

Interoperability Guide

Integrating NetVanta UC Server with Avaya Aura Communication Manager

This interoperability guide provides information about the interoperability testing performed on the integration of NetVanta Unified Communications (UC) Server with Avaya Aura® Communication Manager. This guide provides a list of the equipment, equipment software and firmware versions, and equipment connections used during the testing, as well as the features tested.

WARNING

Due to issues discovered during interoperability testing, the integration of NetVanta UC Server with Avaya Aura Communication Manager is only supported using the TN2302AP IP Media Processor Circuit Pack. Additionally, faxing is not supported in this integration.

This guide consists of the following sections:

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Interoperability Testing Overview

The interoperability testing performed focused on the integration of NetVanta UC Server with Avaya Aura Communication Manager. Multiple features were tested, including the fax server, voicemail, and auto attendant. Voice message delivery, retrieval, deletion, and the corresponding message waiting indicator (MWI) activation and deactivation was tested.

The diagram in *Figure 1 on page 2* illustrates the network topology that was used for interoperability verification. In the verification setup, a Session Initiation Protocol (SIP) trunk was configured between the Avaya Aura Communication Manager, Avaya Aura Session Manager, and the NetVanta UC Server 420e platform.

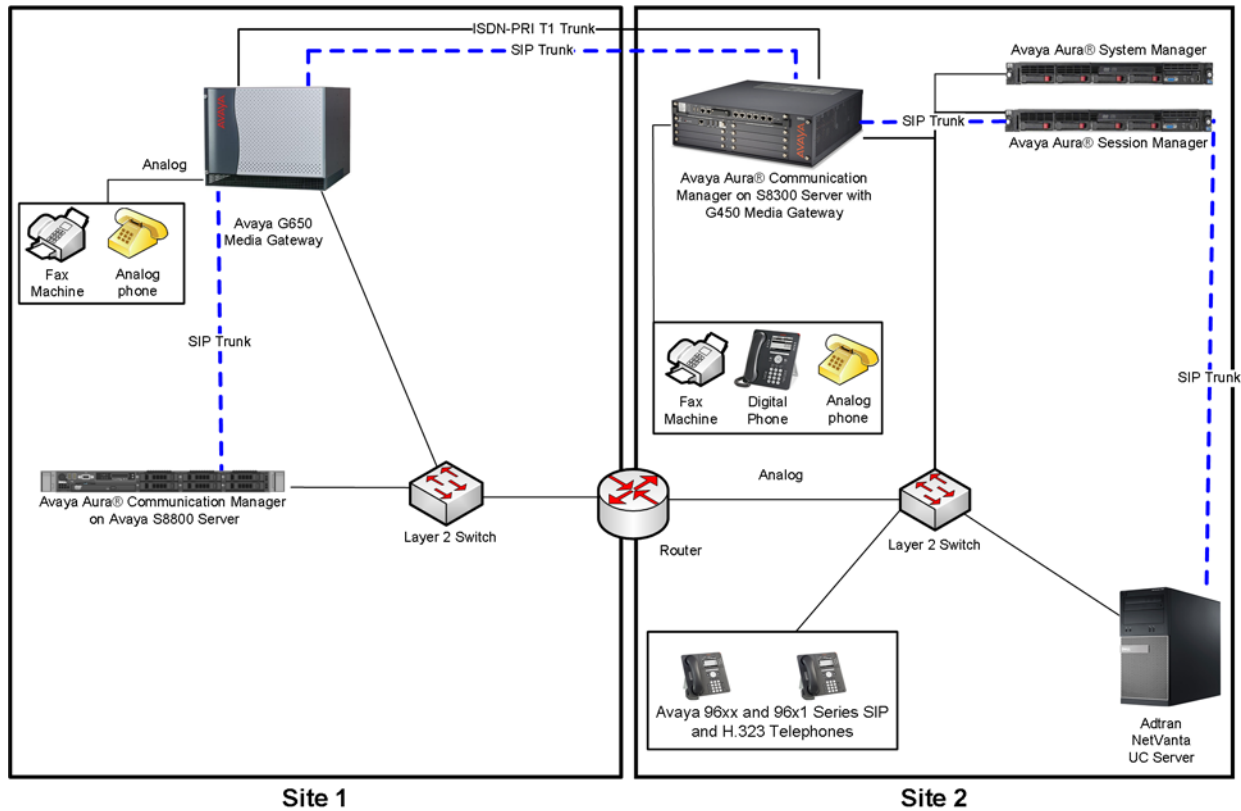


Figure 1. Network Topology Used for Verification Testing

Equipment and Versions

The following table outlines the equipment used during verification testing:

Table 1. Hardware Components Tested

Provider	Hardware Component	Description
ADTRAN	NetVanta UC 420e Platform	The NetVanta Unified Communications (UC) 420e Platform is a hardware platform providing quick deployment of the NetVanta UC software-based solution.
Avaya	Dell™ PowerEdge™ R610 Media Server w/ G650 Media Gateways: <ul style="list-style-type: none"> TN799DP C-LAN TN2302AP TN2602AP TN793CP 	Avaya Aura Communication Manager Server 6.2 <ul style="list-style-type: none"> Circuit pack for LAN Connectivity Circuit pack for media processor Circuit pack for media processor Circuit pack for analog lines
Avaya	S8300D Media Server w/ G450 Media Gateway: <ul style="list-style-type: none"> MM710 MM711 	Avaya Aura Communication Manager Server 6.2 <ul style="list-style-type: none"> Circuit pack for T1/E1 trunk Circuit pack for analog lines
Avaya	HP ProLiant DL360 G7 Server	Avaya Aura System Manager 6.2 SP3
Avaya	HP ProLiant DL360 G7 Server	Avaya Aura Session Manager 6.2 SP3

The following table outlines the software and firmware versions used during verification testing.

Table 2. Software Components and Firmware Versions Tested

Software Component	Software/Firmware Version
ADTRAN NetVanta UC Server	5.2.0.8058
Avaya Communication Manager	R016x.02.0.823.0, Patch 20001
Avaya System Manager	6.2 Service Pack 3
Avaya Session Manager	6.2 Service Pack 3 Patch 3

Verification Performed and Issues Discovered

The following sections provide information on the feature verification performed and issues discovered during interoperability verification.

WARNING

Due to issues discovered during interoperability testing, the integration of NetVanta UC Server with Avaya Aura Communication Manager is only supported using the TN2302AP IP Media Processor Circuit Pack. Additionally, faxing is not supported in this integration.

Verification Performed

The interoperability verification focused on Primary Rate Interface (PRI) trunk and SIP trunk operations between the NetVanta UC Server, the Avaya Aura Communication Manager, and the Avaya Aura Session Manager. Verification testing included the following features:

- Faxing across an Primary Rate Interface (PRI) trunk
- Faxing across a SIP trunk
- Local faxing on the Avaya G450 Media Gateway
- Leaving, retrieving, and deleting voicemail messages
- Message waiting indicators (MWI) operation
- Auto attendant operation using dual-tone multi-frequency (DTMF) signaling
- Auto attendant outbound call feature operation

Issues Discovered



Refer to [Appendix A - Interoperability Test Results on page 8](#) for a full description of the test results for each interoperability test case.

During interoperability testing, the following issues were observed:

- While testing faxing across an ISDN-PRI trunk, NetVanta UC Server fax server failed to send a fax to an analog fax machine connected to the Avaya G650 Media Gateway.
- While testing faxing across a SIP trunk, NetVanta UC Server fax server failed to send a fax to an analog fax machine connected to the Avaya G650 Media Gateway.
- While testing local faxing on the Avaya G450 Media Gateway, NetVanta UC Server fax server failed to send a fax to an analog fax machine connected to the Avaya G450 Media Gateway.

Configurations Used for Interoperability Testing

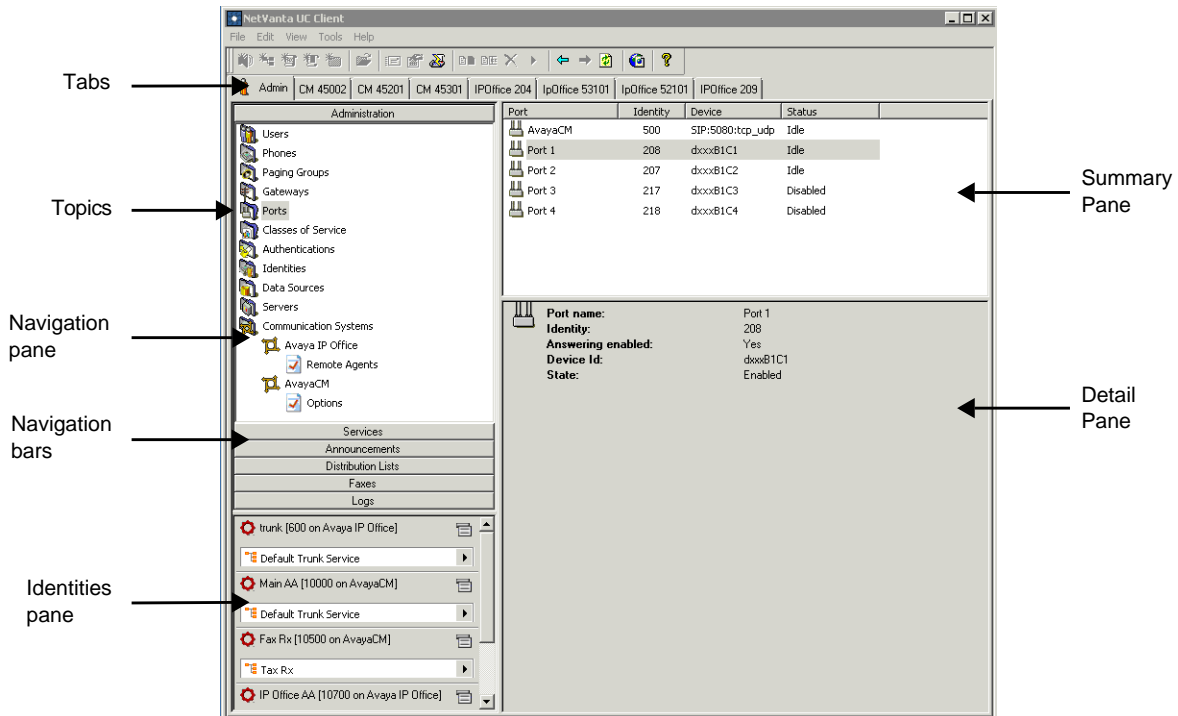
The following sections outline the configuration steps used to configure the NetVanta UC Server and NetVanta UC Server during interoperability testing.

NetVanta UC Server Configuration

ADTRAN installs, configures, and customizes NetVanta UC Server for their customers; consequently, this section only describes the interface configuration required for NetVanta UC Server to communicate to the Avaya Aura Session Manager and Avaya Aura Communication Manager. To configure the NetVanta UC Server, follow these steps:

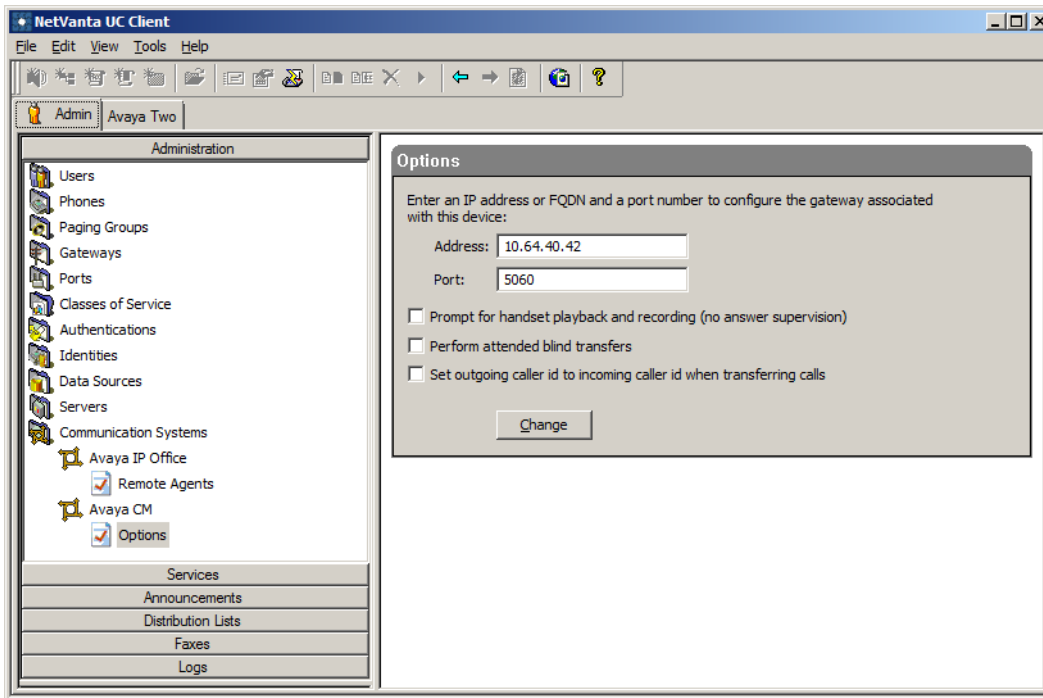
1. Navigate to **Start > All Programs > ADTRAN > NetVanta UC Server > NetVanta UC Client** to open NetVanta UC Client.
2. Log in to the NetVanta UC Client as an administrator.

- In the **Admin** tab of the NetVanta UC Client, select the **Administration** navigation bar. Then, select the **Communication System** topic from the navigation pane.



- In the Communication System topic under the Avaya Aura Communication Manager communication system object (**Avaya CM**), select **Options**. The **Options** menu for the Avaya Aura Communication manager communication system will appear in the summary pane.

5. In the **Options** menu in the summary pane, enter the IP address of the Avaya Aura Session Manager in the **Address** field and select **Change**.



6. In the navigation pane, select the **Ports** topic.
7. In the summary pane, right-click and select **New** from the drop-down menu. The **Port** configuration menu will appear.

8. In the **Port** configuration menu, enter the following information using the supplied fields or drop-down menus.

Field/Drop-down Menu	Instructions
Name	Enter a descriptive name for the port. For example, Avaya CM .
Identity	Enter the desired extension number of the NetVanta UC Server port. This extension must match the extension configured on the Avaya Aura Session Manager.
Communication system	Use the drop-down menu to select the Avaya Aura Communication Manager communication system.
Device	Use the drop-down menu to select Built-in SIP Port .
Port number	Enter 5080 .
Protocol	Use the drop-down menu to select TCP/UDP .

9. Select **OK** to save the configurations for the port.

Avaya Equipment Configuration

In the compliance test, A SIP trunk was configured between the Avaya Aura Session Manager, the Avaya Aura Communication Manager, and the NetVanta UC Server 420e platform. The detailed steps of the configuration of the Avaya equipment must be performed by an Avaya Communication Manager specialist. Refer to Avaya's Support at <http://support.avaya.com/> for more information.

Appendix A - Interoperability Test Results

Faxing Across an ISDN-PRI Trunk

This section provides test results for the operation of faxing across an ISDN-PRI trunk. In this configuration, one Avaya Aura Communication Manager acted as a simulated PSTN and connected to the second Avaya Aura Communication Manager in the enterprise. Unless specifically stated otherwise, IP to IP direct media (media shuffling) was enabled on the SIP trunk to the fax server. The analog fax machine referenced in this section is connected to the Avaya G650 Media Gateway in *Figure 1 on page 2*. The fax server is connected to Avaya G450 Media Gateway at the other end of the ISDN-PRI trunk from Avaya G650 Media Gateway. For purposes of the faxing tests, fax resolutions are defined as:

- 200x100 (Standard / Low)
- 200x200 (Fine / High)
- 200x400 (Superfine)
- 300x300
- 400x400 (Ultrafine)

Test Case	Description	Results TN2602	Results TN2302	Notes
1	Send a 3-page fax from the fax server to an analog fax machine using standard resolution.	Fail	Pass	Very slow transmission at 4800 baud
2	Send a 10-page fax from the fax server to an analog fax machine using standard resolution.	Fail	Pass	Very slow transmission at 4800 baud
3	Receive a 3-page fax at the fax server from an analog fax machine using standard resolution.	Pass	Pass	
4	Receive a 10-page fax at the fax server from an analog fax machine using standard resolution.	Pass	Pass	
5	Send a fax from fax server to an analog fax machine with fine resolution. Use medium complexity images			
6	Send a fax from the fax server to an analog fax machine with fine resolution. Use large complexity images			
7	Receive a fax at the fax server from an analog fax machine with fine resolution. Use medium complexity images	Pass	Pass	
8	Receive a fax at the fax server from an analog fax machine with fine resolution. Use large complexity images	Pass	Pass	
9	Send a fax from the fax server to an analog fax machine with Letter fine resolution.			

10	Receive a fax at the fax server from an analog fax machine with Letter fine resolution.	Pass	Pass	
11	Send a fax from the fax server to an analog fax machine with Legal fine resolution.			
12	Receive a fax at the fax server from an analog fax machine with Legal fine resolution.	Pass	Pass	
13	Send a fax from the fax server to an analog fax machine at the V.17 data rate (14.4K).	N/A		Cannot test 14.4 with TN2602
14	Receive a fax at the fax server from an analog fax machine at the V.17 data rate.	N/A		Cannot test 14.4 with TN2602
15	Send a fax from the fax server to an analog fax machine at the V.29 data rate (9.6K).			
16	Receive a fax at the fax server from an analog fax machine at the V.29 data rate.			
17	Repeat test case 7.1.2 with shuffling disable on the SIP trunk to the fax server.			
18	Repeat test case 7.1.4 with shuffling disable on the SIP trunk to the fax server.			

Faxing Across a SIP Trunk

This section provides test results for the operation of faxing across a SIP trunk. In this configuration, two Avaya Aura Communication Managers acted as two PBX's located in two enterprise locations. Unless specifically stated otherwise, IP to IP direct media (media shuffling) was enabled on the SIP trunk to the server. The analog fax machine referenced in this section was connected to the Avaya G650 Media Gateway in *Figure 1 on page 2*. The fax server was connected to Avaya G450 Media Gateway at the other end of the SIP trunk from Avaya G650 Media Gateway.

Test Case	Description	Results TN2602	Results TN2302	Notes
1	Send a 3-page fax from the fax server to an analog fax machine using standard resolution.	Fail	Pass	Very slow transmission at 4800 baud
2	Send a 10-page fax from the fax server to an analog fax machine using standard resolution.	Fail	Pass	Very slow transmission at 4800 baud
3	Receive a 3-page fax at the fax server from an analog fax machine using standard resolution.	Pass	Pass	
4	Receive a 10-page fax at the fax server from an analog fax machine using standard resolution.	Pass	Pass	

5	Repeat test case 7.4.1 with shuffling disable on the SIP trunk to the fax server.			
6	Repeat test case 7.4.2 with shuffling disable on the SIP trunk to the fax server.			
7	Repeat test case 7.4.3 with shuffling disable on the SIP trunk to the fax server.	Pass	Pass	
8	Repeat test case 7.4.4 with shuffling disable on the SIP trunk to the fax server.	Pass	Pass	

Local Faxing on Avaya G450 Media Gateway

This section provides test results for the operation of local faxing on the Avaya G450 Media Gateway. Unless specifically stated otherwise, IP to IP direct media (media shuffling) was enabled on the SIP trunk to the fax server. The fax server and analog fax machine referenced in this section were connected to the Avaya G450 Media Gateway.

Test Case	Description	Results	Notes
1	Send a 3-page fax from the fax server to an analog fax machine using standard resolution.	Fail	
2	Send a 10-page fax from the fax server to an analog fax machine using standard resolution.	Fail	
3	Receive a 3-page fax at the fax server from an analog fax machine using standard resolution.	Pass	
4	Receive a 10-page fax at the fax server from an analog fax machine using standard resolution.	Pass	

Voicemail Testing (Provided by NetVanta UC Server)

This section provides test results for the operation of call coverage, the activation/deactivation of MWI, and the use of DTMF digits.

Calls were placed separately and retrieved separately to verify each test case. Test cases were combined for brevity.

Test Case	Description	Results	Notes
1	Voicemail- Leave a message for Avaya SIP Endpoint SIP endpoint calls SIP endpoint H.323 endpoint calls SIP endpoint Digital endpoint calls SIP endpoint Analog endpoint calls SIP endpoint Let the call go to voicemail and leave a message. Verify the Message Waiting Indicator (MWI) is activated.	Pass	
2	Voicemail – Retrieve a message SIP endpoint calls voicemail. Navigate the voicemail menus (via DTMF input) to retrieve a message. Verify the message can be retrieved and deleted. Verify the Message Waiting Indicator (MWI) is deactivated	Pass	
3	Voicemail – Leave a message for H.323 endpoint H.323 endpoint calls H.323 endpoint SIP endpoint calls H.323 endpoint Digital endpoint calls H.323 endpoint Analog endpoint calls H.323 endpoint Let the call go to voicemail and leave a message. Verify the Message Waiting Indicator (MWI) is activated.	Pass	
4	Voicemail – Retrieve a message H.323 endpoint calls voicemail. Navigate the voicemail menus (via DTMF input) to retrieve a message. Verify the message can be retrieved and deleted. Verify the Message Waiting Indicator (MWI) is deactivated.	Pass	

5	Voicemail – Leave a message for Digital endpoint SIP endpoint calls Digital endpoint H.323 endpoint calls Digital endpoint Digital endpoint calls Digital endpoint Analog endpoint calls Digital endpoint Let the call go to voicemail and leave a message. Verify the Message Waiting Indicator (MWI) is activated.	Pass	
6	Voicemail – Retrieve a message Digital endpoint calls voicemail. Navigate the voicemail menus (via DTMF input) to retrieve a message. Verify the message can be retrieved and deleted. Verify the Message Waiting Indicator (MWI) is deactivated.	Pass	
7	Voicemail – Leave a message for Analog endpoint SIP endpoint calls Analog endpoint H.323 endpoint calls Analog endpoint Digital endpoint calls Analog endpoint Analog endpoint calls Analog endpoint Let the call go to voicemail and leave a message. Verify the Message Waiting Indicator (MWI) is activated.(Stutter tone for analog)	Pass	
8	Voicemail – Retrieve a message Analog endpoint calls voicemail. Navigate the voicemail menus (via DTMF input) to retrieve a message. Verify the message can be retrieved and deleted. Verify the Message Waiting Indicator (MWI) is deactivated. (Stutter tone for analog)	Pass	

Auto Attendant

This section provides test results for the operation of the NetVanta UC Server auto attendant.

Test Cases	Description	Results	Notes
1	Navigating auto attendant system via DTMF tones Verify navigation of menu tree by pressing appropriate keys	Pass	
2	Auto attendant outbound call feature Verify call is routed to correctly configured location	Pass	

Failure Scenarios

The tests in this section were not performed because of fax server failures on previous tests. For more information on the faxing test failures, refer to *Faxing Across an ISDN-PRI Trunk on page 8*, *Faxing Across a SIP Trunk on page 9*, and *Local Faxing on Avaya G450 Media Gateway on page 10*.

Test Cases	Description	Results	Notes
1	Send fax from the fax server when transmission is interrupted.		
2	Send fax from the fax server when all channels are busy.		
3	Connect analog phone in place of analog fax machine and send fax.		
4	Send fax from the fax server when fax machine is busy.		
5	Receive fax at the fax server when transmission is interrupted.		
6	Receive fax at the fax server when all channels are busy.		

Serviceability

The tests in this section were not performed because of fax server failures on previous tests. For more information on the faxing test failures, refer to *Faxing Across an ISDN-PRI Trunk on page 8*, *Faxing Across a SIP Trunk on page 9*, and *Local Faxing on Avaya G450 Media Gateway on page 10*.

Test Cases	Description	Results	Notes
1	<p>Setup: Busy the IP trunk signaling group. Attempt calls and faxes to UC Server Release the IP trunk signaling group. Attempt calls and faxes to and from the UC Server. Busy the IP trunk group. Attempt calls and faxes to and from the UC Server. Release the IP trunk group.</p> <p>Attempt calls and faxes to and from the UC Server.</p> <p>Verify: The calls and faxes cannot complete when the IP trunk signaling or trunk group is busied out. The calls and faxes are successfully completed after the IP trunk signaling or trunk group are released from busyout.</p>		
2	<p>Setup: Reset Avaya Communication Manager. Attempt calls and faxes to and from the UC Server.</p> <p>Verify: The calls and faxes are successfully completed once Communication Manager is restored.</p>		
3	<p>Setup: While the fax server is transmitting or receiving a fax, reset the UC Server Attempt calls and faxes to the UC Server</p> <p>Verify: The calls and faxes sent/received after the reset are completed successfully.</p>		
4	<p>Setup: Attempt faxes to and from the fax server, and inbound and outbound telephone calls over the SIP trunk simultaneously.</p> <p>Verify: The faxes and telephone calls complete successfully.</p>		

