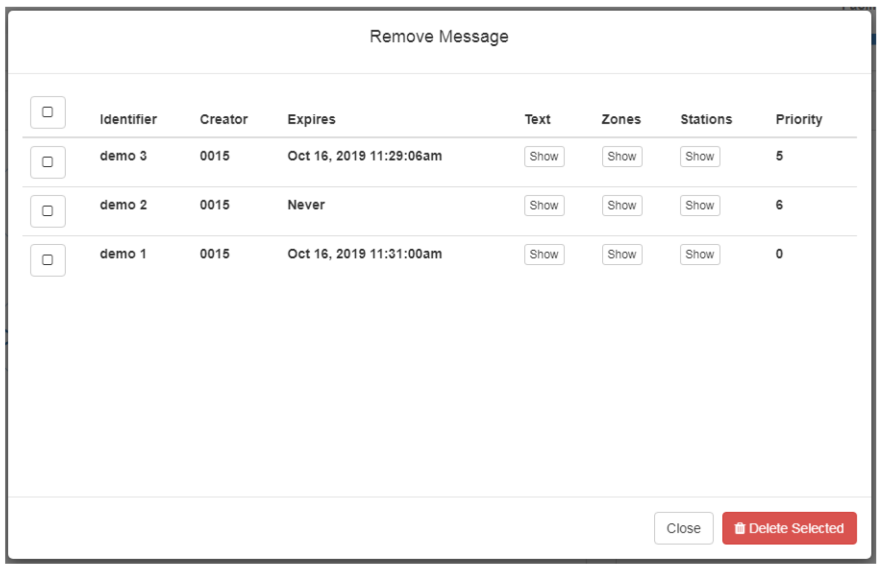


Figure 14-3, Remove Message

To remove a message:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Select the **Remove** icon next to the message that you want to delete.

Step 3 Select Delete **Selected**.

14.4 Removing an Event Name from a Display

If you create a scheduled event with **Display Event Name** enabled, the event remains on the display that is connected to an NQ-GA10PV until the next scheduled event replaces it.

To clear the event name from the display, create another scheduled event with the **Name** set to **No-Event**.

For information on creating scheduled events, see *"Adding an Event" on page 227*.

15 Manage Check-In

Manage Check-In

Manage Check-In allows you to quickly obtain status of specific areas – such as classrooms, offices, or breakrooms – within a facility during a check-in event. Examples of check-in events include:

- Weather related shelter in place
- Safety related lockdown
- Fire evacuation (Teacher performs check-in to indicate room has been evacuated.)
- Room occupancy (Teacher checks room in with start of each class period.)

During a check-in event, users check in by initiating a Normal call to their assigned Admin Station, such as the front office, using either their Nyquist phone or a digital or analog call switch associated with their intercom speaker or station.

During Check-In, a Normal call initiated by a station to the Admin Station places a station in checked-in status. Additional Normal calls made following a check-in are processed as Normal calls to the Admin Station.

You can also elect to enable audio feedback that tells the staff member they have successfully checked in.

Calls made as part of the **Manage Check-In** process are not applied towards the system's Current Call Count. Urgent and Emergency calls can still be placed by stations and are not included as part of Manage Check-In.

As long as Privacy Mode is not enabled and a room's device allows two-way transmission, you can select to use Spy Mode to listen to the room.

15.1 Viewing Check-In Status

> **Note:** You can also use the Maps feature to view check-in status. For more information, see "*Using Maps for Check-In" on page 375*.

For administrators, the Manage Check-In feature provides a color-coded view of what classrooms have checked in, classrooms or stations that are not part of the check-in process, and those that should check-in but have not yet done so.

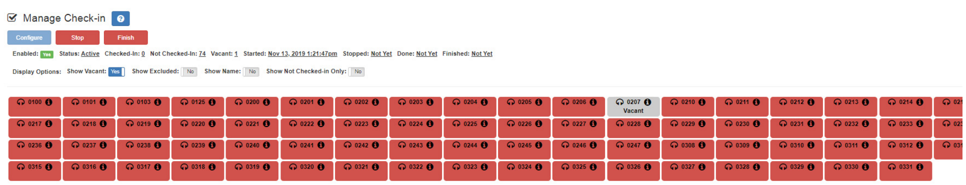


Figure 15-1, Manage Check-In

To view check-in status:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Under Calling/Paging, select **Manage Check-In**.

A separate tab appears so that you can toggle the dashboard and Manage Check-In views.

The status of each station appears in a color-coded box. The following table explains the use of colors to describe status:

Table 15-1, Color-coded Check-In Status

Color	Status
Green	Checked in
Red	Not checked in
Gray	Check-in is not expected because the station is either on the vacant or excluded lists.

You can also select the following **Display Options**:

Table 15-2, Check-In Display Options

Show Vacant	When enabled, stations in the Vacancy List appear in the color-coded display.
Show Excluded	When enabled, stations in the Exclusion List appear in the color-coded display.
Show Name	When enabled, the station's name appears along with the station's extension number. Displaying the name is useful if you are not sure where a station is located when only the extension number is displayed.
Show Not Checked In Only	**Note: Show Vacant** and **Show Excluded** options are disabled when this option is selected. When enabled, only the stations that have not checked in are listed. This option may be preferable if a large number of stations are managed by your Nyquist server, and you want to quickly view which stations have not checked in.

Additional information that appears on the Manage Check-In window includes:

- Status of check-in process such as **Active**
- Number of stations that have checked in
- Number of stations that have not yet checked in
- Number of vacant stations
- Date and time check-in started
- If check-in has been manually stopped or is done.

Manage Check-in also allows you to use Spy Mode on a station or room, provided the privacy feature has not been activated and the station device allows two-way transmission.

Stations typically excluded from the check-in process would include stations assigned to hallway speakers or amplifiers or areas that were scheduled to be vacant when the check-in procedure began. For more information, see "*Managing Exclusion and Vacancy Lists" on page 454*.

15.1.1 Starting Check-In

You can manually start the Check-In procedure from the Admin Web UI. Check-In can also be started via the Routines feature (see "*Using Routines" on page 381*.)

Check-In does not play any audio instruction announcements or send any text instructions to web interface stations or GA10PV display stations. If you want audio instruction announcements or text instructions on web interface stations or GA10PV display stations, set up a routine that includes audio instructions in an announcement or text instructions to be sent to web interface dashboards and GA10PV displays. The routine can be triggered by a Check-in **Start**, or the Check-in can be started by the routine.

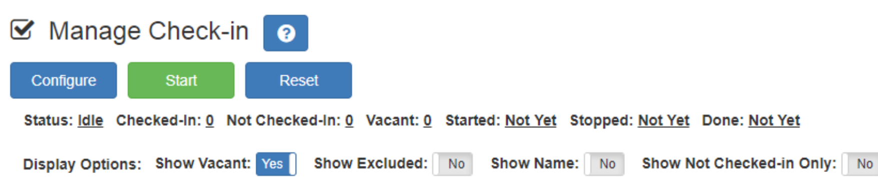


Figure 15-2, Manage Check-In When Idle

To manually start Check-In:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Under Calling/Paging, select **Manage Check-In**.

Step 3 On the Manage Check-In page, select **Start**.

When Check-In starts, the **Start** button changes to a **Stop** button and the red squares that represent occupied classrooms or areas begin changing to green squares as staff members begin checking in.

15.1.1.1 Station Check-In

During Check-In, a Normal call placed by a station to the Admin Station places a station in check-in status.

After a station has successfully checked in, additional Normal calls will go through as normal calls to the Admin station. Stations can still place Urgent or Emergency calls during the Check-in process, even if the station has not checked in.

If audio prompt feedback is enabled and a station checks in, the caller hears a confirmation prompt. If audio feedback is disabled, stations checking in with digital call switches will still see a ringing status (flashing green) for about 2 seconds while checking in. Stations checking in with IP phones will notice a call lasting about 2 seconds before automatic hang up.

A **VoIP Speaker Only** station that does not have a call switch can still participate in the check-in process if an I/O controller Input contact is connected to a switch present in the room that contains the **VoIP Speaker Only** station. In this case, the I/O controller Input contact closure can trigger a Routine that performs a check-in.

In this scenario, the routine Trigger **Type** is set to **Input-Contact-Closed** (see *"Understanding Trigger Parameters" on page 395*) and the routine Action **Type** is **Check-In** with **Station** set to the VoIP Speaker Only station extension (see *"Understanding Action Parameters" on page 406*).

If a station with call switch is configured to only place Urgent or Emergency calls, the station cannot participate in the Check-in process. This station should either be added to the Exclusion List (see *"Managing Exclusion and Vacancy Lists" on page 454*). Or if you wish to include the station in the Check-in process, the station's CoS configuration should be changed to allow Normal calls to be placed by the station (see *"Editing CoS Parameters for a Station" on page 66*).

15.1.1.2 Check-In Done and Finish

After all stations included in the Check-In process have checked in, the Manage Check-In **Status** changes to **Done**.

Since stations that were not expected to check in may do so, check-in is not completed until you select the **Finish** button.

Selecting the **Finish** button can trigger a routine if you have a routine that uses **Check-In** as the trigger **Type** and **Finished** as **Check-In**. (See *"Understanding Trigger Parameters" on page 395* for more information.)

15.1.2 Stopping the Check-In Process

You can end an active Check-In process by selecting the **Stop** button on the Station Check-in view. An active Check-In process can also be stopped by a Routine action.

When stopping Check-In via a routine, the Action **Type** is **Check-In** and the **Check In** option is **Stop** (see *"Understanding Action Parameters" on page 406*).

After the Check-in process has been stopped, all Normal station calls resume as normal calls to the Admin Station, and the Check-in process **Status** becomes **Idle**.

15.1.3 Resetting the Check-In Process

During either an active or idle Check-In process, you can clear all station check-in statuses and allow all Normal calls to resume as normal calls to the Admin Station by selecting the **Reset** button on the Station Check-in view. You can also reset the Check-In process by a Routine action. When resetting Check-In via a routine, the Action **Type** is **Check-In** and the **Check In** option is **Reset** (see *"Understanding Action Parameters" on page 406*).

15.1.4 Using Spy Mode

You can use Spy Mode to listen to a station as long as Privacy Mode is not enabled and the station device allows two-way transmission.

This feature adds a step toward verifying that the room's occupants are safe.

Figure 15-3, Listen In, or Spy Mode, Button

To activate Spy Mode:

Step 1 If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2 Under Calling/Paging, select **Manage Check-In**.

Step 3	On the Manage Check-In page, select the **Listen In** icon for the station you want to monitor.

Step 4	When the dial pad appears, dial 978.

> **Note:** Spy Mode monitoring cannot be used on a station that has been set to Privacy Mode.

15.2 Configuring Check-In

To use the check-in process, the user must have appropriate permissions assigned (see "*Assigning and Editing Permissions" on page 203*).

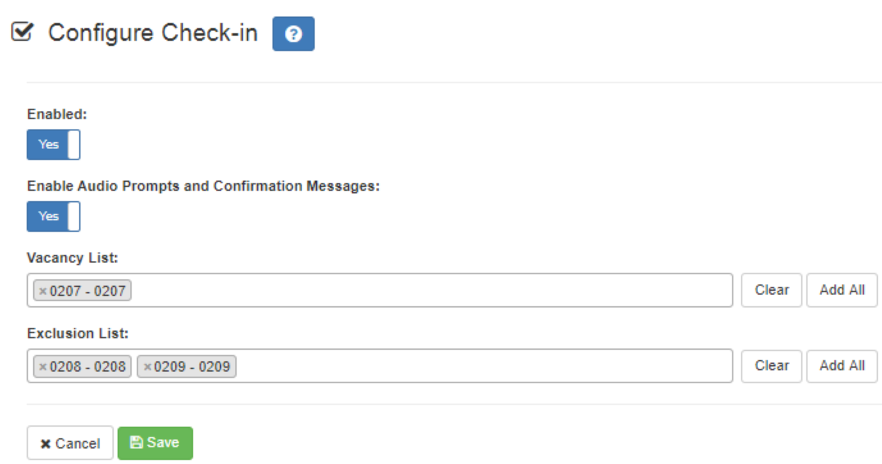


Figure 15-4, Configure Check-in

To configure check-in options:

Step 1	If not already on your dashboard, select **Dashboard** from the navigation bar.

Step 2	Under Calling/Paging, select **Manage Check-In**.

Step 3	On the Manage Check-In page, select **Configure**.

Step 4	Complete the configuration options.

Step 5	Select **Save**.

Table 15-3, Check-In Configuration Options

Enabled	Specifies if Manage Check-In can be used. If **Disabled**, you can configure Manage Check-In options but you cannot start the check-in process.
Enable audio prompts and confirmation messages	Specifies if audio files will be used as part of Manage Check-In. When enabled, audio prompts and audio feedback play at stations when the stations perform check-in. If disabled, no audio prompts or audio feedback are played on the station. When feedback is disabled, stations checking in with digital call switches will see a ringing status (flashing green) for about 2 seconds while checking in. Stations checking in with IP phones will notice a call lasting about 2 seconds.
Vacancy List	Specifies the stations to be added to the Vacancy List (see "*Managing Exclusion and Vacancy Lists" on page 454*).
Exclusion List	Specifies the stations to be added to the Exclusion List (see "*Managing Exclusion and Vacancy Lists" on page 454*).

15.2.1 Managing Exclusion and Vacancy Lists

A station added to the Vacancy List and a station added to the Exclusion List both appear gray on the Admin Station's Check-In page if the Check-In page is configured to display these lists (see "*Configuring Check-In" on page 453*). The difference between the two lists, though, is that stations on the Exclusion List should always be excluded from the check-in process. Those on the Vacancy List, are stations (classrooms or areas) that normally would be checking in but may be vacant when the check-in process is started.

A station on the vacancy list can still check in. This could occur during an emergency situation where a normally vacant classroom becomes the closest temporary shelter. An occupant could perform a check-in to let administrators know that the room is occupied and secure.

Excluded stations should include stations not physically located in a classroom, such as speakers located in a hallway. Excluded stations also include stations assigned to appliances, such as power amplifiers and MMPAs.

You can add or delete a station to the Exclusion or Vacancy Lists by:

- Using **Manage Check-In** via the Admin Web UI
- Using the **Routines** feature

To add a station to the Exclusion List via the Admin Web UI:

Step 1	If not already on your dashboard, select **Dashboard** from the navigation bar.
Step 2	Under Calling/Paging, select **Manage Check-In**.
Step 3	On the Manage Check-In page, select **Configure**.
Step 4	Add desired station or stations to the Exclusion List.
Step 5	Select **Save**.

To add a station to the Exclusion List via a routine:

Step 1	Add or edit a routine that has **Check-In** as an **Action Type** (see *"Actions" on page 402*).
Step 2	For **Check In**, select **Exclude-Add**.
Step 3	For **Stations**, select the stations that you want to exclude from Manage Check-In.
Step 4	Select **Save**.

To remove a station from the Exclusion List via the Admin Web UI:

Step 1	If not already on your dashboard, select **Dashboard** from the navigation bar.
Step 2	Under Calling/Paging, select **Manage Check-In**.
Step 3	On the Manage Check-In page, select **Configure**.

Step 4	Remove the desired station or stations from the Exclusion List.
Step 5	Select **Save**.

To remove a station to the Exclusion List via a routine:

Step 1	Edit a routine that has **Check-In** as an **Action Type** (see *"Actions" on page 402*).
Step 2	For **Check In**, select **Exclude-Delete**.
Step 3	For **Stations**, select the stations that you want to remove from Manage Check-In Exclusion List.
Step 4	Select **Save**.

To add a station to the Vacancy List via the Admin Web UI:

Step 1	If not already on your dashboard, select **Dashboard** from the navigation bar.
Step 2	Under Calling/Paging, select **Manage Check-In**.
Step 3	On the Manage Check-In page, select **Configure**.
Step 4	Add desired station or stations to the Exclusion List.
Step 5	Select **Save**.

To add a station to the Vacancy List via a routine:

Step 1	Add or edit a routine that has **Check-In** as an **Action Type** (see *"Actions" on page 402*).
Step 2	For **Check In**, select **Vacancy-Add**.
Step 3	For **Stations**, select the stations that are expected to be vacant.
Step 4	Select **Save**.

To delete a station from the Vacancy List via the Admin Web UI:

Step 1	If not already on your dashboard, select **Dashboard** from the navigation bar.
Step 2	Under Calling/Paging, select **Manage Check-In**.

Step 3 On the Manage Check-In page, select **Configure**.

Step 4 Select the stations that you want to remove from the Vacancy List.

Step 5 Select **Save**.

To delete a station to the Vacancy List via a routine:

Step 1 Edit a routine that has **Check-In** as an **Action Type** (see *"Actions" on page 402*).

Step 2 For **Check In**, select **Vacancy-Delete**.

Step 3 For **Stations**, select the stations you want to remove from the Vacancy List.

Step 4 Select **Save**.

15.3 Creating and Using Multiple Check-In Routines

You can create check-in routines for multiple purposes and to ensure that the vacancy and exclusion lists are accurate.

You should create separate routines for drills and each type of emergency check-in. For example, a fire drill could use audio explaining that it was a drill and would not include an actual 911 call where a routine used for evacuating during an actual fire could include a 911 call. In this scenario, the word “drill” should appear in the name.

If you want to create routines for accurate exclusion and vacancy lists, use descriptive names such as “Fire Drill Period 1.” Each routine should include a **Check-In** action **Type** that uses **Vacancy-Add** and a separate **Check-In** action **Type** that uses **Vacancy-Delete**.

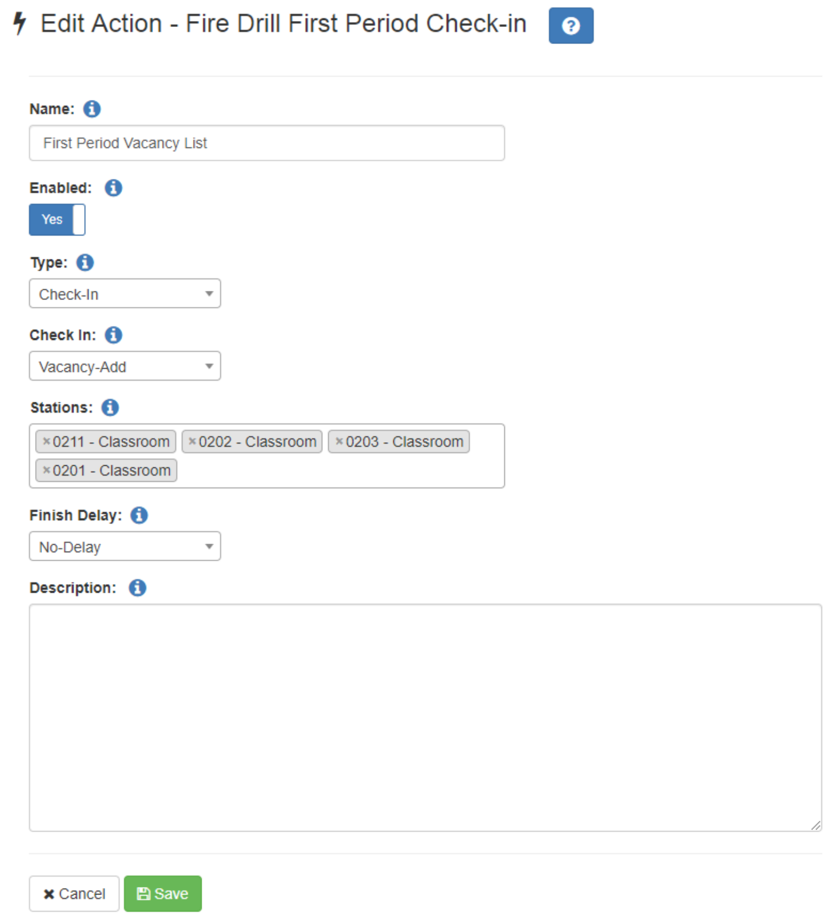


Figure 15-5, Example of Check-In Routine Action

15.4 Check-In Log and Call Detail Records

Manage Check-In writes data to a log file (see "*Using System Log Files" on page 315*) and creates a Call Detail Record (see "*Viewing Call Detail Records" on page 319*). You can export and print the check-in log file using the **Export** button (see "*Exporting a Log File" on page 318*). You can also copy the displayed log file information and paste it into another application.

Each logged event starts with a date and time stamp, followed by the station extension that created the event, and ending with optional event related information. For example:

2019-04-26 15:40:31 - 100 Start

The following event types are logged:

- Start
- Check-in
- Stop
- Reset
- Done
- Vacancy Add
- Vacancy Delete
- Exclude Add
- Exclude Delete

The **Done** event includes the elapsed time for the Check-in process (amount of time between Check-in **Start** and **Done**). The extension will always be 000 because this event is created by the system and not a specific station. For example:

2019-04-26 15:43:32 - 000 Done (elapsed time: 0h:3m:10s)

On the Call Detail Records, the detail record **Type** is set to **Check in** when a station checks in.

16 Managing Alerts

Managing Alerts

> **Note:** Nyquist can only display weather or other emergency alerts from the National Weather Service (NWS) if your Nyquist server has an Internet connection and has access to necessary websites (see "*Whitelisted Web Addresses" on page 3*).

You can use Alert Filters and routines to manage if and how specific Emergency Alert System (EAS) events appear on the video display connected to the NQ-GA10PV. Your Nyquist server reads these EAS events, which include non-weather-related alerts, from the NWS.

To display EAS events:

Step 1 Decide which alerts you want to monitor and enable filters for those alerts, such as severity, certainty, and urgency (see "*Alert Filters Configuration" on page 462*).

Step 2 Create a routine (see "*Adding a Routine" on page 387*).

Step 3 Create an action for the routine that uses **Display-Msg** for the action **Type** (see "*Actions" on page 402*).

Step 4 Ensure the Text for the action contains the variables for the alerts you want to display (see "*Setting Variables for the Display Message" on page 466*).

16.1 Understanding Event Types

The EAS has created specific event types for monitoring that include:

- Weather-Related Events, such as a Tornado Warning
- Non-Weather-Related Events, such as a Shelter in Place Warning for non-weather situations

- Administrative Events, such as an Administrative Message

> **Note:** Non-Weather-Related Events and Administrative Events are only provided if the EAS has supplied that information to the NWS. Therefore, local Amber Alerts and Shelter in Place Warnings for non-weather situations may not be provided in your area.

Event types are categorized as:

- **Advisory**. An event that is not life-threatening but could cause inconvenience.
- **Warning**. An event that poses a significant threat to public safety or property and has a high probability of occurrence or is occurring.
- **Watch**. Conditions are favorable for the event occurring; does not mean the event will occur but it is possible.
- **Emergency**. An event that by itself would not kill or injure or cause property damage, but indirectly may cause other things to happen that result in a hazard.
- **Statement**. A message containing follow up information to a warning, watch, or emergency.
- **Message**. Non-weather related messages, such as an Amber Alert.
- **Test**. An administrative event for a monthly or weekly test of the emergency alert system.

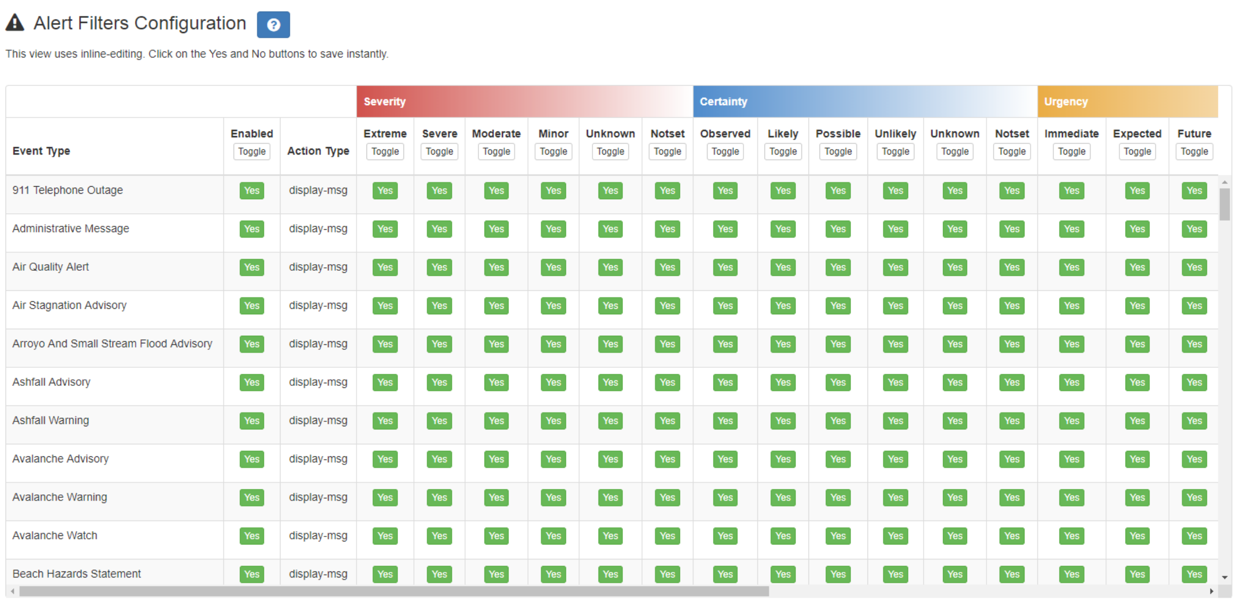
The specific criteria for issuing an emergency alert is dependent your location.

16.2 Alert Filters Configuration

The Common Alerting Protocol (CAP) is an international standard format for emergency alerting and public warning. It is designed for all hazards related to weather events, earthquakes, tsunami, volcanoes, public health, power outages, and many other emergencies.

CAP elements and values are used when configuring alert filters for your Nyquist system.

> **Note:** You must have **Edit** permissions to enable and set Alert Filters Configuration. For more information, refer to "*Assigning and Editing Permissions" on page 203*.



Alert Filters Configuration

This view uses inline-editing. Click on the Yes and No buttons to save instantly.

			Severity						Certainty						Urgency		
Event Type	Enabled Toggle	Action Type	Extreme Toggle	Severe Toggle	Moderate Toggle	Minor Toggle	Unknown Toggle	Notset Toggle	Observed Toggle	Likely Toggle	Possible Toggle	Unlikely Toggle	Unknown Toggle	Notset Toggle	Immediate Toggle	Expected Toggle	Future Toggle
911 Telephone Outage	Yes	display-msg	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Administrative Message	Yes	display-msg	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Air Quality Alert	Yes	display-msg	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Air Stagnation Advisory	Yes	display-msg	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arroyo And Small Stream Flood Advisory	Yes	display-msg	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ashfall Advisory	Yes	display-msg	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ashfall Warning	Yes	display-msg	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avalanche Advisory	Yes	display-msg	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avalanche Warning	Yes	display-msg	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avalanche Watch	Yes	display-msg	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beach Hazards Statement	Yes	display-msg	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Figure 16-1, Alert Filters Configuration

To configure alert filters:

Step 1 On the navigation bar, select **Alert Filters**.

Step 2 Select which alert will trigger a display message by selecting **Enabled** for the **Event Type** and then selecting the values of the CAP elements to filter for that **Event Type**.

For descriptions of weather-related event types, refer to the following website:

https://www.weather.gov/lwx/WarningsDefined

For descriptions of non-weather-related event types, refer to the following website:

https://www.weather.gov/meg/nonwxrelatedemergmesg

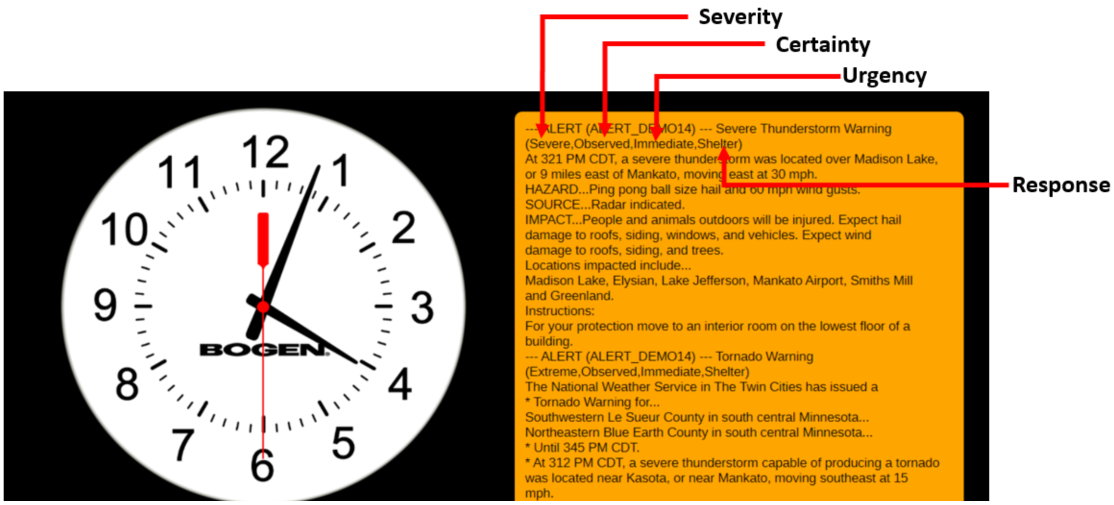


Figure 16-2, Sample Alert With Elements Defined

Elements and their values are described in the following table:

Table 16-1, CAP Elements and Values

Element	***Available Values***
Severity	• **Extreme** - Extraordinary threat to life or property • **Severe** - Significant threat to life or property • **Moderate** - Possible threat to life or property • **Minor** – Minimal to no known threat to life or property • **Unknown** - Severity unknown
Certainty	• **Observed** – Determined to have occurred or to be ongoing • **Likely** - Probability is greater than or equal to 50% • **Possible** - Probability is less than 50% • **Unlikely** - Not expected to occur • **Unknown** - Certainty unknown

Table 16-1, CAP Elements and Values (Continued)

Element	*Available Values*
Urgency	• **Immediate** - Responsive action should be taken immediately • **Expected** - Responsive action should be taken soon (within next hour) • **Future** - Responsive action should be taken in the near future • **Past** - Responsive action is no longer required • **Unknown** - Urgency not known
Response	• **Shelter** – Take shelter in place or per instruction • **Evacuate** – Relocate as instructed in the instruction • **Prepare** – Make preparations per the instruction • **Execute** – Execute a pre-planned activity identified in instruction • **Avoid** – Avoid the subject event as per the instruction • **Monitor** – Attend to information sources as described in instruction

Note: The Severity, Certainty Urgency, and Response values only appear in the Alert message if the INCLUDES_CODES option is included in the $alerts parameters list (see "*Setting Variables for the Display Message" on page 466*).

16.3 Setting Variables for the Display Message

You can use the following variables in the **Text** field of a **Display-Msg** to have NWS alerts automatically appear on the video display connected to the NQ-GA10PV:

- $alerts
- $auto_resize

The $auto_resize variable must be immediately followed by a number in parentheses, for example, $auto_resize(20). In this example, Nyquist automatically resizes the display message by decreasing the font size if needed to better fit the message to the screen but will keep the font size to at least 20.

> **Note:** The font size will automatically resize to 20 if the Alert message has these following parameters:
>
> - Priority is smaller than 6.
> - Text length is longer than 1500 characters.
> - The text has more than 500 capital letter characters.
>
> The font size also automatically resizes to 20 if needed, even if the $auto_resize variable is not specified.

The $alerts variable is also immediately followed by parameters in parentheses. The available parameters are:

- **AUTO_FIND_COUNTY**. Automatically discovers the county code associated with the Nyquist server's public IP address.

> **Note:** This option is not recommended if the server's physical location is in a different county from your facility, if your server resides in the cloud, or if you are tracking alerts for multiple facilities and those facilities are not in the same county. Instead, find and use your county code.

- **AUTO_COMPRESS_<Integer>**. Automatically compresses the display message if the number of lines in the message exceeds the <Integer> value. For example, AUTO_COMPRESS_15 will cause messages that contain more than 15 lines to be compressed by removing end-of-line characters (lines will run together, separated by a space instead of end-of-line). The resulting message will perhaps be more difficult to read than the original. Use this option if you want to ensure that messages will fit on the screen. You may need to experiment to determine a suitable value for <Integer>. You can combine this option with the $auto_resize variable.

> **Note:** Font sizes are set in the Display Message options (see "*Creating a Display Message" on page 438*). For weather alerts, the following settings are recommended for the Liberation Sans font:
>
> - 30 - When not using the AUTO_COMPRESS_<Integer> option of the $alerts variable and not using the $auto_resize variable. A font size of 30 will ensure that the actual lines from the NWS will fit on each line displayed.
> - 65 - When using AUTO_COMPRESS_15 and $auto_resize(25) variable.
> - 40 - When using AUTO_COMPRESS_25 and $auto_resize(25) variable.
> - 70 - When using AUTO_COMPRESS_<Inter> and $auto_resize variable with display message priority of 6.

- **<County-Code>**. Displays weather alerts for the specified county. For example, the county code for Orange County, Florida, is FLC095.

> **Note:** County codes are available at: https://alerts-v2.weather.gov/counties.

- **INCLUDE_CODES**. Displays, the Severity, Certainty, Urgency and Response codes on the Alerts header for each alert displayed on the NQ-GA10PV display (see *Figure 16-2, "Sample Alert With Elements Defined," on page 464*).
- **INCLUDE_COUNTY**. Displays the county code on the Alerts headers. This is useful if you have several Alert related routines that use different county codes.
- **INCLUDE_INSTRUCTIONS**. Displays instructions that came with the weather alerts. If you want to display the exact instructions provided by the NWS, then add the **INCLUDE_INSTRUCTIONS** option. Instructions are usually obvious (like seek shelter, stay indoors, stay hydrated). However, instructions can be verbose and, while they can provide valuable information, verbose instructions could cause the messages to be too large to display properly.

- **REPEAT_<Integer>**. Automatically repeats the alert processing and re-displays any resulting alerts every <Integer> seconds. Previous alerts are automatically removed from displays. This option provides a convenient way to check for and display alerts at a regular interval without having to create a routine loop and without having to worry about deleting previous or expired alerts. When this option is used, no subsequent actions will be executed in the Routine that executes the **Display-Msg** action. Since alert processing requires Internet access processing, Bogen recommends a minimum <Integer> value of 60 seconds. Using less than 60 seconds may significantly impact your network and Nyquist server processing utilization.
- **UPDATE_CACHE**. Nyquist caches the found county code so the system does not have to search more than one time.

  If your county code changes, you can include the option **UPDATE_CACHE** along with **AUTO_FIND_COUNTY** to have the system discover the county code and cache the new value.

Note: You should delete the **UPDATE_CACHE** option after use; otherwise, the Nyquist system searches for the county code each time alerts are retrieved.

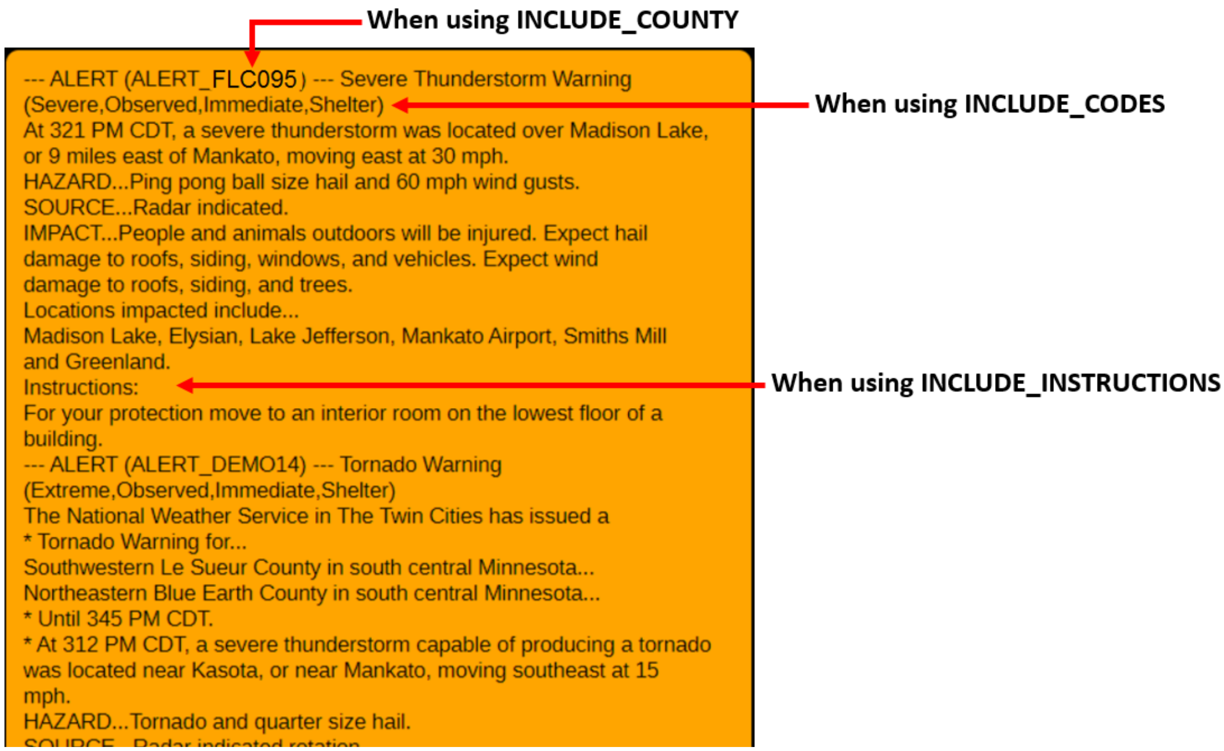


Figure 16-3, How Parameters Affect Display

A sample alert string is:

$alerts(FLC095,INCLUDE_CODES,AUTO_COMPRESS_15,REPEAT_60)

This string will display alerts for county code FLC095 (Orange County, Florida) every 60 seconds including the Severity, Certainty, Urgency, and Repose codes, while automatically compressing alerts that have more than 15 lines.

16.4 Demonstration Alerts

Several demonstration, or sample, Alerts are available for display. These samples represent typical alerts sent by the NWS for various alert types.

You can access these by replacing the <County-Code> with ALERT_DEMO<number> where <number> is replaced with a number between 1 and 20 (for example, ALERT_DEMO10). Bogen recommends that you try each demonstration alert to get familiar with the alert format, the available $alerts options, and the font sizing.

A Acronyms and Abbreviations

Acronyms and Abbreviations

A

ANS	Ambient Noise Sensor
ASB	Analog Station Bridge
ATA	Analog Telephone Adapter
Auth	Authorization

B

BTN	Billing Telephone Number

C

CAN	Controller Area Network
CDR	Call Detail Record
CODEC	Coder-Decoder
CoS	Class of Service
CPU	Central Processing Unit

D

DCS	Digital Call Switch

DHCP	Dynamic Host Configuration Protocol
DID	Direct Inward Dial
DISA	Direct Inward Station Access
DNS	Domain Name System
DSP	Digital Signal Processing
DTMF	Dual Tone Multi-Frequency
DUNDI	Distributed Universal Number Discovery

E

ECC	Error Correcting Code

F

FXO	Foreign Exchange Office
FXS	Foreign Exchange Subscriber

G

GND	Ground
GUI	Graphical User Interface

H

HTTP	Hypertext Transfer Protocol
HTTPS	HTTP Secure

I

I/O	Input/Output
ICE	Interactive Connectivity Establishment
iOS	iPhone Operating System
IP	Internet Protocol
IRS	Internet Radio Services

IT	Information Technology
ITSP	Internet Telephony Service Provider

J

K

L

LAN	Local Area Network
LED	Light Emitting Diode

M

MAC	Media Access Control
MGCP	Media Gateway Control Protocol
MMPA	Matrix Mixer Pre-Amp

N

NAS	Network Attached Storage
NAT	Network Address Translation
NFS	Network File System
NIC	Network Interface Card
NTP	Network Time Protocol
NTS	Network Time Server

O

ODBC	Open Database Connectivity
OS	Operating System

P

PC	Personal Computer
PCI	Peripheral Component Interconnect
PCIe	PCI Express
PIN	Personal Identity Number
PoE	Power over Ethernet
PSTN	Public Switched Telephone Network
PTT	Push-To-Talk

Q

R

RAID	Redundant Array of Independent Disks
RGB	Red-Green-Blue
RTP	Real-Time Transport Protocol

S

SAN	Storage Area Network
SIP	Session Initiation Protocol
SMTP	Simple Mail Transfer Protocol
SNMP	Simple Network Management Protocol
SSL	Secure Sockets Layer
STUN	Session Traversal Utilities for Network Address Translation (NAT)

T

TCP	Transport Control Protocol
TFTP	Trivial File Transfer Protocol
TLS	Transport Layer Security

TURN	Traversal Using Relays around Network Address Translation (NAT)

U

UDP	User Datagram Protocol
UI	User Interface
URL	Uniform Resource Locators
USB	Universal Serial Bus

V

VLAN	Virtual Local Area Network
VoIP	Voice over Internet Protocol

W

WAN	Wide Area Network

X

Y

Z

B Nyquist DTMF Feature Dialing Codes

Nyquist DTMF Feature Dialing Codes

Note: The use of feature dial codes is restricted by a station's CoS assignments.

B.1 Alarm/Tone Activation (CoS: Activate Alarm Signals | Manually Activate Tone Signals)

*91{DTMF-Code} – Start Alarm specified by {number}

*96{DTMF-Code} – Start Tone specified by {number}

B.2 Calling

<extension> – Call <extension> speaker (intercom, auto-answer) (CoS: Call Any Station)

*<extension> – Call <extension> ringer (telephonic, ringing) (CoS: Call Any Station)

*#<extension> – Join conversation at <extension> (CoS: Join Conversation)

##*<Facility-Number>*<extension> – Call <extension> at <Facility-Number>

981AAANNNNNNN – Place long distance call with area code (AAA = Area code, NNNNNNN = number)

98AAANNNNNNN – Place local ten-digit call with area code

98NNNNNNN – Place local seven-digit call

98911 – Place 911 emergency call

911 – Place 911 emergency call

**** – Place Emergency call to designated Admin station

B.3 Call Forwarding (CoS: Call Forwarding)

970 – Call Forwarding Menu

971{extension} – All-Calls (CFALL)

972{extension} – When Busy (CFBS)

973{extension} – When No Answer (CFNA)

974{extension} – When Busy or No Answer (CNBN)

975 – Cancel Call Forwarding

976 – Call Forwarding Status (Caller only)

977 – Call Forwarding Status (All users)

B.4 Call Parking/Call Pickup

DTMF: #72 - Park call (during call)

To pick up a parked call, dial the parked call's extension (by default, extensions 21-29) that was provided when the call was parked using #72. The parking lot extensions can be changed at the Admin Web UI through **System Parameters**.

7*{extension} - Call pickup {extension} when ringing (CoS: Remote Pickup)

B.5 Call Transfer (CoS: Call Transfer)

DTMF: #1<extension number> - Blind transfer (during call)

DTMF: *1<extension number> - Attended transfer (during call)

DTMF: *2 - Complete attended transfer, dropping out of call

DTMF: *3 - Complete attended transfer, but stay in the call

DTMF: *4 - Swap to the other party (during attended transfer)

*3 – Transfer (drop) call from Speaker to associated Phone

– Transfer (drop) call from Speaker to associated Phone

DTMF: #1<speaker-extension> – Transfer call from Phone to associated Speaker

B.6 Conferencing

**{number} – Create/Enter Dynamic Conference {number} (CoS: Conference Admin/Conference User)

Note: If the conference owner enters 0000 as the password, the conference will be deleted. If an Admin station user type enters 0000 as the password but is not the conference owner, the user will be prompted for the system password. If the correct system password is entered, the conference will be deleted.

**0 – Launch system playback of list of created conferences that includes the conference number and the extension that created the conference

B.7 Monitoring/Recording

978{extension} – Monitor call or location at {extension} (CoS: Monitor Calls/Locations)

Note: Spy Mode monitoring cannot be used on a station that has been set to Privacy Mode.

DTMF: 4 – Enable "spy mode" (MUTE) during call monitoring

DTMF: 5 – Enable "whisper mode" during call monitoring

DTMF: 6 – Enable "barge mode" during call monitoring

*990 – Record Message (Announcement) (CoS: All-Call Paging)

Note: When you record an announcement by dialing *990 or by selecting **Record Announcement** on the Admin phone's **Announce** menu, the initial DTMF Code for the recorded and saved announcement will be set to the announcement's row ID. You can change the DTMF Code after the announcement is saved by editing the announcement in the web interface **Announcements** view.

The saved announcement has **Play to Zone** set to blank (no zone selected). This means that when you play an announcement via an IP phone **Announcement** menu selection, you will be asked to enter a zone number (where 0 = All Speakers). You can define a permanent zone number for the saved announcement by updating **Play to Zone** after the recorded announcement has been saved.

999 – Playback recorded calls (CoS: Manage Recordings)

(MENU: 1–Emergency, 2–Monitored, 3–Urgent, 4–Standard)

DTMF: *3 – Start/Stop recording (DTMF used during a call.) (CoS: Record Calls)

B.8 Paging

##0911 – Multi-Site Emergency All-Call Page (CoS: Emergency All-Call Multi-Site Paging)

##0 – Multi-Site All Call Page (CoS: All-Call Multi-Site Paging)

#0911 – Emergency All-Call Page (CoS: Emergency All-Call)

951 – Emergency All-Call Page (CoS: Emergency All-Call)

#0 – All-Call Page (CoS: All-Call Paging)

#00 – All-Call Page (CoS: All-Call Paging)

0000000 – All-Call Page (CoS: All-Call Paging)

#{Zone} - Page to {Zone Number} (CoS: Zone Paging)

#{Zone}* – Real-time Page to {Zone} that belongs to a queue (CoS: Zone Paging)

##{Facility Number} – All-Call Page to {Facility Number} (CoS: Inter-Facility Call/Page)

##{Facility Number}#{Zone Number} – Zone Page to {Zone Number} at (Facility Number)(CoS: Inter-Facility Call/Page)

##{Facility Number}#{Zone Number}* – Real-time page to {Zone} that belongs to a queue at (Facility Number) (CoS: Inter-Facility Call/Page)

*92{DTMF-Code} – Start Announcement specified by {number} (CoS: All-Call Page)
*991 – Record page; system will prompt for Zone Number (CoS: Zone Paging)
991{Zone Number} – Record page for {Zone Number} (CoS: Zone Paging)

> **Note:** The next two DTMF codes only work if made from the same extension that created the recorded page.

*992 – Cancel Recorded Page (CoS: Zone Paging)
992{Zone Number} – Cancel Recorded Page for {Zone Number}

B.9 Voicemail (CoS: Voicemail)

900 – Voicemail for current caller

904{extension} – Voicemail for specified {extension}

904{extension}* – Leave voicemail for specified {extension}

B.10 Walking CoS (CoS: Walking Class of Service)

3*{authCode}*{extension} – Current IP phone's extension becomes {extension}

If **Auth Code** is set to 0000 in the Admin Web UI’s **System Parameters**, this feature is disabled.

B.11 Dial Codes Used for Simulating Calls to Admin Station from Station Call Switches

Note: During the Check-In process, a Normal call starts the check-in process for a station.

0 - Normal call to admin

*0 - Emergency call to admin

*00 - Urgent call to admin

*000 - Outside line calling in (uses night-ring logic)

B.12 Routines (CoS: Execute Routines)

*94<Routine-DTMF-Code> – Execute Routine with <Routine-DTMF-Code>

0000094<Routine-DTMF-Code> – Execute Routine with <Routine-DTMF-Code>

Note: Only routines with **Allow DTMF** can be executed from the Admin Phone.

B.13 Audio Distribution (CoS: Audio Distribution)

987*{DTMF-Code} – Start Audio Distribution for {DTMF-Code}

980*{DTMF-Code} – Stop Audio Distribution for {DTMF-Code}

920 – Stop ALL Scheduled Audio

B.14 Miscellaneous Dial Codes

#*349 – Restart Nyquist system server

*9 – Toggle Audio Distribution to associated speaker

0000097 – Disable Audio (CoS: Disable Audio)

0000098 – Enable Audio (CoS: Enable Audio)

920 – Stop Scheduled Audio

942#{extension}#{contact-number} – Close {contact-number} on I/O Controller {extension} (For example, dialing 942#120#1 closes contact number 1 on I/O Controller 120; dialing 943#120#1 opens contact number 1 on I/O Controller 120.)

943#{extension}#{contact-number} – Open {contact-number} on I/O Controller {extension}

C E7000 Software Licenses

E7000 Software Licenses

This section describes the software licenses available for the E7000 series.

> **Note:** Nyquist software licenses do not expire and no annual license renewal fees are charged.

C.1 NQ-E7000SWL – Nyquist E7000 System Software License

One NQ-E7000SWL is required for each E7000 system server.

C.2 NQ-E7000CCL – Nyquist E7000 Concurrent Call License

Concurrent Call Licenses are sold in packs of 10.

The following items each require and consume one or more Concurrent Call Licenses:

- All Call (1)
- Emergency All Call (1)
- Multi-Site All Call (1)
- Multi-Site Emergency All Call (1)

- Zone Page (1)
- Intercom Call (1)
- Station-to-Station Call (1)
- Recording an announcement (1)
- Retrieving a vmail message (1)
- Scheduled Events (e.g., Bells, Tones, Announcements) (1 per active event)
- Audio Distribution (1 per active stream)
- Call Monitoring/Recording (1 in addition to the 1 for the call itself)
- DISA Station Monitoring (2)
- Executing routine via DTMF (1)

> **Note:** If the routine ends with a call type, it does not consume an additional call. In this case, starting the routine consumes a call, but the call action takes over the call at the end of the routine.

- Executing routine on remote facilities (2)

C.3 NQ-E7000SSL – Nyquist E7000 System Station License

System State Licenses are sold in packs of 25.

The following items require and consume a Station License:

- Each NQ-T1100 Admin VoIP phone
- Each NQ-T1000 Staff/Classroom VoIP phone
- Each active port on an NQ-E7030 Analog Station Bridge (max. 24-ports)

  Bogen automatically quotes/provisions one SSL License Pack (25 licenses) for each ASB requested in a quote configuration.

> **Note:** Use of analog and/or digital call switches with an ASB port does not affect station licensing.

- Each NQ-S1810CT and/or NQ-S1810WT VoIP speaker

Note: Use of analog and/or digital call switches with a VoIP speaker does not affect station licensing.

- Each NQ-P0100 Matrix Mixer Pre-Amp
- Each NQ-GA10P or NQ-GA10PV PoE VoIP Intercom Module

Note: Use of analog and/or digital call switches with an NQ-GA10P does not affect station licensing.

- Each active SIP-ATA-FXS port implemented via a Cisco SPA112 device (if equipped)
- Each active port on a 24-port FXS VoIP Gateway intergration (Yeastar TA2400) for analog phone support (if equipped)

Note: Bogen automatically quotes/provisions one (1) SSL License Pack for each 24-port FXS Gateway integration requested in a quote configuration.

- Each defined Web UI user/station

C.4 NQ-E7000TTS – Nyquist E7000 Text-To-Speech License

This license is required to enable TTS-based announcements and messaging in an E7000 system.

C.5 Software Maintenance Extensions

Note: If your Software Maintenance package has expired, you will receive a dashboard message explaining that you must contact your Bogen dealer to purchase a maintenance renewal to access system updates.

The following three Software Maintenance Extensions can be purchased:

- NQ-E7MaintXSYC1X 1-Year Extended S/W Maintenance – X SSL Packages, Y CCL Packages. (Includes new standard features and bug fixes.)
- NQ-E7MaintXSYC3X 3-Year Extended S/W Maintenance – X SSL Packages, Y CCL Packages. (Includes new standard features and bug fixes.)
- NQ-E7MaintXSYC5X 5-Year Extended S/W Maintenance – X SSL Packages, Y CCL Packages. (Includes new standard features and bug fixes.)

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