Troubleshooting **Guide**
## Q-SYS Platform

## Q-SYS Softphone Registration Problems

This guide is intended to help you find the solution to problems encountered when trying to register the Q-SYS Softphone (in order to make VoIP calls). It is assumed that the you have been provided with all of the necessary information covered in the **Q-SYS Softphone SIP Integration Worksheet** to the VoIP administrator and both the SIP proxy and the Q-SYS system has been configured according to the QSC Application Guide Q-SYS Softphone SIP, a primer on SIP telephony and the Q-SYS Softphone. (For a full step-by-step guide to configuration, please see the QSC document for the correct phone system type and version.)
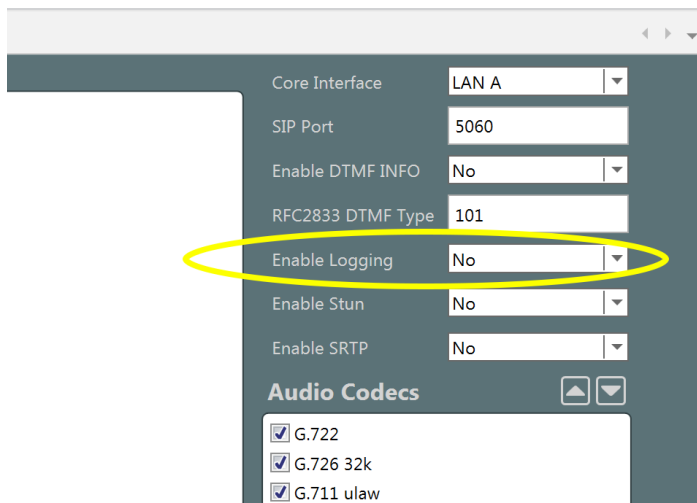
Before reading on, make sure to reference these materials:
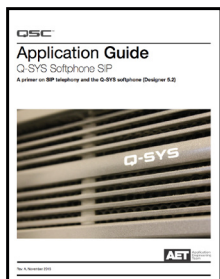
**Application Guide
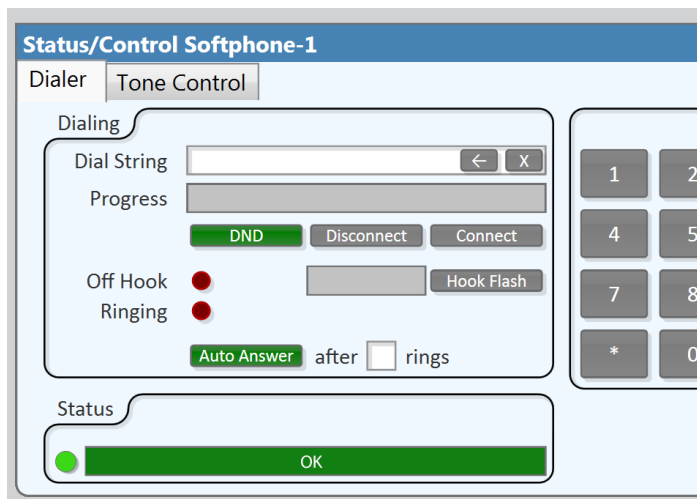Q-SYS Softphone SIP**
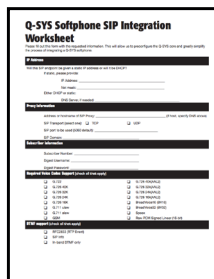
Q-SYS Softphone SIP Worksheet

Enable logging of Q-SYS Softphone SIP messages as a troubleshooting tool

STEP ONE:
Enabling SIP Logging Mode

Some of the troubleshooting steps will require looking at the SIP log created by the Q-SYS Core. Please make sure the SIP logging is enabled. This is done in the Q-SYS Administrator Softphones tab.

When changing this parameter, make sure to follow up by hitting the update button in the red banner that appears in Q-SYS Administrator when changes are detected.

Softphone status display as seen in the controller block

STEP TWO:
Diagnosing registration issues using the Q-SYS Softphone status display

This image shows the Q-SYS Softphone in 'OK' status as indicated in green. Note the interface is shown in the 'Idle' state in the call progress field. The interface WILL NOT dial until this is true. If the status reports an error upon initialization, the Softphone is not being properly registered. This must be resolved before the interface can be properly tested. The following diagram maps the various status messages with their possible causes and resolutions.

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In the corresponding pages you will see the possible errors and their corresponding troubleshooting maps.

1. REGISTRATION FAILED: INVALID INTERFACE

4. REGISTRATION FAILED: INVALID PASSWORD PROVIDED

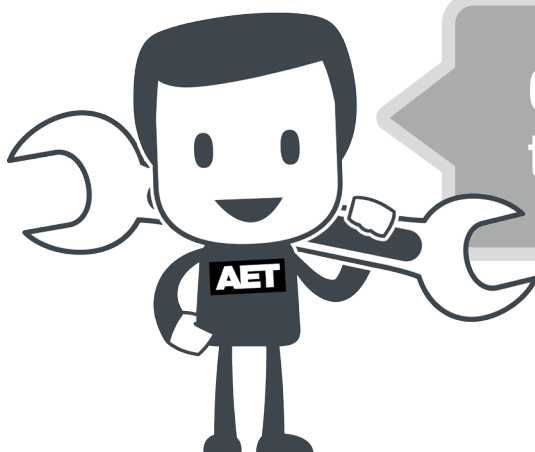**2.** REGISTRATION FAILED: SERVICE UNAVAILABLE

5. REGISTRATION FAILED: USER UNKNOWN

3. REGISTRATION FAILED: REQUEST TIMEOUT

6. REGISTRATION FAILED: OPERATION HAS NO MATCHING CHALLENGE

Interactive Troubleshooting Map:

We understand that everyone digests information differently, and find it hard to read troubleshooting maps. If you prefer a more step-by-step troubleshooting experience, you can try the "Interactive Troubleshooting Guide for Q-SYS Softphone".
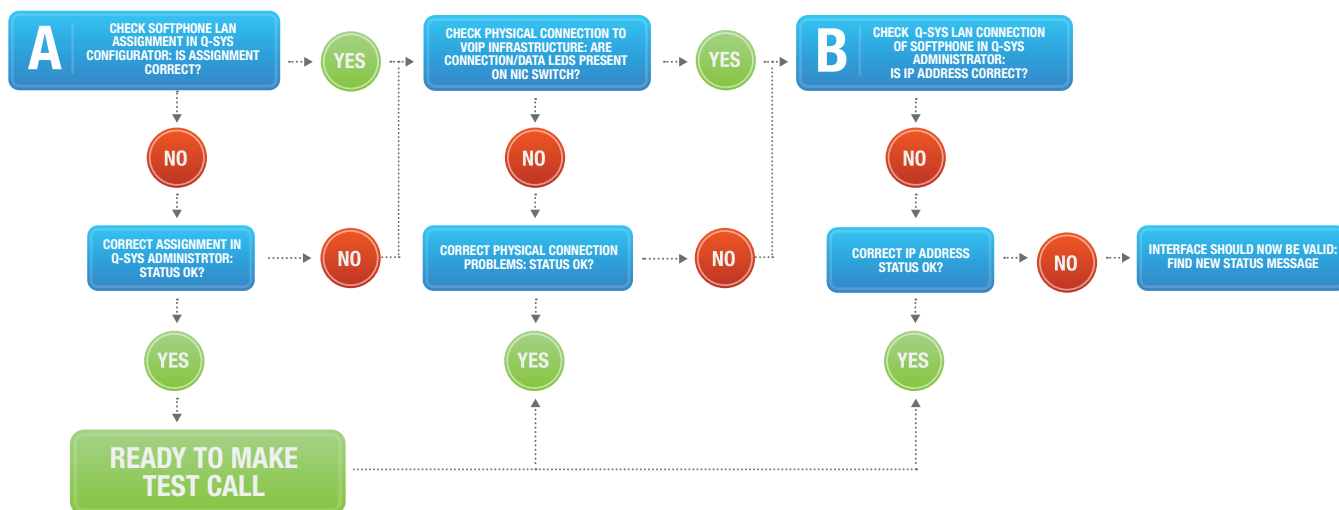
Click to access the interactive troubleshooting guide

1

ERROR #1: REGISTRATION FAILED: Invalid interface

Explanation: LAN connection to which this Softphone is assigned is not plugged in, has no connectivity or is not receiving IP address from DHCP.
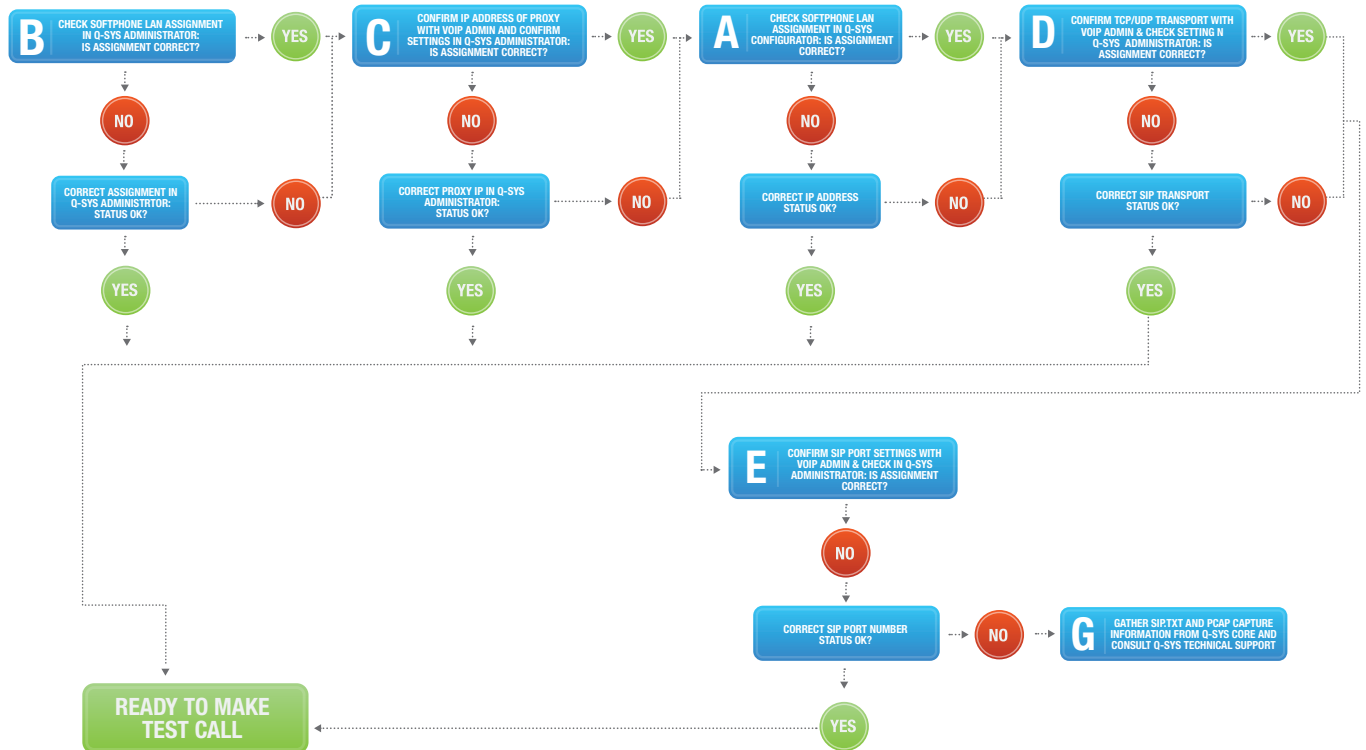
1. REGISTRATION FAILED: INVALID INTERFACE

A CHECK SOFTPHONE LAN ASSIGNMENT IN Q-SYS CONFIGURATOR: IS ASSIGNMENT CORRECT? — YES ⇢

CHECK PHYSICAL CONNECTION TO VOIP INFRASTRUCTURE: ARE CONNECTION/DATA LEDS PRESENT ON NIC SWITCH? — YES ⇢

B CHECK Q-SYS LAN CONNECTION OF SOFTPHONE IN Q-SYS ADMINISTRATOR: IS IP ADDRESS CORRECT?

NO ↓

NO ↓

NO ↓

CORRECT ASSIGNMENT IN Q-SYS ADMINISTRTOR: STATUS OK? ⇢ NO

CORRECT PHYSICAL CONNECTION PROBLEMS: STATUS OK? ⇢ NO

CORRECT IP ADDRESS STATUS OK? ⇢ NO ⇢ INTERFACE SHOULD NOW BE VALID: FIND NEW STATUS MESSAGE

YES ↓

YES ↑

YES ↑

READY TO MAKE TEST CALL

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2 ERROR #2: REGISTRATION FAILED: Service unavailable

Explanation: Softphone has contacted the proxy server, but the server cannot accommodate the request.
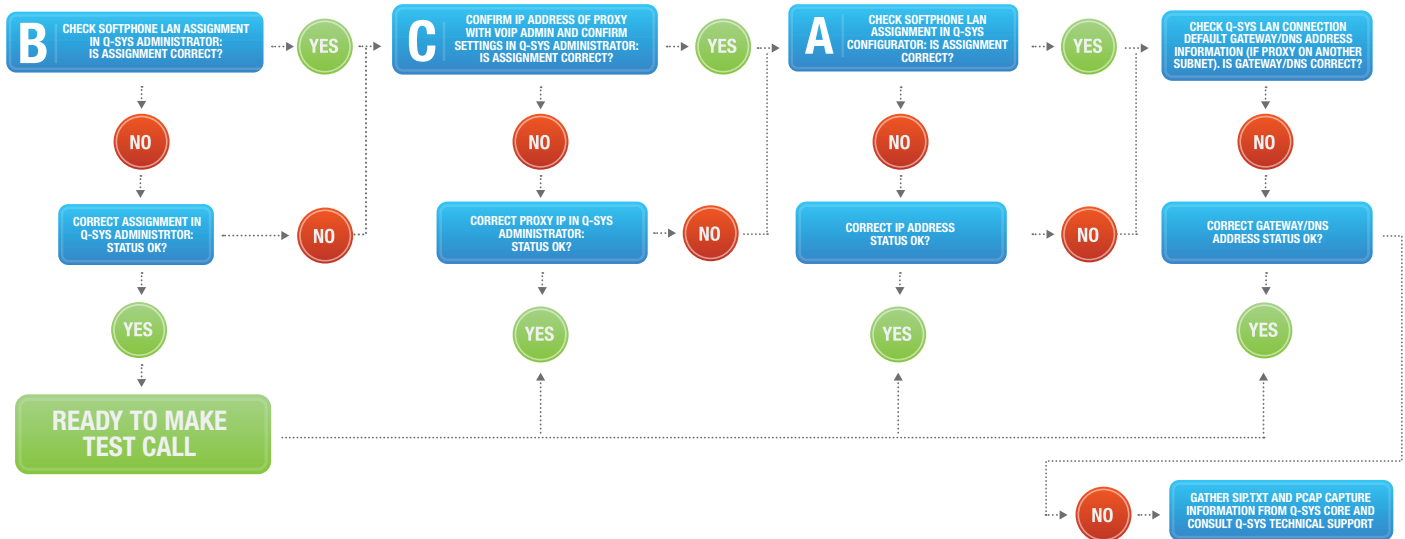
2. REGISTRATION FAILED: SERVICE UNAVAILABLE

B CHECK SOFTPHONE LAN ASSIGNMENT IN Q-SYS ADMINISTRATOR: IS ASSIGNMENT CORRECT? → YES

NO ↓

CORRECT ASSIGNMENT IN Q-SYS ADMINISTRTOR: STATUS OK? → NO

YES ↓

C CONFIRM IP ADDRESS OF PROXY WITH VOIP ADMIN AND CONFIRM SETTINGS IN Q-SYS ADMINISTRATOR: IS ASSIGNMENT CORRECT? → YES

NO ↓

CORRECT PROXY IP IN Q-SYS ADMINISTRATOR: STATUS OK? → NO

YES ↓

A CHECK SOFTPHONE LAN ASSIGNMENT IN Q-SYS CONFIGURATOR: IS ASSIGNMENT CORRECT? → YES

NO ↓

CORRECT IP ADDRESS STATUS OK? → NO

YES ↓

D CONFIRM TCP/UDP TRANSPORT WITH VOIP ADMIN & CHECK SETTING N Q-SYS ADMINISTRATOR: IS ASSIGNMENT CORRECT? → YES

NO ↓

CORRECT SIP TRANSPORT STATUS OK? → NO

YES ↓

E CONFIRM SIP PORT SETTINGS WITH VOIP ADMIN & CHECK IN Q-SYS ADMINISTRATOR: IS ASSIGNMENT CORRECT?

NO ↓

CORRECT SIP PORT NUMBER STATUS OK? → NO → **G** GATHER SIP.TXT AND PCAP CAPTURE INFORMATION FROM Q-SYS CORE AND CONSULT Q-SYS TECHNICAL SUPPORT

YES ↓

READY TO MAKE TEST CALL

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ERROR #3: REGISTRATION FAILED: Request timeout

Explanation: Softphone has contacted the proxy server but the server has not responded.

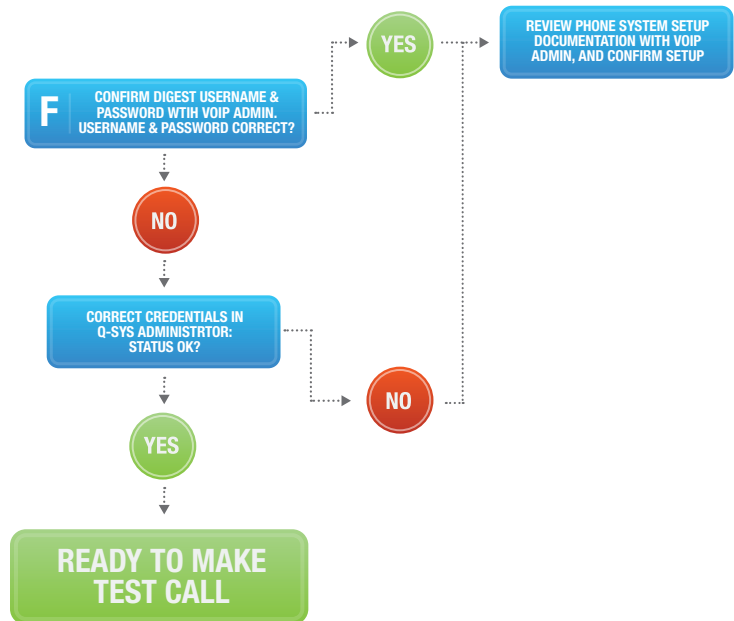**3.** REGISTRATION FAILED: REQUEST TIMEOUT

B CHECK SOFTPHONE LAN ASSIGNMENT IN Q-SYS ADMINISTRATOR: IS ASSIGNMENT CORRECT? → **YES**

NO

CORRECT ASSIGNMENT IN Q-SYS ADMINISTRTOR: STATUS OK? → **NO**

YES

READY TO MAKE TEST CALL

C CONFIRM IP ADDRESS OF PROXY WITH VOIP ADMIN AND CONFIRM SETTINGS IN Q-SYS ADMINISTRATOR: IS ASSIGNMENT CORRECT? → **YES**

NO

CORRECT PROXY IP IN Q-SYS ADMINISTRATOR: STATUS OK? → **NO**

YES

A CHECK SOFTPHONE LAN ASSIGNMENT IN Q-SYS CONFIGURATOR: IS ASSIGNMENT CORRECT? → **YES**

NO

CORRECT IP ADDRESS STATUS OK? → **NO**

YES

CHECK Q-SYS LAN CONNECTION DEFAULT GATEWAY/DNS ADDRESS INFORMATION (IF PROXY ON ANOTHER SUBNET). IS GATEWAY/DNS CORRECT? → **YES**

NO

CORRECT GATEWAY/DNS ADDRESS STATUS OK?

YES

NO → GATHER SIP.TXT AND PCAP CAPTURE INFORMATION FROM Q-SYS CORE AND CONSULT Q-SYS TECHNICAL SUPPORT

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ERROR #4: REGISTRATION FAILED: Invalid username or password

Explanation: Softphone has successfully contacted proxy but does not recognize digest password.

4. REGISTRATION FAILED: INVALID PASSWORD PROVIDED

5. REGISTRATION FAILED: USER UNKNOWN

6. REGISTRATION FAILED: OPERATION HAS NO MATCHING CHALLENGE

F CONFIRM DIGEST USERNAME & PASSWORD WTIH VOIP ADMIN. USERNAME & PASSWORD CORRECT? → **YES** → REVIEW PHONE SYSTEM SETUP DOCUMENTATION WITH VOIP ADMIN, AND CONFIRM SETUP

NO

CORRECT CREDENTIALS IN Q-SYS ADMINISTRTOR: STATUS OK? → **NO**

YES

READY TO MAKE TEST CALL

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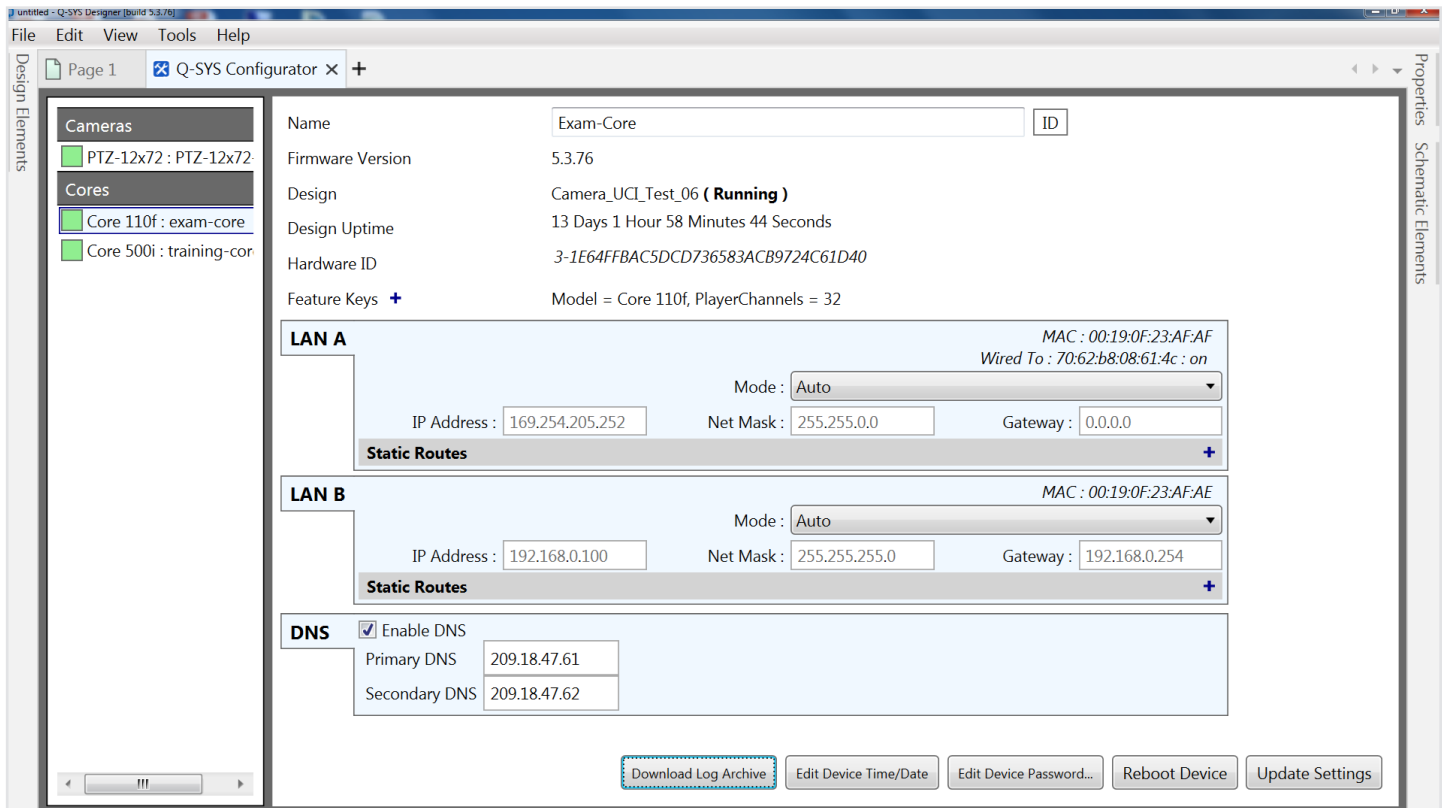
A — CHECK/CORRECT Q-LAN CONNECTION OF SOFTPHONE IN Q-SYS CONFIGURATOR

In Q-SYS Designer (connected or disconnected from the core), open Q-SYS Configurator. Choose the Core in the list to the left.

The mode and current IP address of each interface will be shown in the dialog. Check the connection (LAN A or LAN B) to which the Softphone is bound to confirm that it has the correct settings for the VoIP network. If the address shows as 'link local' (169.254.xxx. xxx), this would imply the DHCP server is not assigning an address to the Core interface.

To change the IP address of an interface, first choose the correct mode: If assigned by DHCP, choose 'Auto', if manually assigned, choose "Static". If using the static mode, type the address, subnet mask and gateway in the correct fields. Note that DNS servers are always set manually. If DNS is required, check the 'Enable DNS' box and add the addresses. When finished, hit the 'Update Settings button to the bottom right of the Q-SYS Configurator dialog.

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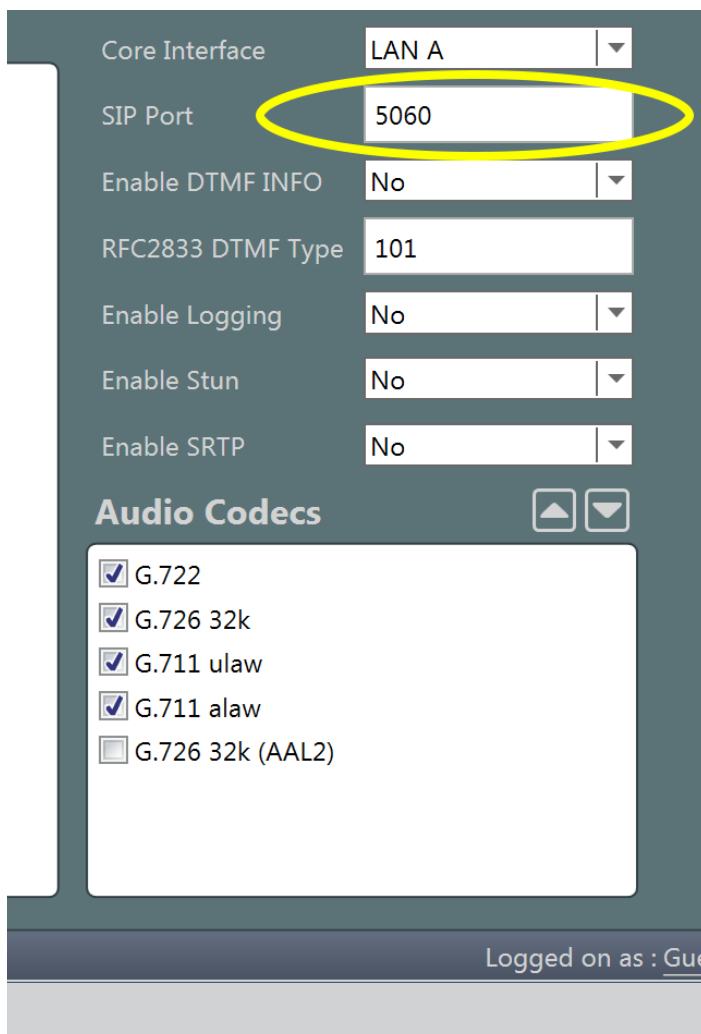

B CHECK/CORRECT SOFTPHONE LAN ASSIGNMENT IN Q-SYS ADMINISTRATOR

While connected to the system with Q-SYS Designer, open Q-SYS Administrator and choose the Softphones tab to the left.
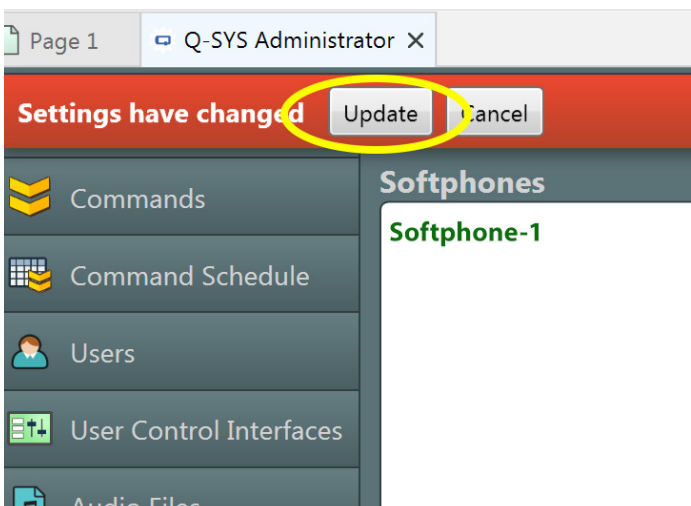
The Core Interface setting determines which of the network interfaces of the Core shall be used for Softphone call negotiation and audio. If the VoIP network must be isolated from the Core control and Q-LAN traffic, using the LAN B (for Core 110f) or AUX port (Core 500i, Core 1100, Core 3100) is recommended. To change this setting, click on the down arrow next to the setting and choose the appropriate option. Make sure to click on the Update button in the resulting red banner to the top of the dialog.

C — CONFIRM/CORRECT IP ADDRESS OF PROXY SERVER IN Q-SYS ADMINISTRATOR

While connected to the system with Q-SYS Designer, open Q-SYS Administrator and choose the Softphones tab to the left.
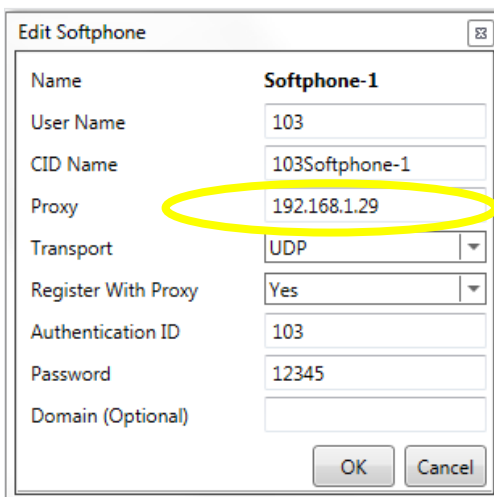
Double-click on the Softphone entry in the left-hand pane of the dialog. The proxy IP address is found in the 'Proxy' field in the resulting dialog.

Note that if the Proxy address is a hostname, DNS must be enabled and have at least one valid DNS server entry. To edit the proxy address, type the new address in the 'Proxy' field and click 'OK'.

Make sure to click on the Update button in the resulting red banner to the top of the dialog.

D CONFIRM/CORRECT TCP/UDP SIP TRANSPORT IN Q-SYS ADMINISTRATOR

While connected to the system with Q-SYS Designer, open Q-SYS Administrator and choose the Softphones tab to the left.

Double-click on the Softphone entry in the left-hand pane of the dialog. The SIP transport is found in the 'Transport' field in the resulting dialog.

To edit the transport, click the down arrow to the right of the 'Transport' field and choose the appropriate type. Click 'OK'.
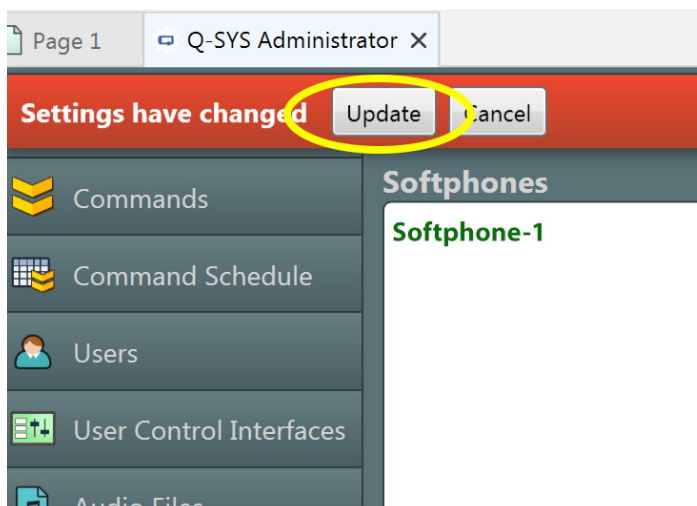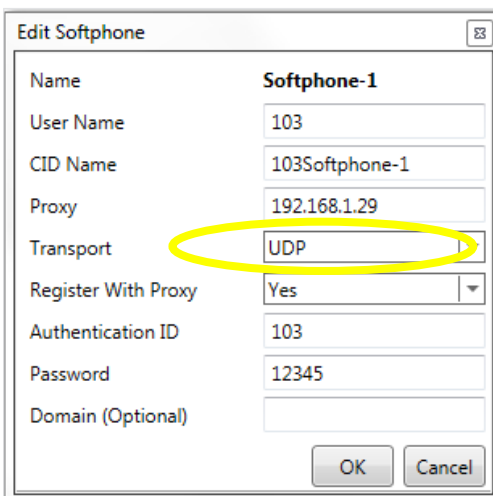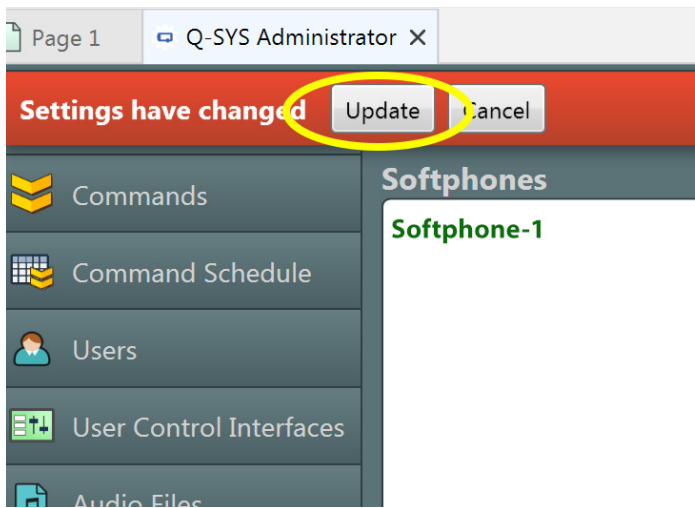
Make sure to click on the Update button in the resulting red banner to the top of the dialog.

E **CONFIRM/CORRECT SIP PORT SETTINGS IN Q-SYS ADMINISTRATOR**

The standard port setting for UDP and TCP SIP communication is 5060, which is the default configuration of the Softphone when created in Q-SYS Designer. If the VoIP system to be integrated with requires a non-standard port configuration, it should be included in the information you receive from the VoIP administrator. In Q-SYS Administrator the SIP listening port can be changed independently of the SIP transmit port. In most cases, it will be adequate to change both to the number given by the VoIP administrator.
To change the port assignments, open Q-SYS Administrator `and choose the Softphones tab to the left.
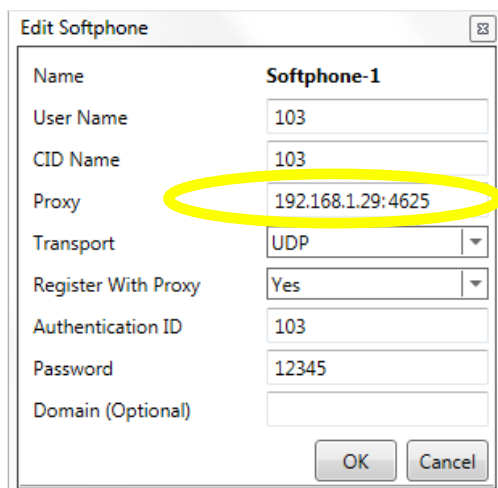
The SIP listening port is found in the 'SIP Port' field to the right. To change the SIP transmit port, double-click on the Softphone entry to the left of the dialog.

Double-click on the Softphone entry in the left-hand pane of the dialog. The proxy IP address is found in the 'Proxy' field in the resulting dialog.

Note that if the Proxy address is a hostname, DNS must be enabled and have at least one valid DNS server entry. To edit the proxy address, type the new address in the 'Proxy' field and click 'OK'.

The transmit port number is appended to the proxy address or hostname after a ':' with no spaces. In this example, the SIP transmit port of 4625 is appended to the proxy address to be **'192.168.1.29:4625'**

Once changed, click 'OK'.

Make sure to click on the Update button in the resulting red banner to the top of the dialog.

F | **CONFIRM/CORRECT USERNAME AND PASSWORD IN Q-SYS ADMINISTRATOR**
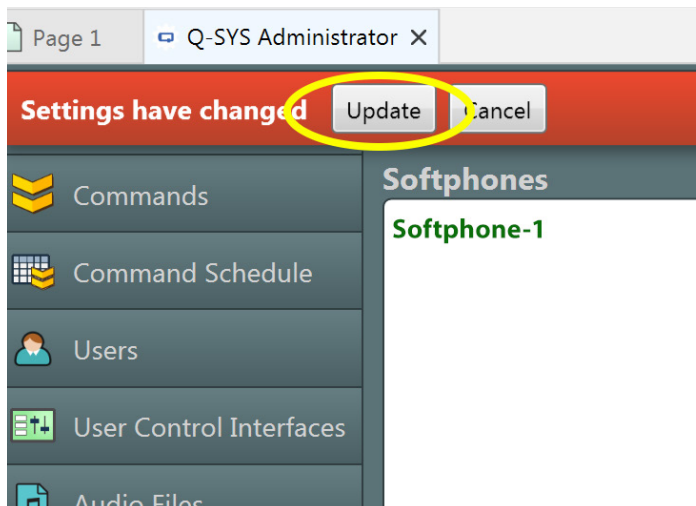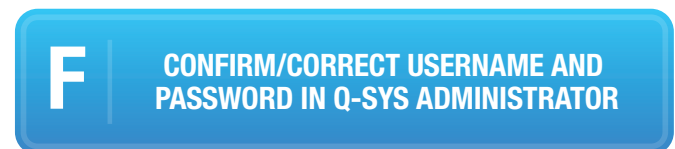
While connected to the system with Q-SYS Designer, open Q-SYS Administrator and choose the Softphones tab to the left.

Double-click on the Softphone entry in the left-hand pane of the dialog. The SIP credentials can be found in the resulting dialog.
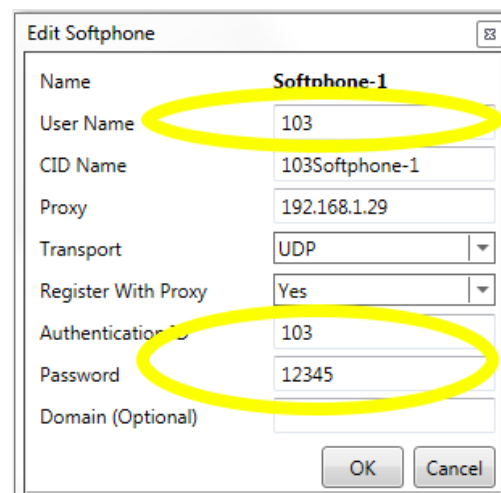
The 'User Name' field is often referred to by VoIP administrators as the 'subscriber number'. When the Softphone attempts to register, it uses this parameter in the contact field. The 'Authentication ID' and 'Password' fields are the digest username and passwords set when the VoIP administrator configures the digest user. To edit these fields, type the correct credentials into the fields and hit 'OK'.

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Make sure to click on the Update button in the resulting red banner to the top of the dialog.

| G | **GATHER SIP.TXT AND PCAP CAPTURE INFORMATION FROM Q-SYS CORE AND CONSULT Q-SYS TECHNICAL SUPPORT** |

As outlined in the first steps, the 'Enable Logging' feature was employed to create a log of SIP information to aid in advanced troubleshooting. Having this logging information will speed up resolution when consulting with our Q-SYS Technical Support. To get the SIP log, open an internet browser and type <IP Address of Core>/sip.txt in the internet address field. If the address is valid, the SIP log of the core should load.
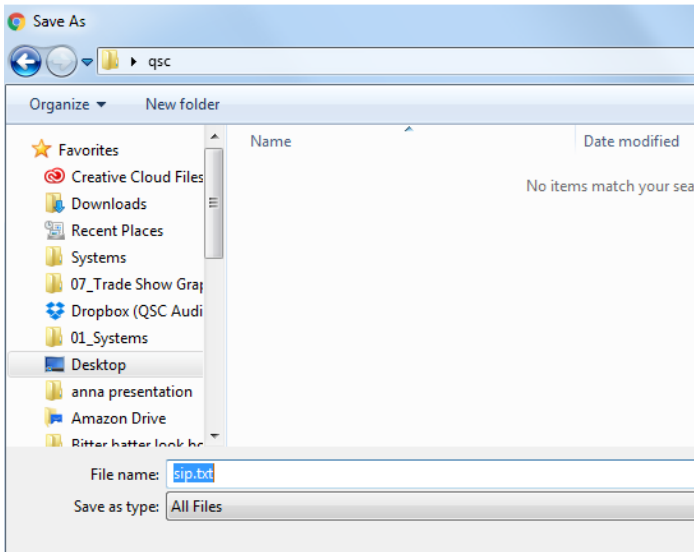
Right-click on the loaded page and choose 'save as'. Choose a known file location and name so it can be emailed to support.

A second set of diagnostic information can be gathered by creating a PCAP (wireshark) capture of the interface used for the Softphone. To create this, in the browser go to the address <IP Address of Core>/pcap_capture.html.
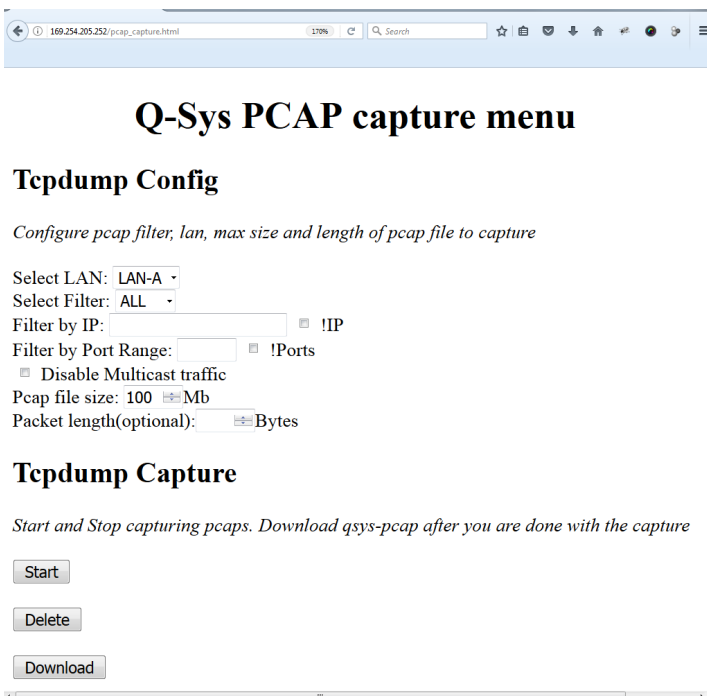
Select the appropriate interface in the 'Select LAN' field. Set the 'Packet length' field to 2048 and hit the 'Start' button. Let the capture run for 5 minutes, and then hit the 'Stop' button. Download the capture file ('Download' button) and send this along with the SIP log to Q-SYS support.

Q-Sys PCAP capture menu

Tcpdump Config

Configure pcap filter, lan, max size and length of pcap file to capture

Select LAN: LAN-A
Select Filter: ALL
Filter by IP: _____ !IP
Filter by Port Range: _____ !Ports
☐ Disable Multicast traffic
Pcap file size: 100 Mb
Packet length(optional): Bytes

Tcpdump Capture

Start and Stop capturing pcaps. Download qsys-pcap after you are done with the capture

Start

Delete

Download