Oracle® Communications Enterprise Trunk Manager

Enterprise Configuration Guide

Release 7.4

Formerly Net-Net Central SIP Trunk Xpress

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ORACLE

Contents

About this Guide

Introduction

The *Oracle Communications Enterprise Trunk Manager Enterprise Configuration Guide* includes information that applies to Oracle Communications Enterprise Trunk Manager solution for setting up SIP Trunks between a Customer SBC (E-SBC) and a Service Provider SBC (SP-SBC). Using this guide, Customer Administrators can quickly and easily configure the E-SBC in their network to connect over a SIP Trunk to the SP-SBC.

Audience

This guide is for Customer Administrators configuring the E-SBC in the Customer network to connect to the SP-SBC in the Service Provider network, over a SIP Trunk established by the Service Provider. Corresponding documentation includes the *Oracle Communications Enterprise Trunk Manager Service Provider Configuration Guide.*

About Net-Net C-Series Platforms

This guide supports the Acme Packet 3800 and the Acme Packet 4500 C-series platforms, as well as the Enterprise Session Director-Server Edition and the Enterprise Session Director-Virtual Machine Edition.

Related Documentation

The following table lists related documents.

Document Name	Document Description
Oracle Communications Enterprise Trunk Manager Service Provider Configuration Guide	Guide with detailed information for installing NNC 7.2 and Trunk Manager. Also contains Service Provider information for setting up a SP-SBC, E-SBC and a SIP Trunk.
Oracle Communications Enterprise Trunk Manager Quick Start Guide (Full Mode)	Provides a five-step instruction for setting up a SIP Trunk between the SP-SBC and the E-SBC. This guide is for the SIP Session Manager (SIPSM) enabled version of Trunk Manager (displays a full menu of options).
Oracle Communications Enterprise Trunk Manager Quick Start Guide (E-SBC Bootstrap-only Mode)	Provides a five-step instruction for setting up a SIP Trunk between the SP-SBC and the E-SBC. This guide is for a non-SIP Session Manager (non-SIPSM) version of Trunk Manager (displays a limited menu of options).

Revision History

This section contains the revision history for this document.

Date	Revision Number	Description
May 9, 2014	Revision 1.00	• Initial Release

1 Overview

Introduction

This chapter describes a Session Initiation Protocol (SIP) trunk and how you can use it in your network. It also provides an overview of Acme Packet's SIP Trunk Xpress solution for quickly and easily setting up SIP trunks between Service Provider and Customer Net-Net Session Border Controllers (SBCs).

For descriptions of terms used in this document, see the Glossary (325).

Topics include:

What is a SIP Trunk?

A SIP trunk is a service offered to Enterprises by a Service Provider that permits the Enterprises with Private Branch Exchanges (PBXs) installed, to use IP communications (including Voice over IP (VoIP)) outside of their Enterprise network on an Internet connection. The SIP trunk is a combination of:

- the Customer's SBC (E-SBC) or PBX IP address and port
- the IP address and port of the Service Provider's SBC (SP-SBC)
- the service level agreement constraints (e.g., concurrent number of sessions and/or bandwidth).

A SP-SBC can have multiple SIP trunks to one or more E-SBCs. However, SIP Trunk Xpress supports only one trunk per E-SBC.

What is SIP Trunk Xpress?

Acme Packet's SIP Trunk Xpress is a Trunk Manager application enabled by Acme Packet's Net-Net Central platform. Service Providers use SIP Trunk Xpress to automatically configure SIP trunks for their Customers. SIP Trunk Xpress is an easy-to-use, graphical application that you access using your Web browser in Net-Net Central. Its main purpose is to simplify the configuration of both the Service Provider and Enterprise SBCs on both ends of a SIP trunk.

SIP-based communications services are expanding to reach more subscribers in Service Provider networks. This growth has increased the number of SIP trunks needed to support the footprint of these services and their configuration is becoming much more time consuming. SIP Trunk Xpress provides centralized management of SIP trunks, allowing for automated configuration and on-going management of trunk configurations from a centralized location. SIP Trunk Xpress provides a simple mechanism to configure SIP trunk services between a SP-SBC and an E-SBC.

Key benefits include:

- Centralized configuration server for all SIP trunks
- Integrated with Net-Net Central using Graphical User Interface (GUI) features
- Faster SIP Trunk provisioning because of simple configuration procedures
- Eliminates error-prone manual configuration procedures
- Reduces OpEx to deploy Service Provider SIP trunking services
- Enables Service Providers to configure all remote E-SBCs
- Comprehensive management of Customer sites/services and SIP trunk associations
- Creates all configuration data for Net-Net SBCs on both ends of the SIP trunk
- Easy installation and configuration of the Net-Net E-SBC via a USB stick (for Net-Net Enterprise Session Director-Server Edition (ESD-SE) models only)

What is the SIP Trunk Xpress Customer Portal?

The SIP Trunk Xpress (SIPTX) Customer Portal is a Web-based application that you can log into for viewing the summary information about the E-SBCs in your network, and the Trunk statistics for each E-SBC. Using the SIPTX Customer Portal, you can apply a configuration file (bootstrap file) provided by the Service Provider, to the E-SBC in your network, thus allowing the device to connect over an established SIP Trunk to the configured SP-SBC in the Service Provider network.

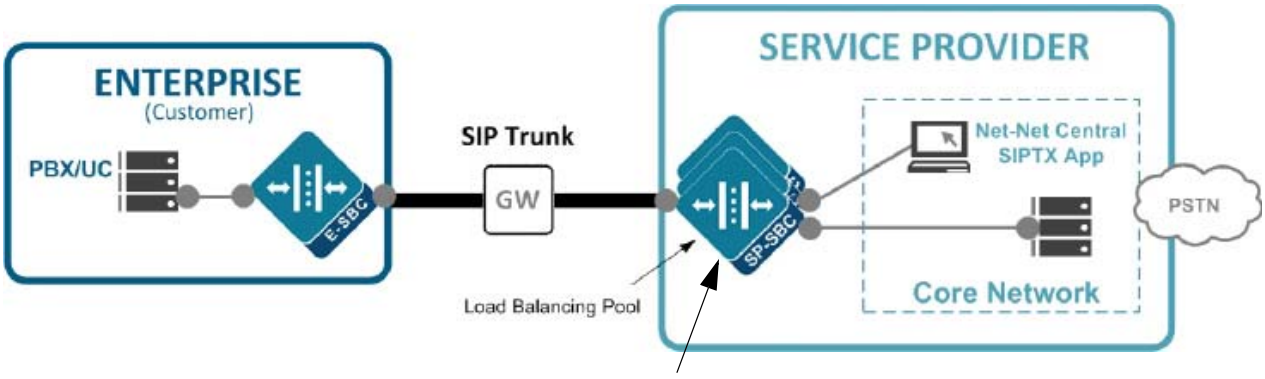
If the Service Provider gives permission, you can also use the SIP Trunk Xpress Portal to configure, generate, and apply the E-SBC bootstrap file from your Customer site.

How Does SIP Trunk Xpress Work?

SIPTX allows a Service Provider administrator to set up a SIP Trunk between the SP-SBC in the Service Provider's core network site, and the E-SBC(s) at the Customer site. The Service Provider administrator applies the configuration to the SP-SBC and the E-SBC and establishes the SIP Trunk. Alternatively, a Service Provider can allow a Customer administrator to apply the configuration to the E-SBC if required.

At the Service Provider site, the administrator must assign a single or multiple SP-SBCs to a logical group known as a load balancing pool. Each load balancing pool is assigned one type of Service Provider configuration template. Once the template is assigned to that pool, any SP-SBCs added to the pool use the same configuration template.

The following shows the core Service Provider network with multiple SP-SBCs in the load balancing pool. All of the SP-SBCs in this pool use the same configuration template.



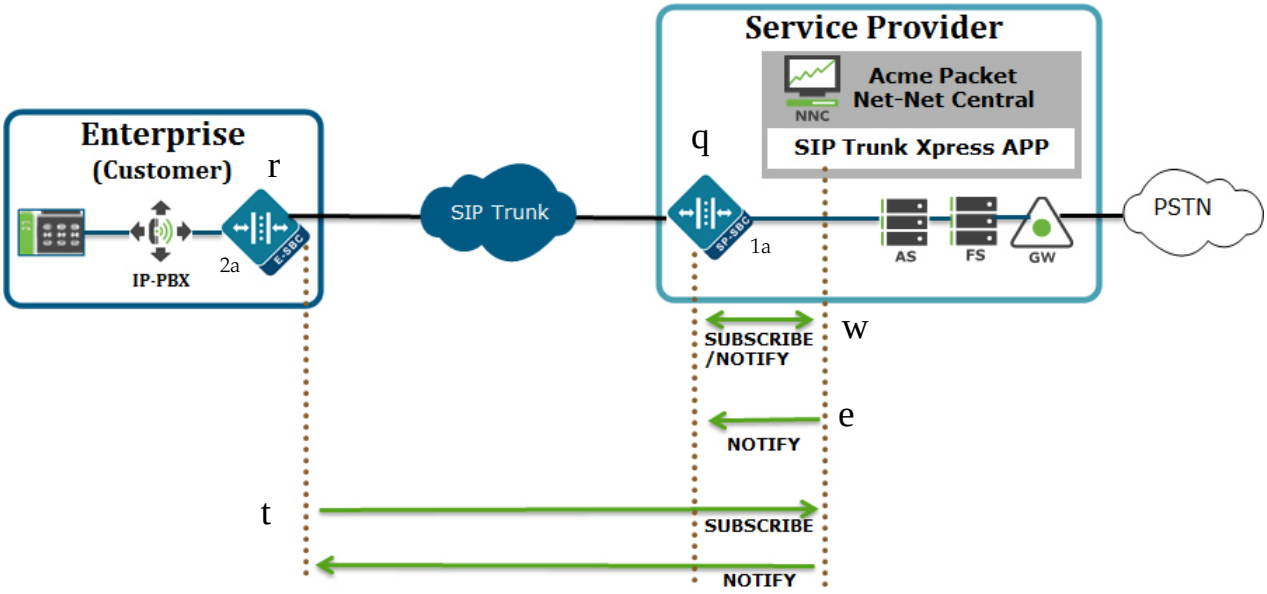
Load Balancing Pool

The SIPTX service uses a Trunk Manager application in Net-Net Central to assist you in configuring the SP-SBC and E-SBC. Configuration of the Net-Net SBCs includes creating and applying a bootstrap file to each device. The bootstrap file contains all of the configuration parameter information required to boot the Net-Net SBC, connect the device to Net-Net Central SIPTX (NNC-SIPTX), and setup the device for SIP Trunking. For Customers, the E-SBC bootstrap file provides the entire configuration for connecting to network PBXs and to the Service Provider over SIP trunks.

After specifying the configuration for both the SP-SBC and E-SBC using Trunk Manager, you can generate and apply bootstrap files for each device that automatically configure them to connect to NNC-SIPTX. When the Net-Net SBC subscription is successful through NNC-SIPTX, the Net-Net SBCs are bootstrapped and ready to connect over a SIP Trunk. Using Trunk Manager, you can then create the SIP Trunk to connect the two devices for communicating.

> **Note:** The SP-SBC and E-SBC must have a status of "*Bootstrapped*" before connecting over a SIP Trunk. A "*Bootstrapped*" status indicates that the E-SBC is communicating with the SP-SBC.

The following illustration shows the process for establishing your SIP Trunk network.



The following map key identifies each step in the illustration above.

Number	Description
q	Service Provider administrator adds an SP-SBC to the Service Providercore network. Trunk Manager generates an SP-SBC bootstrap file and saves it to the NNC-SIPTX database.
1a	Service Provider administrator downloads the SP-SBC bootstrap file to a local PC and then loads the bootstrap to the SP-SBC. This auto-configures the SP-SBC to connect to NNC-SIPTX.
w	SP-SBC sends a SUBSCRIBE messasge to NNC-SIPTX database and gets the initial configuration (SP-SBC bootstrap file).
2a	Service Provider administrator adds a Customer/Site (E-SBC) and Trunk using Trunk Manager.
e	NNC-SIPTX sends a NOTIFY message to the SP-SBC that an E-SBC was added to the Customer core network by the Service Provider administrator, and is about to connect.
r	Service Provider or Enterprise administrator downloads the E-SBC bootstrap file and loads the bootstrap to the E-SBC. This auto-configures the E-SBC to connect to the SP-SBC, the SIP Trunk, and NNC-SIPTX.
t	The E-SBC sends a SUBSCRIBE message to the NNC-SIPTX database and gets additional configuration information via a NOTIFY over the now-established SIP Trunk.

Methods for Setting up Your SIP Trunk Network

There are three methods for which the Service Provider allows for the setup of your E-SBC in your network:

- Service Provider configures the SP-SBC and E-SBC and creates the SIP Trunk
- Service Provider configures the SP-SBC and creates the SIP Trunk, but allows the Customer to configure the E-SBC.
- Service Provider configures the SP-SBC and creates the SIP Trunk, but allows the Customer to configure the E-SBC from a USB flash drive (USB stick). (Applicable to *Net-Net Session Director Server Edition* only).

This Guide provides instructions for the Customer to configure the E-SBC using the SIPTX Portal.

2 Customer SBC (E-SBC) Setup

Introduction

This section provides information required to prepare the Customer SBC (E-SBC) to go online and connect via a SIP Trunk to the Service Provider SBC (SP-SBC).

A Customer site can be either a **managed** site or an **unmanaged** site. A managed Customer is owned and administered by a Service Provider where the Service Provider Administrator manages and controls permissions for all administrative tasks related to the E-SBCs, including the core configuration of the Customer device. If your E-SBC is managed by your Service Provider, the preparation of the E-SBC for SIP trunking and the adding of SIP Trunks must be initiated by the Service Provider. Contact your Service Provider for more information.

An unmanaged enterprise is owned and administered by the Customer where the Customer Administrator manages and configures the device configuration of the E-SBC. (However, all group/user permissions for the Customer are assigned by the Service Provider).

This section describes the configuration of the E-SBC by the Customer.

Topics include:

Browser Requirements

Bootstrapping your E-SBC (and configuring your E-SBC configuration) requires you to log into a SIPTX that you can access via a Web browser. The following Web browsers support the SIPTX Portal:

- Internet Explorer® versions 7.0 and higher (best performance with Internet Explorer 9.0)
- Mozilla Firefox® versions 3.0 and higher
- Google Chrome™ versions 2.0 and higher

SIPTX Customer Portal

A Service Provider can provide you access to a SIP Trunk Xpress (SIPTX) Customer Portal application via a URL. This portal provides a way for the you to:

- Download the Customer bootstrap file to your E-SBC.
- Set specific configuration parameters for your E-SBC such as, Simple Network Management Protocol (SNMP) parameters, boot parameters, and/or high availability (HA) (redundant device) parameters. This feature creates an installation file ("*tar.gz*" file) that contains the basic configuration required for the E-SBC.
- Configure your E-SBC (only if enabled by the Service Provider).

You can request the URL from the Service Provider, log into the SIPTX Customer Portal, and perform the required tasks.

Logging into the SIPTX Customer Portal

A Service Provider can provide you with a URL to login into the SIPTX Customer Portal. You can then enter the URL in a browser and log in as required. For information about supported Web browsers, see Browser Requirements (13).

To log into the SIPTX Customer Portal:

1. Get the SIPTX Customer Portal URL, User Name, and Password, from your Service Provider. The URL is in the format:

   http://<server name>:8080/siptx/

   or

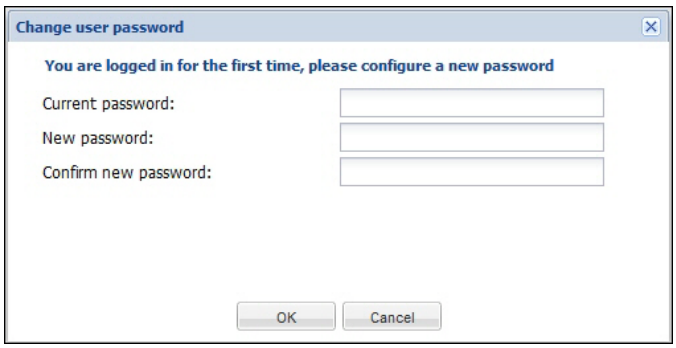
   https://<server name>:8443/siptx/

   Note: Your Service Provider can send you the URL, User Name and Password via an email. For more information, contact your Service Provider.

2. Using a Web browser, enter the SIPTX Customer Portal URL. The login screen displays.

3. In the "**User Name**" field, enter the user name you received from your Service Provider.
4. In the "**Password**" field, enter the password you received from your Service Provider and click <**Login**>.

On first-time login, the "*Change User Password*" prompt displays..

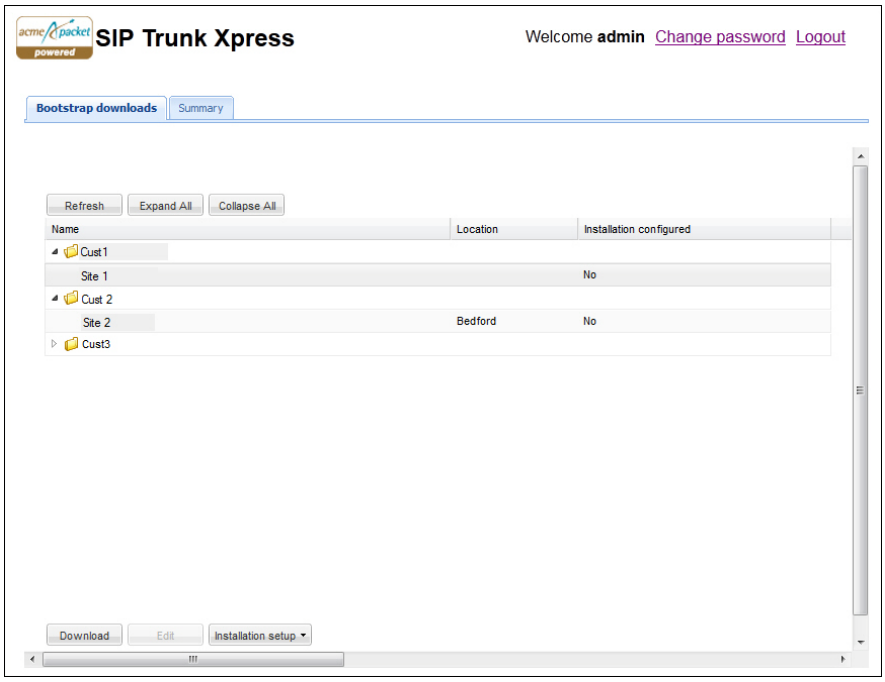


5. In the "**Current password**" field, enter your current password.
6. In the "**New password**" field, enter a new password.

   Note: Passwords must be at least 8 characters and contain at least one punctuation character such as ".", ";" "!", etc.

7. In the "**Confirm new password**" field, re-enter the new password you entered in Step 6 and click <**OK**>.

   The SIP Trunk Xpress download page displays.

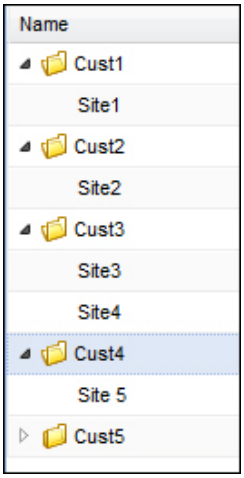
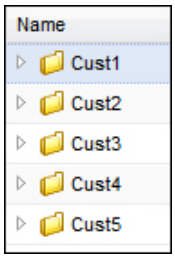


The following table identifies the columns in this window.

Column Heading	Description
Name	Name of the Customer/Site (E-SBC) added to the network by the Service Provider
Location	Location of the E-SBC in the network
Installation configured	Indicates whether or not an "installation setup" file (with the bootstrap file) was applied to the E-SBC. For more information about the "installation setup" file status, see Installation Setup (39).

The following table identifies the buttons in this window.

Button	Description
Download	Allows you to download the E-SBC bootstrap file to your PC for the selected Site (E-SBC). **Note**: "Download" button enables only when you select a Site (E-SBC).
Edit	Allows you to edit the selected E-SBC core configuration. For more information see Editing the E-SBC Core Configuration (27). **Note**: "Edit" button enables only when you select an E-SBC with a core configuration configured by the Customer (Service Provider enables this feature).
Installation setup	Allows you to create an installation file ("*tar.gz*" file) for an E-SBC (when no SIP Trunks associated). Also allows you to edit and/or delete an installation setup file for an E-SBC (when SIP Trunks associated). An installation setup file can contain the E-SBC configuration information for Simple Network Management Protocol (SNMP) parameters, boot parameters, and high availability (HA) (redundant device) parameters. For new E-SBCs with no SIP Trunks associated, you can click <Installation setup/Add>, specify the applicable parameters and then click <OK>. This creates a setup file for the new E-SBC that contains the device configuration as well as the device bootstrap template. You can then download copy the file to a USB device for which you can locally plug into your E-SBC and run a command to unzip the "*tar.gz*" file. The file automatically configures the new E-SBC with the information contained in the file, and loads the applicable bootstrap. For E-SBCs with SIP trunks established, you can click <Installation setup/Edit> or <Installation setup/Delete> to edit or delete a setup file. For more information see Editing the "Installation Setup" File (46) and Deleting the "Installation Setup" File (48). **Note**: The "Installation setup" button enables only when you select an E-SBC.
Refresh	Allows you to refresh the current window. If changes occurred, the refresh displays the updated window.

Button	Description
Expand All	Expands the Customer folders and subfolders, listing all current Customers/Sites.. 
Collapse All	Collapses all Customer folders and subfolders. 

The following table describes the links in the upper right corner on this page.

Link/Button	Description
Change password	Allows you to change your SIP Trunk Xpress login password.
Logout	Allows you to logout of the SIP Trunk Xpress Portal.

The remaining sections of this guide describe the features and functions of the SIPTX Customer Portal.

SIP Trunk Xpress Portal Summary

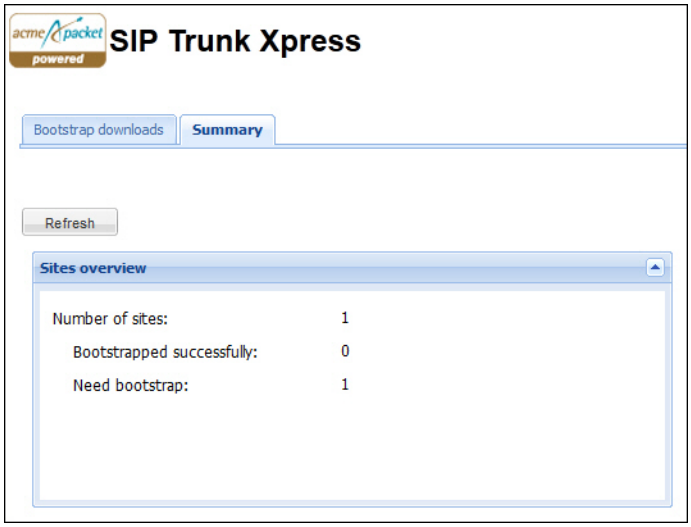
The SIP Trunk Xpress Portal summary provides the following information about the E-SBCs at Customer sites:

- Total number of E-SBCs at the Customer site that were added by the Service Provider
- E-SBCs successfully bootstrapped

The Summary page displays differently depending on the current SIPTX configuration. The following illustrations show the various Summary pages that can display.

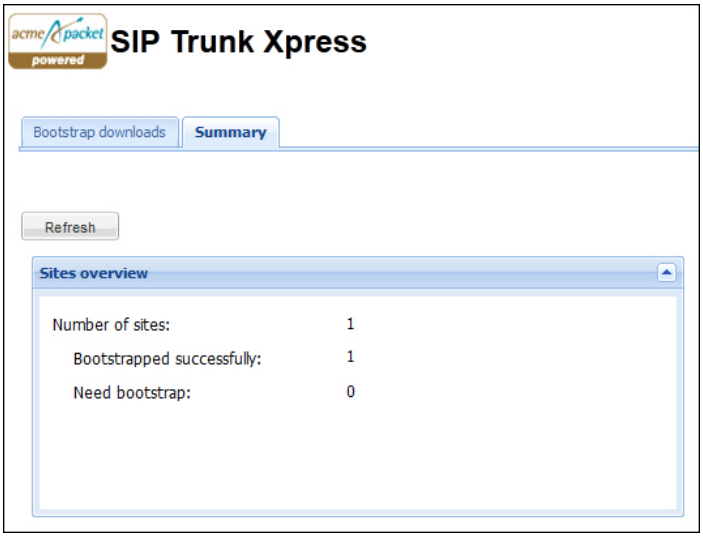
- **Summary page with no bootstrapped E-SBC and no associated trunk**

  An E-SBC exists in the Customer network but has not been bootstrapped. No trunk is associated with the device.



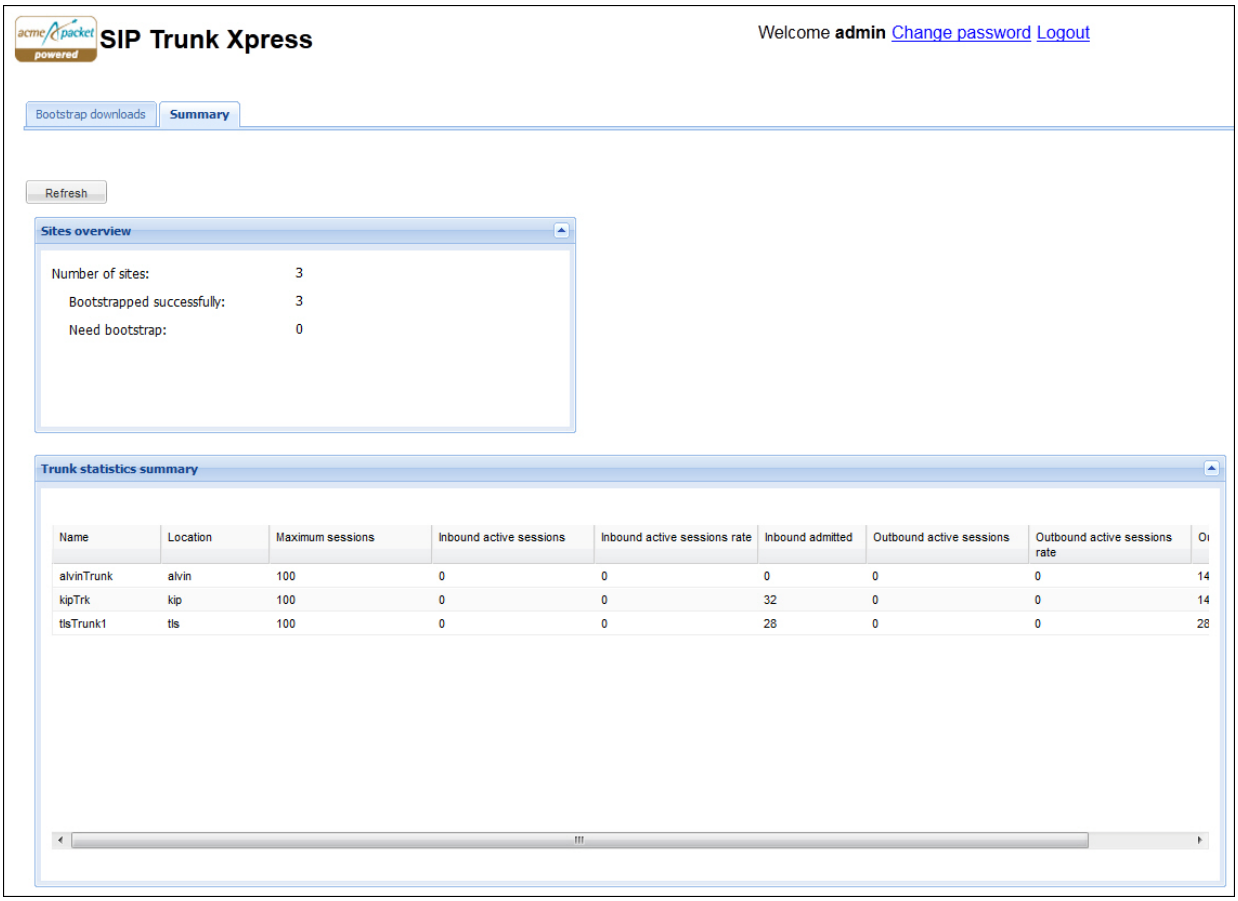
- **Summary page with one bootstrapped E-SBC and no associated trunk**

  An E-SBC exists in the Customer network and has been successfully bootstrapped. There is no trunk associated with the device so no trunk statistics display.



- **Summary Page with multiple bootstrapped E-SBCs and associated trunks**

  Multiple E-SBCs exist in the Customer network and have been successfully bootstrapped. The devices have associated trunks so bootstrap and trunk statistics display applicable values.



The following tables provide an overview of the information in the SIPTX Summary. For Summary displays that show Trunk statistics, you can customize the columns as required using the procedures in Customizing the Summary Display (20).

Sites Overview

Information	Description
Number of Sites	Total number of E-SBCs added by the Service Provider for the Customer.
Bootstrapped successfully	Total number of E-SBCs that have been successfully bootstrapped.
Need Bootstrap	Total number of E-SBCs that currently do not have a bootstrap file loaded to the device.

Trunk Statistics Summary

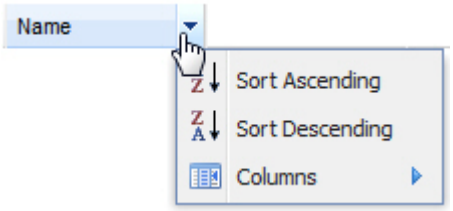
Column	Description
Name	Name of the E-SBC in your network.
Location	Location of the E-SBC in your network.
Maximum sessions	Total number of maximum sessions established on the Trunk connected to the E-SBC.
Inbound active sessions	Total number of current, active inbound sessions sent over the SIP Trunk to the E-SBC.
Inbound active sessions rate	Average rate of active inbound sessions (per second) sent over the SIP Trunk to the E-SBC.
Inbound admitted	Total number of inbound sessions sent over the SIP Trunk and received successfully by the E-SBC.
Outbound active sessions	Total number of current, active outbound sessions sent over the SIP Trunk from the E-SBC.
Outbound active sessions rate	Average rate of active outbound sessions (per second) sent over the SIP Trunk from the E-SBC.
Outbound admitted	Total number of successful outbound sessions sent over the SIP Trunk from the E-SBC.
Object ID (not displayed by default)	ID of the Trunk currently connected to the E-SBC. You can used this ID for troubleshooting purposes if required.

Customizing the Summary Display

You can customize the data presented in the SIP Trunk Xpress Summary page by changing whether or not columns display and how they display. You can also sort the the order of item entries.

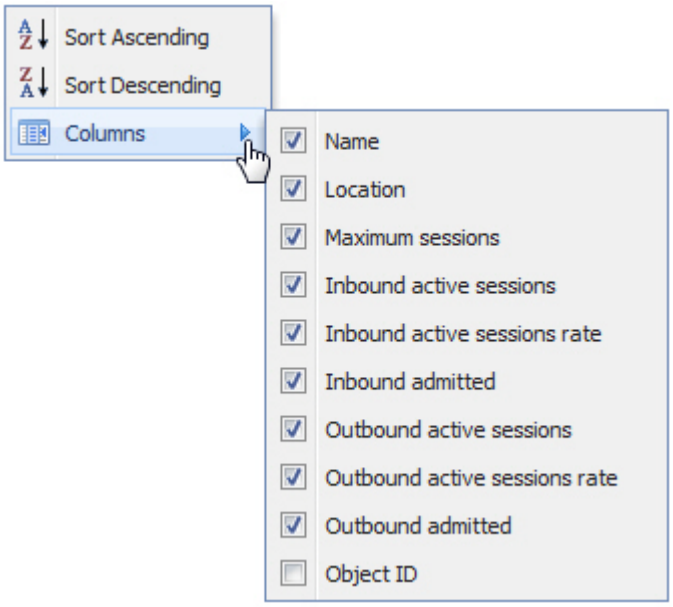
To customize the table display:

1. Position the cursor over a column heading. A pointer displays on the right hand side of the box. For example:



2. Click the down arrow to display the menu.
3. Click "**Sort Ascending**" to sort the data in the table in ascending order.
4. Click "**Sort Descending**" to sort the data in the table in descending order.

5. Click "**Columns**" to access and customize a list of column names. For example:



6. Place a checkmark in the box to display that heading/column in the window. Remove the checkmark to hide the heading/column in the window.
7. To close the heading menus, click anywhere in the window.

Using the SIP Trunk Xpress (SIPTX) Customer Portal

When a Service Provider has added an SP-SBC, E-SBC, and a SIP Trunk to the network, you can use the SIPTX Customer Portal to perform the following:

- **Configure the E-SBC core configuration (permission to configure must be enabled by the Service Provider)**. For more information about setting the core configuration on theE-SBC, see Configuring the E-SBC Core Configuration (if enabled by the SP) (23)
- **Download the bootstrap file to your PC or E-SBC**.
- **Apply the boostrap file to the E-SBC.** The bootstrap file contains initial configuration necessary to connect the E-SBC to NNC. For more information and procedures for applying the bootstrap file, see Applying the Customer (E-SBC) Bootstrap (using the ACLI) (33).
- (optional) **Create an "installation setup" file (*tar.gz*)**. This file contains configuration information for Simple Network Management Protocol (SNMP), booting, and/or high availability (HA) (redundant device) information. You can then download and apply the file (which includes the download of the bootstrap file) to the E-SBC. For more information about creating an "installation setup" file, see Installation Setup (39).

After the E-SBC is online, it connects to the SP-SBC via the established SIP Trunk, and you can begin using the Trunk to make calls.

> **Note:** Your Service Provider must provide the user name/password for logging into the SIPTX Customer Portal. Contact your Service Provider for more information.

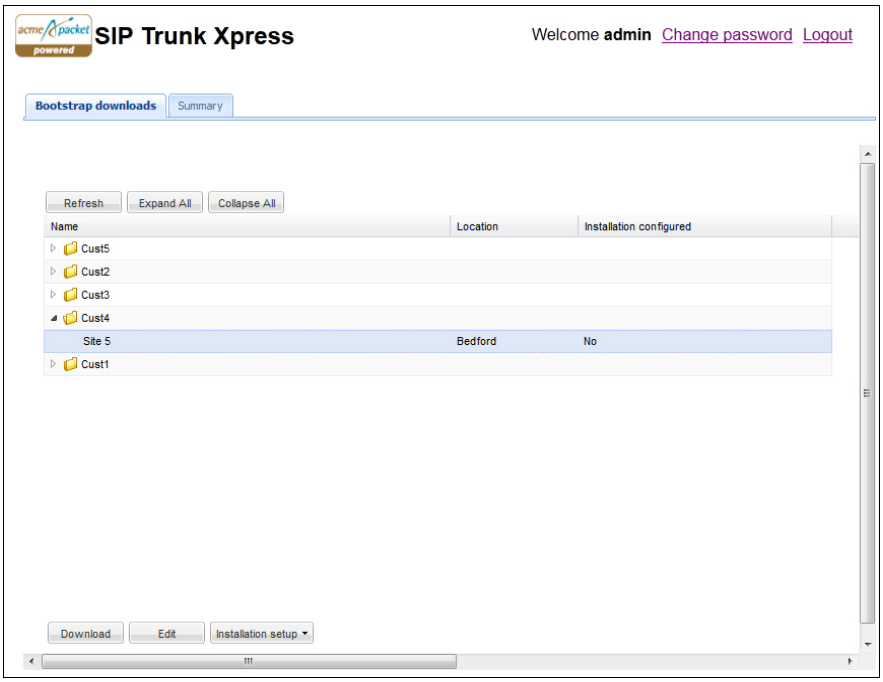
Configuring the E-SBC Core Configuration (if enabled by the SP)

Your Service Provider has the option of choosing whether or not to allow the Customer to configure the E-SBC at the Enterprise site. If your Service Provider has allowed you to configure the the E-SBC core configuration, use the procedures in this section to configure your E-SBC.

To configure the E-SBC core configuration:

1. Login to the SIPTX Customer Portal with your user name and password using the procedure in Logging into the SIPTX Customer Portal (14).

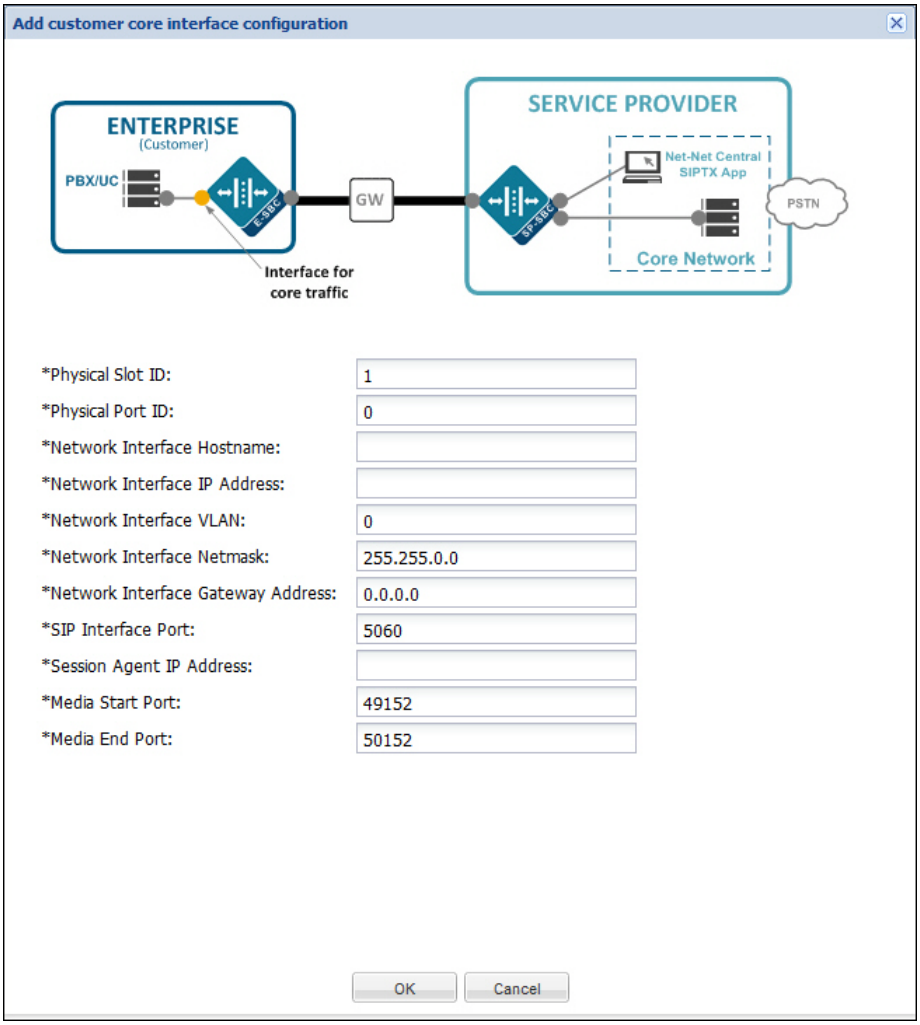
   The SIP Trunk Xpress page displays.



   Note: Your E-SBC displays on this page ONLY IF your Service Provider has added your E-SBC with an associated SIP Trunk to their network. If your E-SBC does not display on this page, contact your Service Provider.

2. Double-click your Customer name in the "**Name**" column to open the folder.

3. Click on your site (E-SBC) and then click <**Download**>. The "*Add customer core interface configuration*" dialog box displays.



Setting the E-SBC Core Configuration Parameters

Configure the following parameters to set the core E-SBC configuration.

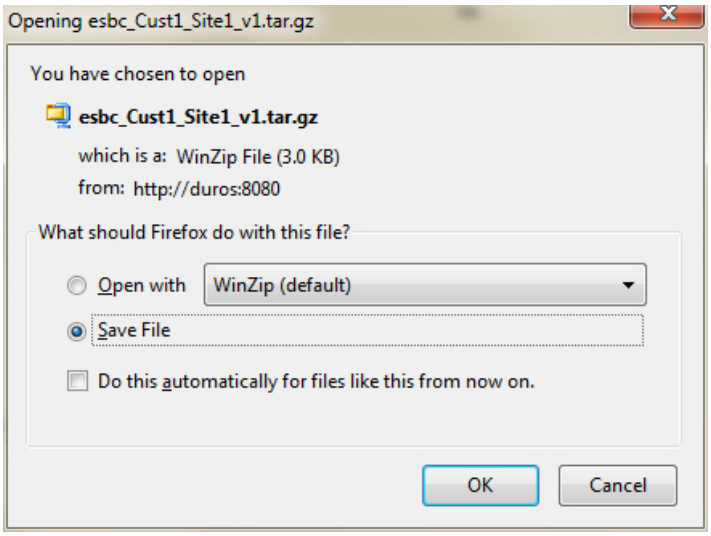
1. In the "**Physical Slot ID**" field, enter the customer's core slot ID on the E-SBC. Valid values are **0 - 999999999**. Default is **1**.
2. In the "**Physical Port ID**" field, enter the customer's core port ID on the E-SBC. Valid values are **0 - 999999999**. Default is **0**.
3. In the "**Network Interface Hostname**" field, enter the name of the host E-SBC at the Customer site. Valid values are alpha-numeric characters. Default is blank.
4. In the "**Network Interface IP Address**" field, enter the E-SBC's core IP address at the Customer site. IP Address must be entered in dotted decimal format (0.0.0.0). Default is blank. For example, 192.168.34.228.
5. In the "**Network Interface VLAN**" field, enter the customer's core network interface virtual Local Area Network (VLAN) ID. Valid values are **0** to **4095**. Default is **0**.

Note: If the Service Provider selected a configuration template with VLAN attributes, this field is automatically populated after you load the bootstrap to the E-SBC.

6. In the "**Network Interface Netmask**" field, enter E-SBC's core netmask address at the Customer site. IP Address must be entered in dotted decimal format (0.0.0.0). Default is **255.255.0.0**.
7. In the "**Network Interface Gateway Address**" field, enter the E-SBC's core gateway address at the Customer site. IP Address must be entered in dotted decimal format (0.0.0.0). Default is blank. For example, 192.168.34.197.
8. In the "**SIP Interface Port**" field, enter the E-SBC's core SIP interface port. Valid values are **5060** to **65535**. Default is **5060** for TCP.
9. In the "**Session Agent IP Address**" field, enter the destination IP address of the Session Agent (SA) in the Customer network. IP Address must be entered in dotted decimal format (0.0.0.0). Default is blank. For example, 192.168.34.197.
10. In the "**Media Start Port**" field, enter the port number on the core destination side of your E-SBC that is dedicated to sending media traffic from your E-SBC to external destinations. Valid values are **0 - 65535**. Default is **49152**.

    The "Media Start Port" and "Media End Port" fields are used in the port forwarding process in your network. Port forwarding is the process of dedicating ports on your E-SBC to be used for sending/receiving specific traffic (media) for faster throughput. Port forwarding translates the address and/or port number of a packet to a destination, accepts packet(s) in a packet filter (firewall), AND forwards the packet according to the routing table.
11. In the "**Media End Port**" field, enter the port number on the core destination side of your E-SBC that is dedicated to receiving media traffic from external sources to your E-SBC. Valid values are **0 - 65535**. Default is **50152**.
12. Click <**OK**>. You have completed the core configuration of your E-SBC. A download dialog box displays.

    This example shows a Customer bootstrap compressed file (*esbc_Cust1_Site1_v1.tar.gz*) ready to download to your PC.



NNC-SIPTX assigns the file name for the compressed file. Customer bootstrap file names are in the format:

"esbc_<Company name>_<Site name>_<File version #>.tar.gz".

The following table describes the version numbering scheme upon subsequent downloads of the E-SBC bootstrap file.

IF	THEN
you generate the initial bootstrap file to the E-SBC,	the version number in the file name is "v1" (version 1).
you generate a subsequent bootstrap file to the E-SBC that is different then the previous bootstrap file,	the version number increments. For example, if you make changes to the E-SBC configuration and create a new boostrap file, this second boostrap file that you generate becomes "v2" (version 2).
you generate a subsequent bootstrap file to the E-SBC, that is the same as the previous bootstrap file,	the version number remains the same as the previous bootstrap file. For example, if you generate a version 1 bootstrap file, and then generate a second bootstrap file with no configuration changes, the bootstrap file that generates is "v1" (version 1).
you generate a first bootstrap file, then generate a second bootstrap file, and then generate the same bootstrap file as the first one,	the version number increments. For example, if you generate bootstrap A (version 1), then make changes to the E-SBC and generate bootstrap B (version 2), then set the configuration back to the same values that were in bootstrap A and generate bootstrap C, bootstrap C has a version number of "v3" (version 3).

13. Click "**Open with**" and select the application for which to open the resulting compressed file for editing.
    or
    Click "**Save File**" to save the compressed file to your PC.

    Note: If you created an "installation setup" file, the bootstrap file AND installation setup files are zipped into a single "*tar.gz*" file. For more information about installation setup files, see Installation Setup (39).

14. Click <**OK**>. The bootstrap file is saved to the NNC-SIPTX database.
15. Download the Customer bootstrap file from the NNC-SIPTX database to your PC, and FTP (or SFTP) the file to the E-SBC using the procedure, Downloading the E-SBC Bootstrap File (31).
16. Apply the Customer bootstrap file to the E-SBC using the procedure, Applying the Customer (E-SBC) Bootstrap (using the ACLI) (33).

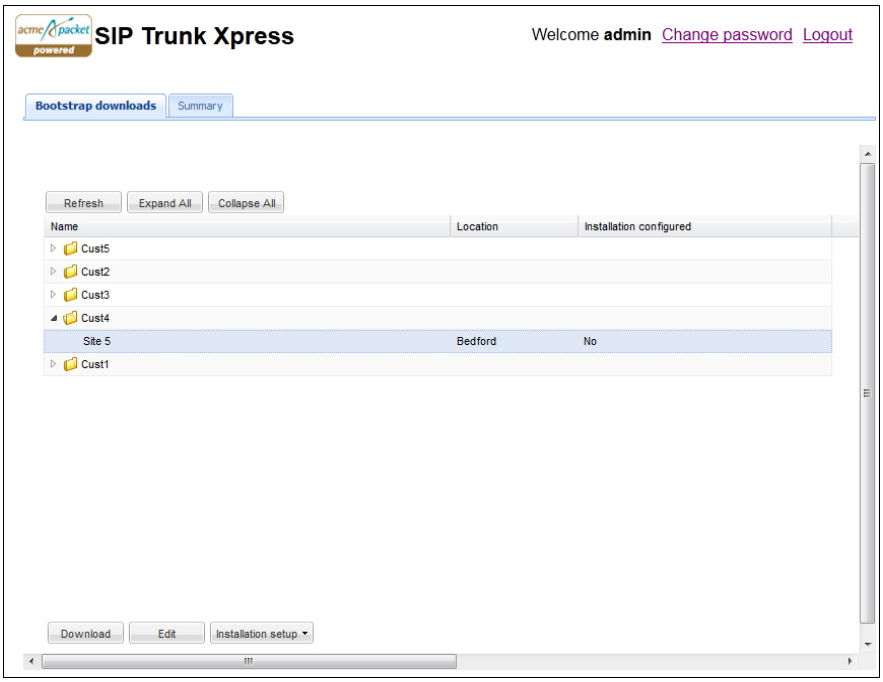
Editing the E-SBC Core Configuration

After adding the E-SBC core configuration, you can edit this configuration if required.

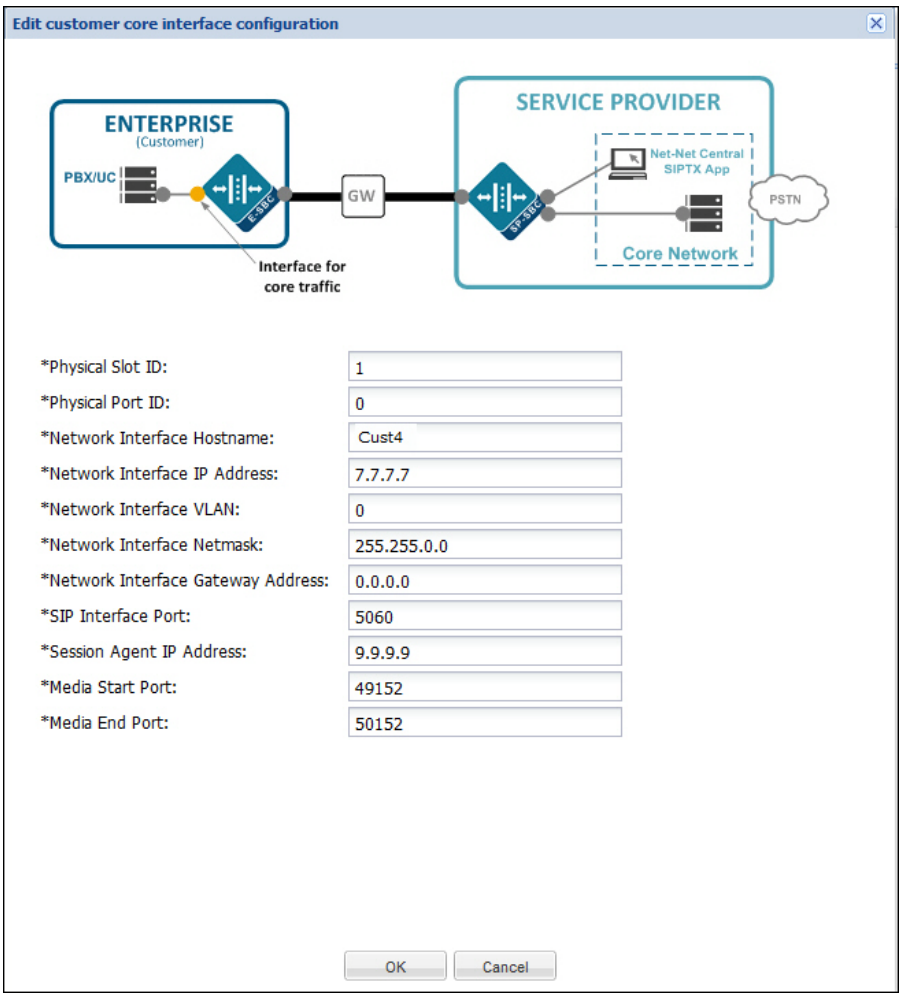
Warning: If you edit your E-SBC core configuration, you must repeat the download of the bootstrap file to your PC and load the new bootstrap file to the E-SBC.

To edit the E-SBC core configuration:

1. From the SIP Trunk Xpress page, double-click your Customer name in the "**Name**" column to open the folder



2. Click on your site (E-SBC) and then click <**Edit**>. The "*Edit customer core interface configuration*" dialog box displays.



Editing the E-SBC Core Configuration Parameters

Use the following procedure to edit the E-SBC core configuration parameteres.

1. In the "**Physical Slot ID**" field, edit the customer's core slot ID on the E-SBC. Valid values are **0 - 999999999**. Default is **1**.
2. In the "**Physical Port ID**" field, edit the customer's core port ID on the E-SBC. Valid values are **0 - 999999999**. Default is **0**.
3. In the "**Network Interface Hostname**" field, edit the name of the host E-SBC at the Customer site. Valid values are alpha-numeric characters. Default is blank.
4. In the "**Network Interface IP Address**" field, edit the E-SBC's core IP address at the Customer site. IP Address must be entered in dotted decimal format (0.0.0.0). Default is blank. For example, 192.168.34.228.
5. In the "**Network Interface VLAN**" field, edit the customer's core network interface virtual Local Area Network (VLAN) ID. Valid values are **0** to **4095**. Default is **0**.

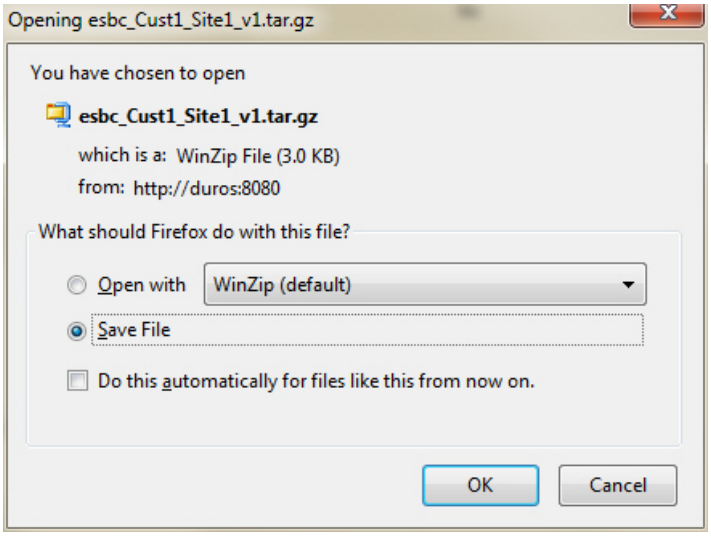
6. In the "**Network Interface Netmask**" field, edit E-SBC's core netmask address at the Customer site. IP Address must be entered in dotted decimal format (0.0.0.0). Default is **255.255.0.0**.
7. In the "**Network Interface Gateway Address**" field, edit the E-SBC's core gateway address at the Customer site. IP Address must be entered in dotted decimal format (0.0.0.0). Default is blank. For example, 192.168.34.197.
8. In the "**SIP Interface Port**" field, edit the E-SBC's core SIP interface port. Valid values are **5060** to **65535**. Default is **5060** for TCP.
9. In the "**Session Agent IP Address**" field, edit the destination IP address of the Session Agent (SA) in the Customer network. IP Address must be entered in dotted decimal format (0.0.0.0). Default is blank. For example, 192.168.34.197.
10. In the "**Media Start Port**" field, edit the port number on the core destination side of your E-SBC that is dedicated to sending media traffic from your E-SBC to external destinations. Valid values are **0 - 65535**. Default is **49152**.

    The "Media Start Port" and "Media End Port" fields are used in the port forwarding process in your network. Port forwarding is the process of dedicating ports on your E-SBC to be used for sending/receiving specific traffic (media) for faster throughput. Port forwarding translates the address and/or port number of a packet to a destination, accepts packet(s) in a packet filter (firewall), AND forwards the packet according to the routing table.
11. In the "**Media End Port**" field, edit the port number on the core destination side of your E-SBC that is dedicated to receiving media traffic from external sources to your E-SBC. Valid values are **0 - 65535**. Default is **50152**.
12. Click <**OK**>.

    You must now download the configuration bootstrap file to your PC and then load and apply the bootstrap file to your E-SBC.

13. Click on the site (E-SBC) you just edited, and then click <**Download**>. A download dialog box displays.

    This example shows a Customer bootstrap compressed file (*esbc_Cust1_Site1_v1.tar.gz*) ready to download to your PC.



NNC-SIPTX assigns the file name for the compressed file. Customer bootstrap file names are in the format:

"esbc_<Company name>_<Site name>_<File version #>.tar.gz".

The following table describes the version numbering scheme upon subsequent downloads of the E-SBC bootstrap file.

IF	THEN
you generate the initial bootstrap file to the E-SBC,	the version number in the file name is "v1" (version 1).
you generate a subsequent bootstrap file to the E-SBC that is different then the previous bootstrap file,	the version number increments. For example, if you make changes to the E-SBC configuration and create a new boostrap file, this second boostrap file that you generate becomes "v2" (version 2).
you generate a subsequent bootstrap file to the E-SBC, that is the same as the previous bootstrap file,	the version number remains the same as the previous bootstrap file. For example, if you generate a version 1 bootstrap file, and then generate a second bootstrap file with no configuration changes, the bootstrap file that generates is "v1" (version 1).
you generate a first bootstrap file, then generate a second bootstrap file, and then generate the same bootstrap file as the first one,	the version number increments. For example, if you generate bootstrap A (version 1), then make changes to the E-SBC and generate bootstrap B (version 2), then set the configuration back to the same values that were in bootstrap A and generate bootstrap C, bootstrap C has a version number of "v3" (version 3).

14. Click "**Open with**" and select the application for which to open the resulting compressed file for editing.
    or
    Click "**Save File**" to save the compressed file to your PC.

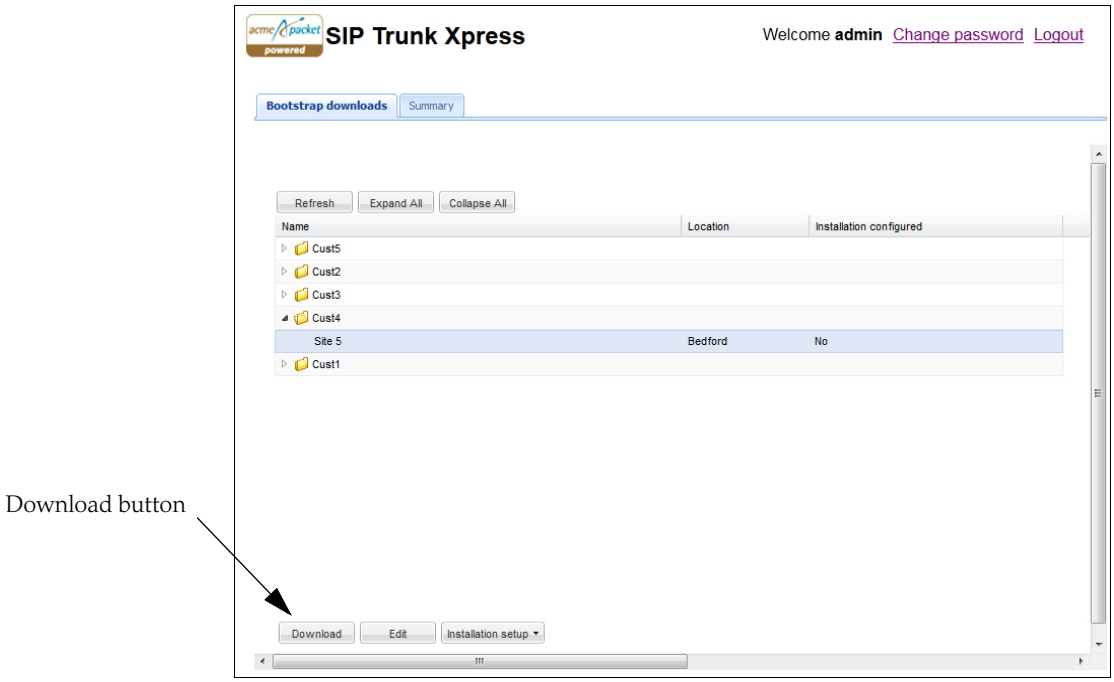
    Note: If you created an "installation setup" file, the bootstrap file AND installation setup files are zipped into a single "*tar.gz*" file. For more information about installation setup files, see Installation Setup (39).

15. Click <**OK**>. The bootstrap file is saved to the NNC-SIPTX database.
16. Download the Customer bootstrap file from the NNC-SIPTX database to your PC, and FTP (or SFTP) the file to the E-SBC using the procedure, Downloading the E-SBC Bootstrap File (31).
17. Apply the Customer bootstrap file to the E-SBC using the procedure, Applying the Customer (E-SBC) Bootstrap (using the ACLI) (33).

Downloading the E-SBC Bootstrap File

After creating an E-SBC bootstrap file, you must download the file from the NNC-STPTX database to your PC, and then use File Transfer Protocol (FTP) or Secure File Transfer Protocol (SFTP) to transfer the file to the E-SBC.

You can download the E-SBC bootstrap file from the NNC-SIPTX database to your PC using the <**Download**> button on the SIPTX page.



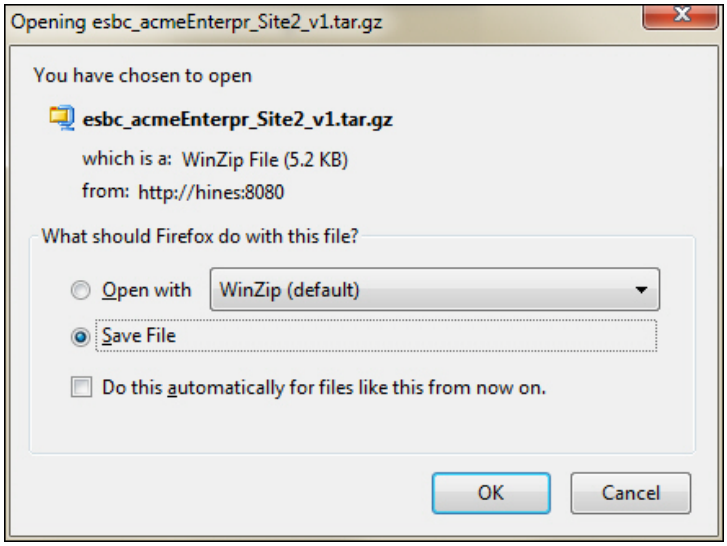
Downloading to your PC

Use this procedure to download the E-SBC bootstrap file from the NNC-SIPTX database to your PC.

To download the E-SBC bootstrap file to your PC:

1. Select a Site (E-SBC) that has a bootstrap file created. This can be a Site that the Service Provider configured for you, or a Site that you configured.
2. Click <**Download**>. The following dialog box displays.

   This dialog box shows a Customer bootstrap compressed file (*esbc_acmeEnterpr_Site2_v1.tar.gz*) ready to download to your PC.



NNC-SIPTX assigns the file name for the compressed file. Customer bootstrap file names are in the format:

"esbc_<Company name>_<Site name>_<File version #>.tar.gz".

The following table describes the version numbering scheme upon subsequent downloads of the E-SBC bootstrap file.

IF	THEN
you generate the initial bootstrap file to the E-SBC,	the version number in the file name is "v1" (version 1).
you generate a subsequent bootstrap file to the E-SBC that is different then the previous bootstrap file,	the version number increments. For example, if you make changes to the E-SBC configuration and create a new boostrap file, this second boostrap file that you generate becomes "v2" (version 2).
you generate a subsequent bootstrap file to the E-SBC, that is the same as the previous bootstrap file,	the version number remains the same as the previous bootstrap file. For example, if you generate a version 1 bootstrap file, and then generate a second bootstrap file with no configuration changes, the bootstrap file that generates is "v1" (version 1).
you generate a first bootstrap file, then generate a second bootstrap file, and then generate the same bootstrap file as the first one,	the version number increments. For example, if you generate bootstrap A (version 1), then make changes to the E-SBC and generate bootstrap B (version 2), then set the configuration back to the same values that were in bootstrap A and generate bootstrap C, bootstrap C has a version number of "v3" (version 3).

3. Click "**Save File**" to save the compressed file to your PC.
4. Click <**OK**>. The bootstrap file downloads to the folder on your PC where your Browser sends all downloads (typically your "Download" folder).

Loading to the E-SBC

To load the bootstrap file to your E-SBC:

1. Use an FTP (or SFTP) application to manually apply the E-SBC bootstrap file to the E-SBC in the */code/gzConfig* directory.
2. Apply the Customer bootstrap file to the E-SBC using the procedure in Applying the Customer (E-SBC) Bootstrap (using the ACLI) (33).

Applying the Customer (E-SBC) Bootstrap (using the ACLI)

After loading a bootstrap file from your PC to the E-SBC, you must apply the bootstrap file to the device. This changes the status of the device from "*Pending bootstrap*" to "*Boostrapped*."

About the ACLI

You can use the Acme Command Line Interface (ACLI) to apply the bootstrap file to the applicable device. The ACLI is a user interface tool for configuring, monitoring, and troubleshooting the Net-Net SBC. You can access the ACLI locally, via a serial console connection or remotely via a TELNET or SSH connection through the management interface, **wancom0**, on the rear of the system.

There are two password protected modes of operation when logging into the ACLI:

- **User -** User mode consists of a restricted set of basic monitoring commands and is identified by the greater-than sign (**>**) in the system prompt after the target name (example shows "AcmePacket as the target name). For example:

  ```
  ACMEPACKET>
  ```

- **Superuser** - Superuser mode allows for access to all system commands for operation, maintenance, and administration. This mode is identified by the pound sign (**#**) in the prompt after the target name. For example:

  ```
  ACMEPACKET#
  ```

  To configure the elements of the Net-Net SBC, you must enter Configuration mode. For example:

  ```
  ACMEPACKET# configure terminal
  ACMEPACKET(configure)#
  ```

When you establish a connection to the Net-Net SBC, the prompt for User mode password displays (default password is "acme"). You must enable Superuser mode by entering "enable" and then entering the applicable password (default is "packet"). For example:

```
Password: acme
ACMEPACKET> enable
Password: packet
ACMEPACKET#
```

Note: The default passwords may have changed on your system. Contact your Network administrator if you need the new password(s).

Applying the Bootstrap File using the ACLI

After loading the bootstrap file from your PC to the E-SBC, the bootstrap file resides in the */code/gzConfig* directory on the E-SBC. Use the procedures in this section to apply the bootstrap file to your E-SBC.

Caution: If you initiate the **backup-config** command to save the current configuration on the E-SBC, it also saves any previous bootstrap and subscription-based configuration applied prior to the issuance of the backup-config command. If you initiate the **restore-backup-config** command to restore a backed up configuration, it can cause newer bootstrap and subscription configuration to be overwritten by that associated with the restored configuration.

To apply the bootstrap file to the E-SBC, you use the ACLI "**load-bootstrap**" command.

Using the "load-bootstrap" Command (from local location)

Use the procedure below to apply the bootstrap file to the E-SBC from a local location. Before you begin, make sure the applicable bootstrap file resides in the */code/gzConfig* directory on the E-SBC.

To apply the bootstrap file from a local location:

1. In the ACLI Superuser mode, enter **load-bootstrap** at the prompt and press <Enter>.

   ```
   SBC1# load-bootstrap
   ```

   The load-bootstrap utility allows you to select whether or not you want to continue loading the bootstrap file. The following displays:

   ```
   Enter Exit/exit to discontinue loading bootstrap file.
   Bootstrap File Location [local/remote. Default:local]:
   ```

   If you want to stop loading the bootstrap file, enter "**exit**" at the prompt. For example:

   ```
   Bootstrap File Location [local/remote]: exit
   ```

   You can enter **exit** at any prompt in the load-bootstrap procedure to exit the utility and cancel loading the bootstrap file.

2. To continue loading the bootstrap file, press <Enter> to accept the **Local** option, or enter **local**.

   ```
   Bootstrap File Location [local/remote]: <Press Enter>
   or
   Bootstrap File Location [local/remote]: local
   ```

If only one bootstrap file exists in the */code/gzConfig* directory on the E-SBC, the following message and prompt display:

```
Only one valid Bootstrap file: <bootstrap file name.tar.gz> exists
"Update Autoconfig settings with new bootstrap file [y/n]?"
```

3. Enter "**y**" and press <Enter>.

```
Update Autoconfig settings with new bootstrap file [y/n]?: y
```

Continue to Step 4.

If more than one bootstrap file exists in the */code/gzConfig* directory on the E-SBC, the following displays:

```
Please select from the following options:
1. <bootstrap filename>
2. <bootstrap filename>
Enter your option:
```

3a. Select the item number associated with the bootstrap file you want to load.

```
Please select from the following options:
(1)spsbc_1.1.1.1_v1.tar.gz
(2)spsbc_2.2.2.2_v1.tar.gz
(3)spsbc_3.3.3.3_v1.tar.gz
Enter your option: 1
```

4. The load-bootstrap process proceeds to apply the bootstrap to the E-SBC, automatically initiating the **Save-Config** and **Activate-Config** commands. The following are messages that display.

```
checking configuration
Save-Config received, processing.
(0)waiting for request to finish
Request to 'SAVE-CONFIG' has Finished,
Save complete

Currently active and saved configurations do not match!
To sync & activate, run 'activate-config' or 'reboot activate'.
Activate-Config received, processing.
waiting for request to finish
Request to 'ACTIVATE-CONFIG' has Finished,
Activate Complete
```

The bootstrap process verifies the configuration during activation. If any configuration errors exist, the errors display in a list for you to view.

Activating the SBC causes the device to send a SIP SUBSCRIBE message to NNC-SIPTX using the information provided in the bootstrap file.

The following message displays indicating the E-SBC physical interface associated with a slot and port have been provisioned:

```
SBC1# Setting phy1 on Slot=1, Port=0, MAC=00:08:25:A2:08:25,
VMAC=00:08:25:A2:08:25
```

The E-SBC is now bootstrapped. The Summary page indicates whether or not the E-SBC bootstrapped successfully.

Using the "load-bootstrap" Command (from remote location)

Use the procedure in this section to apply the bootstrap file to the E-SBC from a remote location. Before you begin, make sure the applicable bootstrap file resides in the */code/gzConfig* directory on the E-SBC.

> **Note:** Security policies of remote hosts may prohibit inbound FTP connections. You should contact your system administrator for more information about which file transfer application should be used. If you do not have access to an inbound FTP connection, you can manually FTP the bootstrap to the E-SBC and use the procedures in Using the "load-bootstrap" Command (from local location) (34) to apply the bootstrap to the E-SBC.

To apply the bootstrap file from a remote location:

5. In the ACLI Superuser mode, enter **load-bootstrap** at the prompt and press <Enter>.

   ```
   SBC1# load-bootstrap
   ```

   The load-bootstrap utility allows you to select whether or not you want to continue loading the bootstrap file. The following displays:

   ```
   Enter Exit/exit to discontinue loading bootstrap file.
   Bootstrap File Location [local/remote. Default:local]:
   ```

   If you want to stop loading the bootstrap file, enter **exit** at the prompt.

   ```
   Bootstrap File Location [local/remote]: exit
   ```

   You can enter **exit** at any prompt in the load-bootstrap procedure to exit the utility and cancel loading the bootstrap file.

6. To continue loading the bootstrap file, enter **remote**.

   ```
   Bootstrap File Location [local/remote]: remote
   ```

7. Enter the remote host address at the prompt and press <Enter>. This is the IP address of your FTP server where the bootstrap file currently resides.

   ```
   Enter remote host address: 1.1.1.1
   ```

8. Enter the path on your FTP server where the bootstrap file currently resides, and press <Enter>. The default directory is **$HOME**.

   ```
   Enter bootstrap file Directory on Remote Host: /home/ftpboot/
   remotefile/
   ```

9. Enter the username you use to log onto your PC and press <Enter>. For example:

   ```
   User name: JohnSmith
   ```

10. Enter the password you use to log onto your PC and press <Enter>. For example:

    ```
    Password: JS12345
    ```

    If only one bootstrap file exists in the */code/gzConfig* directory on the E-SBC, the following message and prompt display:

    ```
    Only one valid Bootstrap file: <bootstrap file name.tar.gz> exists
    Update Autoconfig settings with new bootstrap file [y/n]?
    ```

11. Enter "**y**" and press <Enter>.

    ```
    Update Autoconfig settings with new bootstrap file [y/n]?: y
    ```

If more than one bootstrap file exists in the */code/gzConfig* directory on the E-SBC, the following displays:

```
Please select from the following options:
1. <bootstrap filename>
2. <bootstrap filename>
Enter your option:
```

11a. Select the item number associated with the bootstrap file you want to load. For example:

```
Please select from the following options:
(1)spsbc_1.1.1.1_v1.tar.gz
(2)spsbc_2.2.2.2_v1.tar.gz
(3)spsbc_3.3.3.3_v1.tar.gz
Enter your option: 1
```

The following displays:

```
File name selected by User is: <bootstrap filename.tar.gz>
Overwrite '/code/gzConfig/<bootstrap filename.tar.gz> [y/n]'?
```

11b. To overwrite the existing bootstrap file with this new bootstrap file, enter "**y**" and press <Enter>. If you do not want to overwrite your existing bootstrap file, enter "**n**" and perform a backup of your configuration and bootstrap file before proceeding.

```
Overwrite '/code/gzConfig/<bootstrap filename.tar.gz'> [y/n]?: y
```

The following is an example of the messages that display:

```
**************************************************************
Logged in to host 1.1.1.1 user johnsmith pCtrlSock 294 pDataSock 314
Receiving data


Successfully transferred image /code/gzConfig/<bootstrap
filename>.tar.gz
**************************************************************
```

The following displays:

```
Update AutoConfig settings with new bootstrap file  [y/n]?:
```

12. Enter "**y**" and press <Enter>.

```
Update AutoConfig settings with new bootstrap file  [y/n]?: y
```

13. The "load bootstrap" process proceeds to apply the bootstrap to the E-SBC, automatically initiating the **Save-Config** and **Activate-Config** commands. The following are messages that display:

```
checking configuration
Save-Config received, processing.
waiting for request to finish
Request to 'SAVE-CONFIG' has Finished,
Save complete
Currently active and saved configurations do not match!
To sync & activate, run 'activate-config' or 'reboot activate'.

Activate-Config received, processing.
waiting for request to finish
Request to 'ACTIVATE-CONFIG' has Finished,
Activate Complete
```

The bootstrap process verifies the configuration during activation. If any configuration errors exist, the errors display in a list for you to view.

Activating the SBC causes the device to send a SIP SUBSCRIBE message to NNC-SIPTX using the information provided in the bootstrap file.

The following message displays indicating the E-SBC physical interface associated with a slot and port have been provisioned:

```
SBC1# Setting phy1 on Slot=1, Port=0, MAC=00:08:25:A2:08:25,
VMAC=00:08:25:A2:08:25
```

The E-SBC is now bootstrapped. The Summary page indicates whether or not the E-SBC bootstrapped successfully.

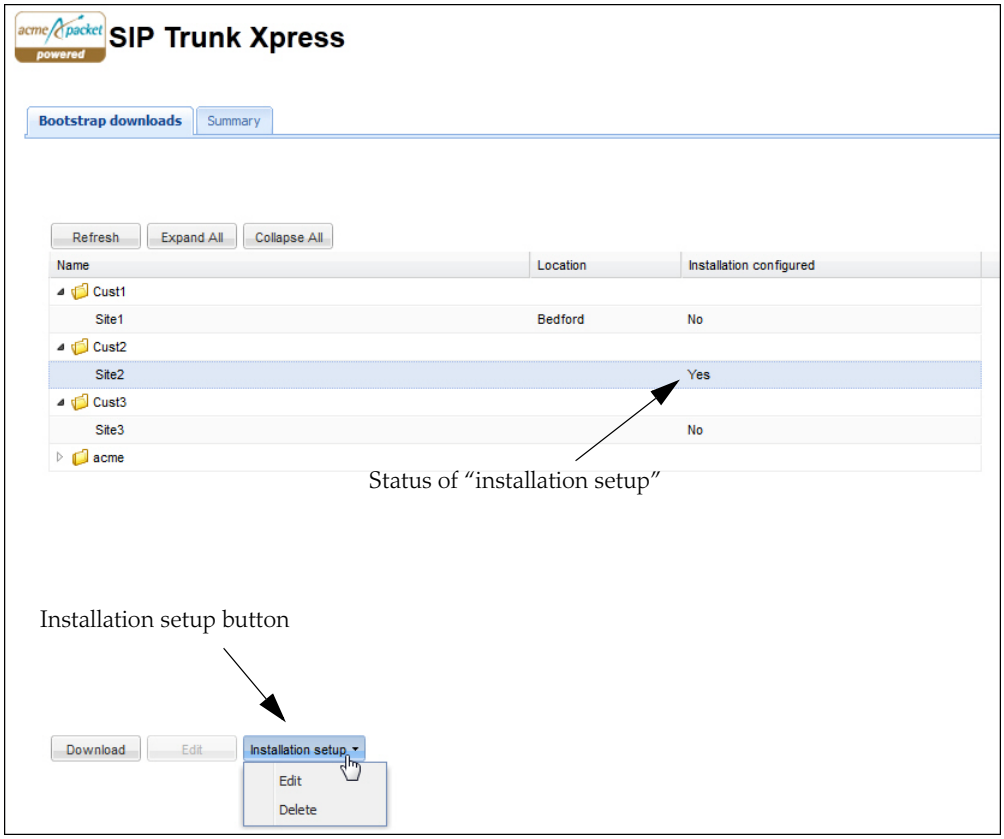
Installation Setup

The "Installation Setup" feature is a quick and easy way to initially configure a new E-SBC in your network with a working configuration and the SIP Trunk Xpress information (E-SBC bootstrap).

After adding an E-SBC to your network (and creating the bootstrap file), the <**Installation setup**> button in the "Customers" window allows you to specify configuration parameters for an E-SBC. This feature creates an installation file ("*tar.gz*" file) that contains the basic configuration required for the E-SBC, such as . Simple Network Management Protocol (SNMP) parameters, boot parameters, and/or high availability (HA) (redundant device) parameters.

> **Note:** If you or your Service Provider created an E-SBC bootstrap file, the bootstrap file AND installation setup files are zipped into a single "*tar.gz*" file.

The "**Installation configured**" column in the "Customers" window displays whether or not an "installation setup" file (with the bootstrap file) was applied to the E-SBC.



NNC-SIPTX stores the installation setup file in the NNC-SIPTX database until you download and apply the file to the E-SBC. After specifying the installation setup parameters, you can click the <**Download**> button to load the "*tar.gz*" file (which also contains the E-SBC bootstrap file) to the E-SBC.

After NNC-SIPTX generates the "*tar.gz*" file for an E-SBC, you can also edit or delete the file as required.

> **Note:** When you create an "installation setup" file and then download and apply the zipped file ("*tar.gz*")to the E-SBC, the zipped file also contains the E-SBC bootstrap file, and overwrites any existing "installation setup" and "bootstrap" file previously resident on the device.

The following table describes the status of the "installation setup" file (*tar.gz*) during the process of editing and deleting.

IF	THEN
you create an"installation setup" file and do not download or apply it to the E-SBC,	the changes are stored in the NNC-SIPTX database. The file and bootstrap do not apply to the E-SBC until you download and apply the file. The status in the "**Installation configured**" column indicates "**Yes**". The <Installation setup> button allows you to edit/delete the file.
you create, download, and apply an "installation setup" file to an E-SBC, and then edit the file again in Trunk Manager,	the changes are stored in the NNC-SIPTX database only. You must download and apply the information to the E-SBC for the changes to take affect. The edited file overwrites the original file on the E-SBC. The status in the "**Installation configured**" column indicates "**Yes**". The <Installation setup> button allows you to edit/delete the file stored in the NNC-SIPTX database.
you delete an "installation setup" file before downloading and applying the file to the E-SBC,	the file deletes from the NNC-SIPTX database only, but the E-SBC bootstrap file does not delete from the database. The status in the "**Installation configured**" column indicates "**No**". The <Installation setup> button allows you to add a new file.
you delete an "installation setup" file after downloading and applying a file to the E-SBC,	the file deletes from the NNC-SIPTX database, but the E-SBC bootstrap does not delete from the database. The previous file and bootstrap that you downloaded and applied is still resident on the E-SBC. The status in the "**Installation configured**" column indicates "**No**" even if a previous file exists on the E-SBC. The <Installation setup> button allows you to add a new file. If you add and apply a new file, it overwrites the file and bootstrap currently resident on the E-SBC.

For information about editing and deleting the "installation setup" file (*tar.gz*), see Editing the "Installation Setup" File (46) and Deleting the "Installation Setup" File (48).

A Service Provider can also email the "*tar.gz*" file to you, and the you can place the file on a USB device and plug the device into the USB port on the E-SBC (applicable to *Net-Net Session Director Server Edition* only). You can then run the "**load-bootstrap**" command to expand the "*tar.gz*" file, which automatically configures the new E-SBC and loads the bootstrap.

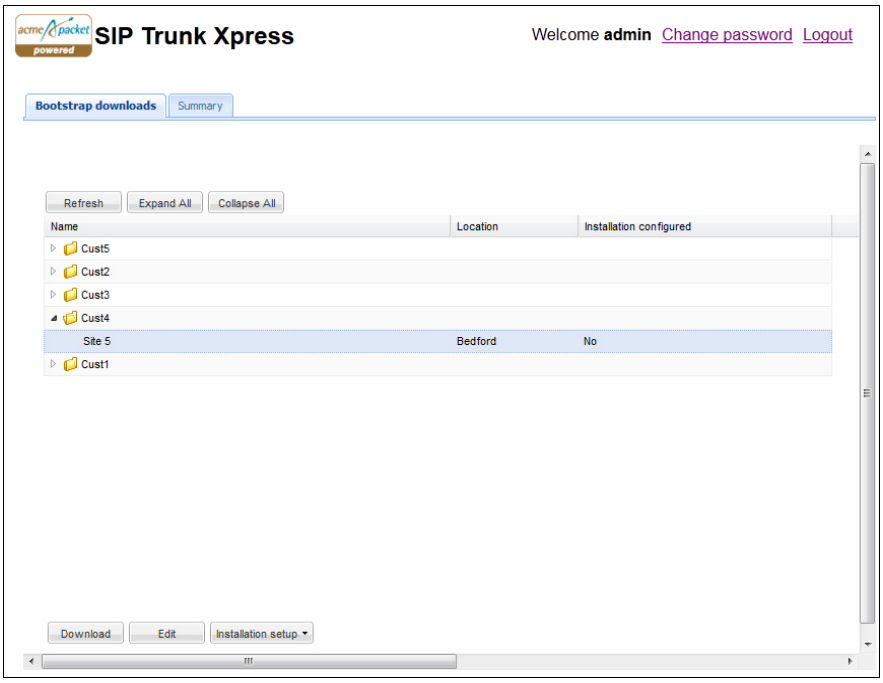
Adding an "Installation Setup" File

You can add an "installation setup" file to your E-SBC which contains SNMP parameters, boot parameters, and HA parameters for configuring the E-SBC.

Note: When you create an "installation setup" file and then download and apply the zipped file ("*tar.gz*")to the E-SBC, the zipped file also contains the E-SBC bootstrap file, and overwrites any existing "installation setup" and "bootstrap" file previously resident on the device.

To create an "installation setup" file:

1. From the SIP Trunk Xpress page, select a Site (E-SBC) in the "**Name**" column to open the folder



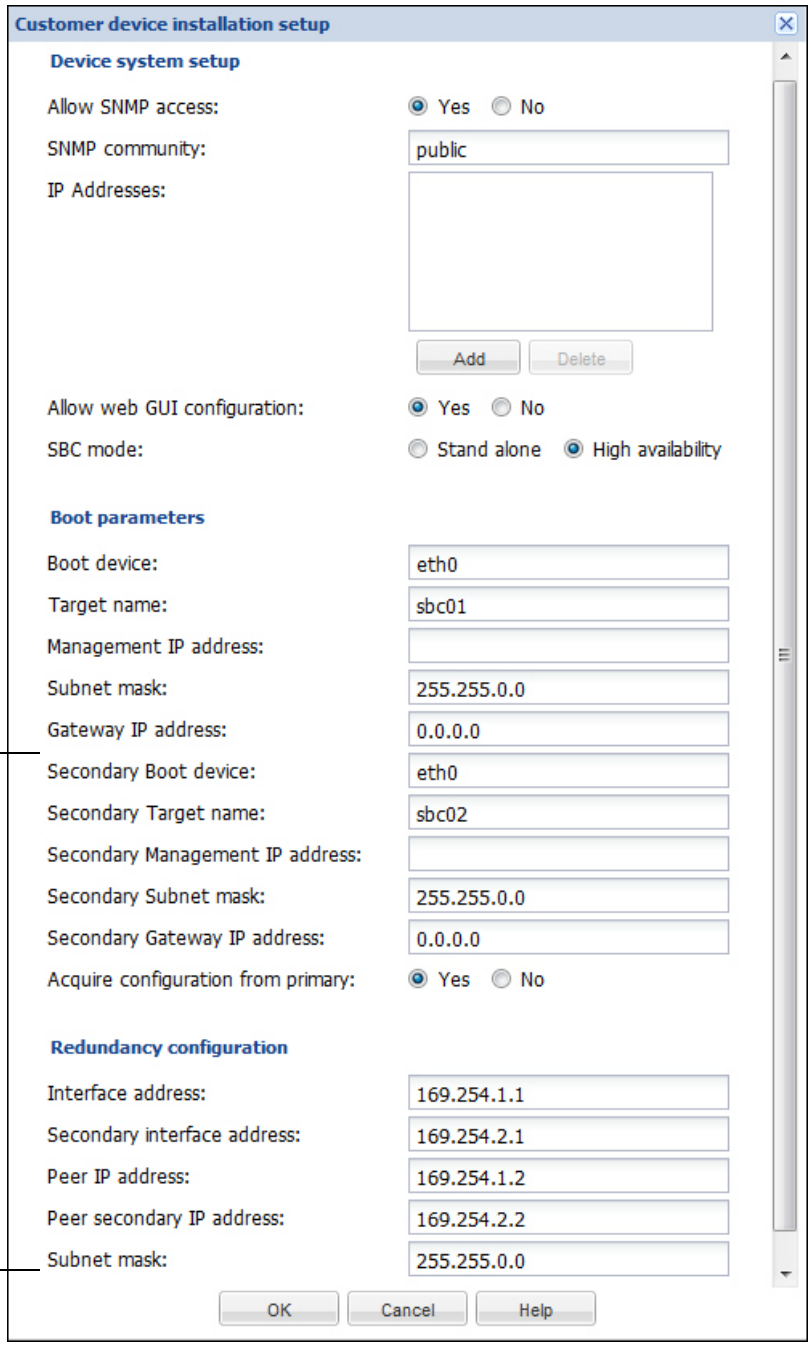
This window shows an "**Installation configured**" column that indicates whether or not the Site (E-SBC) has an "installation setup" file currently applied. Valid values are:

- **No** - E-SBC does not have an installation setup file applied.
- **Yes** - E-SBC has an installation setup file applied.

2. Click on a Customer (E-SBC) that does not currently have an installation setup configured (displays a status of "No" in the "Installation configured" column).

   Note: The <Installation setup> button enables when you select a Site (E-SBC).

3. Click on <**Installation setup**>, and then select **Add**.. If you configure all parameters for the "installation setup", the following dialog box displays.



High Availability (HA) envrionments only

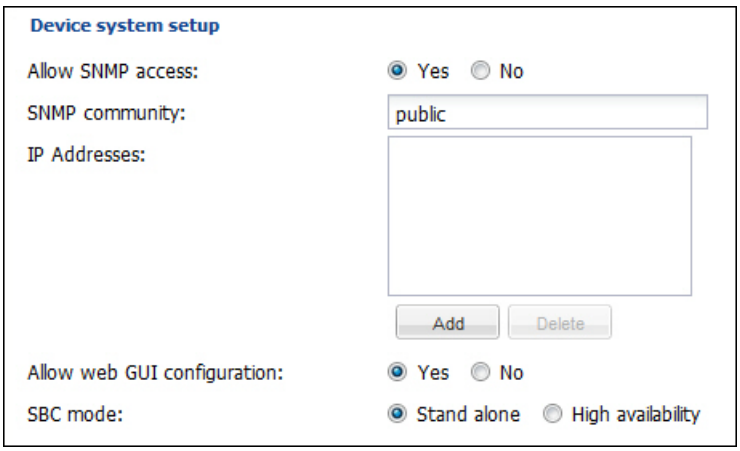
Device system setup

Use this procedure to setup your E-SBC SNMP community, allow Web GUI configuration, and enable High Availability if required.

1. In the "**Allow SNMP access**" field, select whether or not you want to allow SNMP access on the E-SBC. The default is No. Valid values are:
   - **Yes** - Allow SNMP access on this device.
   - **No** - (default) Do not allow SNMP access on this device.

   If you select "Yes" continue to Step 2.

   If you select "No" go to Step 4.



2. In the "**SNMP community**" field, enter the SNMP community name for this E-SBC. The default is "**public**". Valid values are alpha-numeric characters.

   SNMP is used to monitor the state of a network. Devices on the network are polled by management stations and send alerts to those management stations. The "public" community indicates that all management stations receive the alerts.

3. In the "**IP Addresses**" field, enter the management station IP address(s) that receives SNMP alerts, and click <**Add**>. These IP addresses must be entered in dotted decimal format (0.0.0.0).

   To remove any IP address from the list box, click on the IP address and then click <**Delete**>.

4. In the "**Allow web GUI configuration**" field, select whether or no you want to allow users to configure this E-SBC using the NNC-SIPTX. The default is **Yes**. Valid values are:
   - **Yes** - (default) Allow web GUI configuration for this device.
   - **No** - Do not allow web GUI configuration for this device.

5. In the "**SBC mode**" field, select the mode of operation for this E-SBC. The default is "**Stand alone**". Valid values are:
   - **Stand alone**- (default) E-SBC is a standalone (primary) device with no redundant systems.
   - **High availability** - E-SBC is a high availability (HA) device and is being used as a secondary failover device if the primary device fails.

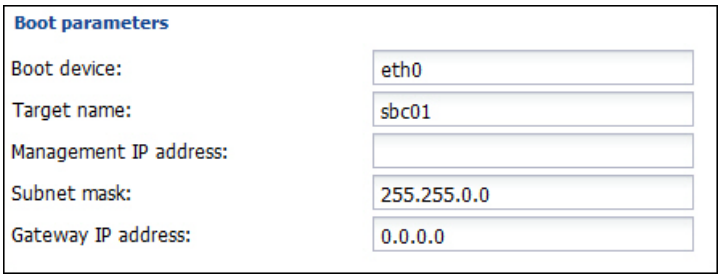
Note: The "High Availability" value in the "SBC mode" field is reserved for High Availability (HA) configuration. To configure HA, see Configuring HA on an E-SBC (49).

6. Proceed to Boot Parameters (44) to configure the E-SBC boot parameters.

Boot Parameters

The boot parameters provide the configuration information required to boot the E-SBC in the Customer network. Use the following procedure to configure the E-SBC boot parameters.

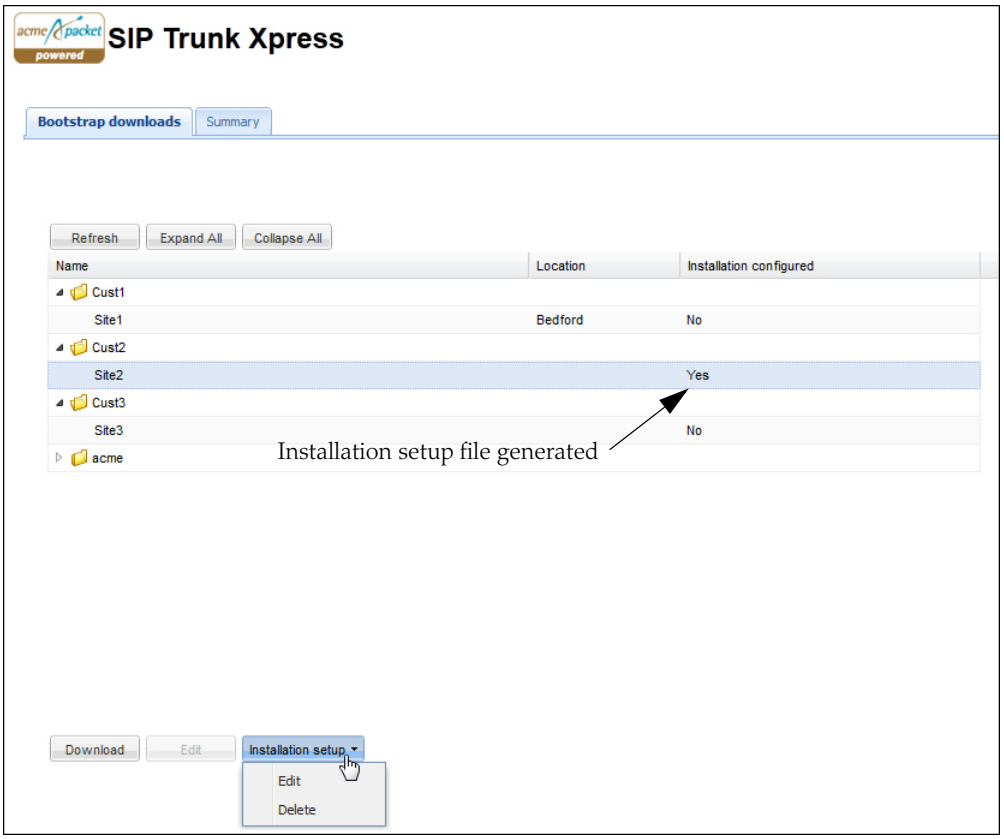
1. In the "**Boot device**" field, enter the port on the E-SBC that accepts IP traffic. The default is "**eth0**" which is the management port.



2. In the "**Target name**" field, enter the name of the E-SBC. The default is "**sbc01**". Valid values are alpha-numeric characters.
3. In the "**Management IP address**" field, enter the IP address on the E-SBC that accepts management IP traffic. This IP address must be entered in dotted decimal format (0.0.0.0). The default is blank. For example, 172.45.6.7.
4. In the "**Subnet mask**" field, enter the subnet mask P address on the E-SBC. This IP address must be entered in dotted decimal format (0.0.0.0). The default is **255.255.0.0**.
5. In the "**Gateway IP address**" field, enter the gateway IP address that the E-SBC uses to connect to the outside network. This IP address must be entered in dotted decimal format (0.0.0.0). The default is 0.0.0.0. For example, 192.45.6.7.

   Note: If you enable HA, HA boot parameters and redundancy parameters display for you to configure. For more information about these HA parameters see Configuring HA on an E-SBC (49).

6. Click <**OK**> to save the changes. Trunk Manager generates a "*tar.gz*" file that contains this configuration information. The "Installation configured" column displays "Yes", indicating an installation file was generated.



Downloading and Applying the "Installation Setup" file

After you specify the installation setup file configuration parameters, you can download the file from the NNC-SIPTX database to your PC.

Note: When you create an "installation setup" file and then download and apply the zipped file ("*tar.gz*")to the E-SBC, the zipped file also contains the E-SBC bootstrap file, and overwrites any existing "installation setup" and "bootstrap" file previously resident on the device.

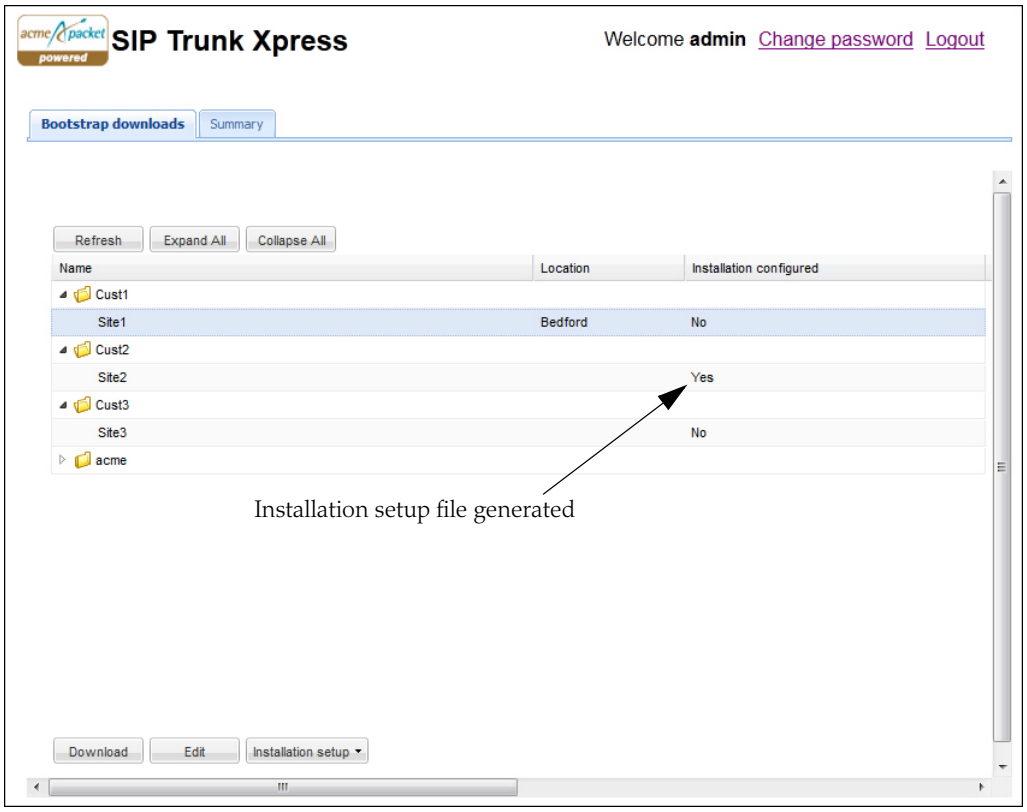
1. Download the "installation setup" file (*tar.gz* file) which includes the bootstrap file, to the E-SBC using the procedure, Downloading the E-SBC Bootstrap File (31).
2. Apply the "installation setup" file (*tar.gz*), which includes the bootstrap file, to the E-SBC using the procedure, Applying the Customer (E-SBC) Bootstrap (using the ACLI) (33).

Editing the "Installation Setup" File

You can edit the "installation setup" file as required, whether or not the file was applied to the E-SBC. When you edit the "installation setup" file, the changes get stored in the NNC-SIPTX database only. You must download and apply the information to the E-SBC for the changes to take affect. The edited file overwrites the original file on the E-SBC.

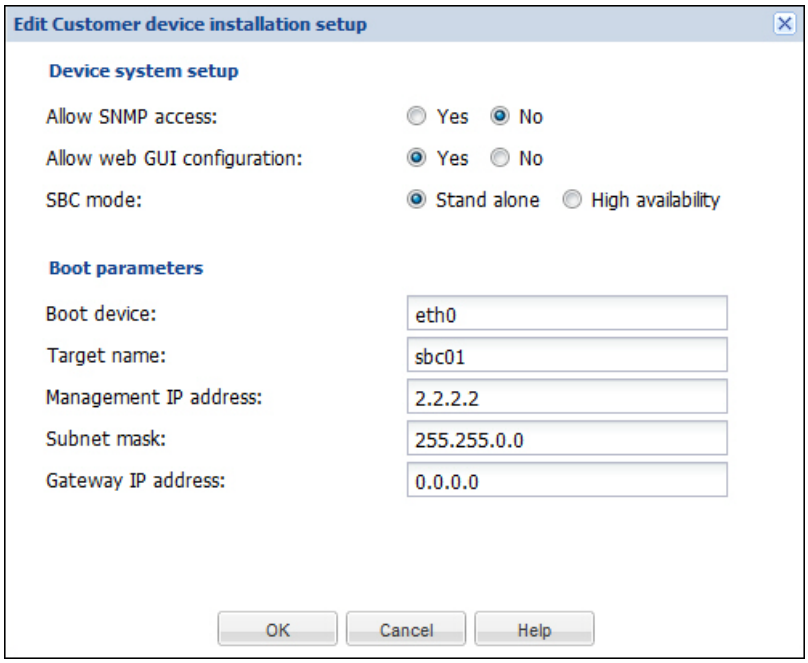
To edit the "installation setup" file:

1. From the SIP Trunk Xpress page, select the Site (E-SBC) for which the "Installation configured" column shows a value of "**Yes**".



Note: The <Installation setup> button enables when you select a Site (E-SBC).

2. Click on <**Installation setup**>, and then select **Edit**.. The "Customer device installation setup" dialog box displays with the current configuration.



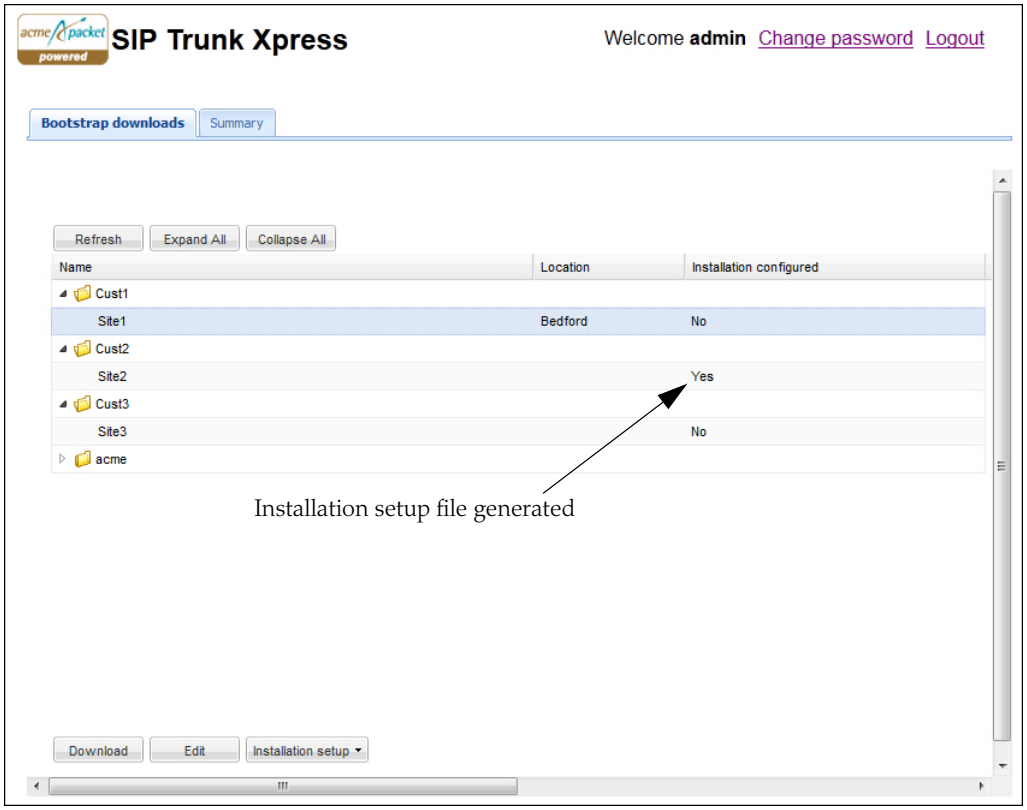
3. Edit the parameters in this dialog box as applicable and then click <**OK**>. Trunk Manager generates a new "*tar.gz*" file that contains this configuration information.
4. Download the "installation setup" file (*tar.gz* file) to the E-SBC using the procedure, Downloading a Customer Bootstrap File (100).
5. Apply the "installation setup" file (*tar.gz*), which includes the bootstrap file, to the E-SBC using the procedure, Applying the Customer Bootstrap to the E-SBC (103).

Deleting the "Installation Setup" File

You can delete an "installation setup" file as required. The file deletes from the NNC-SIPTX database, but the E-SBC bootstrap does not delete from the database. The previous file and bootstrap that you downloaded and applied is still resident on the E-SBC.

To delete the "installation setup" file:

1. From the SIP Trunk Xpress page, select the Site (E-SBC) for which the "Installation configured" column shows a value of "**Yes**".



Note: The <Installation setup> button enables when you select a Site (E-SBC).

2. Click on <**Installation setup**>, and then select **Delete**. The following message displays:

   "*Are you sure you want to delete the installation setup for the selected site <site name>?*"

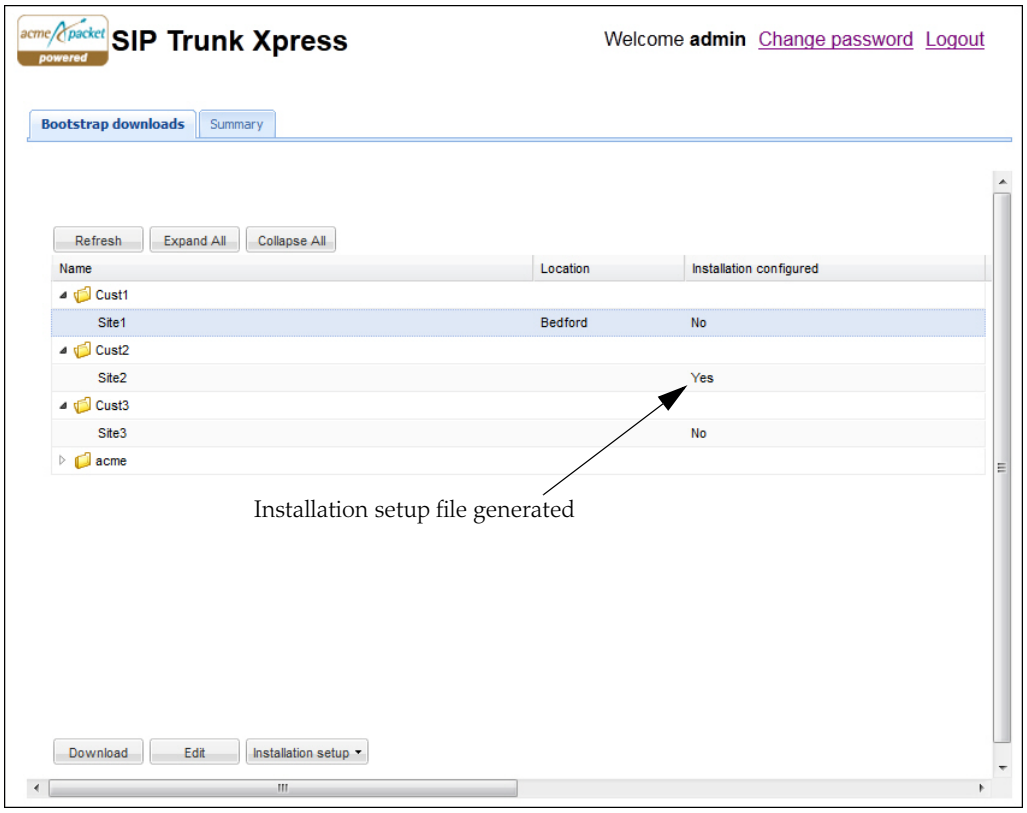
3. Click <**Yes**> to delete the "installation setup" file from the NNC-SIPTX database. A message "*Deleted successfully*" displays. The status of the E-SBC in the "Installation configured" column changes to "**No**".
   or
   Click <**No**> to cancel the delete function.

Configuring HA on an E-SBC

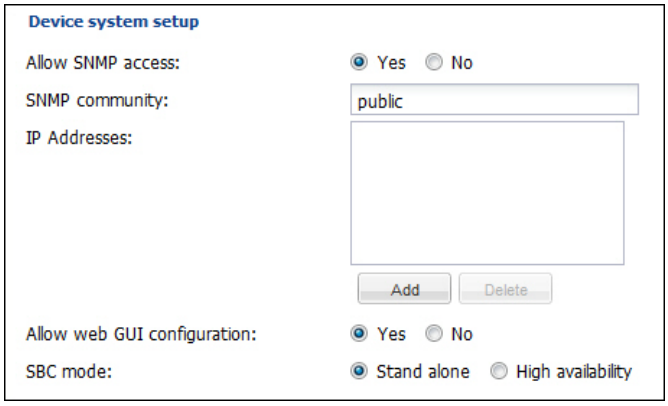
Use this procedure to configure HA on an E-SBC.

Note: You can assign HA to a new E-SBC or to an existing E-SBC. However, for an existing E-SBC, you can only assign HA if the device does not have an associated trunk. If the device has an "Installation setup" file configured, you must assign HA status by editing the "Installation setup" file. You cannot edit the HA status after the E-SBC has been bootstrapped.

1. From the SIP Trunk Xpress page, select a Site (E-SBC) and add an "installation setup" file using the procedure in Adding an "Installation Setup" File (41).
   or
   Edit the "installation setup" file by selecting a Customer with a file applied. Then click <**Installation setup**>, and select **Edit**.



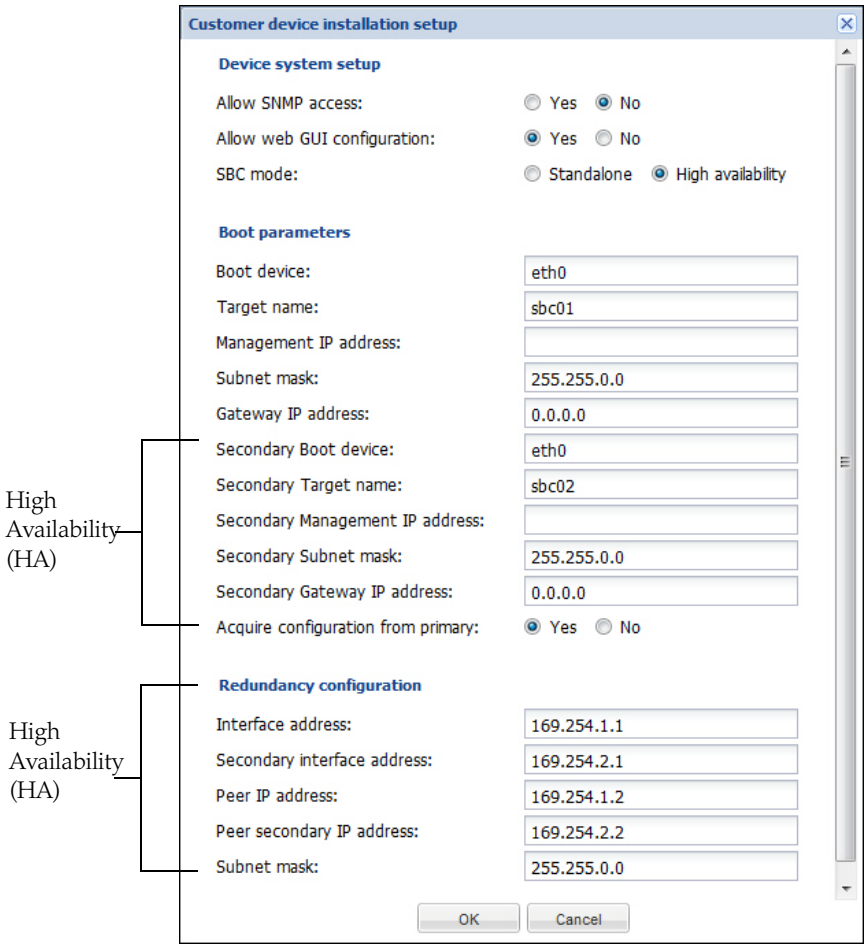
The following dialog box displays.



2. In the "**SBC mode**" field, select **High availability** as the mode of operation for this E-SBC. The default is "Standalone". Valid values are:

   - **Standalone** - (default) E-SBC is a standalone (primary) device with no redundant systems.
   - **High availability** - E-SBC is a high availability (HA) device and is being used as a secondary failover device if the primary device fails.

   The following HA parameters display.



Boot Parameters for HA

Configure the following boot parameters for HA.

1. In the "**Secondary boot device**" field, enter the port on the secondary (backup) E-SBC that accepts IP traffic. The default is "**eth0**" which is the management port.
2. In the "**Secondary Target name**" field, enter the name of the secondary (backup) E-SBC. The default is "**sbc02**". Valid values are alpha-numeric characters.
3. In the "**Secondary Management IP address**" field, enter the IP address on the secondary (backup) E-SBC that accepts management IP traffic. This IP address must be entered in dotted decimal format (0.0.0.0). The default is blank. For example, 172.45.6.7.
4. In the "**Secondary Subnet mask**" field, enter the subnet mask P address on the secondary (backup) E-SBC. This IP address must be entered in dotted decimal format (0.0.0.0). The default is **255.255.0.0**.
5. In the "**Secondary Gateway IP address**" field, enter the gateway IP address that the secondary (backup) E-SBC uses to connect to the outside network. This IP address must be entered in dotted decimal format (0.0.0.0). The default is 0.0.0.0. For example, 192.45.6.7.
6. In the "**Acquire configuration from primary**" field, select whether or not the secondary (backup) device acquires the configuration from the primary device when the secondary device becomes the active device. Valid values are:
   - **Yes** - (default) Secondary (backup) device automatically acquires the configuration from the primary device.
   - **No** - Secondary (backup) device does not acquire the configuration from the primary device.

Redundancy Configuration for HA

Configure the following redundancy parameters for HA.

1. In the "**Interface address**" field, enter the IP address of the primary E-SBC. This is the interface that sends and receives IP traffic on the device. This IP address must be entered in dotted decimal format (0.0.0.0). The default is **169.254.1.1**.
2. In the "**Secondary Interface address**" field, enter the IP address of the secondary (backup) E-SBC. This is the interface that sends and receives IP traffic on the device. This IP address must be entered in dotted decimal format (0.0.0.0). The default is **169.254.2.1**.
3. In the "**Peer IP address**" field, enter the IP address of the primary peer E-SBC. This is the interface that sends and receives IP traffic on the peer device. This IP address must be entered in dotted decimal format (0.0.0.0). The default is **169.254.1.2**.
4. In the "**Peer secondary IP address**" field, enter the IP address of the secondary (backup) peer E-SBC. This is the interface that sends and receives IP traffic on the secondary peer device. This IP address must be entered in dotted decimal format (0.0.0.0). The default is **169.254.2.2**.
5. In the "**Subnet mask**" field, enter the subnet mask of the secondary (backup) peer E-SBC. This IP address must be entered in dotted decimal format (0.0.0.0). The default is **255.255.0.0**.
6. Download the "installation setup" file (*tar.gz* file) to the E-SBC using the procedure, Downloading a Customer Bootstrap File (100).

7. Apply the "installation setup" file (*tar.gz*), which includes the bootstrap file, to the E-SBC using the procedure, Applying the Customer Bootstrap to the E-SBC (103).

A Using the "auto-config" Command to Load a Bootstrap File

Introduction

This appendix provides a procedure for FTPing and loading the bootstrap file to the E-SBC, using the "**auto-config**" command. The "**auto-config**" command allows you to FTP the bootstrap file to the E-SBC and then manually configure the "auto-config" object using the ACLI, followed by saving and activating the configuration. The "auto-config" command is an alternative method you can use.

Procedure

Use the following procedure to load and run the E-SBC bootstrap file using the "auto-config" command. You can use any FTP client application to FTP the file to the directory */code/gzConfig* on the E-SBC.

To load and run the bootstrap file using the "auto-config" command:

1. Open an FTP client application and FTP the E-SBC bootstrap file (*esbc_<Company name>_<Site name>_<File version #>.tar.gz)* to the E-SBC directory called ***/code/gxConfig***.
2. Locally access the E-SBC through the console connection or remotely via a TELNET or SSH connection.
3. At the prompt, enter the applicable password for entering the ACLI and press <Enter>. For example:

   ```
   Password: acme
   ```

4. Enter "enable" to access the Superuser mode, followed by the password and press <Enter>. For example:

   ```
   SBC1> enable
   Password: packet
   SBC1#
   ```

   Note: The passwords used above are the default passwords for the ACLI. These passwords may have been changed by your System Administrator. Contact your System Administrator for more information.

5. Enter "configure terminal" at the prompt and press <Enter>. For example:

   ```
   SBC1# configure terminal
   SBC1(configure)#
   ```

6. Enter "system" at the prompt and press <Enter>. For example:

```
SBC1(configure)# system
SBC1(system)#
```

7. Enter "auto-config" at the prompt and press <Enter>. For example:

```
SBC1(system)# auto-config
SBC1(auto-config)#
```

8. Set the following attributes for the auto-config element. Press <Enter> after setting each attribute.

   - auto-state
   - access-method
   - file-access
     – config-filename

   For example:

```
SBC1(auto-config)# auto-state enabled
SBC1(auto-config)# access-method file
SBC1(auto-config)# file-access
SBC1(file-access)# config-filename esbc_AcmePacket_Boston_v1.tar.gz
```

9. Enter "done" when you have entered all values, and then exit the configuration mode. For example:

```
SBC1(file-access)# done
SBC1(file-access)# exit
SBC1(auto-config)# exit
SBC1(system)# exit
SBC1(configure)# exit
SBC1#
```

10. Enter "save-config" and press <Enter>, followed by "activate-config" and press <Enter>. This saves the changes to a running configuration and activates the configuration information in the bootstrap file. For example:

```
SBC1# save-config
SBC1# activate-config
```

    Note: The running configuration does not overwrite the previously saved configuration on the E-SBC. However, upon reboot, the running configuration is activated. The saved configuration is still available, if required, in the */code/gzConfig*.

    Activating the Net-Net SBC bootstrap configuration causes the E-SBC to initiate a SIP SUBSCRIBE message to be sent to the NNC using the information provided in the bootstrap file.

    The following message displays indicating the physical interface associated with a slot and port have been provisioned. For example:

```
Setting phy0 on Slot=0, Port=0, MAC=00:08:25:04:78:F3,
VMAC=00:08:25:04:78:F3
```

    The E-SBC is now online and can begin communicating to the SP-SBC over the established SIP Trunk.

Glossary

Introduction

This glossary provides terms, acronyms, and definitions used in this document for reference purposes only.

Terms and Definitions

Term	Description
Enterprise (Customer)	A business organization.
E-SBC	Enterprise Session Border Controller (SBC) used for SIP trunking to one or many Service Providers.
IP	Internet protocol
IP-PBX	IP based Public Branch Exchange (PBX). This is becoming increasingly popular as networks move towards IP.
Load Balancing Pool	A collection of SP-SBCs.
Net-Net Central	Acme Packet's application framework; it has an extensible, data-driven architecture that lends itself to drop-in service support (which are leveraged to form Applications); the layered architecture provides a clear separation of presentation & data models. Web based graphical thin clients are available northbound; southbound a series of interfaces are supported including SIP Net-Net Central hosts and the Trunk Manager application (also known as Net-Net Central SIP Trunk Xpress (NNC-SIPTX)).
PBX	Private branch exchange - a telephone exchange that serves a particular business or office.
SBC	Session Border Controller - A network element that provides critical control functions to deliver trusted, first-class interactive communications-voice, video and multimedia sessions-across IP network borders. A "session" is any real-time, interactive voice, video or multimedia communication using IP session-layer signaling protocols, such as SIP, H.323, MGCP, Megaco/H.248 or RTSP. The "border" is any IP-IP network border such as those between Service Provider and Enterprise, residential or mobile customer/subscriber; or between two Service Providers. The "control" functions satisfy requirements in the following five major areas - security, service reach maximization, SLA assurance, regulatory compliance, and cost and revenue management.
SIP Trunk	A Session Initiation Protocol (SIP) service offered by a Service Provider that permits Enterprises with or without a PBX installed, to use IP communications outside of their Enterprise network via the same connection as the Internet connection. It is defined as the combination of the Enterprise's IP address and port (of their Net-Net SBC or PBX), the IP address and port of the Service Provider's SBC, and the service level agreement constraints (e.g., concurrent number of sessions and/or bandwidth). The traffic exchanged over SIP trunks is predominately VoIP, but in the future it may include IP video, multimedia/collaborative sessions and other services making use of IP signaling protocols.
Site	A location that contains one or more Enterprises. A site may have one or more Net-Net SBCs.
SP	An entity that provides services to other entities. Usually this refers to a business that provides IP communications service(s) and/or application service(s).
SP-SBC	Service Provider Session Border Controller (SBC) used for SIP trunking to one or many Enterprises.

Term	Description
SSH	Secure Shell or SSH is a network protocol that allows data to be exchanged using a secure channel between two networked devices.
TELNET	A network protocol used on the Internet or local area networks to provide a bidirectional interactive text-oriented communications facility using a virtual terminal connection. User data is interspersed in-band with Telnet control information in an 8-bit byte oriented data connection over the Transmission Control Protocol (TCP).
VoIP	Voice-over-IP - Voice over Internet Protocol is a family of technologies, methodologies, communication protocols, and transmission techniques for the delivery of voice communications and multimedia sessions over IP networks, such as the Internet.