

# *Nyquist E7000 System Controller Setup Guide*

Version 4.0

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# 1

## Nyquist Server Installation Options

Two options are available for installing and deploying Nyquist E7000:

- 1 Using a Nyquist System Controller (NQ-SYSCTRL), which already has the operating system and E7000 application software installed on it.
- 2 Using your own server platform and installing the Debian OS and E7000 application software. While Option 1 is the quickest and easiest approach, Option 2 may be better suited for situations where high-availability server features like Redundant Array of Independent Disks (RAID) or hot-swappable power supplies are desired.

This manual describes the installation steps for Option 1.

*Note:* This manual provides the Nyquist E7000 installation process when using the Nyquist System Controller (NQ-SYSCTRL). If you are using your own server, refer to the *Nyquist E7000 Server Installation and Setup Guide*.

Before installing Nyquist, ensure that:

- Required services are enabled on your network. An example of a required service includes TFTP.
- Required multicast IP addresses and ports are known and available.
- Required IP addresses are known and available.
- Required port numbers are open.

Both the Debian software and the Nyquist software are already installed on the System Controller. You only need to supply a product license, which will then activate the product and guide you through

several setup wizards. (See "System Controller Setup Assistant" on page 7.)

If you are updating an existing Nyquist system, read "Best Practices" on page 49 and then refer to the update procedure in the *System Administrator Manual*.

## 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

**Table 1-1, Whitelisted Web Sites (Continued)**

<b>URL</b>	<b>Description</b>
http://security.debian.org (specifically: http://security.debian.org/ stun01.sipphone.com	Required during Linux package installation  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

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 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 1-2, Network Application Services**

<b>Service</b>	<b>Description</b>	<b>Required</b>	<b>Location</b>
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
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



**Table 1-2, Network Application Services (Continued)**

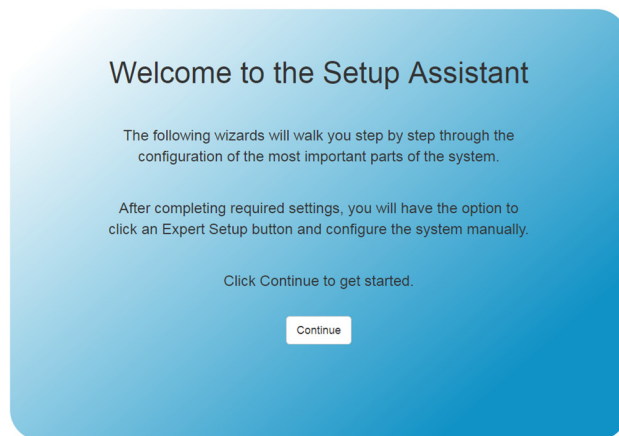
<b>Service</b>	<b>Description</b>	<b>Required</b>	<b>Location</b>
SNMP	Provides the E7000 Linux server statistics via Simple Network Management Protocol (SNMP) v1 through Port 161.	Optional	E7000
TFTP	<p>TFTP is used by IP phone and E7000 device provisioning. A TFTP server runs on the E7000 system server on port 69 (the standard TFTP port #).</p> <p>Device provisioning files are stored on the E7000 system server in directory: <code>/srv/tftp</code>.</p> <p>This is the only directory exposed by the TFTP server.</p>	Mandatory	E7000

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# 2

## System Controller Setup Assistant

After you have attached network cables to the System Controller, you can launch the Setup Assistant, a series of wizards that takes you step by step through the configuration of the most important Nyquist settings, via a web browser. If you are using Port A to access the System Controller, type **http://192.168.1.10/setup/welcome** in the web browser. If you are using a Dynamic Host Configuration Protocol (DHCP) address via Port B, type **http://<ip-address>/setup/welcome** where <ip-address> is replaced by the DHCP server provided Internet Protocol (IP) address.



**Figure 2-1, Setup Assistant Welcome Screen**

When you select the **Continue** button on the initial Welcome screen, the Network Wizard launches. The Network Wizard allows you to configure the IP address setting on Ethernet ports A and B.

The System Controller has two network ports. Port A is always used by the Nyquist server to communicate with Nyquist devices and can be used to communicate with Internet based services. You can use Port A or Port B to access the System Controller via the Web UI. Port

B is an optional port that, when configured, is always used by the Nyquist server to communicate with Internet based services.

When setting up the network ports, you must indicate if the IP address will be provided by a DHCP Server or if a static IP address will be used. If you are using a static IP address, you must provide the IP Address, Subnet Mask, and Gateway for the port or ports. Through the Network Wizard, you also indicate if Port B will be used and optionally provide the name of the Domain Name System (DNS), which is used to resolve host names to IP addresses.

After completing the information for the Network Wizard, select **Save and Reset Network Interfaces**. Resetting the Network Interfaces will take several minutes. A progress bar will appear on the screen.

After the Network Wizard completes, type the IP address of the server in the address bar. The next wizard that launches is the License Activation Key wizard. This wizard displays the configuration for Port A and (if used) Port B.

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*Note:* Verify the network setup is correct before continuing. If the displayed IP addresses are not correct, go back to the Network Wizard and make any required changes before proceeding with the License Activation Wizard.

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Enter your **License Activation Key** and select **Continue**.

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*Note:* Do not close the browser or the License Activation Key page.

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The Product Activation screen that appears provides the following information about your Nyquist license:

- Version number
- Maximum concurrent call limit
- Maximum number of stations
- Maximum number of zones
- Maximum number of paging queues
- Whether Text-To-Speech or Maps features are enabled
- Expiration dates for software maintenance and for this software license

When product activation completes, a customer information form appears; fill in the form. After the form is completed, the Dialing Length Wizard appears. If you already know how to configure a

System Controller, you can select **Expert Setup**, which takes you to the Login page. The Dialing Length, Station, User, and Timezone Wizard views also have an **Expert Setup** button. The **Expert Setup** button marks all the set up database entries visited so you are not redirected back to any of the wizards.

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*Note:* If you have not set a new password, you will need to enter the default username **admin** and the default password **bogen** to log into the system. Login credentials are case sensitive.

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When you login, you can view the product dashboard. You can then manually complete system configuration using the Admin Web UI (see the *Nyquist E7000 System Administrator Manual*).

Otherwise, you can continue using the setup wizards to do the following:

- Set the dialing length (number of digits) used by stations in your system.
- Create the Admin Web UI station.
- Update the password for the Admin user.

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*Note:* When updating the password, ensure that you maintain a record of the new password in a secure place.

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- Set the time zone to be used by your system.
- Specify the Network Time Server.

Once you complete all of the setup wizards, the logon screen appears.

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# 3

## Best Practices

This section details recommendations and best practices to use when:

- Updating the Nyquist E7000 system server software to a new software release
- Updating Nyquist appliance firmware (computer software stored on the appliance)
- Using System Backups

**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/>

### 3.1 Updating Nyquist Software

**Note:** Before beginning the install process, make sure that your Nyquist system server can access the required URLs or web sites (see "*Whitelisted Web Addresses*" on page 2 from a Chrome browser).

New Nyquist server software may include patches to address known issues or new releases that provide additional features. The latest E7000 server software can be accessed from the secured ES Dealers website:

<http://www.bogenedu.com/nyquist-secure-dealer-resources/>

**Note:** System backups created by older versions of the server software are not compatible with the newer releases and should **not** be used to restore configuration data.

When updating to a new Nyquist server software release, use the Admin Web UI to perform a system update unless directed by technical support. Performing a system update ensures that all configuration data, call detail records, recordings, voice mail, and all upload announcements, alarms, tones, and songs are retained and are available after the system software update.

*To perform a system update:*

- Step 1 From the navigation bar, select **System Parameters**.
- Step 2 From the System Parameters page, select **System Update**, locate the System Update file, and then select **Import**.

Perform the server system update process before updating Nyquist appliance software.

### 3.1.1 Assigning Permissions for New Features

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.

*To assign permissions for these new features:*

- Step 1 On the navigation bar, select **Roles**.
- Step 2 On the Roles page, select the **Permissions** icon next to the role that you want to edit permissions for.
- Step 3 On the Edit Permissions page, make desired changes.
- Step 4 Select **Save**.

For more information, refer to the *Nyquist E7000 System Administrator Manual*.



## 3.2 Updating Appliance 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/>

The firmware for all devices used with the E7000 system must be compatible with the software installed on the E7000 server, and **all** Nyquist appliances in a given installation should be configured to run the same version firmware.

Nyquist application firmware releases can be accessed from the secured ES Dealers website:

<http://www.bogenedu.com/nyquist-secure-dealer-resources/>

Firmware can be updated for E7000 stations and Analog Station Bridge (ASB) devices through the 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 E7000 Admin Web UI, you can upload a firmware file to the E7000 system server, download firmware to a station or ASB, view a list of stations and ASBs that are linked to a firmware name, set default firmware for any stations and bridge devices to be added, and delete firmware entries. For information about using the Admin Web UI, refer to the *Nyquist E7000 System Administrator Manual*.

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