

Spectrum Enterprise SIP Trunking Service NEC UNIVERGE® 3C 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 Time Warner Cable Business Class. All references to Time Warner Cable Business Class, TWCBC or TWC should be read as Spectrum Enterprise.

Thank you,

Spectrum Enterprise

Configuring NEC UNIVERGE[®] 3C for Time Warner Cable Business Class SIP Trunk

V 2.0

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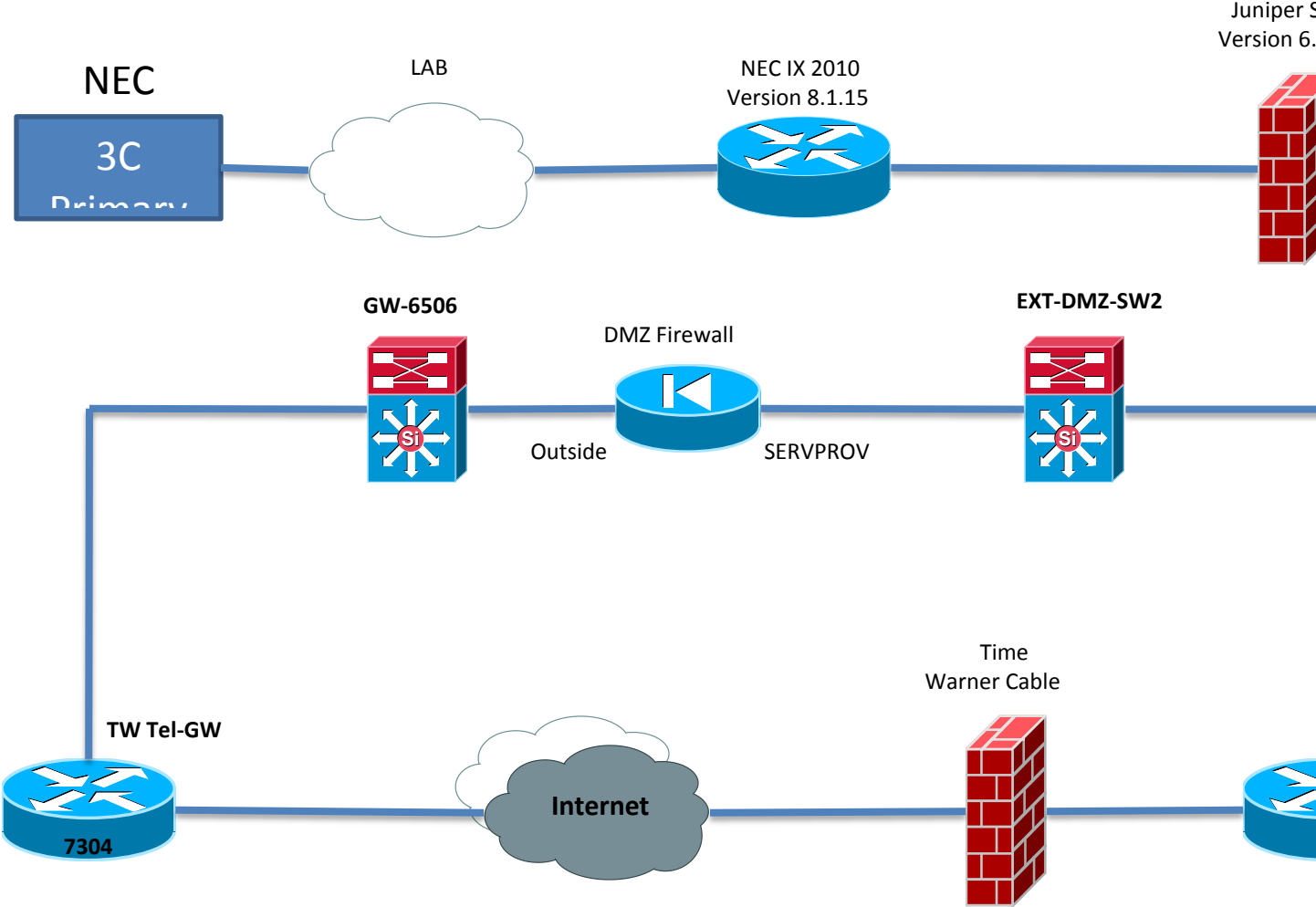
Document Description

This document will help you configure the UNIVERGE 3C PBX and Time Warner Business Class SIP Trunk provider. If any additional help is needed, please contact UNIVERGE 3C NTAC Support at www.necntac.com.

The UNIVERGE 3C has undergone extensive testing and has received certification with TWCBC SIP Trunk terminations. Time Warner Cable Business Class SIP Trunks offer an economical Voice over IP (VoIP) interface for IP PBXs. SIP Trunks, based on forward-looking IP technology, deliver a highly scalable, flexible and cost-effective alternative to traditional voice services.

NEC Network Connectivity

The following is the NEC Network path to TWCBC used during testing.



Test Cases Certified

TEST DESCRIPTION	Passed
SIP Trunk Discovery	
Configure a SIP trunk to register with the Service Provider	YES
Register with SIP Registrar	YES
SIP Trunk Configuration	
Configure Authorization	YES
Verify Authorization	YES
Configure Outside Service	YES
Outbound Calls	
Outbound Using Outside Service	YES
Outbound Using Outside Service - Capacity Exceeded	YES
Outbound Using Outside Service - Increase Capacity	YES
Outbound using Trunk Group-SIP Selected	YES
Outbound using Trunk Group-SIP Not Selected	YES
Inbound Calls	
Inbound using default route to AA	YES
Navigating the Spherical AA with in-band DTMF	YES
Navigating the Spherical AA with out-of-band DTMF	YES
Inbound using DID Mapping - Any digits	YES
Inbound using DID Mapping - trombone	YES
	YES
Transfers	
Blind transfer to Outside line	YES
Attended transfer to Outside line	YES
Blind transfer of Outside line	YES
Attended transfer of Outside line	YES
Attended transfer of Outside line - ringback	YES
Attended transfer of Outside line - answer	YES
Trunk to trunk blind transfer call - SIP to SIP	YES, Need to change the SIP User Agent properties, 'From' header source to Original CLID, and 'P-Asserted Identity header' source to Original CLID
Trunk to trunk attended transfer call - SIP to SIP	YES

TEST DESCRIPTION	Passed
Forwarding	
Forwarding to Trunk - Station Call	YES, Need to change the SIP User Agent properties, 'From' header source to Original CLID, and 'P-Asserted Identity header' source to Original CLID
Forwarding to Trunk - SIP Trunk Call	YES, Need to change the SIP User Agent properties, 'From' header source to Original CLID, and 'P-Asserted Identity header' source to Original CLID
Forwarding to Trunk - call unanswered	YES
Forwarding to Trunk - Multiple Addresses	YES
Park and Pickup	
Park a call in a Zone	YES
Pickup a call from a Zone	YES
Park a call on an extension	YES
Pickup a call on an extension	YES
Park a call on a busy extension	YES
Pickup a call that was park while busy	YES
Pickup a ringing extension	YES
Pickup a ringing phone in a pickup group	YES
Conferencing	
3-way call with one outbound trunk	YES
3-way call with two outbound trunk	YES
Codec Change	
Codec change from G729 to G711 (or vice versa) during session	Not Available, TWCBC only supports G.711
Recording	
On-demand Recording	YES
On-demand Recording	YES
Caller ID (Name and Number)	
Inbound caller ID	YES
Inbound caller ID - Not present	YES
Fax	
Fax call inbound	YES
Fax call outbound	YES

TEST DESCRIPTION	Passed
RTP	
G.729 Codec Call	'YES, G.729 is not officially supported by TWCBC
G.729 Codec media stats verification	'YES, G.729 is not officially supported by TWCBC
RFC2833	
G729 with RFC2833	'YES, G.729 is not officially supported by TWCBC
G711 with RFC2833	YES
Trunk Administration	
Inbound call on Out-of-Service trunk	YES
Outbound call on Out-of-Service trunk	YES
Max duration reached on trunk to trunk call	YES

UNIVERGE 3C Programming and Configuration

User Agent

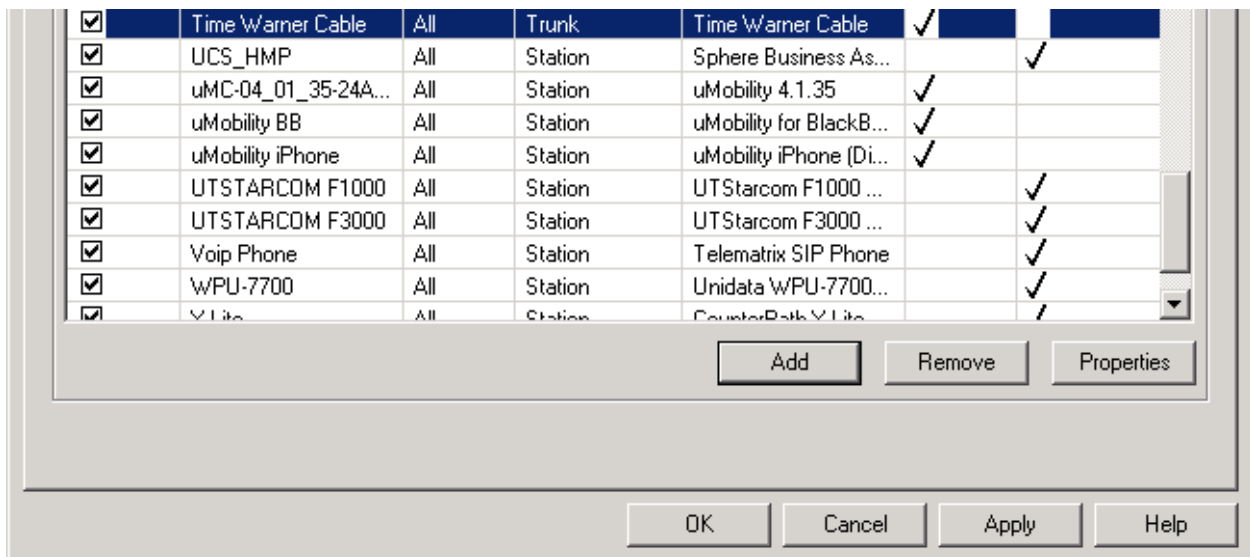
- From 3C General Tab, double click System, click SIP Tab

The screenshot shows the 'System Properties' dialog box with the 'SIP' tab selected. The 'User Agents' section contains a table with the following data:

Enabled	Agent Name	Version	Endpoint Type	Agent Description	In Use	Default
<input checked="" type="checkbox"/>	3C System	All	Trunk	3C Tie Line	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	3C-Virtual-Station	All	Station	3C Virtual Station		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	3C-Virtual-Trunk	All	Trunk	3C Virtual Trunk		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Aastra 480i	All	Station	Aastra 480i		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Aastra 480i Cordless	All	Station	Aastra 480i Cordless		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Aastra 53i	All	Station	Aastra 53i		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Aastra 55i	All	Station	Aastra 55i		<input checked="" type="checkbox"/>
	Aastra 57i	3.3.1.3...	Station	Aastra 57i	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	Aastra 57i	All	Station	Aastra 57i		<input checked="" type="checkbox"/>
	Aastra 6731i	2.6.0.1...	Station	Aastra 6731i	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	Aastra 6731i	All	Station	Aastra 6731i		
<input checked="" type="checkbox"/>	Aastra 9112i	All	Station	Aastra 9112i		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Aastra 9133i	All	Station	Aastra 9133i		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Asterisk PBX	All	Trunk	Asterisk PBX		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Audiocodes-Sip-Gat...	All	Station	AudioCodes SIP M...		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Audiocodes-Sip-Gat...	All	Station	AudioCodes SIP M...		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Audiocodes-Sip-Gat...	All	Trunk	AudioCodes SIP M1...		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Audiocodes-Sip-Gat...	All	Trunk	AudioCodes SIP M2...		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Audiocodes-Sip-Gat...	All	Trunk	AudioCodes SIP M6...		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Audiocodes-Sip-Gat...	All	Trunk	AudioCodes SIP M...		<input checked="" type="checkbox"/>
	Audiocodes-Sip-Gat...	v.6.20A...	Trunk	AudioCodes SIP M...	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	Audiocodes-Sip-Gat...	All	Trunk	AudioCodes SIP M...		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	AVST_CallXpress	All	Trunk	AVST CallXpress		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Barix	All	Station	barix	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	Bria	All	Station	CounterPath Bria SI...		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	CARES-Agent	All	Station	Centurion Soft User...		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	CARES-Server	All	Trunk	Centurion Call Cent...		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	CBound	All	Trunk	CBound Trunk		<input checked="" type="checkbox"/>

At the bottom of the dialog, there are three buttons: 'Add', 'Remove', and 'Properties'. The 'Add' button is highlighted in yellow.

- Click the “ADD” button to create a new User Agent to coordinate with Service provider.



- After creating new User Agent, click Properties button
- Confirm all the below settings match your new User Agent Set up.

User Agent Profile - Time Warner Cable

User Agent Profile | Lines

User Agent Parameter	Value
'From' header source	Original CLID
'P-Asserted Identity' header source	Diversion Header info
'P-Asserted Identity' pass through	Original CLID
'talk' Event (Notify Request) Based 3PCC	Unsupported
'to-tag' (SUBSCRIBE Request) In New Subscription	Disallowed
Anonymous Calling	Unsupported
Auto Switch To TCP	Supported
CSTA Content Type	Unsupported
CSTA Event Tag	Unsupported
Call Recording Notification	Disabled
Click-To-Dial	Ring Caller's Phone First
Click-to-Conference	Unsupported
Convert Firmware	Not Applicable
Desktop Audio Switching Supported	Unsupported
Desktop Video	Unsupported
Drop call on 400 Re-INVITE response	Unsupported
Drop call on 486 Re-INVITE response	Unsupported
Drop call on 488 Re-INVITE response	Unsupported
Enable Distinctive Ringing	Disabled
Endpoint Created By	Call Manager
Extended Presence States	Unsupported
Extension to DID mapping	Disabled
Find Terminal Method	Default
Forced Deregistration	Unsupported
From Header Host in INVITE	Service Provider Domain
From Header Host in REGISTER	Service Provider Domain
Hardware Address	Unavailable
INVITE Request-URI Source	Outbound Contact-URI
INVITE Without SDP	Supported

Revert to Default

OK Cancel Apply Help

- Confirm all parameters match

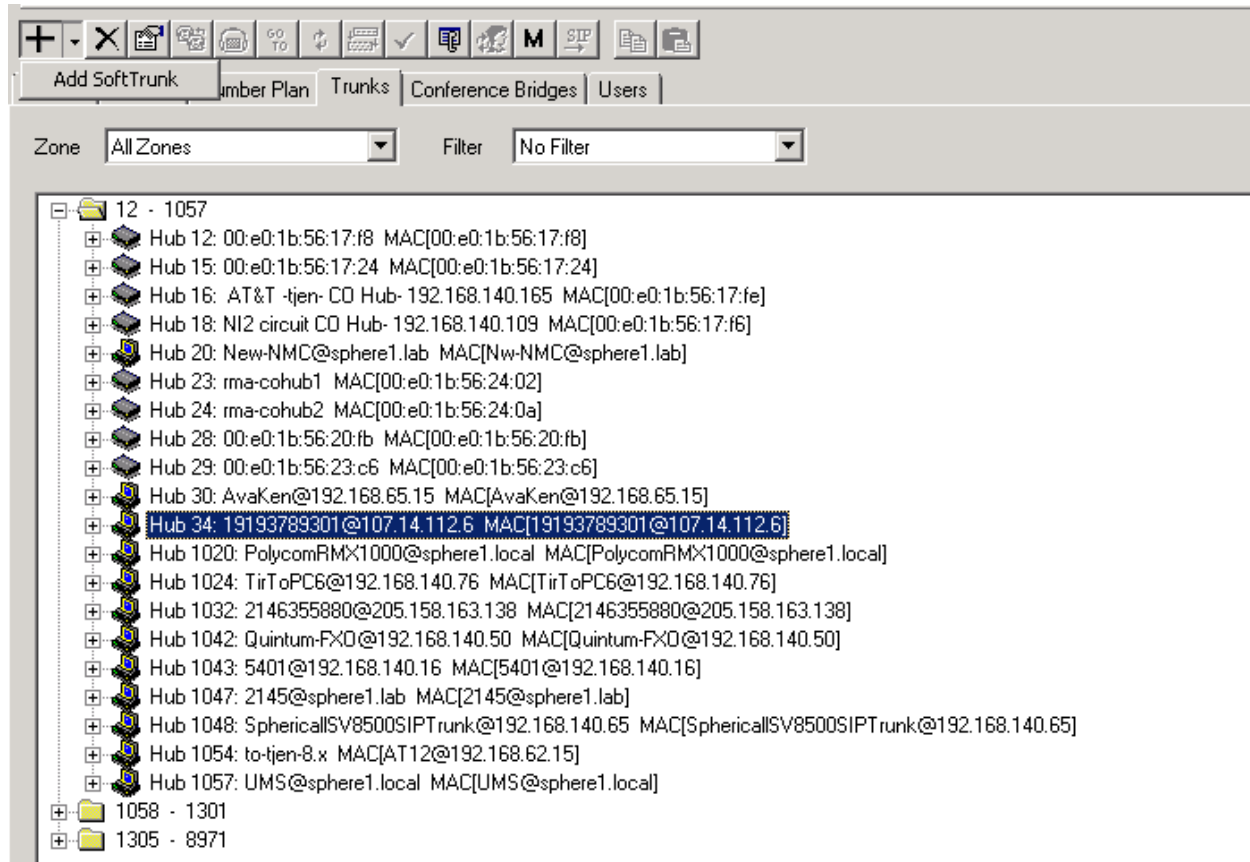
MWI NOTIFY Request	Supported
MWI SUBSCRIBE Request	Supported
MediaServer Max Packetization (ms)	80 ms
OPTIONS Request	Supported
Populate Caller from PAI	Unsupported
REFER Based Transfer	Unsupported
REGISTER Contact Header Handling	First contact only
Re-INVITE With Held SDP	Holds Call And Provides MoH
Receiving MoH	Supported
Reliable Provisional Response	Unsupported
Remote Reboot	Unsupported
Retry-After Value Sent In SIP Response (sec)	300 sec
SIP header number format	Based on dialed number
Send Forwarding Information	Disabled
Send Non-Primary Number	Disabled
Send Transferring Information	Disabled
Session Timer	Unsupported
Session Timer Refresher	Call Manager
Subscribe to Phone's Presence	Disallowed
Timer C	Unsupported
Video	Unsupported
xpdf+xml support for Presence	Supported

Revert to Default

OK Cancel Apply Help

Create New Trunk

- Go to Trunks tab, top left corner click the down arrow on the plus sign to Add Soft Trunk



- Description and Account will be name you give the SIP Trunk for identification purposes.
- Service Provider Domain and Outbound Proxy will be the IP address TWCBC will give you for SIP traffic.
- Primary MGC is the name of one of your UNIVERGE 3C servers
- No secondary MGC is needed
- Preferred Transport UDP
- User Agent will be Time Warner Cable

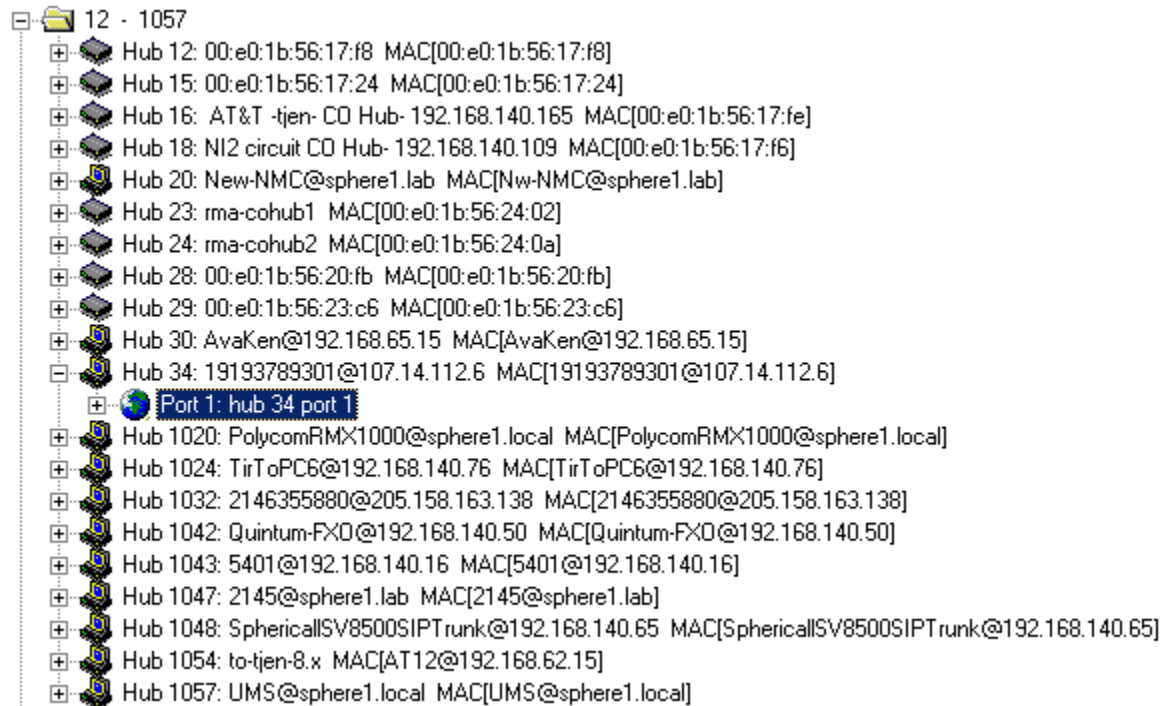
Properties for Hub 34 : Time Warner Cable

Hub | Service Provider

If entering an IPv6 address for Service Provider Domain, Outbound Proxy or Contact Domain, enclose the address in square brackets [].

Description	<input type="text" value="Time Warner Cable"/>
Account	<input type="text" value="19193789301"/>
Service Provider Domain	<input type="text" value="107.14.112.6"/>
Outbound Proxy	<input type="text" value="107.14.112.6"/>
Port	<input type="text" value="5060"/>
Registration Type	<input type="text" value="Outbound"/>
Primary MGC	<input type="text" value="sphere-primary"/>
Secondary MGC	<input type="text" value="None"/>
Contact Domain	<input type="text" value="143.101.157.46"/>
Preferred Transport	<input type="text" value="UDP"/>
User Agent	<input type="text" value="Time Warner Cable"/>

- Once the trunk successfully created, go to the Port properties.



Under the General Tab fill in the proper information.

- Name (Service Provider)
- Telephony Area
- Zone
- Total Capacity/Inbound Capacity/Outbound Capacity for your site
- Max Duration – Use Default

The screenshot shows a dialog box titled "Properties for Trunk Time Warner Cable" with a close button (X) in the top right corner. The dialog has several tabs: "General", "Authorization", "Inward Routing", "Outward Routing", "Emergency Groups", "Settings", "Caller ID Rules", and "Mobility". The "General" tab is selected and contains the following fields and options:

Name	<input type="text" value="Time Warner Cable"/>	Port	<input type="text" value="1"/>	<input checked="" type="checkbox"/> In Service
Hardware Id	<input type="text" value="Trunk:226"/>	Max Duration	<input type="text" value="21600"/>	<input checked="" type="checkbox"/> Allow Emergency Calls from non-emergency group Stations
Telephony Area	<input type="text" value="Time Warner : +1 919 9999999"/>			
Zone	<input type="text" value="Dallas"/>			
Total Capacity	<input type="text" value="2"/>			
Inbound Capacity	<input type="text" value="2"/>	Outbound Capacity	<input type="text" value="2"/>	

At the bottom of the dialog are four buttons: "OK", "Cancel", "Apply", and "Help".

Use the information provided by TWCBC to complete the below fields.

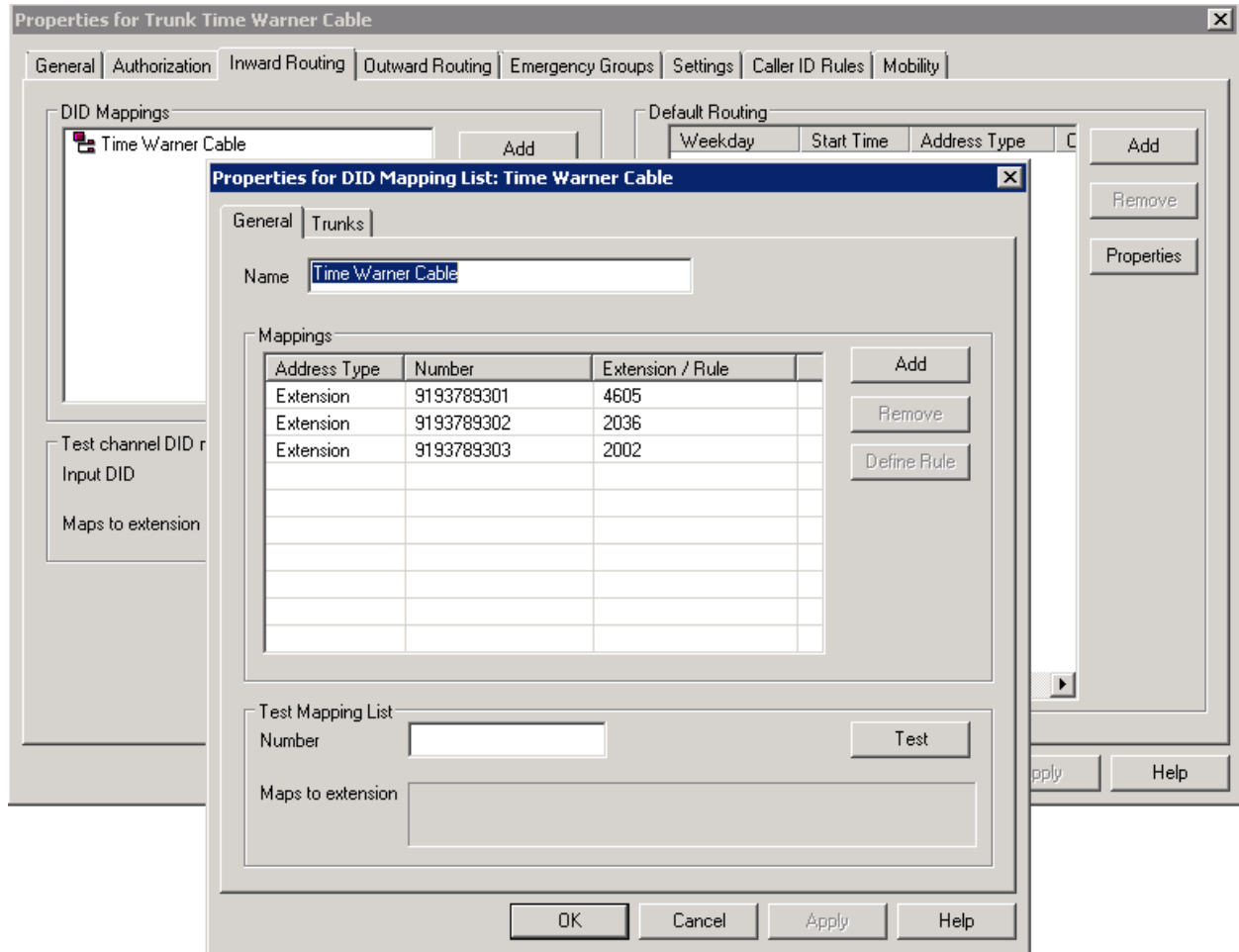
- Username and Account Password
- Realm is Service Provider IP address
- Type MD5
- Authorization Type to Respond

The screenshot shows a dialog box titled "Properties for Trunk Time Warner Cable" with a close button (X) in the top right corner. The "Authorization" tab is selected, showing the following fields:

- Use Authorization
- Account: 19193789301
- Password: [Redacted]
- Verify Password: [Redacted]
- Realm: 107.14.112.6
- Type: MD5 (dropdown menu)
- Authorization Type: To Respond (dropdown menu)

At the bottom of the dialog box are four buttons: OK, Cancel, Apply, and Help.

- On the Inward Routing tab, Create DID MAPPING
- Under DID Mapping click Add button
- Assign DID numbers to extensions individually or using one or more rules



Caller ID Settings

- Under Caller ID Rules tab edit the Outbound Caller ID Rules
- Add custom Predicate Match and Transform to below setting
 - Predicate Match = {10}[FG]
 - Transform = +1[FG]

Properties for Trunk Time Warner Cable [X]

General | Authorization | Inward Routing | Outward Routing | Emergency Groups | Settings | **Caller ID Rules** | Mobility

Outbound Caller ID Masks

Number Range	
All Numbers	
Time Warner	

Add
Remove

Test Outbound Caller ID Masks

Number Caller ID Test

Outbound Caller ID Localization Rules

Predicate Match	Transform	
{10}[FG]	+1[FG]	

Add
Remove

Test Outbound Caller ID Localization Rules

Number Caller ID Test

OK Cancel Apply Help

Outward Routing

- Under Outward Routing tab add an outside service number in order to make outbound calls
 - Click Add Outside Service
 - Select outside service number

