TELEX

Radio Dispatch

Radio Dispatch Engineering Group

Application Guide

CMS P25 CSSI Trunking Installation Notes for CMS version 2.000 and C-Soft version 8.500

Notice:

The content in this document represents the current view of Bosch Security Systems as of the date of publication. Because Bosch Security Systems responds continually to changing market conditions, this document should not be interpreted as a commitment on the part of Bosch Security Systems. Bosch Security Systems cannot guarantee the accuracy of any information presented after the date of publication.

Contents

Introduction

This document describes the CMS (Console Main Server) P25 CSSI (Console Sub System Interface) feature set and contains the installation notes for configuring various P25 RFSS Trunking interfaces to C-Soft using the CMS CSSI Interface option. Additional notes and/or revisions to this note will be made available as additional P25 systems (including those from other infrastructure manufacturers) are made available for testing and documentation.

This feature is a value-added option to C-Soft 8.500 and higher. It requires available lines on your existing C-Soft license to support.

Hardware Requirements

- ADHB-4 Gen 2 Series Accessory

Software Requirements

- C-Soft version 8.500 or later
- Windows 10 or 11
- C-Soft version 8 licensing
- CSSI Licensing for C-Soft positions
- CMS-ADV Licensing for each Talk-Group to be registered in CMS.

Supported Features

The following P25 features are supported by CMS CSSI. However, not all features are supported by all manufactures.

Primary P25 CSSI Feature	Supported (X)
Confirmed Group Calls	X
Unconfirmed Group Calls	X
Group Registration	X
Phase 1 or Phase 2	X*
Maximum of 24 talk paths	X
Transmission Trunked	X
Message Trunked	X
Unit Calls	X
System Call	X
Announcement Call	X
AES & DES Encryption	X
Emergency	X
Supplementary Data	X **

The follow table shows the supplementary P25 CSSI features supported by various manufactures at time of this writing. This table only reflects support to and from the Console. Independent system support may be different. Please consult the manufacture for current supplementary feature support at the console level.

Supplementary Feature	Telex CMS CSSI	Tait	Motorola	Harris
Emergency Alarm	X	X	X	X
Group Emergency Cancel	X	X	X	
Emergency Alarm Cancel	X	X	X	
Short message	X	X		
Radio Call Alert	X	X	X	
Radio Check	X	X		
Radio Status Query	X	X		
Radio Status Update	X	X		
Radio Unit Monitor	X	X		
Radio Detach	NA			
Radio Inhibit	X	X		
Radio Un-inhibit	X	X		

*Phase 1 group calls must use TIA-P25-FullRate identifier.

**All except for Radio Detach.

Additional C-Soft Features

- Send Annunciations

  Send audio from .wav file using the Annunciation button on a Telex enabled P25-CSSI line.

- Crosspatch

  Can crosspatch audio from a Telex enable P25-CSSI line to another Telex enabled P25-CSSI line or a basic Telex type line (IP-224/223) in C-Soft.

- Indication of parallel console transmissions

  Parallel Consoles ID's can be configured in C-Soft Designer by going to Edit | Setup Global Parameters | Local Consoles and entering the IP address of the parallel console.

  Calls initiated from parallel dispatch consoles will display the 'T' icon on the receiving line's Select button.

- Cross muting of parallel consoles

  Calls from parallel consoles can be automatically muted by enabling the Cross-mute field in Edit | Setup Global Parameters | Local Consoles.

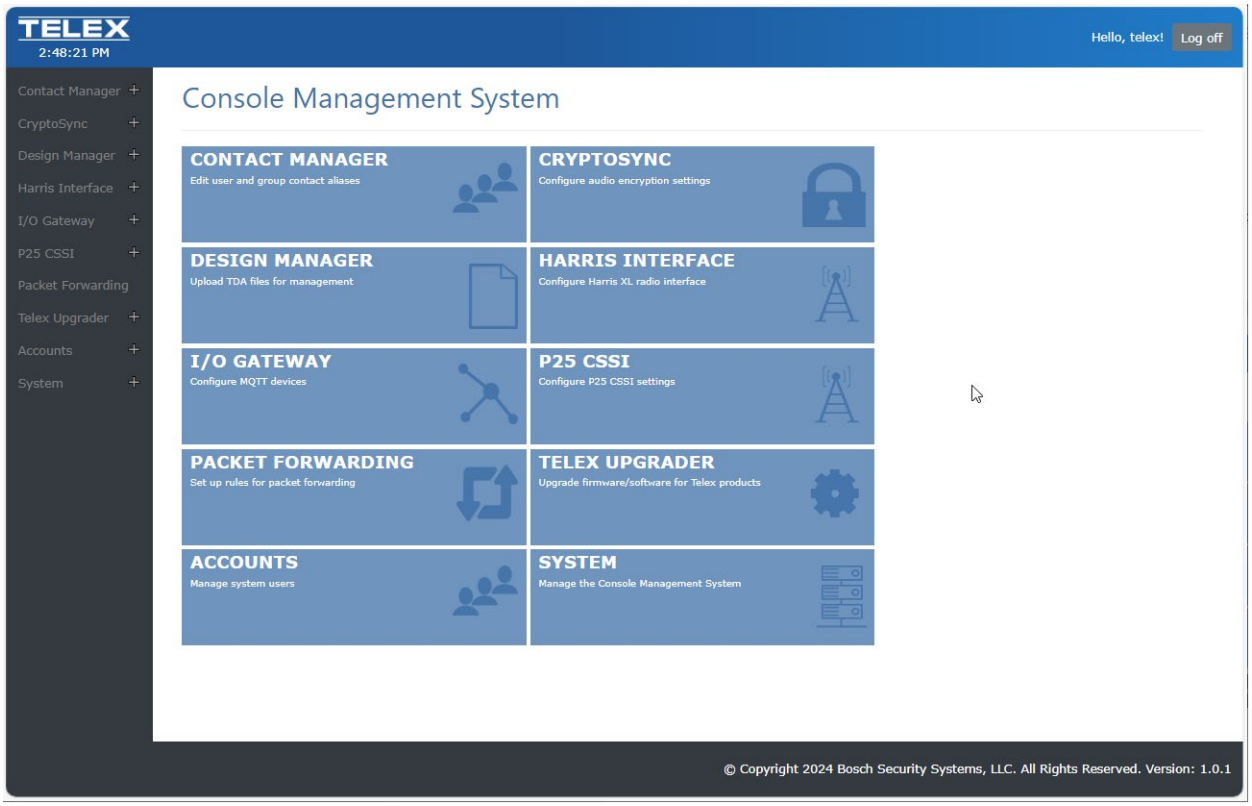
  When this option is enabled, calls initiated from parallel dispatch consoles will display the 'XT' icon on the receiving line's Select button.

Telex P25 CMS CSSI Gateway Webpage Setup

The following discusses all the settings in the CMS CSSI webpages. Type the IP address of the CMS gateway into a browser window to get to the main CMS webpage.

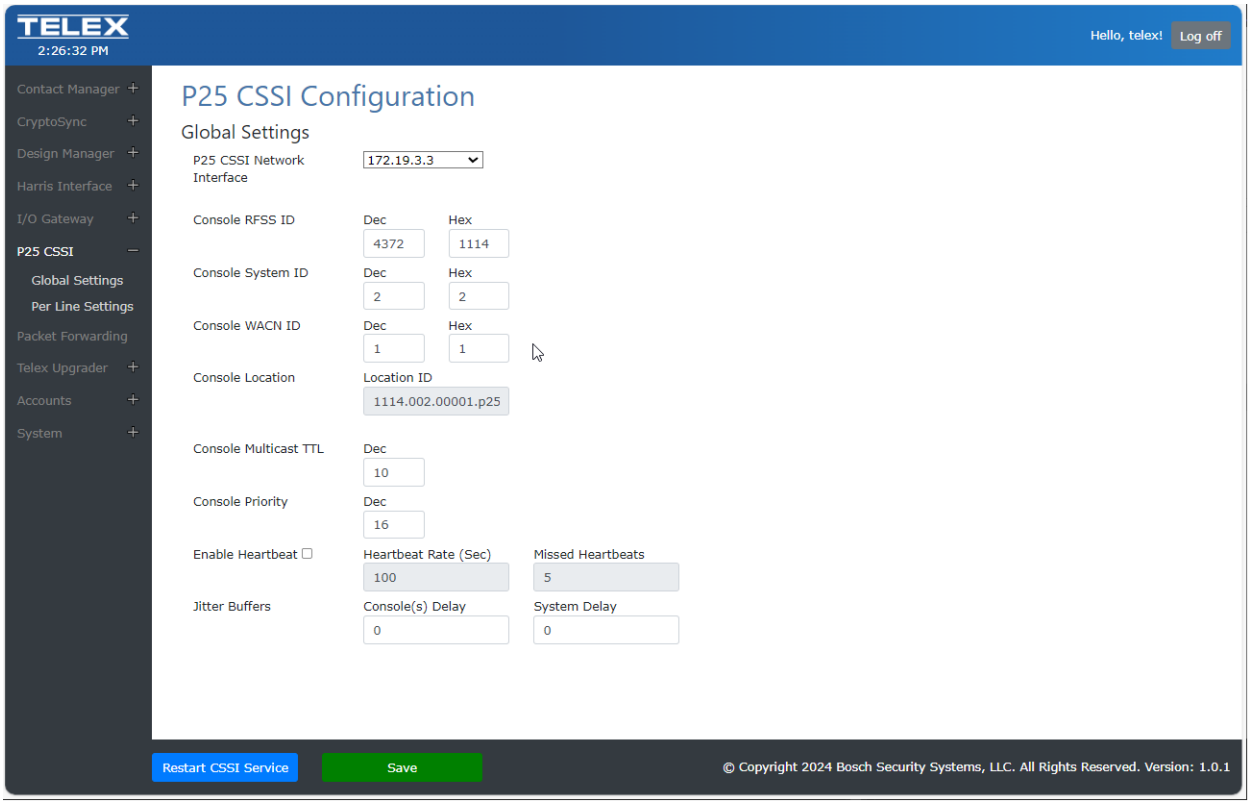
Main CMS Webpage

The CSSI Configuration can be accessed by either clicking on the P25 CSSI box or clicking on the P25 CSSI drop down menu and selecting either Global or Per Line settings.



Global Settings Webpage

The CSSI Global settings are used to configure the Console sub system's main location identifiers; Console RFSS ID, Console System ID and Console WACN ID. The ID of the individual Console(s) are assigned in C-Soft Designer file of each console. The remaining settings are used for interaction between the CSSI server and the RF Sub System



P25 CSSI Network Interface: This is the physical IP address that the Telex Server resides. Note: The RF Sub System must store this IP address.

Console RFSS ID: This is the RFSS ID that is assigned to the console sub system by the repeater site. The console/server RFSS ID must be stored in the site's repeater software along with the individual console ID's (which are also entered in C-Soft designer). Range 1 to 65535 dec.

Console System ID: This is the ID of the System the console sub system resides in. Range 1 to 4095 dec.

Console WACN ID: This is the ID of the Wide Area Communication Network the console sub system resides in. Range 1 to 1048575 dec.

Console Location: Accumulation of the console sub systems RFSS ID, System ID and WACN ID. This is the physical location that ISSI messaging uses to address the console/server.

Console Multicast TTL: Time To Live equals the maximum number of router hops. Range 1 to 128 dec.

Console Priority: The level of the Console priority as compared to the subscriber radio. All consoles connect to this CSSI system have the same level. Range 1 to 128 dec.

Enable Heartbeat: Check this box to enable heartbeats between the CMS and the RF sub system.

Heartbeat Rate: This is the time in seconds that a heartbeat request is sent to the site (Range 10 to 600 seconds). A reply from the site/repeater should be sent back to the CSSI CMS server.

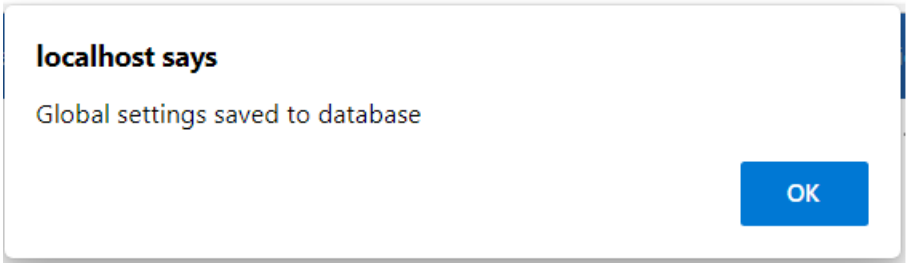
Missed heartbeats: This is the number of non-replies to a heartbeat request that are counted in a sequence before the repeater site is considered down (range 1 to 10). To avoid network delays causing a false response, set this value to a number greater than 1. For example, if the Heartbeat is set to 20 seconds and the Missed Heartbeats is set to 3. Then 3 heartbeat replies must be missed in a row to consider the site/repeater down. This will take 60 seconds to inform the console operator (3 * 20 = 60 seconds).

Jitter Buffers: The CSSI server jitter buffers are used to accumulate a number of packets before sending them to the console or sites/repeaters. Both the consoles and repeaters have their own jitter buffers and you may be able to pass the packets straight through the server without buffering. To do this set both Jitter Buffers to 0. However, The CSSI server does some processing of the packets before sending them on to either endpoint. Depending on the physical location of the server, buffering maybe required between the Consoles and CSSI server or between the repeater and the CSSI server.

Console(s) Delay: This is the number of Telex packets the server will accumulate before sending the call to the repeater site. Use a delay of 0 unless the network requires buffering. Range 0 to 99 dec.

System Delay: This is the number of P25 AMBE packets the server will accumulate before sending the call to the Console(s). Use a delay of 0 unless the network requires buffering. Range 0 to 99 dec.

Save Button: Pressing this button saves all Global Settings fields to a database located on the CMS server PC. A confirmation message will appear if successful (as shown below).

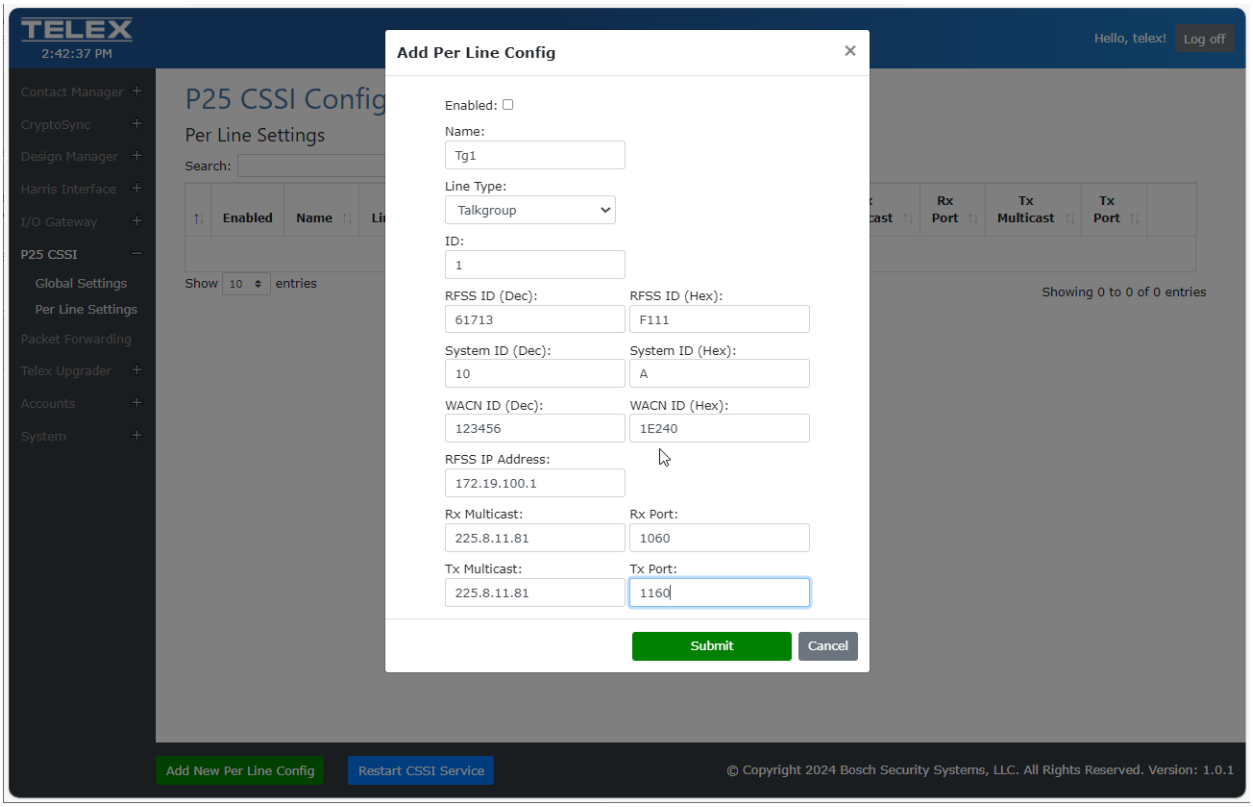


If you leave the Global Settings page without pressing this button all changes will be lost. Warning: This button does not apply these setting to the CMS CSSI Server.

Reset CSSI Service: Pressing this button will stop the CSSI service (if running), load all database setting (Global and Per Line) to the CSSI service and restart the service. Note all communication between the consoles and the service will be interrupted during this process.

Per Line Parameters Webpage

The Per Line settings are used match consoles line numbers to a specific repeater and Talkgroup. Each line uses a multicast address to talk between the consoles and CSSI CMS and can call or receive 1 talk group per line. A line can also be set to relay individual console information such as an individual call or radio commands, i.e., call alert, radio status, etc.



Add New Per Line Config: Press this button to open the 'Add Per Line Config' window as shown above.

Enabled: Check this box to use this lines setting. If the box is not checked, this line will not be registered on the RF system.

Name: A text name to identify this line. Maximum of 10 characters in length.

Line Type: Set the line type to 'Talkgroup' to place or receive a Talkgroup call on this line. Set the line type to 'Console' to use this line for individual console communications. **Important:** Each console can have only one line set to Console but can have multiple lines set to Talkgroup.

ID: The ID is used to set either the Talkgroup number or the console number to the line. If the Line Type is set to Talkgroup, the ID is the Talkgroup number. If the Line Type is set to Console, the ID is the Console ID number of a specific console.

RFFS ID: This is the RFFS ID of the Repeater or site (not the RFSS ID assigned to the console sub system). Range 1 to 65535 dec.

System ID: This is the System ID of the Repeater or site (not the System ID assigned to the console sub system). Range 1 to 4095 dec.

WACN ID: This is the WACN ID of the Repeater or site (not the WACN ID assigned to the console sub system). Range 1 to 1048575 dec.

RFFS IP Address: This is the RFFS IP Address of the Repeater or site (not the RFFS IP Address assigned to the console subsystem).

Rx Multicast Address: Match this address to the Rx Multicast Address of the line assigned in C-Soft Designer

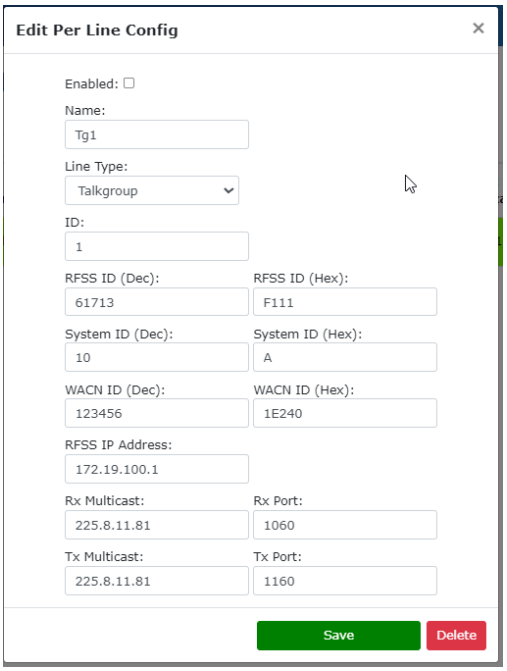
Rx Port: Match this port number to the Rx Port number of the line assigned in C-Soft Designer.

Tx Multicast Address: Match this address to the Tx Multicast Address of the line assigned in C-Soft Designer.

Tx Port: Match this port number to the Tx Port number of the line assigned in C-Soft Designer.

Submit: This button is used to save or add one line to the Database (DB). The accumulated lines are stored in the database and are shown in a list table form. This button does not apply these setting to the CMS server, it only saves the settings to the database.

Edit Button: Each line can be edited or deleted by clicking on the associated lines Edit button  . The edit window is shown below.



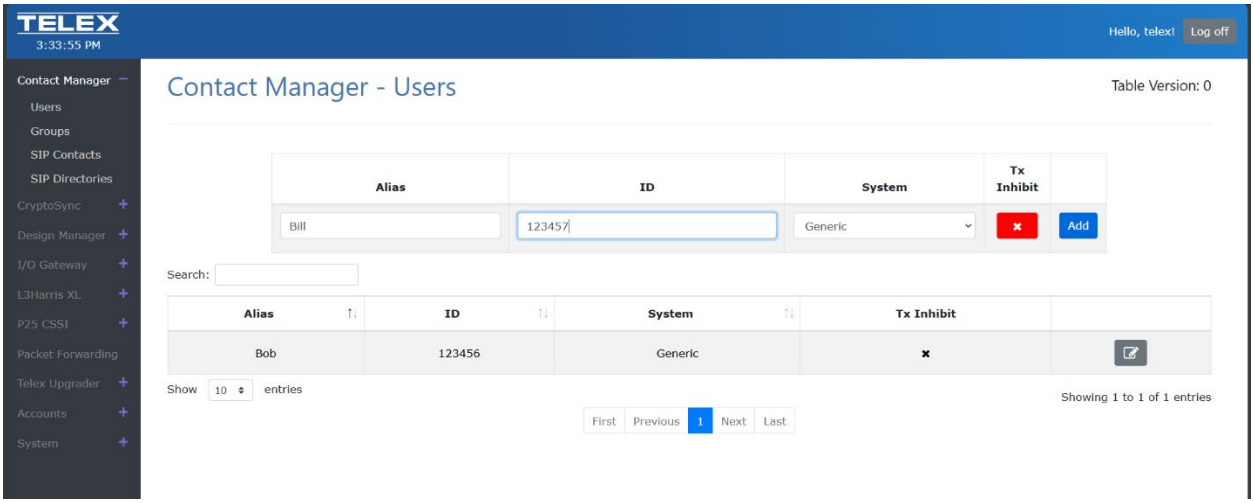
Save: This button is used to save any changes made to the line. The Save button updates the line list table and saves the changes to the database.

Delete: This button is used to delete this line from the line list table and from the Database.

Reset CSSI Service Button: Pressing this button will stop the CSSI service (if running), load all database setting (Global and Per Line) to the CSSI service and restart the service. Note all communication between the consoles and the service will be interrupted during this process.

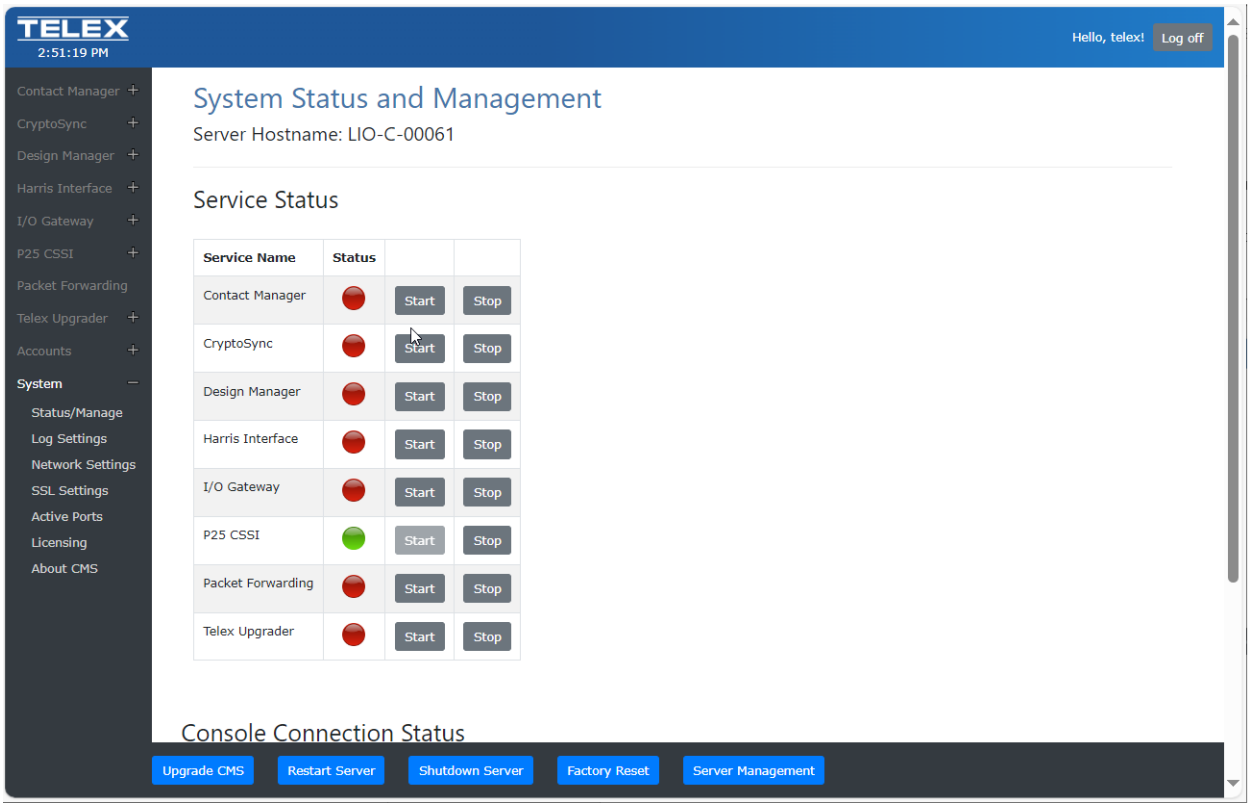
Contact Manager Overview

When using contact manager for updating console user ANI and Alias tables on lines with CSSI going through CMS, user need to be set to Generic system type.



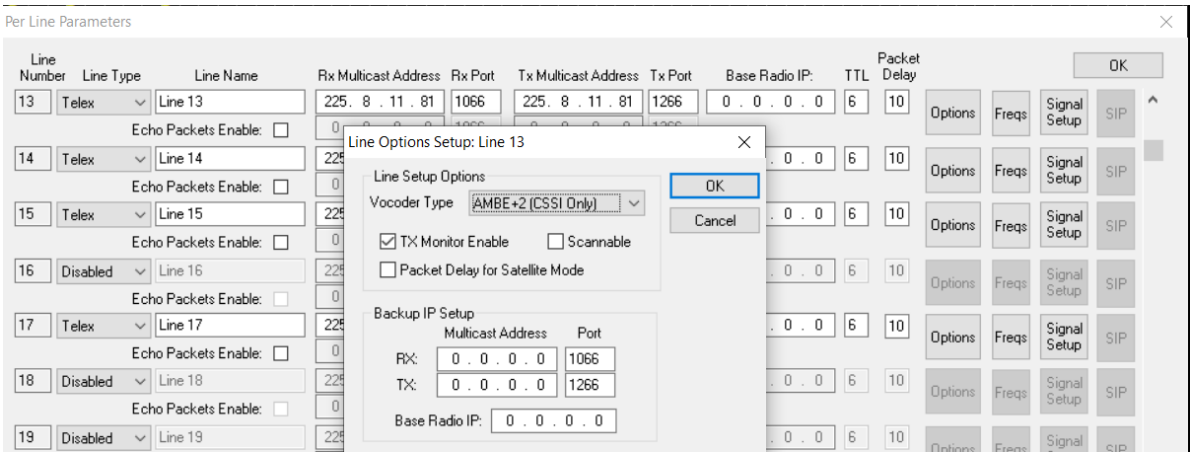
Starting and Stopping the CSSI service

To stop or start the CSSI service when no configuration changes are required. Go to System - Status/Manage and click on the P25 CSSI Start or Stop buttons. When the Service is stopped, the lines on all consoles will be grayed out and all radio traffic will not be sent to the consoles.



Setting Up C-Soft Designer

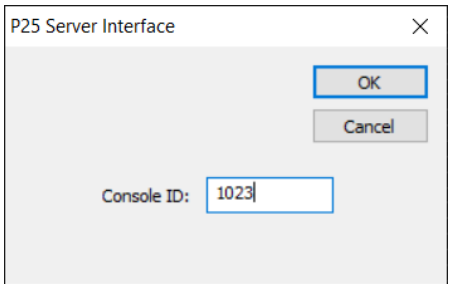
The following shows the setting required in C-Soft Designer for connecting C-Soft Runtime to CMS CSSI.



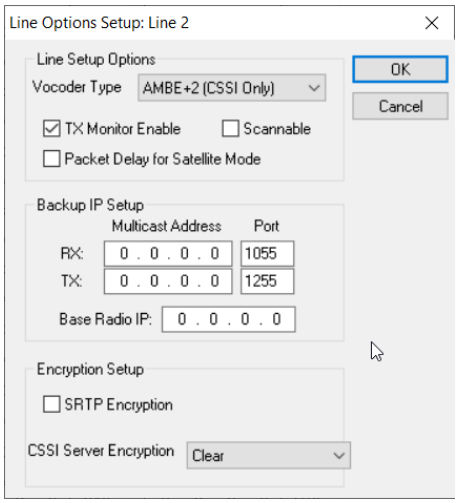
Per Line Parameters: In C-Soft Designer match the RX and TX Multicast Address and Ports with the with the ones entered in the CSSI Web page Per Line Settings.

Options Button: Click on the Options button to open the Line Options Setup window. Select the Vocoder Type AMBE+2 (CSSI only) for each of the lines connected to the CSSI server.

Console ID: In C-Soft Designers Main Menu bar, go to Edit->Setup P25 -> CSSI ->Global CSSI Server, the window shown below will open. Enter the Console ID as defined by the repeater/Site. Each Console must have a unique decimal ID.



CSSI Server Encryption: Select the encryption profile for this line by clicking on the drop-down menu. Encryption keys need to be loaded before accessing this menu.



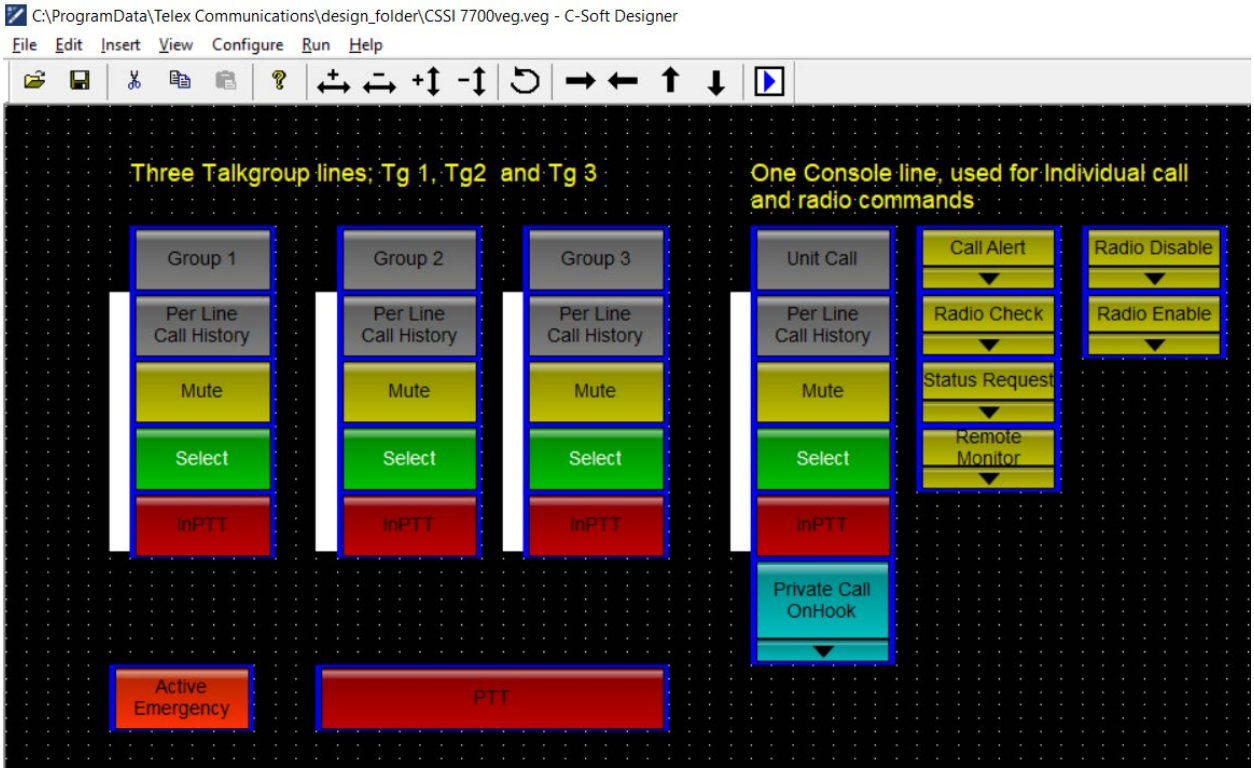
CSSI CMS Setup Example

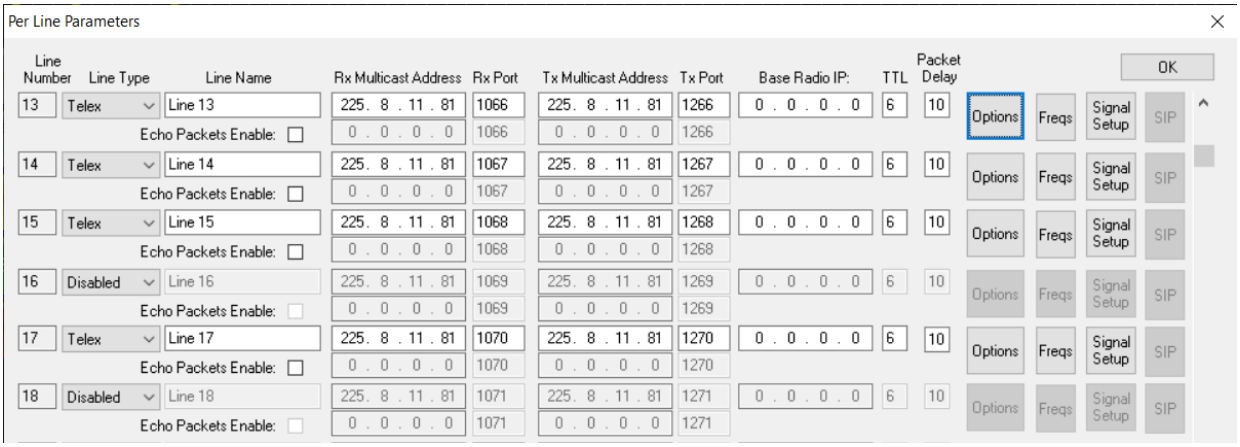
The following example shows how to set up a CSSI Sub System with one repeater, three talkgroups and two consoles via CMS. First fill in all Global settings for the Console RFSS as defined by the repeaters RFSS Sub System, refer to the above sections for help. Make sure to save all setting to the Database by clicking on the “Save” button.

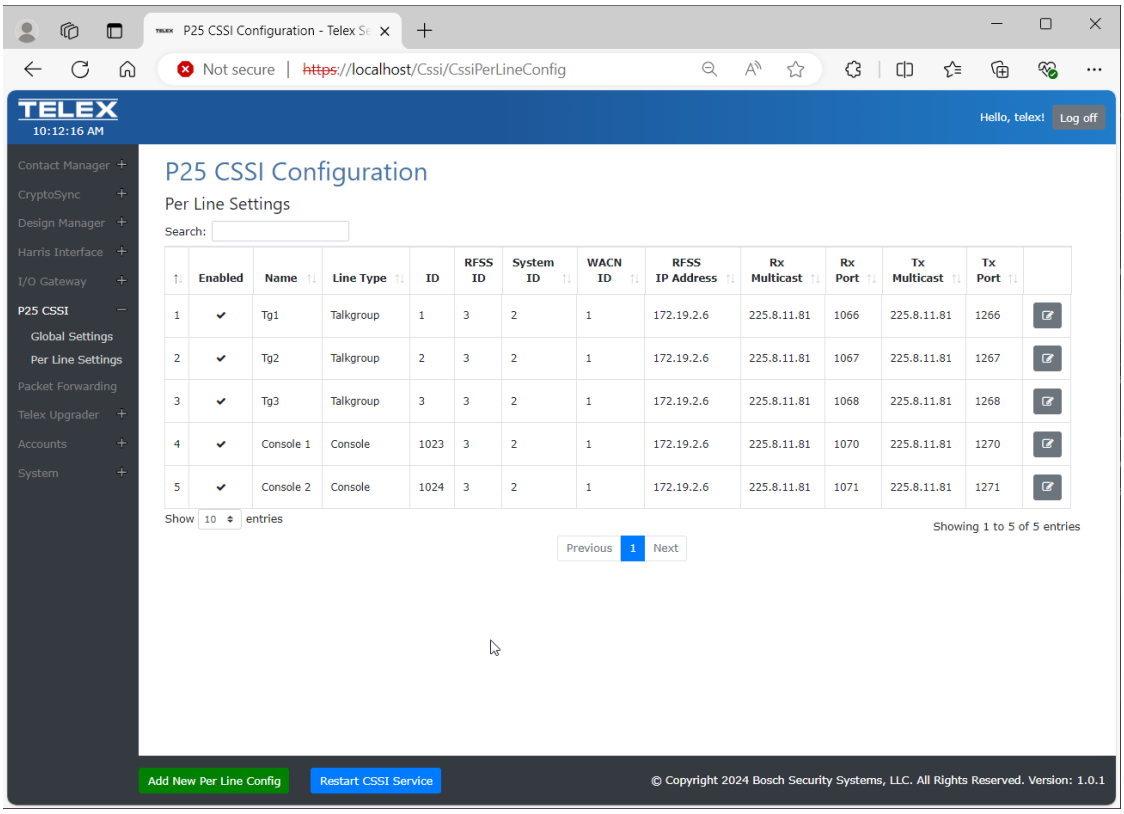
Setup Group Calls (Talkgroups)

The C-Soft Designer window below shows three talkgroup lines, each line controls one talkgroup as outlined in the CSSI Per Line web page settings. Line 13 in designer is set to a Line Type of Telex and is mapped to Line 1 in the CSSI per line web page. Line 13 will talk on Talkgroup 1. Line 14 in designer is set to a Line Type of Telex and is mapped to Line 2 in the CSSI per line web page. Line 14 will talk on Talkgroup 2. In the same manner, line 15 is then mapped to Talkgroup 3. To talk on more talkgroups add additional lines in both designer and the web page.

Important; Since the Line Type is Telex, the only way to differentiate between a standard Telex line and one that talks to the CSSI server is to set the Vocoder type to AMBE+2 (CSSI only). This setting is in the per line Option window, as shown below. Do this for all lines that connect to the CSSI server.




Per Line Parameters
OK
Line Number
Line Type
Line Name
Rx Multicast Address
Rx Port
Tx Multicast Address
Tx Port
Base Radio IP:
TTL
Packet Delay
13 Telex Line 13 225. 8 . 11 . 81 1066 225. 8 . 11 . 81 1266 0 . 0 . 0 . 0 6 10 Options Freqs Signal Setup SIP
Echo Packets Enable:
14 Telex Line 14 225. 8 . 11 . 81 1067 225. 8 . 11 . 81 1267 0 . 0 . 0 . 0 6 10 Options Freqs Signal Setup SIP
Echo Packets Enable:
15 Telex Line 15 225. 8 . 11 . 81 1068 225. 8 . 11 . 81 1268 0 . 0 . 0 . 0 6 10 Options Freqs Signal Setup SIP
Echo Packets Enable:
16 Disabled Line 16 225. 8 . 11 . 81 1069 225. 8 . 11 . 81 1269 0 . 0 . 0 . 0 6 10 Options Freqs Signal Setup SIP
Echo Packets Enable:
17 Telex Line 17 225. 8 . 11 . 81 1070 225. 8 . 11 . 81 1270 0 . 0 . 0 . 0 6 10 Options Freqs Signal Setup SIP
Echo Packets Enable:
18 Disabled Line 18 225. 8 . 11 . 81 1071 225. 8 . 11 . 81 1271 0 . 0 . 0 . 0 6 10 Options Freqs Signal Setup SIP
Echo Packets Enable:


P25 CSSI Configuration - Telex
Not secure | https://localhost/Cssi/CssiPerLineConfig
TELEX
10:12:16 AM
Hello, telex!
Log off
Contact Manager
CryptoSync
Design Manager
Harris Interface
I/O Gateway
P25 CSSI
Global Settings
Per Line Settings
Packet Forwarding
Telex Upgrader
Accounts
System
P25 CSSI Configuration
Per Line Settings
Search:
Enabled
Name
Line Type
ID
RFSS ID
System ID
WACN ID
RFSS IP Address
Rx Multicast
Rx Port
Tx Multicast
Tx Port
1 Tg1 Talkgroup 1 3 2 1 172.19.2.6 225.8.11.81 1066 225.8.11.81 1266
2 Tg2 Talkgroup 2 3 2 1 172.19.2.6 225.8.11.81 1067 225.8.11.81 1267
3 Tg3 Talkgroup 3 3 2 1 172.19.2.6 225.8.11.81 1068 225.8.11.81 1268
4 Console 1 Console 1023 3 2 1 172.19.2.6 225.8.11.81 1070 225.8.11.81 1270
5 Console 2 Console 1024 3 2 1 172.19.2.6 225.8.11.81 1071 225.8.11.81 1271
Show 10 entries
Showing 1 to 5 of 5 entries
Previous 1 Next
Add New Per Line Config
Restart CSSI Service
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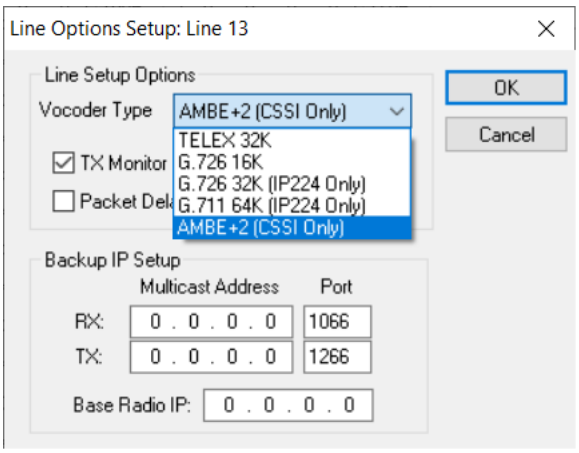
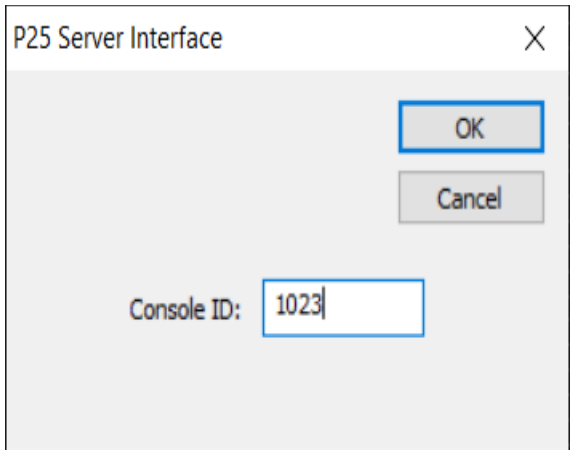




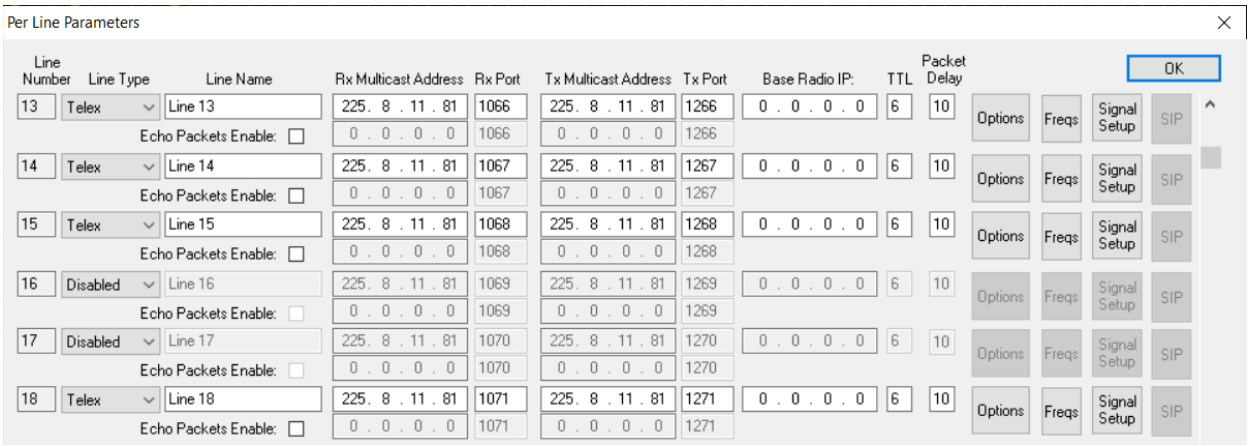
Also enter the console ID in designer. Go to Edit->Setup P25 -> CSSI ->Global CSSI Server. The console ID is required and must be a valid ID as defined by the ISSI/Repeater system. It is not a random ID.

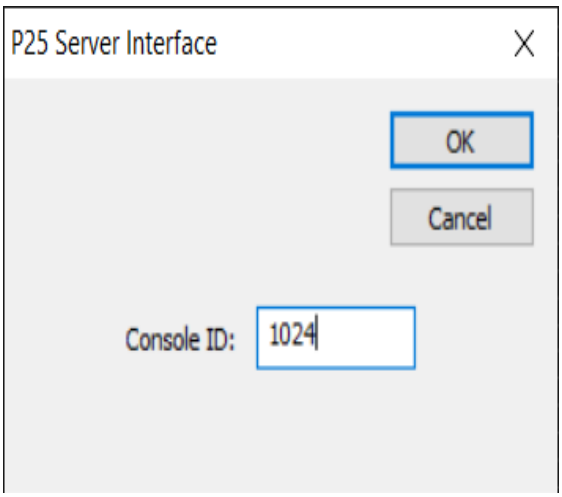
Note: If Individual calls or radio commands are not required. The two-line Types, labeled “Console” do not need to be entered in the per line web page. However, the Console ID must still be entered in each console.

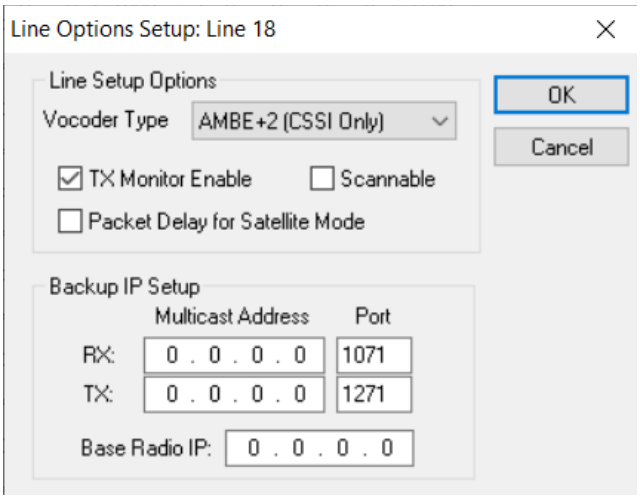
In the Per Line Web page, also enter in the RFSS, System and WACN ID’s of the repeater, along with its IP address.

Setup Individual calls (If required or applicable):

To send/receive Individual calls or radio commands, add a Line Type ‘Console’ in the Web page. Enter the consoles ID (example shows 1023 and 1024). Add one line for each console, each console line must have different ID’s and different port numbers. In console 1023 (shown above), line 17 is set to port 1070 and 1270. Console 1024 (shown below), line 18 is set to port 1071 and 1271. Note: Line 17 is disabled in Console 1024’s per Line setup (the web page has all the consoles lines, but the consoles have only one line dedicated to a console line). Also make sure to set the Console line to Vocoder type to AMBE+2 (CSSI only). For the Telex line in designer that is associated to a Console line in the web page, add a InPTT button and a Private Call on/off hook button to the designer .veg file.







At this point the Web page settings are only stored in the CSSI servers Database. We now need to load the setting in the actual CSSI application. In Per Line Setting Web Page, click on "**Restart CSSI Service**" button to load all per line changes to the CSSI service.

Console Operation (Group and Individual Calls)

Making a Talkgroup Call: Start the C-Soft consoles, if the per line buttons are not grayed out, then the lines talkgroup registered correctly. If the per line buttons are grayed out, the talkgroup for that line did not register with the trunking system.

Next, if enabled, click on the Talkgroup InPTT button. If all is successful, a "Wait" then a "Talk" icon will appear on the Select button. If the "Wait" icon stays on the Select button, there is some thing wrong with the setup. Recheck all settings and see the troubleshooting section.

Making an Individual Call:

Select a radio ID from the Private call On/Off Hook buttons drop down menu (or use the Key pad, not shown). Notice that the InPTT button is grayed out (disabled). Now click on the Private call button (Off Hook). The Select button should show a "Ring" Icon on the button. If the radio user answers the call, you will hear their voice and the InPTT button will become un-grayed (enabled). When it's your turn to talk, click on the InPTT button. Note that there is a set hang time limit as defined by the trunking system. The parity's must dekey and rekey within this period. Once the hang time has expired, the call will close automatically.

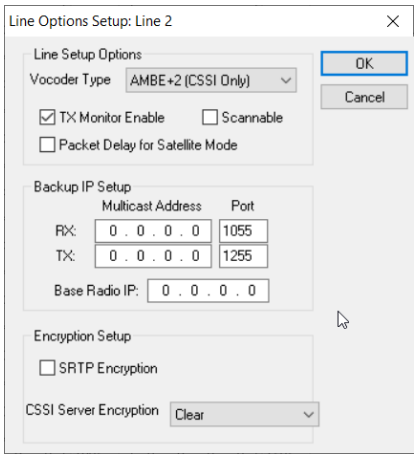
To manually close the call (Hang up), click on the Private call button (On-Hook). This will disable/gray out the InPTT button and close the call at the other end.

Receiving an Individual Call:

If a Radio operator places a call to the console. A ring Icon will show on the lines Select button. To answer the call, click on the Private call button (Off-Hook). The InPTT button will un-gray (enable), allowing the console operator to talk to the radio.

Sending a Radio Command

Click on the 'Console' web page defined 'Select' button (select the Console line). Then Select a radio ID from the radio buttons drop down menu or the keypad (not shown). Click on the radio button. For example, click on the Call Alert button. A tone should be played at the radio.



Enabling Encryption

To use encryption on a line, first load the key profile as outlined in the C-Soft Designer and Runtime manual. Then go to the Line Option window in C-Soft Designer and select the required Encryption profile under 'CSSI Server Encryption'.

Troubleshooting

Talk Group lines on console never enable (Stay grayed out after starting console).

Never Worked:

- Make sure the CSSI service is running in CMS. Check the system/(status/manage) web page and check if the LED is green. Try stopping and starting the system if it is.
- Check that the Ports in C-Soft Designer, make sure they match the ports in the CMS web page. Make sure the talk group ID is valid or configured correctly on the P25 system.
- Make sure 'Talkgroup' is selected in the CSSI per line web page and the talk group ID is entered correctly.
- Try a simple design, a design with just 1 line/ talk group.
- Group lines get registered with the P25 system. If able, run a packet capture on port 5060 between CMS and the P25 Server. If the request goes out from the Console but no response from the P25 system, check the network. If a response is sent back, forward the trace to a technical support person.

Use to Work:

- Make sure the CSSI service is running in CMS. Check the system/(status/manage) web page and check if the LED is green. Try stopping and starting the system if it is.
- The CMS server or P25 system may be down, or a connection is lost. Restart console, if the C-Soft Runtime lines stay grayed out (disabled) check CMS, P25 System, or the network connection.

Group call is not working: Line is enabled but clicking on PTT button causes the 'Wait' icon to stay on screen even after button is released (no audio transmitted).

Never Worked:

- Check that the Vocoder Type is set to 'AMBE+2 (CSSI only)' in the Options window of C-Soft Designer.
- Check the Ports in C-Soft Designer, make sure they match the ports in the CMS web page. Make sure the talk group is valid or configured correctly on the P25 system.
- Try a simple design, a design with just 1 line/ talk group.

Use to Work:

- The CSSI CMS server or P25 system may be down, or a connection is lost. Restart console, if the C-Soft Runtime lines stay grayed out (disabled) check CMS, P25 System, or the network connection.

Group call is not working: Click and Hold the PTT button causes the Wait icon to go from 'Wait' to 'Talk', but no audio is heard on the receiving radio.

Never Worked:

- Need to contact Telex technical support. Change the debugger settings in CMS Log Setting to 'Debug' for CSSI. Key up once on C-Soft, Hold PTT for at least 3 seconds. Download the file and send to your technical support person at Telex. If possible, obtain a network trace of the transmission. Telex Support team should be able to help with this. Traces need to be made from C-Soft to CMS and from CMS to the P25 System. Filter using the Port number of the line for the connection between C-Soft and CMS (ex; port 1230 or port 1130). Filter using host IP address of the main connection IP address between CMS and the P25 Server (ex; host 192.xxx.xxx.xxx).

Use to Work:

- Some setting has changed in one of the three components C-Soft, CMS or the P25 system. If one of the components got an upgrade, check that none of the configuration setting reset to default or some other value.
- Contact Telex technical support.

Unit Call lines on console never enable. Stay grayed out after starting console.

- Should never happen. Unit calls are not registered with the P25 System. Make sure the 'Line Type' is set to 'Telex' and the Vocoder type is set to AMBE+2 (CSSI Only).

Unit Call is not working.

Never worked:

- Make sure the P25 system supports Unit Call.
- Only one line in C-Soft can be configured as a Unit call line (more than 1 line will have unpredictable results).
- The CMS server may have multiple Unit call lines (1 per console). Make sure The ID in the CMS matches the Console ID in C-Soft Designer.

- Make sure the line and the correct Radio ID are selected. Test if both incoming and outgoing unit calls fail. If one works, it's probably an ID issue.

Use to Work:

- Some setting has changed in one of the three components C-Soft, CMS or the P25 system. If one of the components got an upgrade, check that none of the configuration setting reset to default or some other value.
- Otherwise contact Telex technical support.

Supplementary Data is not working.

Never worked:

- Make sure the P25 System supports the kind of supplementary data action you are attempting.
- Make sure the Console/Supplementary Data line is selected.
- Make sure this Console ID is correctly entered in the CMS Server.
- Make sure the correct Radio ID is sent by C-Soft. By using either the Radio buttons drop down or the consoles keypad.
- Make sure the ports of C-Soft line used for Supplementary Data match the line ports for 'Console' in the CMS Server.
- Try an incoming request to the console (if supported). Send Call Alert or Radio status update to the Console ID.

Use to Work:

- Some setting has changed in one of the three components C-Soft, CMS or the P25 system. If one of the components got an upgrade, check that none of the configuration setting reset to default or some other value.
- Otherwise contact Telex technical support.

Encryption is not working.

- Confirm that the line is working when not encrypted.
- If the console is receiving audio and the "Crypt' Icon shows up on the select button but no audio is heard, the encryption keys do not match. The console mutes the audio but shows that the incoming audio is encrypted. Match the encryption keys to unmute the audio.

Appendix 1

Connecting to a Harris P25 Trunking system.

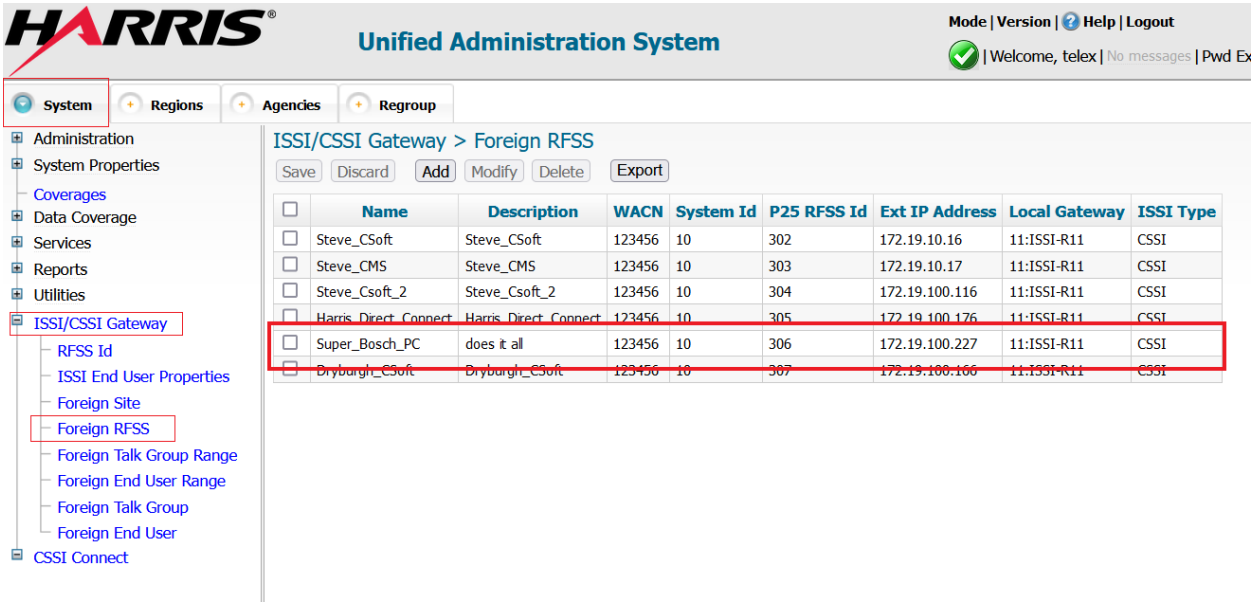
The Telex CMS CSSI gateway is seen as a foreign RFSS on the Harris system. You must create a foreign RFSS on the Harris system that can be linked to the CMS CSSI gateway.

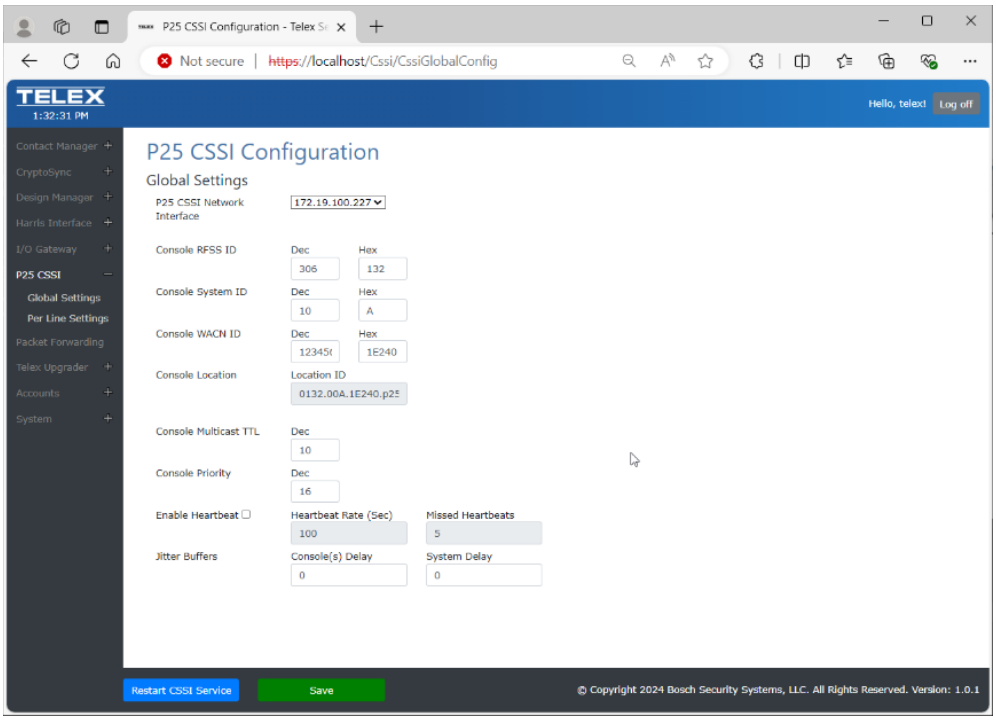
Harris ISSI/CSSI Gateway (Create Foreign RFSS)

1. Go to ISSI/CSSI Gateway/Foreign RFSS/ in the Harris web page. Then click on **Foreign RFSS.**
2. Add a new Foreign RFSS system (i.e. CMS CSSI). Click on the 'Add' button.
3. Enter the WACN, System ID and P25 RFSS ID that is acceptable for your system. Set the ISSI type to CSSI.
4. The Ext IP Address is the physical IP address that the Telex CMS gateway resides (P25 CSSI Network Interface, from the CMS CSSI global web page).

The setting of the Foreign RFSS is used to define the Global Console Setting in CMS CSSI web page. Match the following:

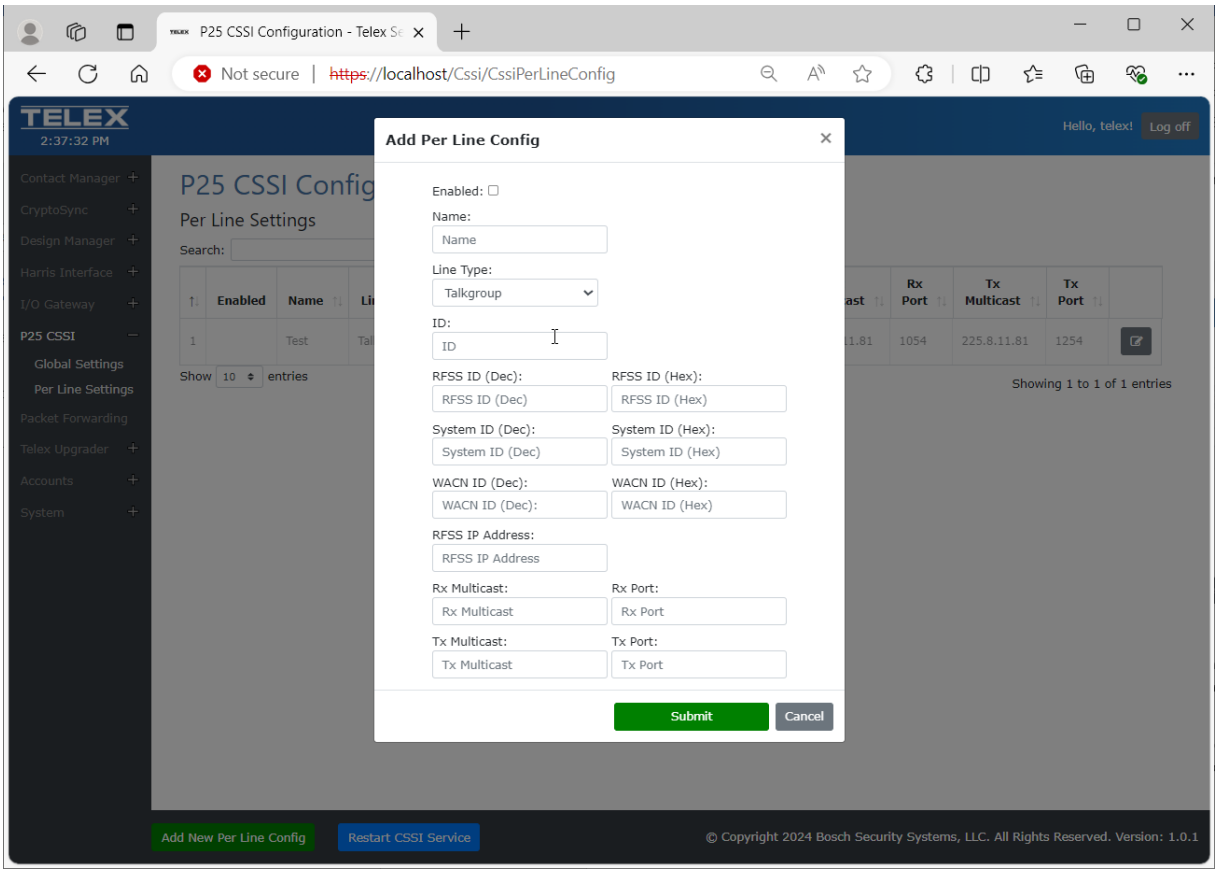
- Harris P25 RFSS ID to Telex Console RFFS ID.
- Harris System ID to Telex Console System ID.
- Harris WACN to Telex Console WACN.
- Telex P25 CSSI Network Interface to Harris Ext IP Address.





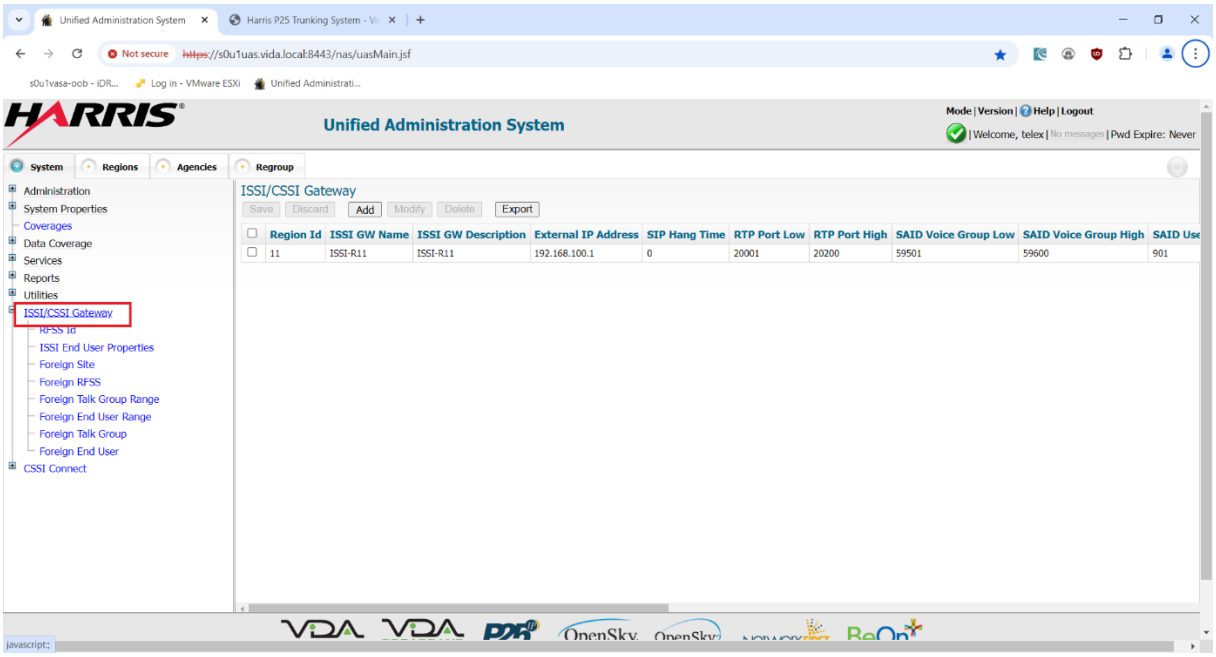
CMS CSSI Per Line Connection

We need to obtain the RFSS ID, System ID, IP address and WACN of the Physical Harris RFSS. These parameters are used in each Per Line configuration.

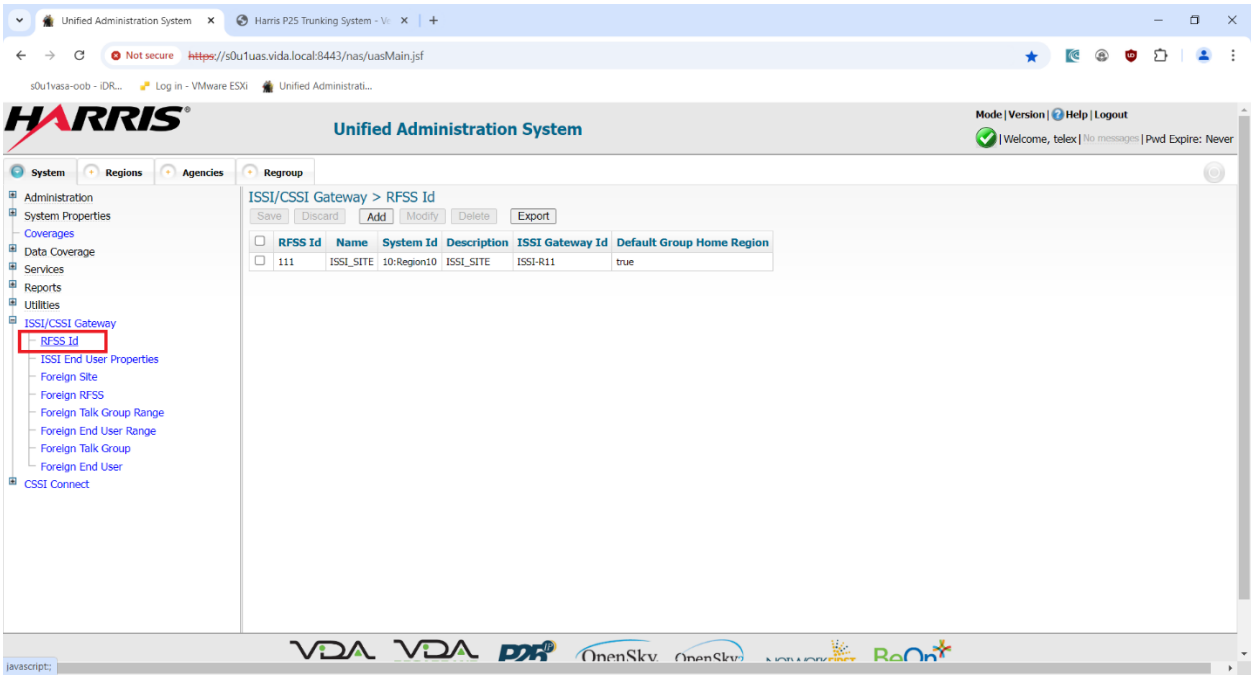


Harris system parameters Web locations.

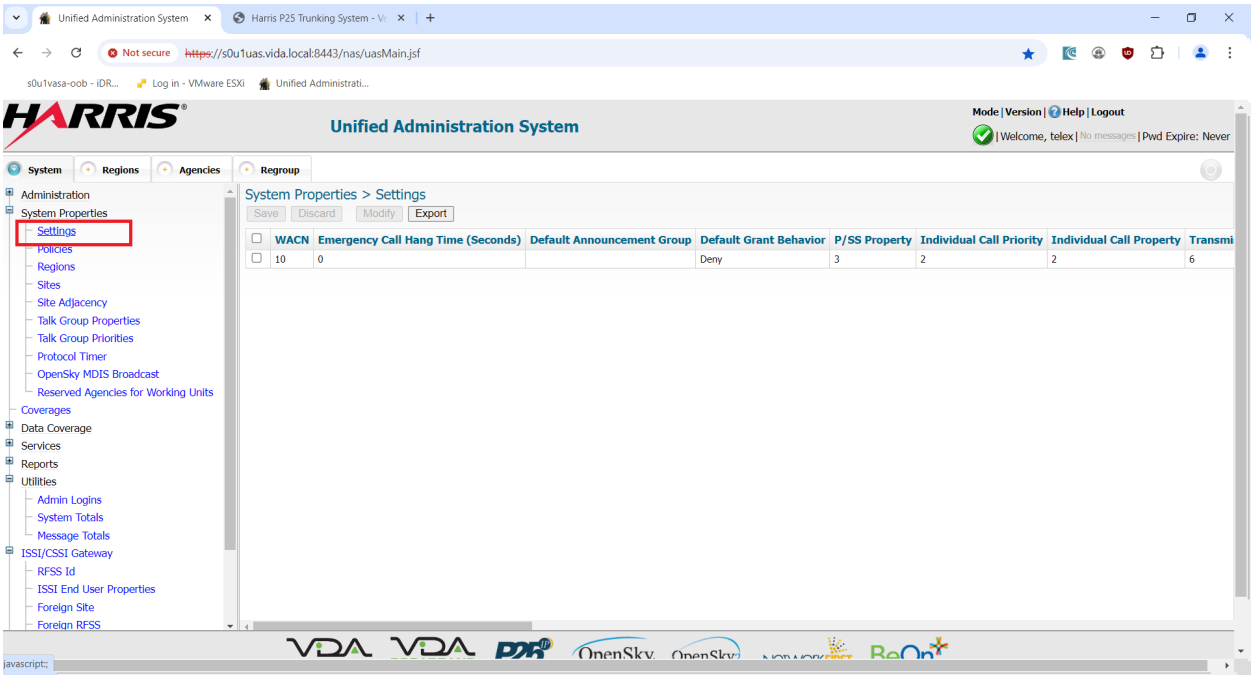
Get the IP Address: Go to the left navigation window and click on ISSI/CSSI Gateway. Get the External IP Address (192.168.100.1) from the ISSI-R11 Gateway.



Get the RFSS ID & System ID: From the left navigation tab, Click on ISSI/CSSI Gateway > RFSS ID. For the ISSI-R11 gateway, get the RFSS ID (111) and the System ID (10).



Get the WACN ID: From the left navigation tab, click on System Properties > Settings, get the WACN ID (10).



Set parameters in Per Line: Set the following Harris parameters in the CMS CSSI web page Per Line configuration for RFFS, System ID, WACN and the RFSS IP Address of the Harris repeater.

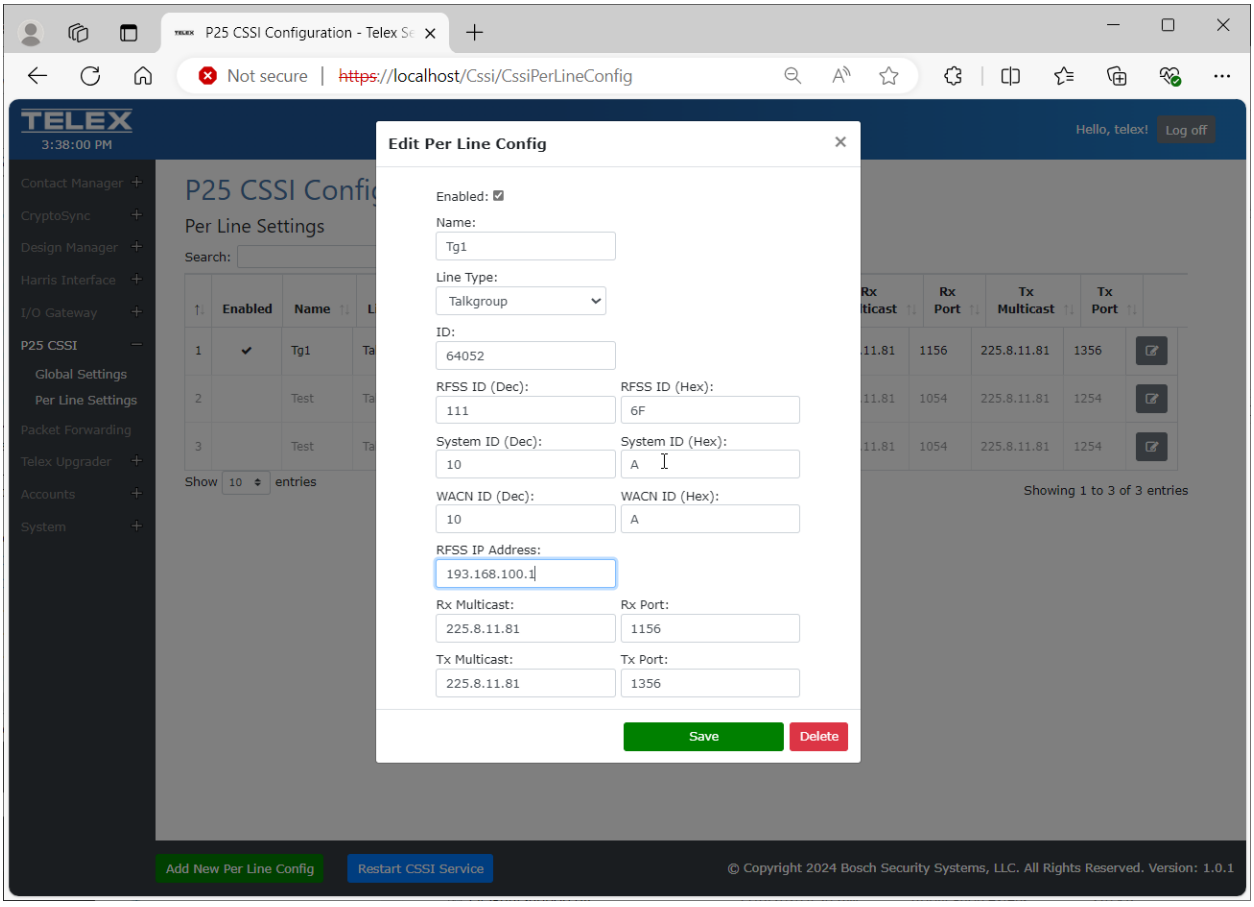
In this example we found the following.

RFSS = 111.

System ID = 10.

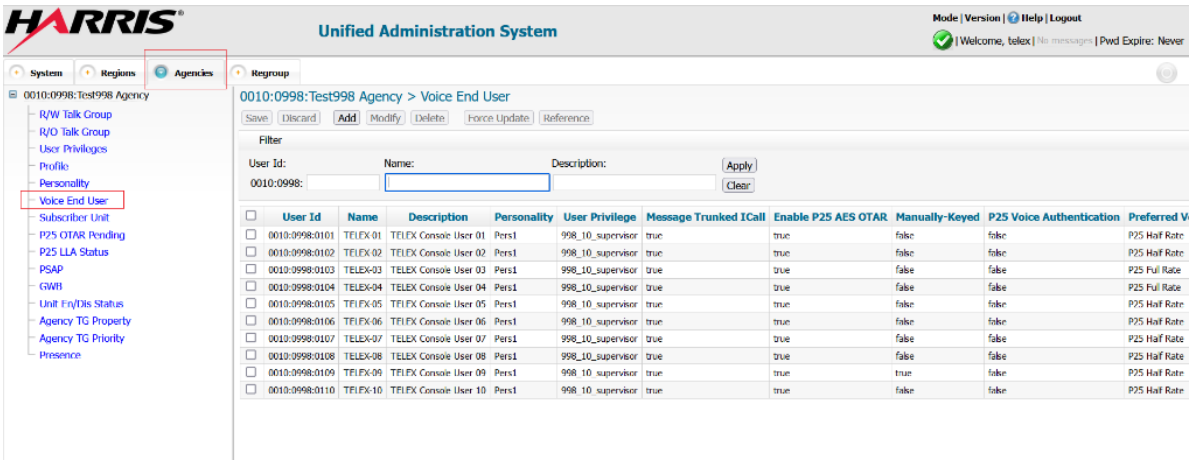
WACN = 10.

RFSS IP Address = 192.168.100.1

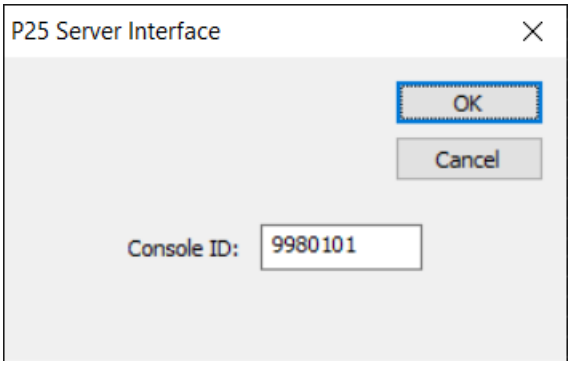


Create Console Subscribers

From the left navigation tab, Go to Agency/Voice End User. Click on the Add Button and enter in a range of User ID's that will be used to identify the Consoles on the System. In this example, 10 Console ID's are assigned in the range 9980101 to 9980110.



Associate the Console ID's here with each of the C-Soft Designer files for the number of Telex Runtime Consoles. Go to ->Setup P25/CSSI/Global CSSI Server/ in each C-Soft Designer and enter in the decimal value.



Appendix 2

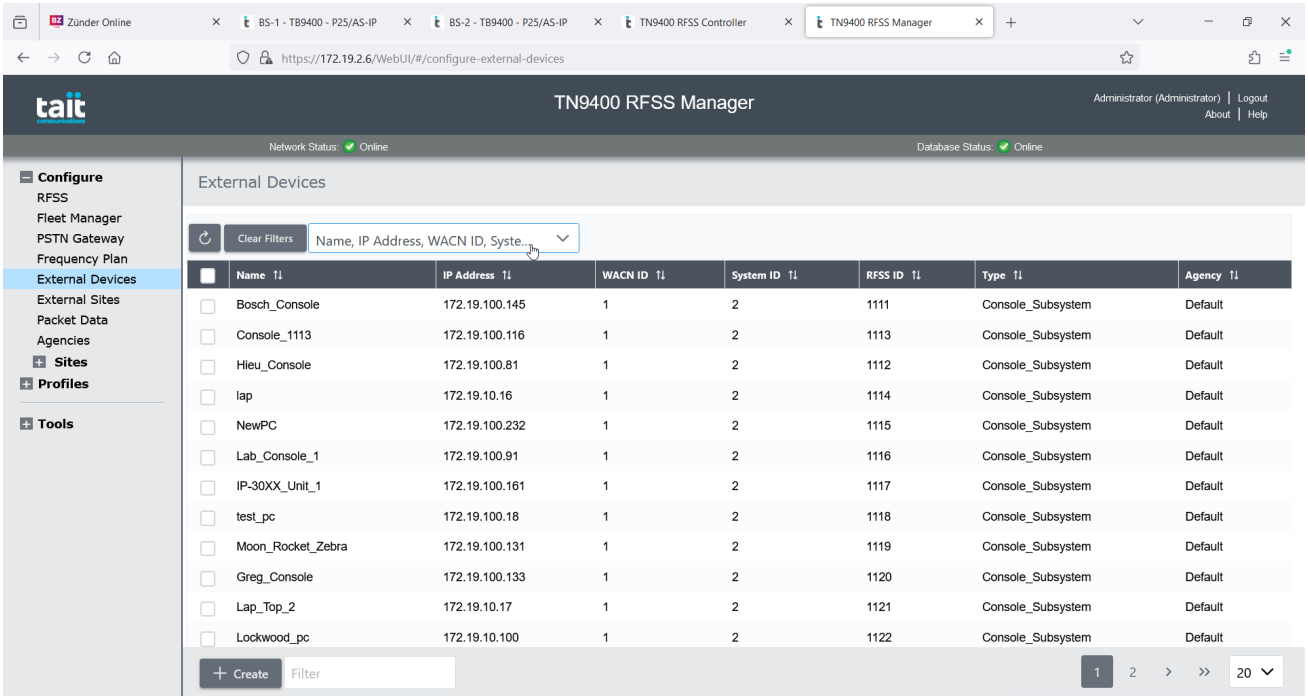
Connecting to a Tait P25 Trunking system

The CMS gateway will appear as one Console connected to the Tait system. All Console traffic will be relayed through the CMS. The first step is to create an External RFSS on the Tait system and label it as a CSSI subsystem.

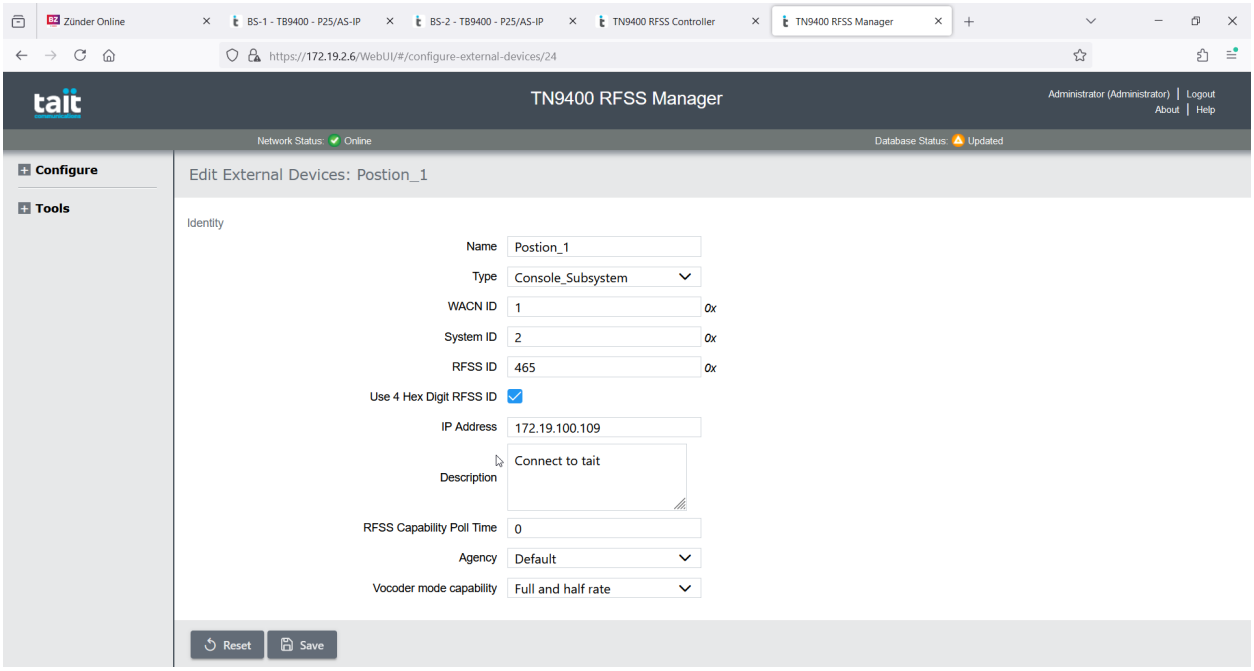
Tait TN9400 RFSS Setup (Create External RFSS)

Go to the **webpage configuration for the Tait TN9400 RFSS Manager**.

Expand the **interface menu** and click the **External Devices** menu item *(The External Devices listings page displays connections currently configured on the system)*.



To add a connection, click the Create button at the bottom of the page (*The Add External device window appears)*.



1. Enter a **name for the new P25 Connection** into the Name field.

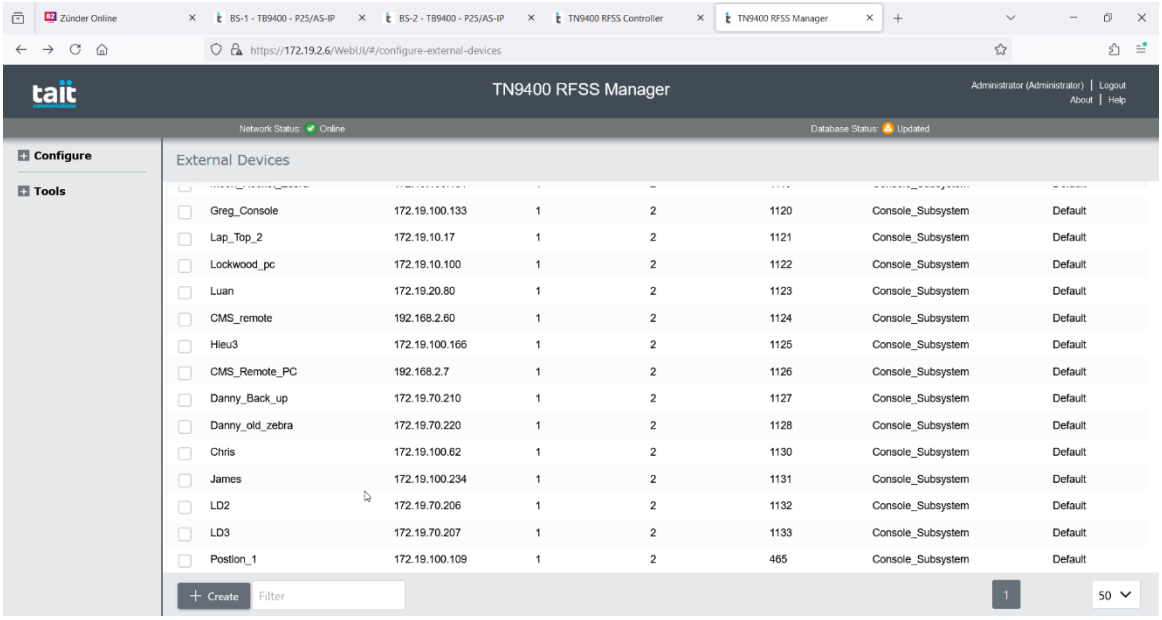
2. Enter the **WACN ID, System ID, RFSS ID** and **IP Address**. These values should match the same information applied in the CMS **Global** Web page for the Console parameters.

3. Select the **Use 4 hex digit RFSS ID** option.

4. Enter the **IP Address** of the actual PC address that will run CMS into the IP address field. This address from the CMS Web page under Global Setting / P25 CSSI Network interface.

5. From the Type drop down menu, select **Console Subsystem**.

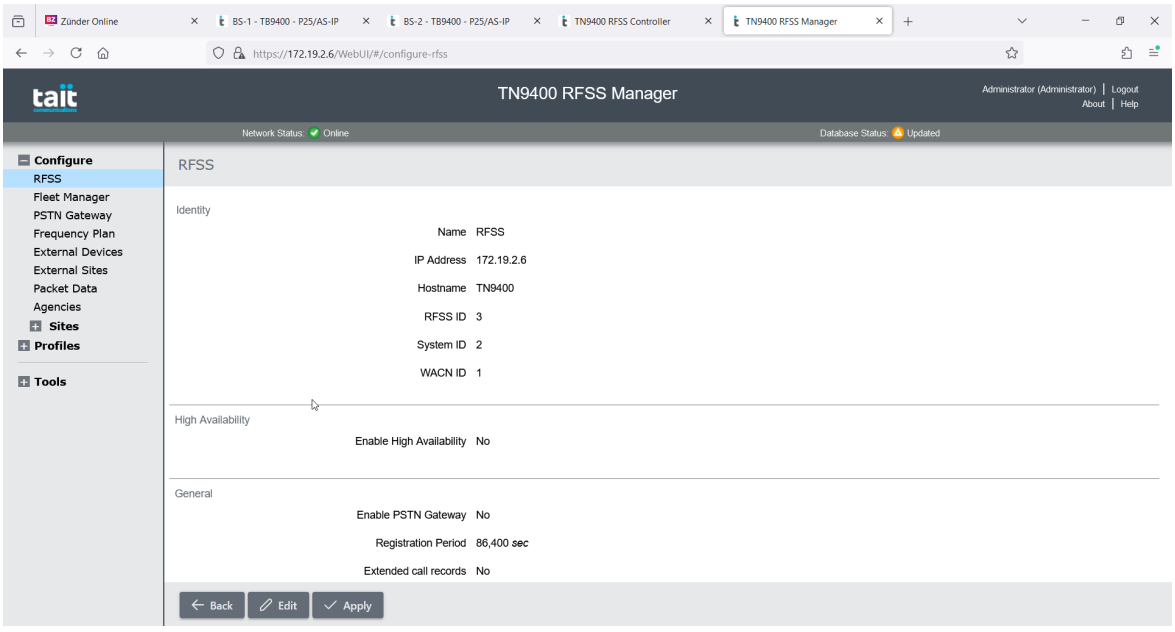
6. Click the **Save button** (*The new console position displays in the External Device listing)*.



To save all changes to the RFFS, go to Configure Menu in the left navigation, select **RFSS** and click the **Apply** button,

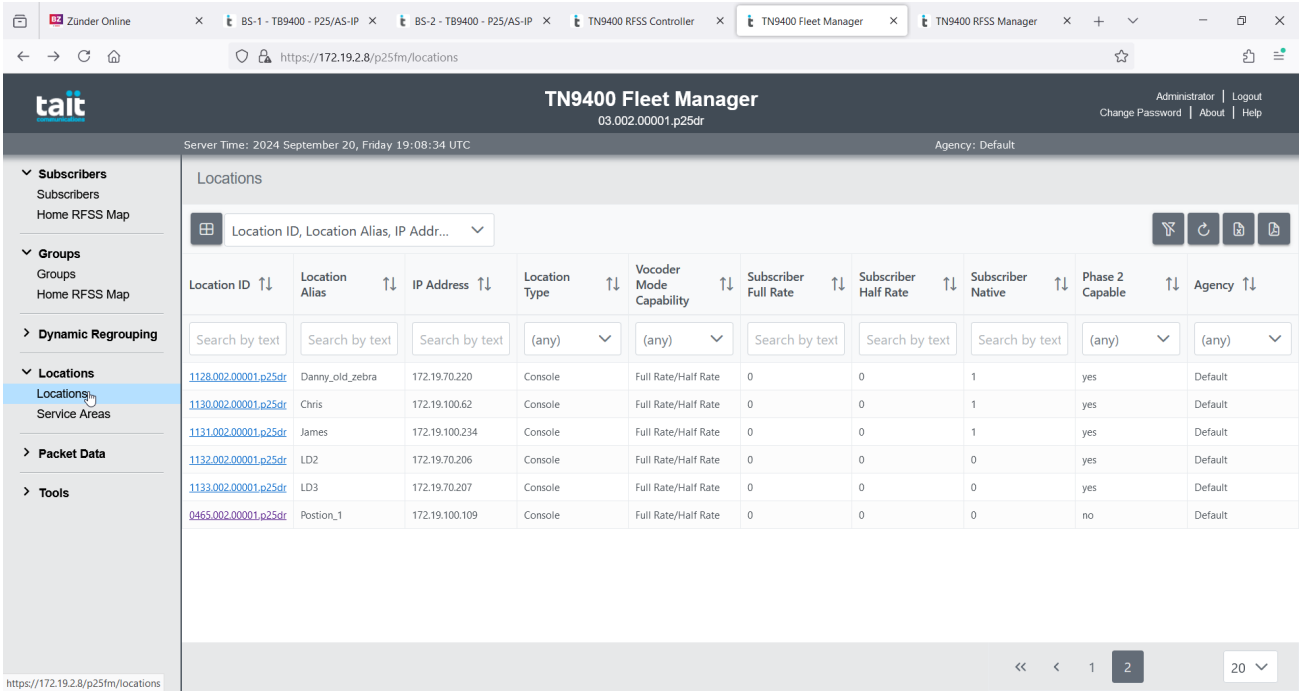
CMS CSSI Per Line Connection

Enter the Tait RFSS parameters in the CMS CSSI **Per Line** Web page. Copy the IP Address, RFSS ID, System ID and WACN ID in the Per Line Web page for each talkgroup line.



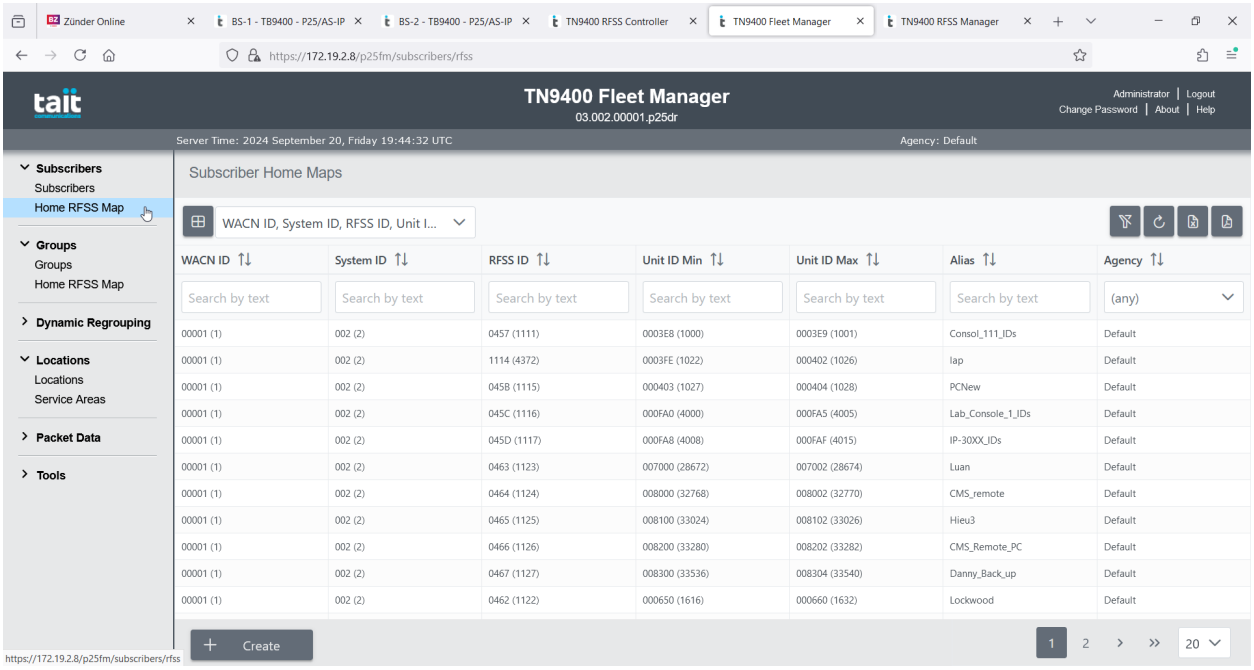
Tait TN9400 Fleet Manager Setup (Confirm Location)

1. Go to the **webpage configuration** for the Tait TN9400 Fleet Manager.
2. Select the **Location button**.
3. Make sure the new External Device appears as a location in this list. In this example, Position_1 is entered in the list with no warnings or errors.

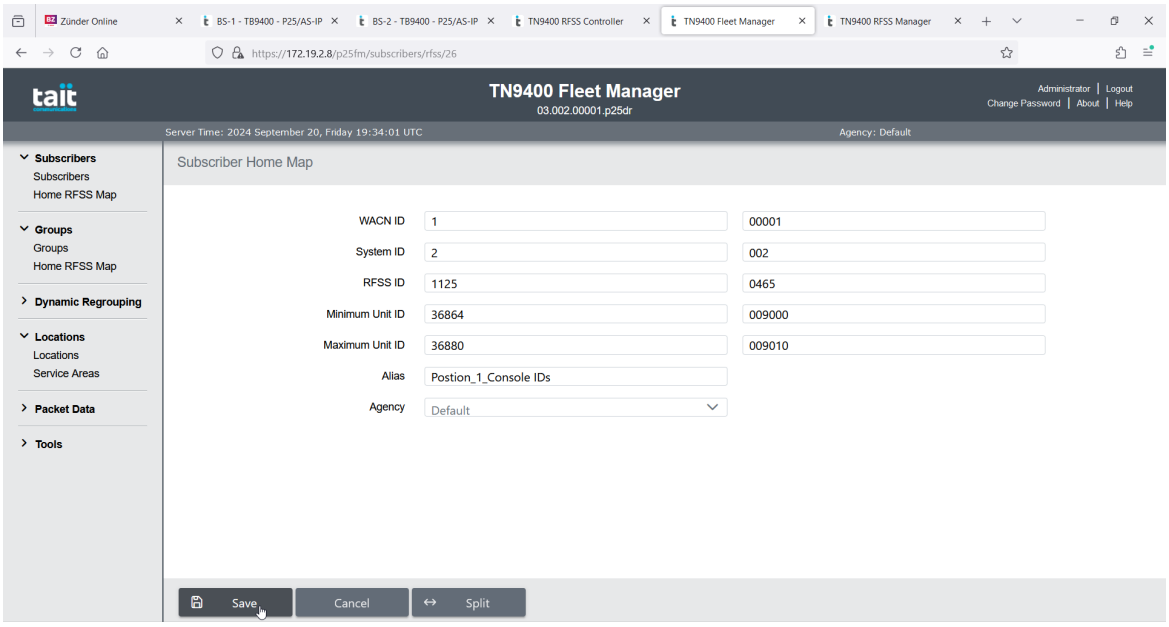


Create Console Subscribers

We now need to create Console Subscriber IDs for each of the Consoles connected to the CMS CSSI gateway. The Console Subscribers must be linked to the External Device RFSS we created previously. Use Postion_1 parameters; System ID, WACN ID and RFSS ID.
From the Subscribers left navigation, select **Home RFSS Map**.



Click the Create button *(The Editing Subscriber Home window appears).*

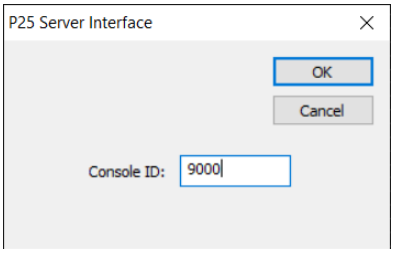


In the appropriate fields, enter the System ID, WACN ID, RFSS ID, Unit ID Min, and Unit ID Max.

In the Alias field, enter the Console Alias name.

Click the Save button to add.

In this example 10 Console IDs are created, 9000 thru 9010. One Unit ID is entered in each of the Consoles C-Soft designer files.



Appendix 3

Connecting to a Motorola P25 Trunking system

The CMS gateway will appear as one Console connected to the Motorola system. All Console traffic will be relayed through the CMS. The first step is to create an External RFSS on the Motorola system and label it as a CSSI subsystem.

Due to the way testing is completed with Motorola Solutions, No additional information is available on Motorola RFSS setup at this time.