



CCS-UC-1

Crestron Mercury™ Tabletop Conference System with Microsoft® Lync® 2013

Configuration Guide

Crestron Electronics, Inc.

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CCS-UC-1: Crestron Mercury™ Tabletop Conference System with Microsoft® Lync® 2013

Introduction

This configuration guide describes the necessary procedure to configure the Crestron Mercury™ devices to register to Microsoft® Lync® 2013 as an enterprise enabled Lync user.

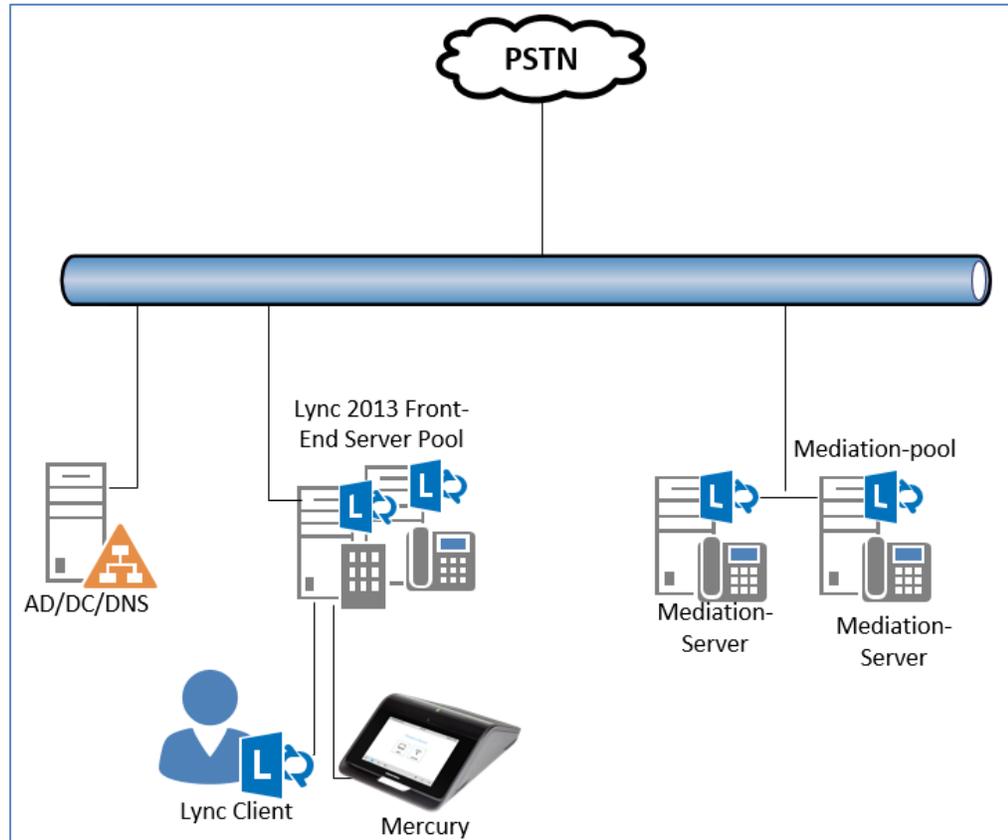
Audience

This document is intended for users attempting to configure and use the Crestron Mercury devices as Lync users registering to Lync 2013.

Topology

The network topology for the Crestron Mercury endpoint to interop with Lync 2013 is as shown below.

SIP Endpoint Integration with Lync 2013 - Reference Network



The lab network consists of the following components:

- Lync 2013 cluster for voice features
- Lync desktop clients
- Crestron Mercury as the Lync Endpoints

Software Requirements

- Lync 2013 5.0.8308
- Mercury devices v 1.3557.00021

Hardware Requirements

- Windows® servers for Lync 2013 components
- Cisco 3845 as PSTN Gateway
- Lync desktop client 15.0.4971.1000
- Crestron Mercury devices (2)

Product Description

The Crestron Mercury device is a complete solution for conference rooms. It acts as an all-in-one touch screen, speakerphone, and AirMedia® product for conference rooms that provide microphones and speakers integrated into the user interface at the table.

Crestron Toolbox™ software is used to discover and control all Crestron devices on the network.

The Crestron Mercury web interface is used to control the Crestron Mercury devices on the network.

Summary

The Crestron Mercury devices were configured on the Lync 2013 as enterprise voice enabled users. The devices successfully registered to the Lync 2013.

This topology is recommended for field deployments.

Features Supported

- Registration
- Basic calls with G711u codec
- Caller ID
- DTMF support
- Early media support
- Retrieval of a parked call
- Conference participant
- Call hold and resume
- Call waiting
- Conference

Features Not Supported

- Caller ID presentation with name and number display
- Call forwarding on the device
- Initiating attended call transfer
- Initiating semi-attended call transfer
- Initiating Blind Call Transfer
- Configuration of Shared Line on device
- Initiating Call Park

Known Issues and Limitations

- The Crestron Mercury device fails to register with Lync 2013 when the internal server or external server is configured on the device.
- The Crestron Mercury device handles a transfer with two-way audio, but after the transfer is complete, it drops the call.
- An attempt to add a PBX endpoint to a conference when the Crestron Mercury device is already in a call with PSTN fails with an error informing that the PBX endpoint is either unavailable or offline.
- The Crestron Mercury device does not play appropriate tones when it receives an error code.
- The Crestron Mercury device is able to retrieve the call parked by the Lync 2013 desktop client and there is two-way audio. However, after retrieving the parked call, the call control options disappear from the Crestron Mercury device's display.
- A hunt group call fails when the Crestron Mercury device answers the call (the hunt group call succeeds when the Lync 2013 desktop client answers).
- No music on hold is heard on the PBX endpoint when the Crestron Mercury device places the call on hold.
- The Crestron Mercury device handles call waiting, but it does not provide an option to put the current call on hold to answer a second incoming call. The Crestron Mercury device has to hang-up the ongoing first call to answer the second call, or it can reject the incoming second call.
- When media bypass is enabled on the PBX, media is not being anchored on the Crestron Mercury device. Instead, the Mediation server anchors the media.

Configuration

Mercury Configuration

Setup

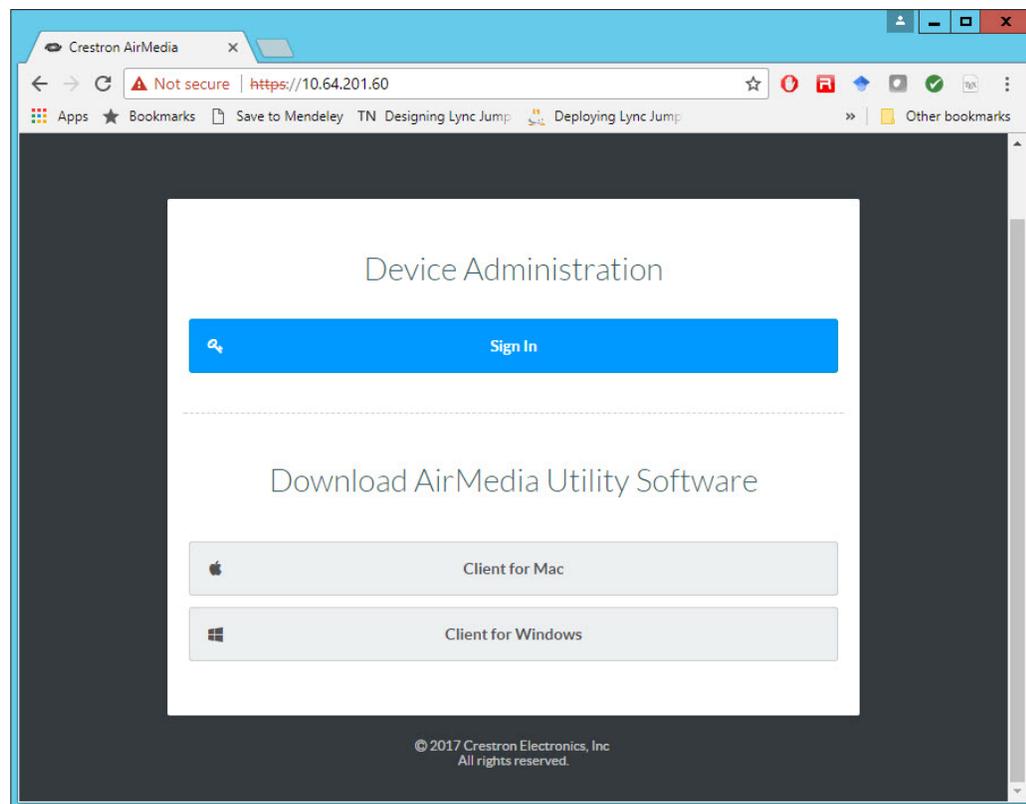
The LAN port of the Crestron Mercury device needs to be connected to one POE+ port to power it up and be connected to the network for reachability to Lync 2013. The PoE+ switch that is used should have the LLDP functionality enabled for the device to power up and be completely functional. By default, the “poeplus” configuration is set to Off on the device.

Configure the Device

To configure the Crestron Mercury device, follow this procedure:

1. Access the web GUI for the device by using an http session with the device's IP address.

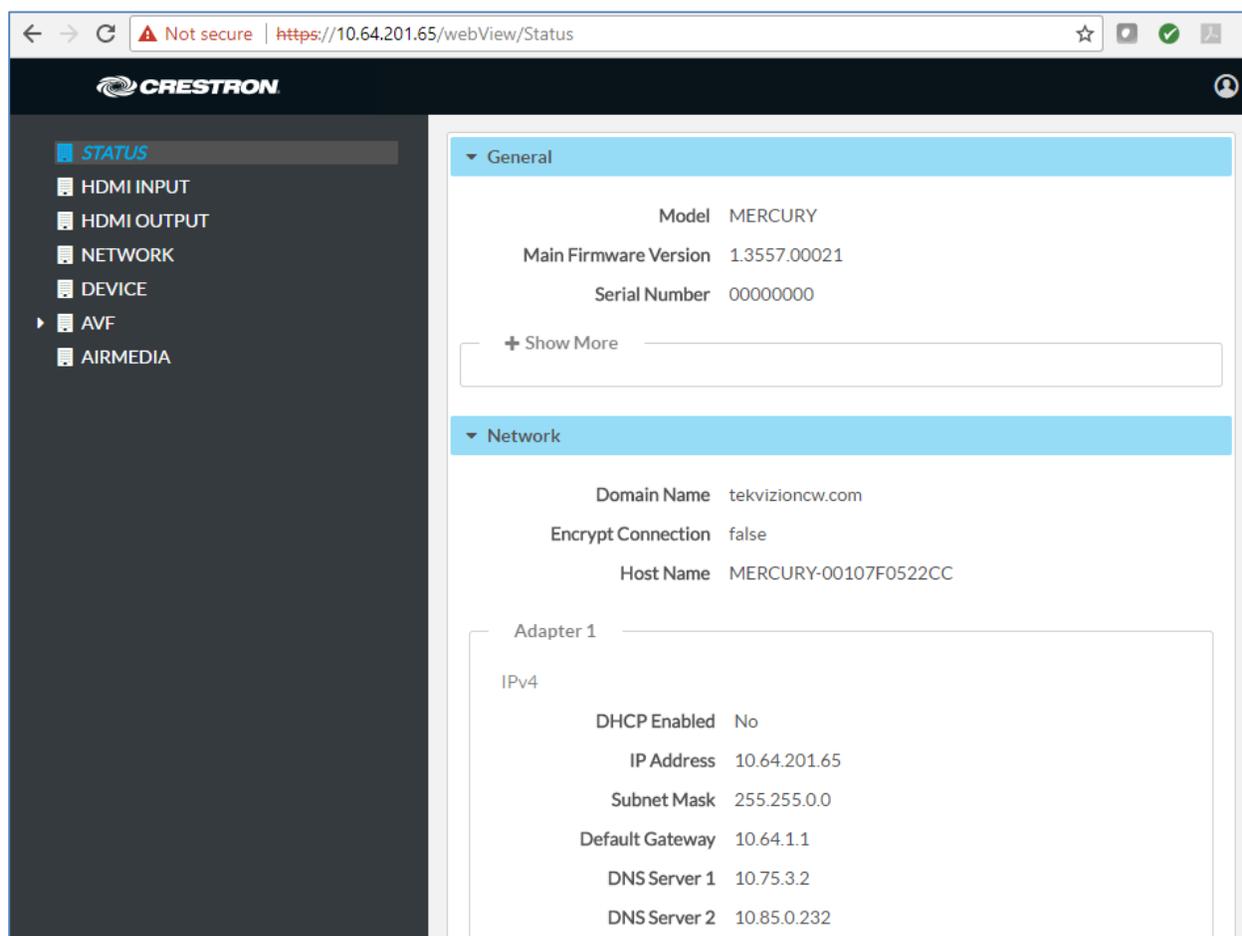
Crestron Mercury: Login to Web GUI



2. Click **Sign In** and log in to the device. For information on device administration, refer to the CCS-UC-1 Supplemental Guide (Doc. 7844) at www.crestron.com/manuals.

The Status screen that appears displays basic information on the device.

Crestron Mercury: Status



The device can be configured from the **Network** page.

3. On the web GUI, navigate to **Network**.
4. Enter the following parameters in the **Adapter 1** section to configure the Crestron Mercury device.
 - **Domain Name:** *tekvisioncw.com* was used in this example
 - **DHCP Enabled:** Choose either of the following:
 - Obtain an IP address automatically (**On**)
 - Use the following IP address (**Off**)

For the example, a static IP was configured.

NOTE: The DNS Server 1 entry should be the DNS server where all the Lync 2013 and the A & SRV records for Mercury are configured. In this example, the DNS server on Domain Controller is used.

5. Click **Save Changes**.

Configure the SfB Parameters

To configure the SfB parameters, follow this procedure:

1. On the web GUI, navigate to **Device > SIP Calling**.
2. Set **Enable SIP** to **Off**, and click **Save Changes**.
3. On the web GUI, navigate to **Device > Skype for Business**.
4. Set **Enable** to **Enabled**.
5. Configure the **Username**: Enter the SIP URI of the Lync 2013 user.
6. Configure the **Password**: Enter the password of the Lync 2013 user.
7. Configure the **SIP Address**: Enter the SIP URI of the Lync 2013 user.
8. Click **Save Changes**.

When SfB is enabled, the Crestron Mercury device displays a Skype logo on its **Make a Call** screen. The logo is greyed out until the device registers with SfB.

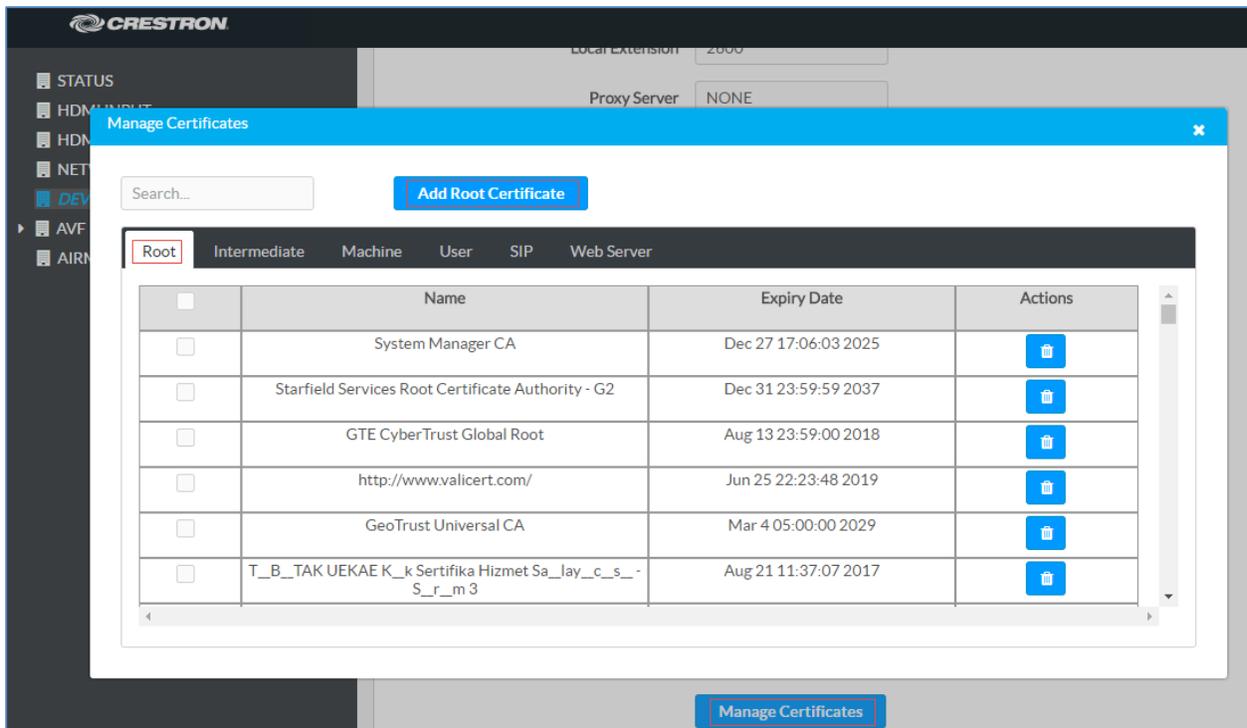
Add Certificates

For a successful TLS handshake between the Crestron Mercury device and Lync 2013, a root certificate needs to be added to the Crestron Mercury device. This can be downloaded from the certificate authority that serves SfB.

To upload certificates to the Crestron Mercury device, follow this procedure:

1. Navigate to **Device > Skype for Business**.
2. Click **Manage Certificates**.

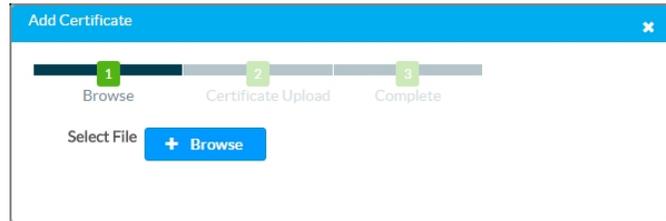
Mercury: UI: Manage Certificates Screen: Add Root Certificate



3. Click **Add Root Certificate**. The **Add Certificate** screen is displayed.
 - a. Click to delete a certificate from the list of certificates.

- b. Click **Add Root Certificate**. The Add Certificate screen is displayed.

Add Certificate Screen



- c. Click **Browse**, select the root_cer.cer file to be loaded, and click **Open**.
- d. Click **Load** to upload the certificate to the CCS-UC-1. A message confirming the upload is displayed.
- e. Click **OK** to close the **Add Certificate** screen. The certificate authority from where the root-cer certificate was downloaded appears in the list of trusted certificate authorities.
- f. Navigate to **SIP Calling > Select Trusted Certificate Authorities** and select the certificate authority (from where the root_cer.cer certificate was downloaded) from the list of certificate authorities.

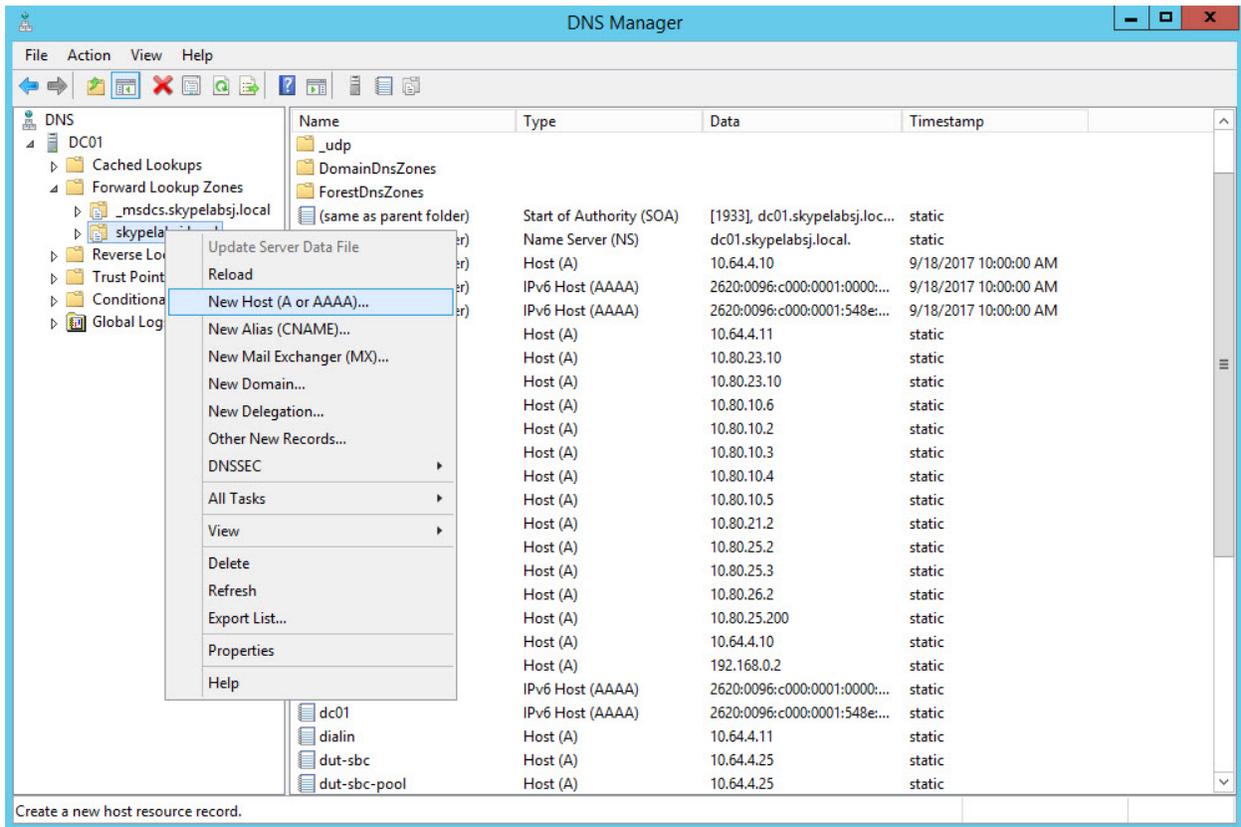
Lync Configuration

This section describes the Lync 2013 configuration necessary to integrate the Crestron device as a Lync Endpoint. It is assumed that the general installation and basic Lync 2013 configuration has already been administered.

Configure Host A record

Configure an A record in the DNS server for “lyncdiscoverinternal.<domain>.com” that points to the front end server’s IP Address.

Configure Host A Record



Lyncdiscoverinternal Properties Window

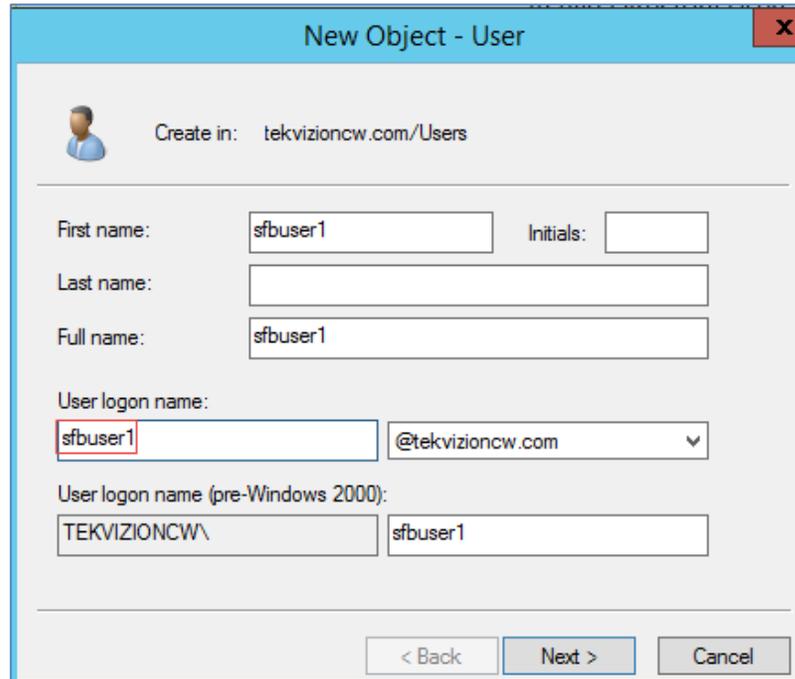
The screenshot shows a window titled "lyncdiscoverinternal Properties" with a blue header bar containing a question mark icon and a close button (X). The window has two tabs: "Host (A)" and "Security", with "Security" selected. The main content area contains the following fields and options:

- Host (uses parent domain if left blank):
lyncdiscoverinternal
- Fully qualified domain name (FQDN):
lyncdiscoverinternal.tekvisioncw.com
- IP address:
10.75.3.11
- Update associated pointer (PTR) record

At the bottom of the window are three buttons: "OK", "Cancel", and "Apply".

1. Enter the user information in the **New Object - User** window, and then click **Next**.

New Object - User Window



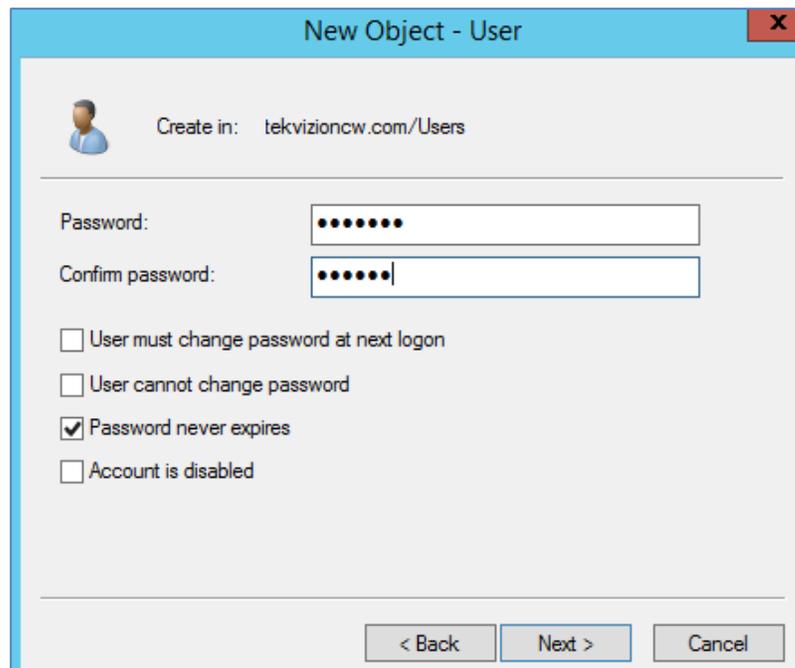
The screenshot shows the 'New Object - User' window with the following fields and values:

- Create in:** tekvisioncw.com/Users
- First name:** sfbuser1
- Initials:** (empty)
- Last name:** (empty)
- Full name:** sfbuser1
- User logon name:** sfbuser1 (highlighted with a red box) and @tekvisioncw.com (dropdown menu)
- User logon name (pre-Windows 2000):** TEKVISIONCW\ and sfbuser1

Buttons at the bottom: < Back, Next >, Cancel

2. Enter the password information in the **New Object - User** window, and then click **Next**.

New Object - User Window - Configure Password



The screenshot shows the 'New Object - User' window with the following fields and options:

- Password:** (masked with 7 dots)
- Confirm password:** (masked with 7 dots)
- User must change password at next logon
- User cannot change password
- Password never expires
- Account is disabled

Buttons at the bottom: < Back, Next >, Cancel

3. Click **Finish**. The user is successfully created.

Configure a Crestron Mercury Lync 2013 User

Configure a user in the Lync 2013 Control Panel for Enterprise Voice.

NOTE: A user has to be configured in the Active Directory prior to this configuration as described in “Configure Users in the Active Directory” on page 11.

Skype for Business, User Configuration

Home
Users
Topology
IM and Presence
Persistent Chat
Voice Routing
Voice Features
Response Groups
Conferencing
Clients
Federation and External Access
Monitoring and Archiving
Security
Network Configuration

USER SEARCH

Edit Skype for Business Server User - SFB2 User2

Display name:
SFB2 User2

Enabled for Skype for Business Server

SIP address: *
sip:SFBUser2 @ skypeabsj.local

Registrar pool:
FE01.skypeabsj.local ?

Telephony:
Enterprise Voice ?

Line URI:
tel:+19722657278 ?

Dial plan policy:
<Automatic> View...

Voice policy:
OutboundCalling View...

Conferencing policy:
<Automatic> View...

Client version policy:
<Automatic> View...

PIN policy:
<Automatic> View...

External access policy:
<Automatic> View...

Archiving policy:
<Automatic> View...

Location policy:
<Automatic> View...

Mobility policy:
<Automatic> View...

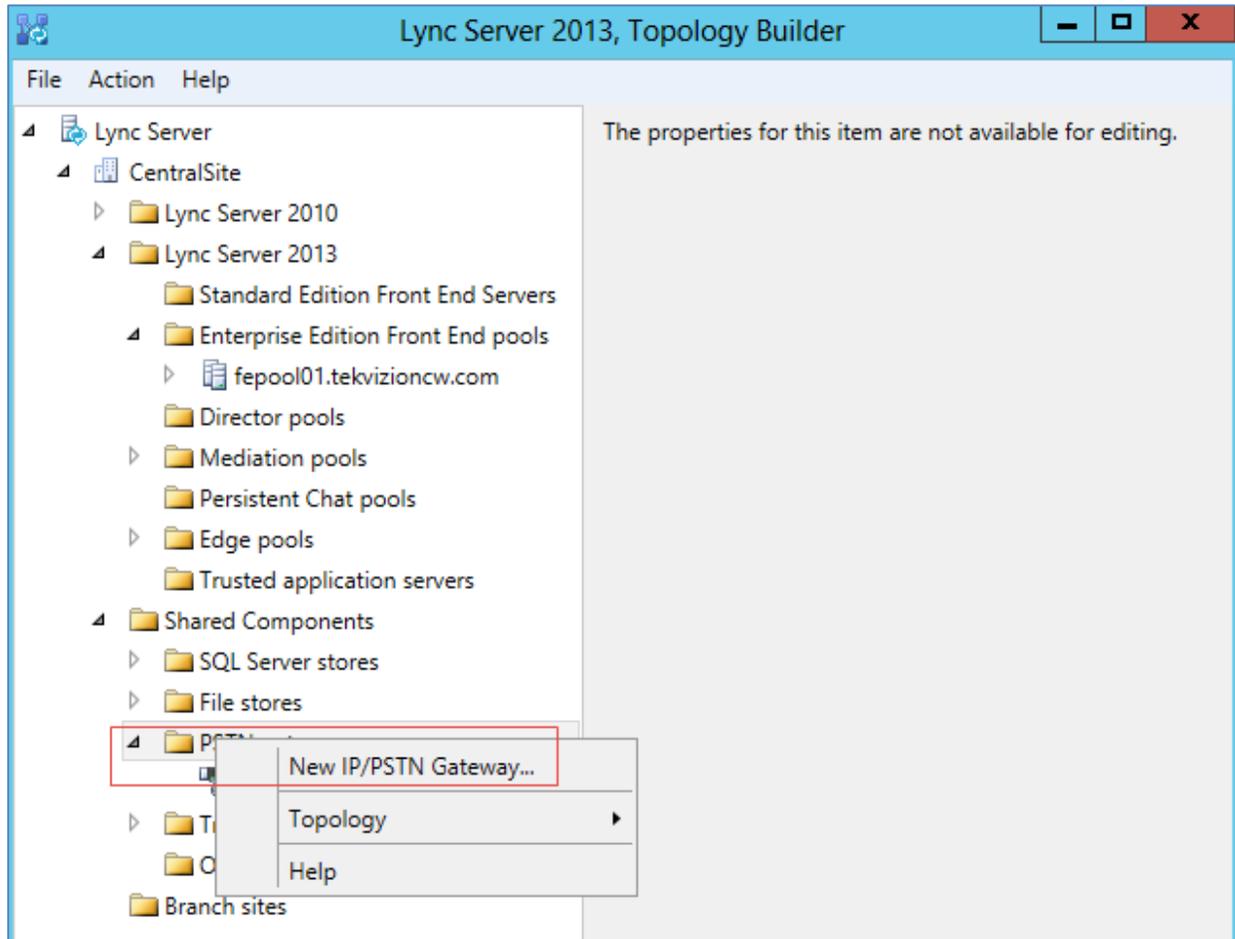
Persistent Chat policy:
<Automatic> View...

Client policy:
<Automatic>

Configure the PSTN Gateway

Configure a PSTN Gateway on Lync 2013 for routing calls to the PSTN.

Lync Server 2013, Topology Builder



Define New IP/PSTN Gateway, Define the PSTN Gateway FQDN

The screenshot shows a dialog box titled "Define New IP/PSTN Gateway" with a close button (X) in the top right corner. The main heading is "Define the PSTN Gateway FQDN" with a telephone icon. Below the heading, the text reads "Define the fully qualified domain name (FQDN) for the PSTN gateway." There is a label "FQDN: *" followed by a text input field containing "10.64.1.72". At the bottom, there are four buttons: "Help", "Back", "Next" (highlighted in blue), and "Cancel".

Define New IP/PSTN Gateway, Define the IP Address

The screenshot shows a dialog box titled "Define New IP/PSTN Gateway" with a close button (X) in the top right corner. The main heading is "Define the IP address" with a telephone icon. Below the heading, there are two radio button options: "Enable IPv4" (selected) and "Enable IPv6". Under "Enable IPv4", there are two sub-options: "Use all configured IP addresses." (selected) and "Limit service usage to selected IP addresses." Below this is a text input field labeled "PSTN IP address:". The "Enable IPv6" section has the same sub-options and a text input field. At the bottom, there are four buttons: "Help", "Back", "Next" (highlighted in blue), and "Cancel".

Define New IP/PSTN Gateway, Define the Root Trunk

The screenshot shows a dialog box titled "Define New IP/PSTN Gateway" with a sub-header "Define the root trunk". The dialog contains several input fields and dropdown menus:

- Trunk name:** * 10.64.1.72
- Listening port for IP/PSTN gateway:** * 5060
- SIP Transport Protocol:** TCP
- Associated Mediation Server:** FE01.skypelabsj.local CleanDefaultTopology
- Associated Mediation Server port:** * 5060

At the bottom of the dialog, there are four buttons: "Help", "Back", "Finish", and "Cancel". The "Finish" button is highlighted in blue.

Configure the Dial Plan

Configure the dial plan and normalization rules for number translation.

Lync Server 2013, Voice Routing, Dial Plan Configuration

The screenshot shows the Lync Server 2013 management console. The left-hand navigation pane is visible, with 'Voice Routing' selected. The main area displays the 'Edit Dial Plan - Global' configuration window. At the top of this window are 'OK' and 'Cancel' buttons. The configuration fields are as follows:

- Scope:** Global
- Name:** * Global
- Simple name:** * DefaultProfile
- Description:** (empty field)
- Dial-in conferencing region:** Conference
- External access prefix:** (empty field)

Below the fields is the 'Associated Normalization Rules' section, which includes a toolbar with 'New', 'Copy', 'Paste', 'Select...', 'Show details...', and 'Remove' buttons, along with up and down arrow icons. A table lists the current normalization rules:

Normalization rule	State	Pattern to match	Translation pattern
Keep All	Committed	^(d+)\$	\$1

Dial Plan Configuration, Edit Normalization Rule

Edit Dial Plan ▸ Edit Normalization Rule - Keep All

Name: *
Keep All

Description:

Build a Normalization Rule

Fill in the fields that you want to use, or create the rule manually by clicking Edit.

Starting digits:

Length:
At least

Digits to remove:

Digits to add:

Pattern to match: *

Translation rule: *

Internal extension

Dialed number to test:

Configure Voice Policy

Configure voice policy with required calling features. This voice policy has to be assigned to the user manually if it is a user scoped voice policy.

Lync Server 2013, Voice Routing, Voice Policy Configuration

The screenshot displays the Lync Server 2013 administration console. On the left is a navigation pane with categories like Home, Users, Topology, IM and Presence, Persistent Chat, Voice Routing (highlighted), Voice Features, Response Groups, Conferencing, Clients, Federation and External Access, Monitoring and Archiving, Security, and Network Configuration. The main area shows a breadcrumb trail: Dial Plan > Voice Policy > Route > PSTN Usage > Trunk Configuration > Test Voice Routing. Below this is a link for 'Create voice routing test case information'. The central window is titled 'Edit Voice Policy - OutboundCalling' and contains the following fields and options:

- Scope:** User
- Name:** * OutboundCalling
- Description:** (empty text box)
- Calling Features:**
 - Enable call forwarding
 - Enable delegation
 - Enable call transfer
 - Enable call park
 - Enable simultaneous ringing of phones
 - Enable team call
 - Enable PSTN reroute
 - Enable bandwidth policy override
 - Enable malicious call tracing
- Associated PSTN Usages:**
 - Buttons: + New, Select..., Show details..., Remove, ↑, ↓
 - Table:

PSTN usage record	Associated routes
PSTN_outbound	PSTNGW
- Call forwarding and simultaneous ringing PSTN usages:**
 - Dropdown menu: Route using the call PSTN usages
 - Translated number to test: (empty text box)
 - Go button

Configure PSTN Usage

A PSTN usage is configured to the above voice policy. This configuration dictates if a user can have access to outbound PSTN calls.

Configure a PSTN Usage

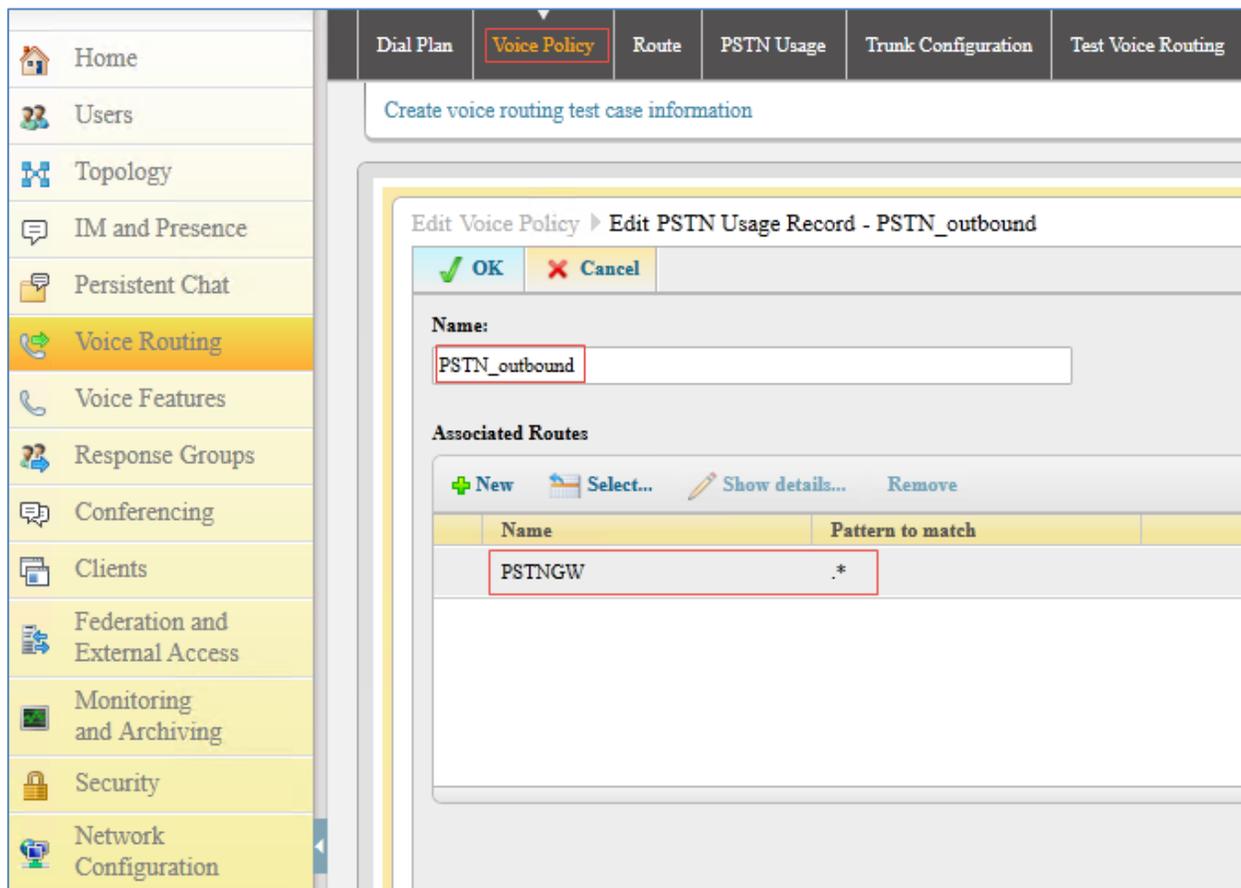
The screenshot shows the configuration console with the 'Voice Policy' tab selected. The 'Edit Voice Policy' dialog is open, showing the 'Edit PSTN Usage Record - PSTN_outbound' configuration. The 'Name' field contains 'PSTN_outbound'. Under 'Associated Routes', there is one route named 'PSTNGW' with a 'Pattern to match' of '*'. The 'Voice Routing' menu item is highlighted in the left sidebar.

Name	Pattern to match
PSTNGW	*

Configure a Route

A route is configured for the above configured PSTN usage. This route configuration is associated with the PSTN trunks and number patterns to allow. The below example allows all numbers on the associated trunk.

Configure Voice Route



The screenshot displays the Microsoft Lync administration console interface. On the left is a navigation pane with various system management options. The main area shows the 'Voice Policy' configuration page, with a sub-dialog titled 'Edit PSTN Usage Record - PSTN_outbound'. In this dialog, the 'Name' field is populated with 'PSTN_outbound'. Below, the 'Associated Routes' section contains a table with one entry:

Name	Pattern to match
PSTNGW	*

Configure a Trunk

Configure the trunk to PSTN gateway.

Skype for Business, Voice Routing, Trunk Configuration

The screenshot displays the Lync Server 2013 administration console. The left-hand navigation pane is expanded to 'Voice Routing', with 'Voice Features' selected. The top navigation bar includes 'Dial Plan', 'Voice Policy', 'Route', 'PSTN Usage', 'Trunk Configuration' (highlighted), and 'Test Voice Routing'. Below the navigation bar, a link for 'Create voice routing test case information' is visible. The main content area shows the 'Edit Trunk Configuration - PstnGateway:10.64.1.72' dialog box. This dialog has 'OK' and 'Cancel' buttons at the top. The configuration fields are as follows:

- Scope:** Pool
- Name:** * (required field)
- Name value:** PstnGateway:10.64.1.72
- Description:** (empty text box)
- Maximum early dialogs supported:** 20 (spin box)
- Encryption support level:** Optional (dropdown menu)
- Refer support:** None (dropdown menu)
- Checkboxes:**
 - Enable media bypass
 - Centralized media processing
 - Enable RTP latching
 - Enable forward call history
 - Enable forward P-Asserted-Identity data
 - Enable outbound routing failover timer

Trunk Configuration, Details

Edit Trunk Configuration - PstnGateway:10.64.1.72

✓ OK ✗ Cancel

^ Associated PSTN Usages

Select... Remove ↑ ↓

PSTN usage record	Associated routes
PSTN_outbound	PSTNGW

Translated number to test:

^ Associated translation rules

Calling number translation rules

+ New Copy Paste Select... Show details... Remove ↑ ↓

Translation rule	State	Pattern to match	Translation pattern
------------------	-------	------------------	---------------------

Called number translation rules

+ New Copy Paste Select... Show details... Remove ↑ ↓

Translation rule	State	Pattern to match	Translation pattern
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Configuration Guide – DOC. 8255A
(2050539)
12.17
Specifications subject to
change without notice.