Spectrum Enterprise SIP Trunking Service
Estech ESI-100
IP PBX Configuration Guide

About Spectrum Enterprise:

Spectrum Enterprise is a division of Charter Communications following a merger with Time Warner Cable and acquisition of Bright House Networks. Spectrum Enterprise is a national provider of scalable, fiber technology solutions. The Spectrum Enterprise portfolio includes networking and managed services solutions, including Internet access, Ethernet and Managed Network Services, Voice, TV and Cloud solutions. Our industry-leading team of experts works closely with clients to achieve greater business success.

About this document:

Spectrum Enterprise assures IP PBX compatibility by conducting interoperability testing to ensure any potential compatibility issues have been resolved prior to installation. Please review the IP PBX configuration instructions in this guide prior to your installation date.

Be advised that this document may contain references to Charter or Charter Business. All references to Charter should be read as Spectrum Enterprise.

Thank you,

Spectrum Enterprise

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Estech ESI-100 IP PBX Configuration Guide

1 Introduction

The document describes how to configure the Estech ESI-100 IPPBX to interoperate within the Charter network. It does not provide any information on how to provision, configure or use the features of the IP PBX. Please refer to the documentation provided with the IP PBX or contact the vendor.

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2 Configuration

2.1 IP Address Worksheet

The specific values listed in the table below and in subsequent sections were used in the lab configuration described in the document and are for **illustrative purposes only**. The customer must obtain and use the values for the deployment.

Component	Lab IP Example	Customer IP
LAN IP Address	10.70.91.2	
LAN Sub-net Mask	255.255.255.0	
ESI SIP Signaling Interface The Signaling interface is on the same subnet as the LAN IP Address of the E-SBC. If this is not the case, then Layer 3 routing must be in place.	10.70.91.254	
ESI NSP Remote Support Interface The NSP Remote Support interface is used to gain access to the IP-PBX	10.70.91.3	
ESI Media Interface	10.70.91.250	
ESI LAN The IP address that the phones communicate with.	10.70.91.4	
Default Gateway Must be the LAN Network default Gateway. Allows the administrator to log in via the workstation if on a different network	10.70.91.1	

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2.2 Configuration Steps

Equipment used for configuration setup:

- ESI 100 software version release 12.5.54.21
- ESI 100 Programmer version 1.2.14.27

System IP Addresses

The ESI Communications Server 100 has four IP addresses that make up the LAN network. Use the actual IP addresses for your network.

- ESI NSP IP address is defined in F824.

  This is the IP address that the ESI System Programmer uses to communicate with the ESI-100 PBX.
- ESI Base IP Address defined in the F821 and F822. ESI Base IP address in which the IP phones will use to communicate with the ESI-100 PBX.
- ESI Signaling Port IP address is defined in F84.

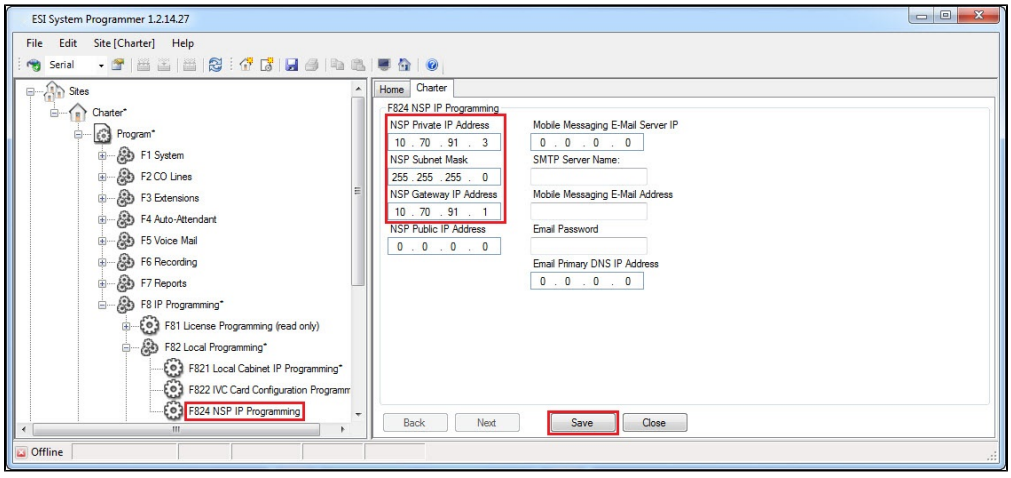
  This is the IP address in which the E-SBC will use for SIP Trunking Devices and the Default Dial rules
- ESI Media Port IP address is defined in F84.

  This is the IP address that is used for Media (RTP).

2.2.1 NSP IP Address

Follow the step-by-step procedure for the NSP IP address.

Step	Action	Result
1	Navigate to **F8 IP Programming** **F82 Local Programming** **F824 NSP IP Programming**	
2	Enter the NSP Private IP Address:	**Note:** This is the IP address is for the ESI GUI.
3	Enter the NSP Subnet Mask:	
4	Enter the NSP Gateway IP Address:	Confirm the network address with network administrator.
5	Click **Save** button.	
6	Procedure completed.	



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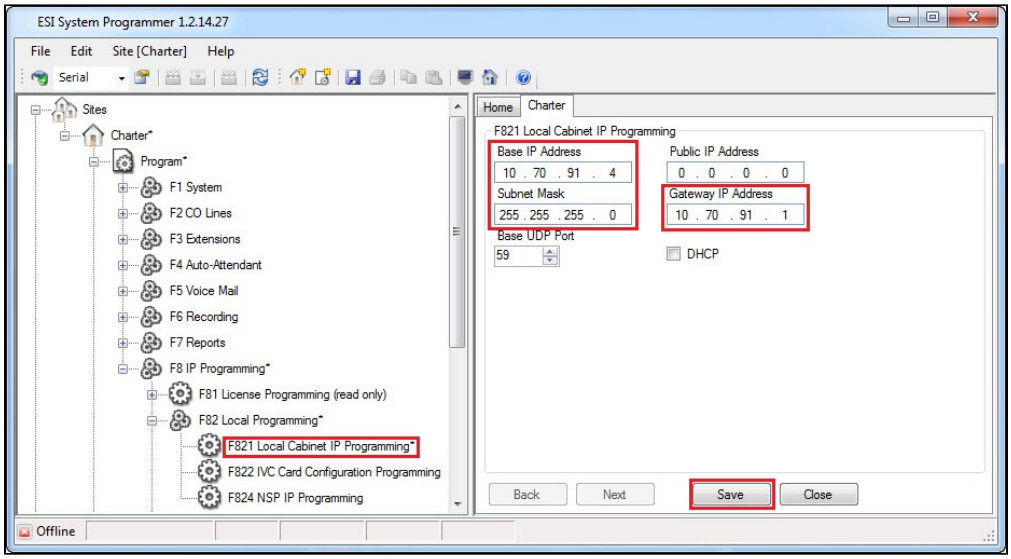
2.2.2 Base IP Address

Follow the step-by-step procedure for the Base IP address.

Step	Action	Result
1	Navigate to **F8 IP Programming** **F82 Local Programming** **F821 Local Cabinet IP Programming**	
2	Enter Base IP Address:	**Note:** The IP address is address the phones use for communication to the ESI50
3	Enter Subnet Mask:	
4	Enter Gateway IP Address:	Confirm the network address with network administrator.
5	Click **Save** button.	
6	Procedure completed.	



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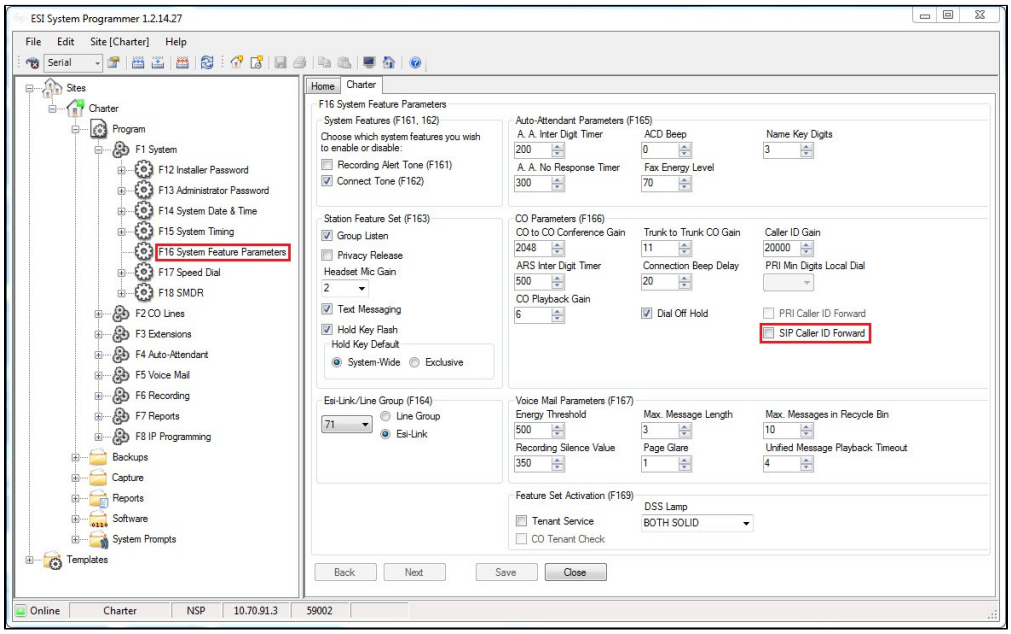
2.2.3 System Feature Parameters

By default the feature “SIP Caller ID Forward” is enabled. Follow the step-by-step procedure to disable the SIP Caller ID Forward.

Step	Action	Result
1	Navigate to **F1 System** **F16 System Feature Parameters**	
2	To disable SIP Call ID Forward Uncheck the checkbox.	**Note:** All other settings are default

3	Click **Save** button.	
4	Procedure completed.	



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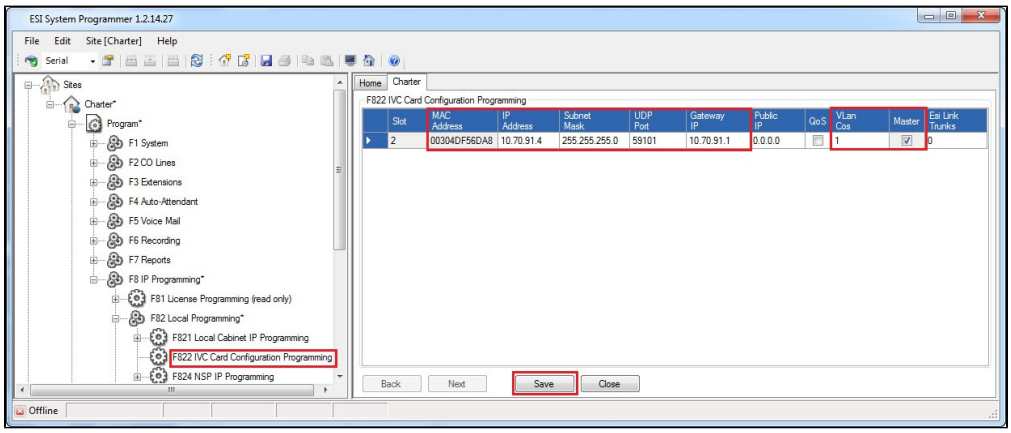
2.2.4 IVC Card Configuration

Follow the step-by-step procedure for the IVC card configuration.

Step	Action	Result
1	Navigate to **F8 IP Programming** **F82 Local Programming** **F822 IVC Card Configuration**	
2	Enter IP Address:	
3	Enter Subnet Mask:	
4	Confirm UPD Port: **59101**	
5	Enter Gateway IP:	Confirm the network address with network administrator.
6	At Vlan Cos Enter **1**	
7	Check Master	
8	Click **Save** button.	
9	Procedure completed.	



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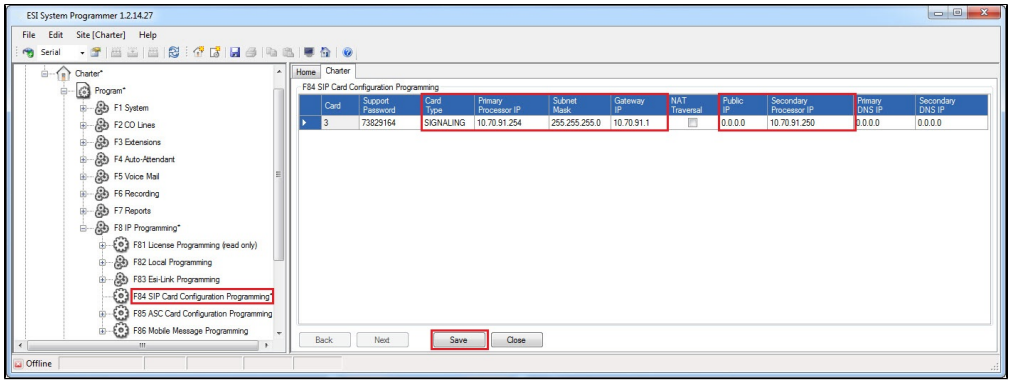
2.2.5 Signaling/Media IP Address

Follow the step-by-step procedure for the signaling/media IP address configuration.

Step	Action	Result
1	Navigate to **F8 IP Programming** **F84 SIP Card Programming**	
2	At Card Type: Enter **Signaling**	
3	Enter Primary Processor IP:	**Note:** This is the IP address the the eSBC uses for SIP Trunking Devices and Default Dial Rules
4	Enter Subnet Mask:	
5	Enter Gateway IP:	Confirm the network address with network administrator.
6	Enter the Public IP:	**Note:** This is the eSBC LAN IP for the network.
7	Enter the Secondary Processor IP:	**Note:** This is the IP address for RTP.
8	Click **Save** button.	
9	Procedure completed.	



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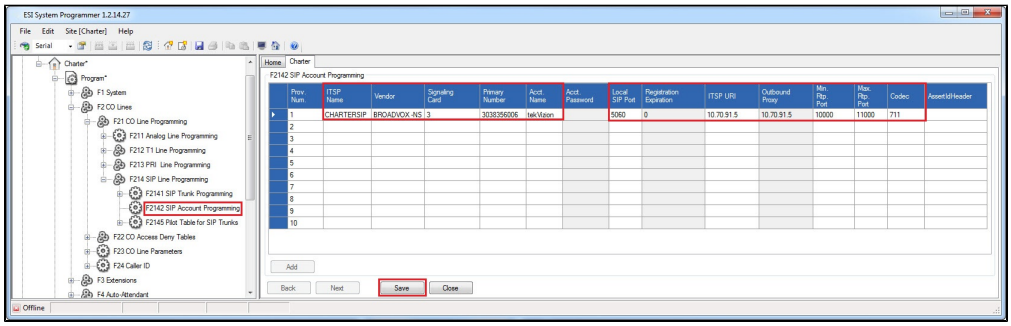
2.2.6 SIP Account Programming

Follow the step-by-step procedure for SIP account programming.

Step	Action	Result
1	Navigate to **F2 CO Lines** **F2142 SIP Account Programming**	
2	Enter ITSP Name:	**Note:** Enter a descriptive name.
3	At Vendor: Enter **BROADVOX-NS**	
4	Enter Signaling Card:	**Note:** This was defined at **F84 SIP Card Programming**
5	Enter Primary Number:	**Note:** This is the Trunk Group Pilot.
6	Enter Acct. Name	**Note:** The account name is provided by the Charter representative
7	At Local SIP Port: Enter **5060**	
8	At Registration Expiration: Enter **120**	
9	Enter ITSP URI:	**Note:** This is the eSBC LAN IP for the network.
10	Enter Outbound Proxy:	**Note:** This is the eSBC LAN IP for the network.
11	Enter Min. Rtp. Port:	**Note:** This field is used to set the minimum value of the lowest number RTP port
12	Enter Max. Rtp. Port:	**Note:** This field is used to set the maximum value of the lowest number RTP port
13	At Codec: Enter **711**	
14	Click **Save** button.	
15	Procedure completed.	



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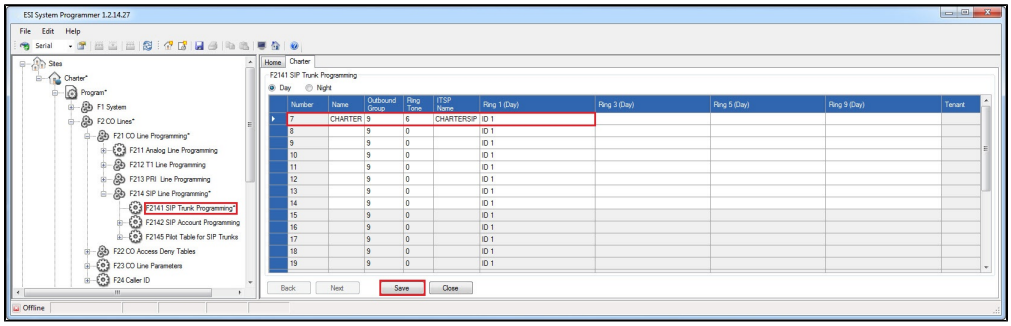
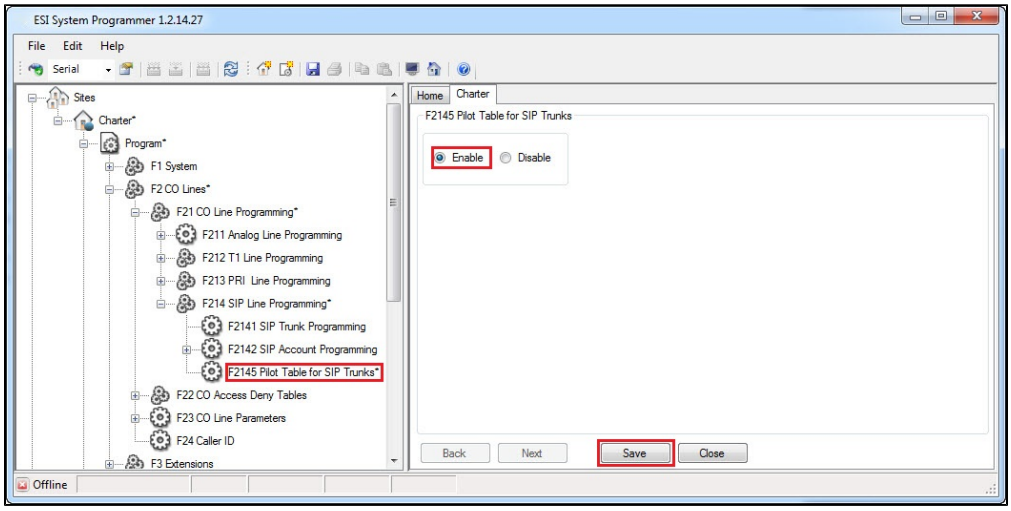
2.2.7 SIP Trunk Programming

Follow the step-by-step procedure for the SIP Trunk programming configuration.

Step	Action	Result
1	Navigate to **F2 CO Lines** **F214 SIP Line Programming** **F2141 SIP Trunk Progamming**	
2	Enter Name:	**Note:** Enter a descriptive name.
3	Enter Outbound Group:	**Note:** Right click on the field to select number.
4	Enter Ring Tone:	**Note:** Right click on the field to select number.
5	Enter ITSP Name:	**Note:** Use same name used SIP Account Programming, Step 2.
6	At Ring 1 (Day): Enter **ID 1**	
7	Click **Save** button.	
8	Move to next table.	



Step	Action	Result
1	Navigate to **F2 CO Lines** **F214 SIP Line Programming** **F2145 Pilot Table for SIP Trunks**	
2	Click Enable radio button	
3	Click **Save** button.	
4	Procedure completed.	



2.2.8 Anonymous Call

The ES-100 does not support anonymous call.

2.3 Dial Plan Configuration

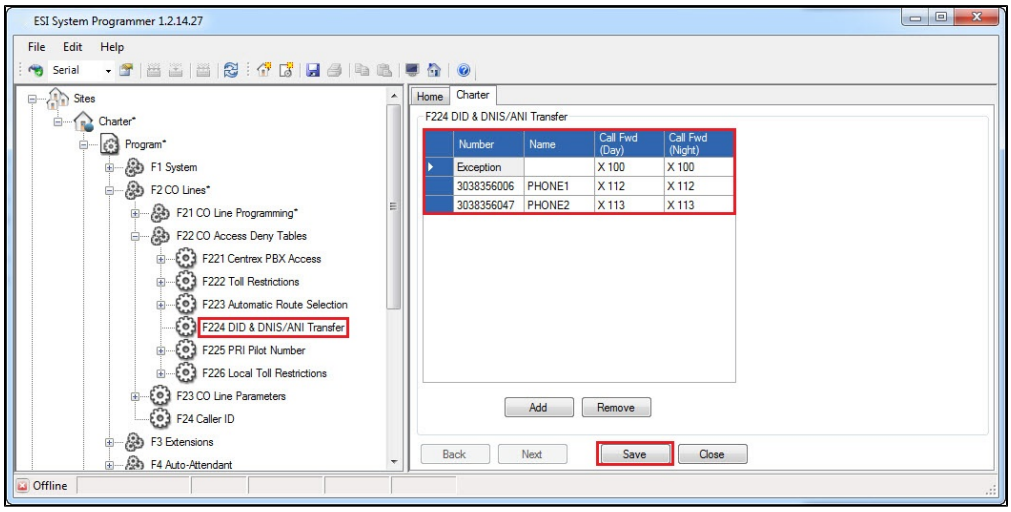
For purpose of this example ESI-100 is configured to dial 9 which is the access code for the SIP trunk. The steps below give detailed step by step instructions for inbound and outbound calls.

2.3.1 Incoming DID Routing

To provision DID numbers in ESI-100 is a very simple process. Use only the range that is assigned to you by your Charter representative. Follow the step-by-step procedure for incoming routing.

Step	Action	Result

1	Navigate to **F2 CO Lines** **F22 CO Access Deny Tables** **F224 DID & DNIS/ANI Transfer**	**Note:** Each entry will be associated with an extension, department, or ID.
2	Exception is the first entry.	**Note:** This cannot be changed and directs the call to the default station if a DID is not provisioned.
3	Click **Add** button.	
4	At Number Enter the telephone number for Call Fwd (Day) Enter the telephone number for Call Fwd (Night) Add the extension the call terminates to	**Note:** Extension number can be found fight click and select the extension.
5	Repeat Steps 3 and 4 for each entry required.	
6	Click **Save** button.	
7	Procedure completed.	



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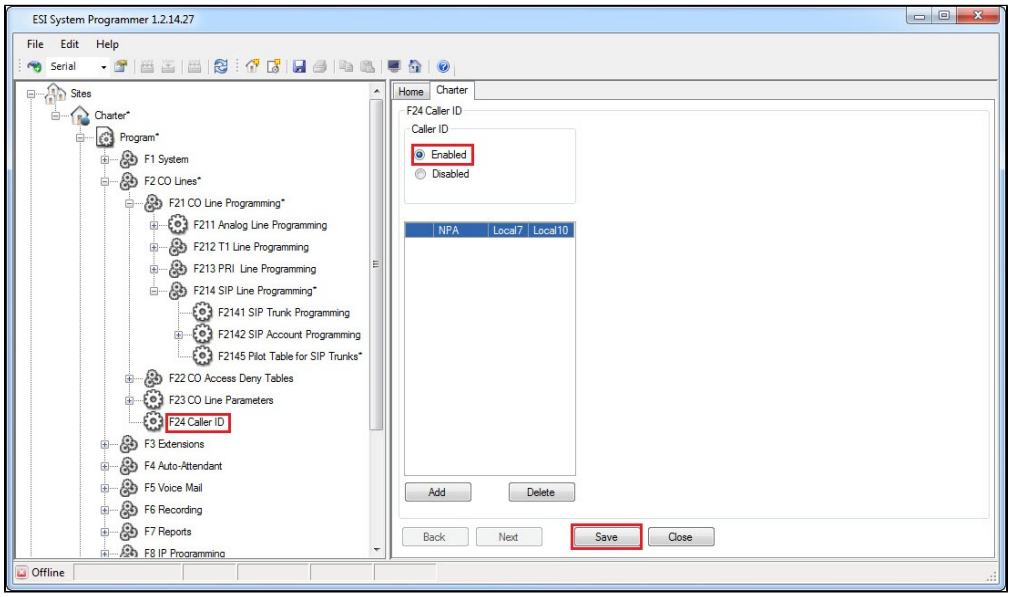
2.3.2 Enabling Incoming Caller ID

Follow the step-by-step procedure for enabling incoming caller ID.

Step	Action	Result
1	Navigate to **F2 CO Lines** **F24 Caller ID**	

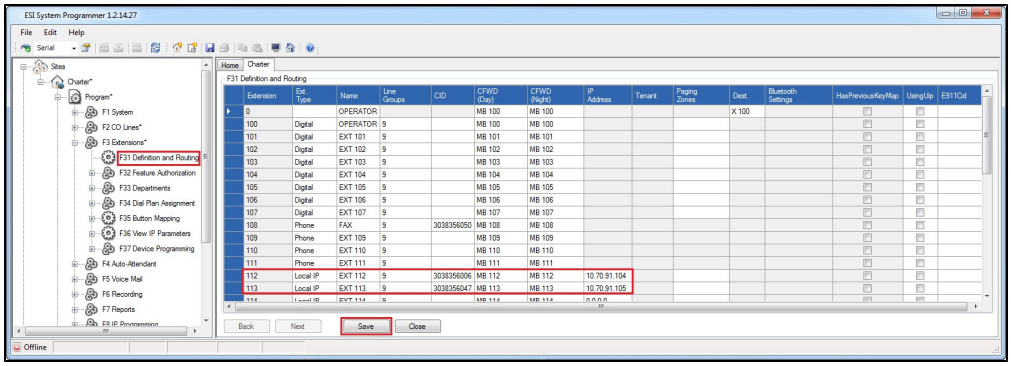
2	At Caller ID: Click **Enabled** radio button	
3	Click **Save** button.	
4	Procedure completed.	



2.3.3 Outgoing Dial Plan

The trunk members are assigned to Outbound Group 9 which is not explicitly denied in F222 Toll Restrictions Deny table is allowed. Follow the step-by-step procedure.

Step	Action	Result
1	Navigate to **F3 Extensions** **F31 Defination and Routing**	
2	Scroll down until the extension is found	
3	Enter Extension Number Line Groups:	**Note**: Line Group value is found by right clicking and selecting the access code.
4	Click **Save** button.	
5	Procedure completed.	



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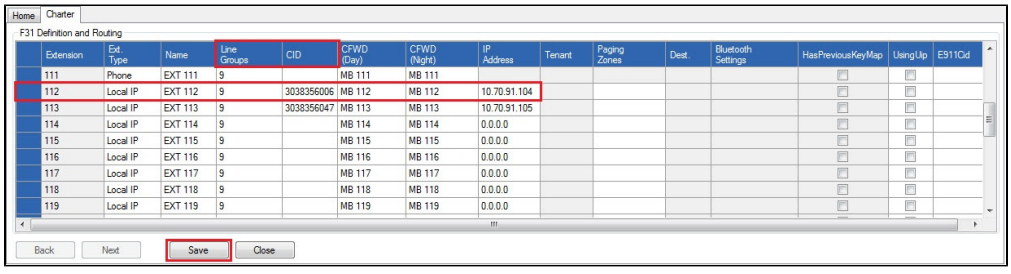
2.3.4 Sending CLI Number

The Calling Line ID (CLID) is configured to send phone user's 10-digit DID number. Follow the step-by-step procedure.

Step	Action	Result
1	Navigate to **F3 Extensions** **F31 Defination and Routing**	
2	Scroll down until the extension is found	
3	Enter Extension Number Line Groups:	**Note**: Line Group value is found by right clicking and selecting the access code.
4	Enter the Extension Number CID:	**Note:** The CID value is entered by typing the correct value.
5	Click **Save** button.	
6	Procedure completed.	



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2.3.5 Calling Line ID Spoofing

Calling ID Spoofing is the practice of sending a CLID that is not within the assigned DID telephone number range(s). A legitimate use of CLID spoofing is if the PBX customer wants to display their toll free number on non-emergency PBX originated calls so the dialed party can call the company back. To enable CLID spoofing support, the PBX customer must follow the step-by-step procedure.

Step	Action	Result
1	Contact the sales representative to request spoofed CLID support on the Charter network otherwise Charter will block calls that present a spoofed CLID.	
2	For this example, we will use Extension 112 and assign 123456789	
3	Enter the toll free or other telephone number instead of the 10-digit DID number to display for each extension.	
4	Procedure completed.