



Advanced eXperience

Network Connectivity and Security

November 2021

AX System Network Connections

The Chime Master Advanced eXperience (AX) digital carillons and bell controllers can be connected to a network using either an ethernet cable or the optional Wi-Fi USB adapter.

The AX system does not require a static IP address on your network but will use an IP address provided by DHCP. If a static IP address should be used, your system will need to be configured by factory engineers to be compatible with your network.

The AX systems do not use inbound ports for our system connection. If outbound ports are filtered on your network, then access to outbound port :443 will be needed if a Chime.Center (<https://chime.center>) server connection is wanted.

Chime.Center Server Connection

If your system is connected to the Internet, it will attempt to establish a connection to our Chime.Center server. This connection allows the use of the Chime.Center management website, the Chime.Center remote, and automatic software and security updates.

Because the system creates the server connection, rather than our server initiating the connection, no special inbound port forwarding is required. If outbound ports are filtered, then some network configuration will be needed to establish the Chime.Center server connection.

Software Updates & Chime Master Technician Access

Systems that are connected to Chime.Center will receive automatic security and feature updates to their software. The updates are deployed using Mender (<https://mender.io/>), a secure OTA update platform, hosted on our Chime.Center server.

We also provide remote support for our systems. Part of our support is provided through the Chime.Center management website, which is accessible by our service and engineering employees. Select Chime Master engineers also have administrative access to the systems using the Teleport SSH Portal (<https://goteleport.com/>) hosted on our Chime.Center server. For Chime Master Personnel, strong credentials and 2FA is enforced.

Network Recommendations

We strongly recommend that AX systems be connected to a segmented VLAN or IoT sub-network separate from servers, computers, smartphones, and other devices with access to sensitive data.

User Access

Front Screen

Logging into the system from the touchscreen requires a PIN. Each user must have a unique PIN that is *at least* four characters. Individual users can have restricted access to schedule and setting menus. See User Permissions below for additional information.

Chime.Center Management Website & Chime.Center Remote

AX systems that are connected to our Chime.Center server will have access to the Chime.Center management website, and the Chime.Center remote. These features can be accessed from a computer, smartphone or tablet that is connected to any network with an internet connection.

The Chime.Center website and remote only support secure SSL/TLS communications using HTTPS. Requests to Chime.Center or an AX system require an authorization token that is unique to the user. These authorizations will expire and can be cleared for individual users. The website also uses secure same-site cookies to persist user sessions.

For digital carillons that are connected to Chime.Center, we provide a user scannable QR code link to a remote that can be used from smartphones or tablets. The QR link contains the user's access token. Each remote is linked to a specific system and user. Remotes aren't transferable from one system to another and cannot be used to control other AX systems.

- **Password Recovery** – Passwords are stored in a hashed format and cannot be recovered. A link to reset your password is available and will email a link to the entered email address to complete the password reset, if a linked account exists. The password used to sign into Chime.Center is separate from the PIN used to sign into the front screen of the AX system.
- **Email Storage** – Email addresses are stored in plain text on our Chime.Center server, as part of the user information. Administrator level users can access the email address of other users on their system. Chime.Center personnel can access a complete list of users and email addresses.
- **User Permissions** – Different user levels are available. Lower-level users can have their access limited to certain weekdays and times and have menu options limited.

Local Access Remote

Local Access Remotes are provided as an option for systems that will not be connected to the Internet. This requires an additional port to be left open on the system. If needed, this feature can be disabled.