



Application notes for Integrated Research's Prognosis IP Telephony Manager 9.5.2 with Avaya Communication Server 1000 Release 6.0 – Issue 1.0

Abstract

These Application Notes describe a solution comprised of Avaya Communication Server 1000 Release 6.0 and Prognosis IP Telephony Manager 9.5.2 (patch 10). During the compliance testing, the Prognosis IP Telephony Manager was able to provide a monitoring and management solution for IP telephony networks by collecting data and filtering it as required and then presenting it in a user-friendly format. This test was performed to verify that the Prognosis IP Telephony Manager software has no adverse impact on the Avaya Communication Server 1000 system when used to monitor and manage the Avaya CS1000.

Information in these Application Notes has been obtained through DeveloperConnection compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

This is the interoperability test report for Avaya Communication Server 1000 Release 6.0 (hereafter referred to as CS1000) and the Prognosis IP Telephony Manager 9.5.2 (hereafter referred to as Prognosis IPTM). During the compatibility testing session, the Prognosis IPTM was able to provide a wide range of metrics for monitoring performance and troubleshooting IP telephony networks by collecting data, filtering it as required and then presenting it in a user-friendly format. It was also able to collect data into databases for further analysis and reporting.

1.1. Interoperability Compliance Testing

The focus of this compliance testing is to verify that the Prognosis IPTM is able to interoperate with Avaya CS1000 systems. The following interoperability areas were covered:

- Surveillance of CS1000 hardware modules such as Call Server (CS), Signalling Server (SS), Media Gateway Card (MGC).
- VoIP telephony components such as Routes, Trunks, Zones, IP Phone, Quality of Service (QoS) measures, etc.

1.2. Support

For technical support on Prognosis IPTM, please contact Prognosis technical support team:

- **Telephone:** 1 800 942 7382
- **Email:** support.usa@prognosis.com
- **Web Site:** www.prognosis.com

2. Reference Configuration

Figure 1 illustrates the test configuration used during the compliance testing between the Avaya CS1000 Release 6.0 and Prognosis IPTM 9.5.2.

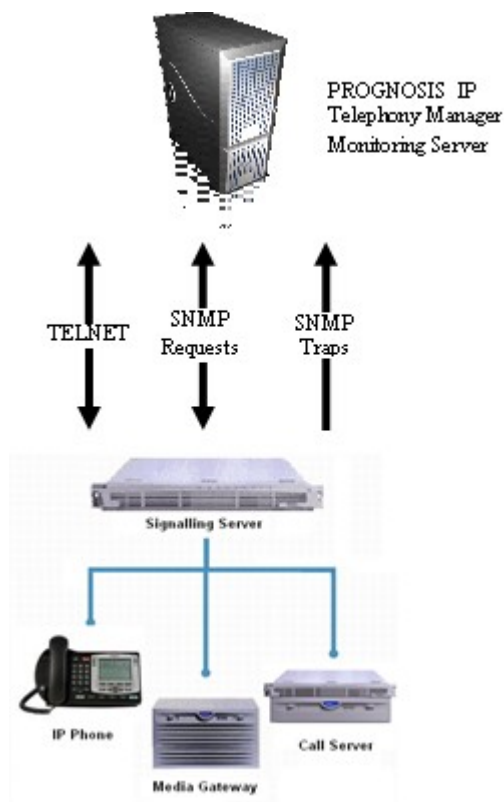


Figure 1: Avaya Interoperability Lab configuration. Prognosis has been designed to interface to the CS 1000 SS ELAN.

3. Equipment and Software Validated

System	Software/Loadware Version
CS1000	<ul style="list-style-type: none"> • Call Server (CPPM): 6.0 + latest deplist • Signalling Server (HP DL320): 6.00.18 + latest deplist • Signalling Server (CPPM): 6.00.18 + latest deplist
IP phones	<ul style="list-style-type: none"> • 2007 - Model NTDU96 • 1140E - Model NTYS05 • 2004 – Model NTDU82
Prognosis IPTM 9.5.2	<ul style="list-style-type: none"> • Version of IPTM is 9.5.2 patch 10

4. Avaya CS1000 Configuration

This section describes the steps to configure CS1000 system to work with Prognosis IPTM 9.5.2. In order to perform the test, the CS 1000 equipment will need to be configured with the following:

- 1 Call Server with ELAN IP address.
- 2 Signalling Servers with ELAN, TLAN IP address, 1 leader and 1 follower SS.
- 2 MGCs with ELAN, TLAN IP addresses.
- 1 MC32 with ELAN, TLAN IP addresses.
- 10 IP phones.
- 6 Routes are created, including 1 E1, 1 T1, 2 H323, 2 SIP trunks.
- 4 Zones are created.
- 1 customer (0) is created.
- 1 TPS is created, including 1 leader and 1 follower.

Here is a summary of CS1000 Configuration.

- IPsec configuration on CS1000. See **Section 4.1** below for details on IPsec configuration.
- 2x dedicated PTTY ports. See **Section 4.2** below for details.
- Insecure shells enabled. If disabled, it can be enabled by entering a command “enl shells insecure” in ld 117
- Level 1 user access (with common username and password) to Signalling Server and Call Server.

4.1. IPSec configuration on CS1000

- Login to UCM page and then manually add IP addresses of Prognosis IPTM machine to IPSec table. Given below are the screen captures.

Click on **Add** button as highlighted in the below screen capture.

NORTEL UNIFIED COMMUNICATIONS MANAGEMENT Help | Login

Host Name: sip1.ca.nortel.com Software Version: 02.00.0055.00(3266) User Name admin

IPSec For Intra System Signaling Security (ISSS)

Centralized IPSec allows network-wide policy implementation and synchronization of PreShared keys across network targets listed below.

Configuration and Status Edit Defaults... Synchronize Activate...

Security level: Full
Secure all packets within and outside node except packets in BootP, SSH/SFTP and SSL ports

Synchronization status: Sync done. Refer to the targets below for individual status.

Activation mode: Graceful

Activation status: Activation request sent for existing targets. Refer to the targets below for individual status.

Targets (Last synchronization: 23 Apr 2010, 05:00 PM)

Add... Steps 2 Required IPSec Not Required Delete

<input type="checkbox"/>	IP Address	Type	Name	State	IPSec	Associated Call Server	Sync/Activation status
<input type="checkbox"/>	47.248.100.162	Media Gateway Controller	47.248.100.162	-	Yes	47.248.100.163	Sync done. Activation request sent.
<input type="checkbox"/>	47.248.100.153	SIPL	sip1.ca.nortel.com (primary)	-	Yes	47.248.100.155	Sync done. Activation request sent.
<input type="checkbox"/>	47.248.100.144	SS_EM	ss2.ca.nortel.com (member)	-	Yes	47.248.100.155	Sync done. Activation request sent.
<input type="checkbox"/>	47.248.100.130	SS_NRS_EM	sip1.ca.nortel.com (member)	-	Yes	47.248.100.155	Sync done. Activation request sent.
<input type="checkbox"/>	47.248.100.144	NRS	ss2.ca.nortel.com	-	Yes	0.0.0.0	Sync done. Activation request sent.

* Targets with customized IPSec parameters

Manual IPSec Target Page appears. Please enter the details as displayed in the below screen capture. Click on **Save** button.

Manual IPSec Target Details

IP Address1: 47.248.100.47
 IP Address2:
 Friendly name: *
(1-32 characters)
 IPSec required:

Note After saving, the target must be Synchronized in order to receive the common IPSec configuration parameters you have defined.

* Required value.

Save **Cancel**

Step 3

Click on **Synchronize** button. After successful synchronization, click on **Activate** button to activate ISSS on the target.

IPSec For Intra System Signaling Security(ISSS)

Centralized IPSec allows network-wide policy implementation and synchronization of PreShared keys across network targets listed below.

Step 4: Click here Step 5: Click here

Configuration and Status **Edit Defaults...** **Synchronize** **Activate...**

Security level: Full
 Secure all packets within and outside node except packets in BootP, SSH/SFTP and SSL ports

Synchronization status: Sync done. Refer to the targets below for individual status.

Activation status: **Activation required.**
 Click Activate (above) to send a forced or graceful activation request to targets below.

Targets (Last synchronization: 07 May 2010, 02:14 PM)

<input type="checkbox"/>	IP Address	Type	Name	State	IPSec	Associated Call Server	Sync/Activation status
1 <input type="checkbox"/>	47.248.100.162	Media Gateway Controller	47.248.100.162	-	Yes	47.248.100.163	Sync done. Activation required.
2 <input type="checkbox"/>	47.248.100.153	SIPL	sipl.ca.nortel.com (primary)	-	Yes	47.248.100.155	Sync done. Activation required.
3 <input type="checkbox"/>	47.248.100.144	SS_EM	ss2.ca.nortel.com (member)	-	Yes	47.248.100.155	Sync done. Activation required.
4 <input type="checkbox"/>	47.248.100.130	SS_NRS_EM	sipt.ca.nortel.com (member)	-	Yes	47.248.100.155	Sync done. Activation required.
5 <input type="checkbox"/>	47.248.100.144	NRS	ssn1.ca.nortel.com	-	Yes	0.0.0.0	Sync done. Activation required.

* Targets with customized IPSec parameters

4.2. Create 2 PTTY ports

Using overlay ld 17, configure 2 TTY ports

```
ADAN TTY 9
CTYP PTY
DNUM 9
PORT 9
DES
FLOW NO
USER MTC TRF SCH CTY BUG OSN
TTYLOG 0
BANR YES
ADAN TTY 10
CTYP PTY
DNUM 10
PORT 10
DES
FLOW NO
USER MTC TRF SCH BUG OSN
TTYLOG 0
BANR YES
```

5. Prognosis IPTM configuration

This section describes the steps to configure the Prognosis IPTM 9.5.2.

5.1. Prognosis IPTM Installation

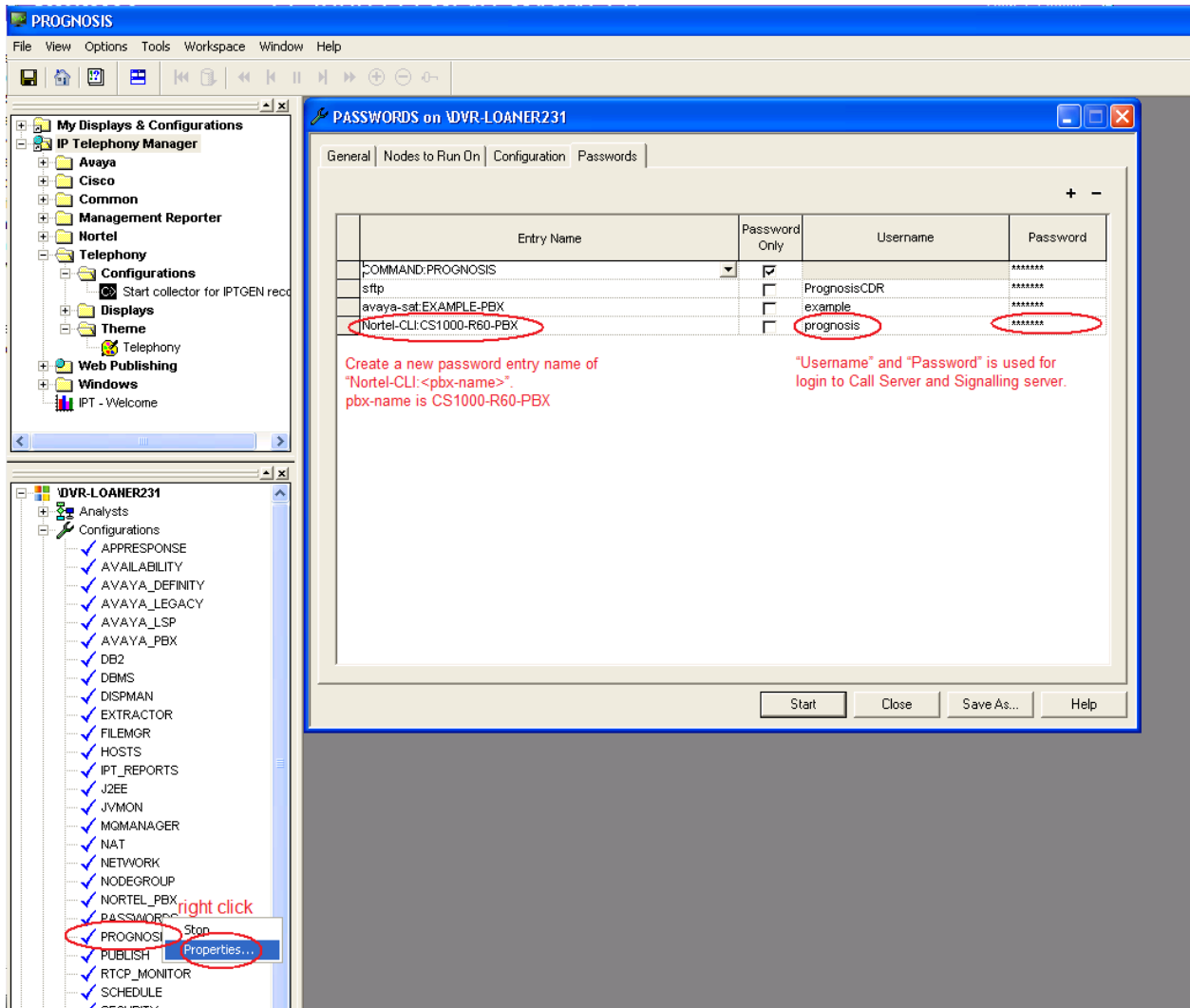
1. Using Windows Explorer, verify that directory path "C:\Program Files\Prognosis IP Telephony Manager" does not exist.
2. If another Web Server has been installed previously, use "Services" to verify if it is running on the default port (80).
3. Insert the Prognosis release CD into the PC.
4. Using Windows Explorer, navigate to the Prognosis release CD.
5. Execute the setup.exe file on the Prognosis release CD.
6. At the various prompts, hit "Next" to use the default options, with the following exceptions:
 - a) When prompted for operational requirements, check all boxes available.
 - b) When prompted for the install location, use "c:\Program Files\IP Telephony Manager" if it is not already the default option.
 - c) When prompted for the Tomcat Web Server port value, leave the default value of 80 and hit "Next" if there is no other web server install. Otherwise, verify that a pop up window is displayed as part of the installation indicating that the port is in use and that the user should specify a different port value. Specify a different port value other than 80 and hit "Next".
 - d) When prompt to start GUI, unchecked the box to skip if desired.
7. Verify that the install process completes successfully.
8. Using Windows Explorer, verify that directory path "C:\Program Files\Prognosis IP Telephony Manager" now exists.
9. On the Windows toolbar, hit the Windows "Start" button and navigate to "Programs".

10. Verify that a new entry for "Prognosis IP Telephony Manager" now exists, and includes the following entries:
 - a) Prognosis GUI.
 - b) Prognosis Service - Service Control Panel.
11. Select the Prognosis GUI link.
12. Verify that the Prognosis GUI opens with no warnings or errors.
13. Select the Prognosis Service Control Panel link.
14. Verify that the Prognosis Service Control Panel opens with no warnings or errors.
15. Close GUI and Service Control Panel if they are opened.
16. Optional – Note: There might be update patch available for Prognosis IP Telephony Manager. If so, install the latest patch. At the time of preparing for this test, Z952m009 update patch is installed by:
 - a) Placing a copy of the update patch locally in a directory separate from the path "C:\Program Files\Prognosis IP Telephony Manager."
 - b) Double click on the self installing update patch executable.
 - c) Hit "Next" when prompted until the update patch is completely installed.

5.2. Prognosis IPTM Configuration

1. Open the Prognosis GUI and login.
2. Open the "PASSWORDS" configuration in the Node Navigator.
3. Create a new password entry name of "Nortel-CLI:<pbx-name>".
4. The password entry name can be selected from the drop down list in the "Entry Name" column.
5. Ensure the "Password Only" column is not selected.
6. Enter the "Username" to be used for login to the CS 1000 PBX.
Note: The "Username" and "Password" is used for login to Call Server and all Signaling Servers within the CS 1000 PBX.
7. Enter the "Password" (with verification).
8. Select "Start".

9. Select “Close”.



9. Open the “NORTEL_PBX” configuration in the Node Navigator.

10. Create a new entry for the CS 1000 PBX using the template defined.

Note: Be sure to use exactly the same <pbx-name> as was entered into the passwords configuration.

11. Select “Start”.

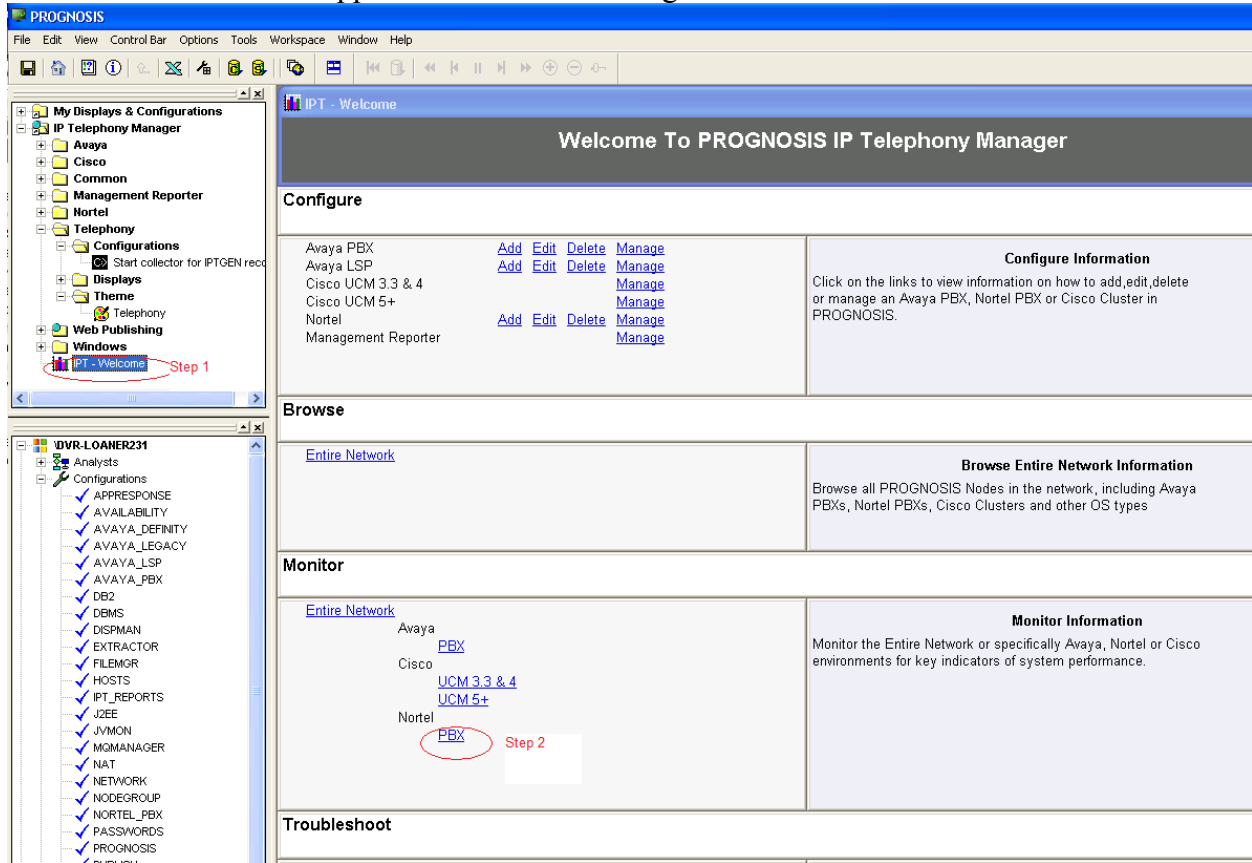
12. Select "Close".

The screenshot displays the PROGNOSIS software interface. On the left, a tree view shows the configuration hierarchy for 'VDR-LOANER231', with 'NORTEL_PBX' selected. A context menu is open over 'NORTEL_PBX', with 'Properties...' highlighted. A red circle around 'Properties...' is labeled 'step 2'. The main window, titled 'NORTEL_PBX on VDR-LOANER231', shows a configuration template. A red box highlights the following configuration lines, labeled 'step 3':

```
ADD PBX( CS1000-R60-PBX, ip=47.248.100.130, customer=Nortel, site=Lab)
DEFINE CLI_PROFILE( CS1000-R60-PBX, Version=R6.0)
```

Below the configuration window, a red text box states: "Be sure to use exactly the same <pbx-name> as was entered into the passwords configuration."

13. Observe a new node appears in the “Node Navigator”.



The screenshot displays the PROGNOSIS software interface. The main window is titled "Nortel Systems" and shows a table of "Entire Network" data. The table has columns for Name, Site ID, Customer, Site, Ver, Cont, IP, Routes, Zones, and Change. The first row is highlighted with a red circle around the "Name" cell, which contains "ACS1000-R60-PBX". A red box labeled "Step 3" is positioned below the table. Below the table is a "Voice Quality Samples" graph with a y-axis from 0 to 1 and an x-axis showing time intervals from 12:48:30 to 12:56:30. The graph area is currently empty.

Name	Site ID	Customer	Site	Ver	Cont	IP	Routes	Zones	Change
ACS1000-R60-PBX	46379	Nortel	Lab	R6.0	Yes	47.248.100.13	4 of 8	5 of 8	Config

Product documentation for Prognosis IPTM may be found in the Prognosis release CD.
 For more information, please refer to the link www.prognosis.com

6. General Test Approach and Test Results

The focus of this interoperability compliance testing was primarily to ensure that the Prognosis IPTM software has no adverse impact on the Avaya CS1000 system when used to monitor and manage the Avaya CS1000 system. It was able to provide a monitoring and management solution for IP telephony networks by collecting data, filtering it as required and then presenting it in a user-friendly format.

6.1. General test approach

The general test approach was to integrate the Prognosis IPTM into Avaya CS1000 system. The main objectives were to ensure that there is no adverse impact on the CS 1000 system while Prognosis IPTM is running the following features:

- Prognosis Installation.
- The operational status report of all CS1000 modules such as: Signalling Server, Media Gateway (MGC), Media Card, all IP Phones, all routes, all zones and the status of all commands executed on the CS 1000 PBX.
- CS1000 Hardware configuration report such as Signalling Server, MGC, etc.
- All processes running on a Signalling Server.
- All IP Phones are registered to a Signalling Server. All IP Phones are configured on the CS 1000 PBX.
- H.323 / SIP Gateway Calls.
- The channel utilization report on a Route.
- The inter-zone bandwidth usage report for a Zone.
- CPU utilization.

6.2. Test Results

The objectives outlined in **Section 6.1** were verified and met. All tests were executed and passed.

The following limitations are known at the time of the compliance testing:

1. The phone status update is only applicable for IP and IP softphone. All other type of phones such as Digital sets, Analog Sets, SIP clients will have “unknown” status. The command `isetShow` is used for determining the status of the telephone sets, up/down.
2. Only prime DN of a telephone set is discovered and associated with that telephone.
3. After disconnecting and re-connecting the LAN interface to the Prognosis IPTM server, the connection is automatically re-established but Prognosis IPTM cannot continue monitoring the PBX, and requires a restart for Prognosis IPTM.
4. The route utilization is just updated after making a call for 2 minutes.
5. If a command is executed by Prognosis when an overlay is in progress, the command is unsuccessful due to overlay conflict. The command will not run till its next scheduled time to execute (which could be up to 24hrs). To execute the command immediately, the user must restart Prognosis and the command will be executed.
6. When a new card is added to the system, it is not recognized by Prognosis until the user runs command “INV Generate Cards” first and then runs “INV PRT CARDS” to print it. We recommend customers enable automatic execution of “INV Generate All” every 24

hours to ensure that the PBX regenerates its inventory before Prognosis performs an inventory update.

7. If an error is received when clicking on the Status of MGC, it may be due to NTL-Status Log database not being started. Start the database via the GUI and it will update the status on the card.
8. In CS1000 release 5 & 6 the main IP Address of MGC cards are not shown. This is due to the existing command "PRT CAB" under LD 117 not being supported by these versions.
9. Information on member of the route which has more than 32 members is shown incorrectly. This is a performance limitation where Prognosis shows these records in two fields: LD 21/LTM reports a route may contain:
 - 32 channels in loop 100 1 01 with member number 1-32
 - 32 channels in loop 100 1 02 with member number 128-159.
10. Model of CPPM SS servers are shown incorrectly. This is due to the HostType field size being restricted to 10 characters for performance reasons.

The following issues are known at the time of the compliance testing. Workarounds/fixes have been provided by Integrated Research:

1. The type of digital routes is not displayed.
2. Members of MUS route are displayed incorrectly.
3. Members of SIP trunk are displayed incorrectly.

Prognosis designer has made settings changes to handle the specific cases. The type for digital routes are displayed properly after the changes. This is done with the nortel-cli-trunk.xml file under the Configuration\IPTM\Nortel directory.
4. The status of zone was not updated after disabling a zone for 5 minutes or longer.

Prognosis designer found that there was a configuration in terms of timing for picking up the status change within 5 minutes. He had updated the configuration in the nortel-cli-zones.xml file under configuration\IPTM\Nortel. Enable and disabling zone got reflected properly by status changes on the display.
5. We have only one MC card in our system but IPTM shows 2.
6. We have 2 SS servers but IPTM shows only 1.
7. Status of IP phones that are registering to Follower Signaling servers are shown as "Unknown".

Prognosis designer helped to adjust the advance configuration under server\configuration\IPTM\nortel-cli-cards.xml. After that, signaling server, media card and phones status information were displayed accurately.
8. Status of new MGCs are not shown:

This has been fixed by patch 1 of Prognosis.

The following items were not tested during the compliance testing:

1. Generating alerts when predefined conditions are exceeded, and automatically running commands to rectify system problems.
2. The voice quality measures report for a Zone (QoS).

7. Verification Steps

This section provides some steps that can be followed to verify the Avaya CS1000 system and Prognosis IPTM.

7.1. Measure the CS 1000 PBX performance under test conditions.

1. Establish a TELNET connection to the CS 1000 Signalling Server.
2. Login to the Signalling Server.
3. At a frequency of once every minute for a period of 10 minutes perform the following:
 - a) Enter the command “memShow” and note the memory usage.
 - b) Check CPU load on PBX.
4. Login to the Call Server by executing “cslogin” command.
5. Enter “pdt” mode on the Call Server by holding down <Ctrl> and typing PDT.
6. At a frequency of once every minute for a period of 10 minutes perform the following:
 - a) Enter the command “mem” and note the memory usage.
 - b) Check CPU load on PBX.
7. Exit “pdt” mode by typing “exit”.

7.2. The status of all commands executed on the CS 1000 PBX.

1. Open the PROGNOSIS GUI and login.
2. In the “Node Navigator”, check if a node exists for the CS 1000 PBX.

The screenshot shows the PROGNOSIS IP Telephony Manager GUI. The main window displays a welcome message and navigation options. The 'Configure' section lists system components with management links. The 'Browse' section provides a link to view the entire network. The 'Monitor' section offers a link to monitor the network and lists specific components like Avaya, Cisco, and Nortel, with 'PBX' under Nortel highlighted. The 'Node Navigator' on the left shows the system hierarchy, with 'IPT - Welcome' selected and circled in red, labeled 'Step 1'.

3. In the “Node Navigator”, observe the node for the CS 1000 PBX is shown as active.
4. From the “Welcome To PROGNOSIS IP Telephony Manager” display, drill down on “Nortel PBX” to open the “Nortel Systems” display.
5. Observe the connection status appears as “Yes”.

The screenshot shows the PROGNOSIS IP Telephony Manager interface. The main display area is titled "Nortel Systems" and shows a table of network components. A red circle highlights the "Cont" column for the "ICS1000-R60-PBX" entry, which shows "Yes". A red label "Step 3" points to this entry. The interface includes a menu bar, a toolbar, and two tree views on the left side.

Name	Site ID	Customer	Site	Ver	Cont	IP	Routes	Zones	Change
ICS1000-R60-PBX	46379	Nortel	Lab	R6.0	Yes	47.248.100.13	4 of 8	5 of 8	Config

Step 3

Voice Quality Samples

1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0

6. Drill down on the connection status field to open the “Nortel CLI Connection Status” display.
7. Drill down on “Commands” to open the “Nortel Commands” display.

The screenshot shows the PROGNOSIS application window. The title bar reads 'PROGNOSIS'. The menu bar includes 'File', 'Edit', 'View', 'Control Bar', 'Options', 'Tools', 'Workspace', 'Window', and 'Help'. The toolbar contains various icons for navigation and actions. On the left, there are two tree views: 'My Displays & Configurations' and 'IDVR-LOAHER231'. The main display area is titled 'Nortel CLI Connection Status' and shows the following table:

Monitoring Node	Conns	Login ID	Fail Cause	Last Conn	IP	Last Status
IDVR-LOAHER231	1	prognosis		Y	47.248.100.130	5/12/2010 09:14:15
IDVR-LOAHER231	1	prognosis		Y	47.248.100.130	5/12/2010 09:14:30
IDVR-LOAHER231	1	prognosis		Y	47.248.100.144	5/12/2010 09:14:30

Below the table is a graph titled 'Traffic To/From PBX Bytes/sec'. The y-axis ranges from 1400 to 2800. The graph shows two data series: 'Download (197.50)' in purple and 'Upload (118.80)' in green. The graph displays several peaks in traffic, with the highest peak reaching approximately 2600 bytes/sec.

8. Select "View All Cmds" to show all commands executed.

The screenshot shows the PROGNOSIS application window. The title bar reads "PROGNOSIS". The menu bar includes "File", "Edit", "View", "Control Bar", "Options", "Tools", "Workspace", "Window", and "Help". The interface is divided into several panes:

- Left Pane:** A tree view showing "My Displays & Configurations" and "IP Telephony Manager". Under "IP Telephony Manager", "Nortel" is expanded, showing sub-items like "Avaya", "Cisco", "Common", "Management Reporter", "Nortel", "Telephony", "Web Publishing", "Windows", and "IPT - Welcome".
- Top Pane:** "NTL-CLI PBX Commands" with a sub-header "Nortel Commands".
- Bottom Left Pane:** A tree view for "VVR-LOANER231" showing "Entire Network", "All Clusters", "All Telephony Systems", "Management Reporter", "Manager Nodes", "This System", and "Windows Systems".
- Main Content Area:**
 - Command Summary:** A small table with columns "Server" and "Cmds". It shows two rows: "47.248.100.130 21 of 23" and "47.248.100.144 1 of 2".
 - Command Execution - All Servers All Commands:** A large table with columns: "Name", "Server IP", "Type", "Exec", "Supp", "Last Exec", "Fail", "Exp Err", and "Une". The "Exec" column contains 'N' (red) or 'Y' (green). The "Fail" column contains '0' or '5'. The "Exp Err" column contains '0'.

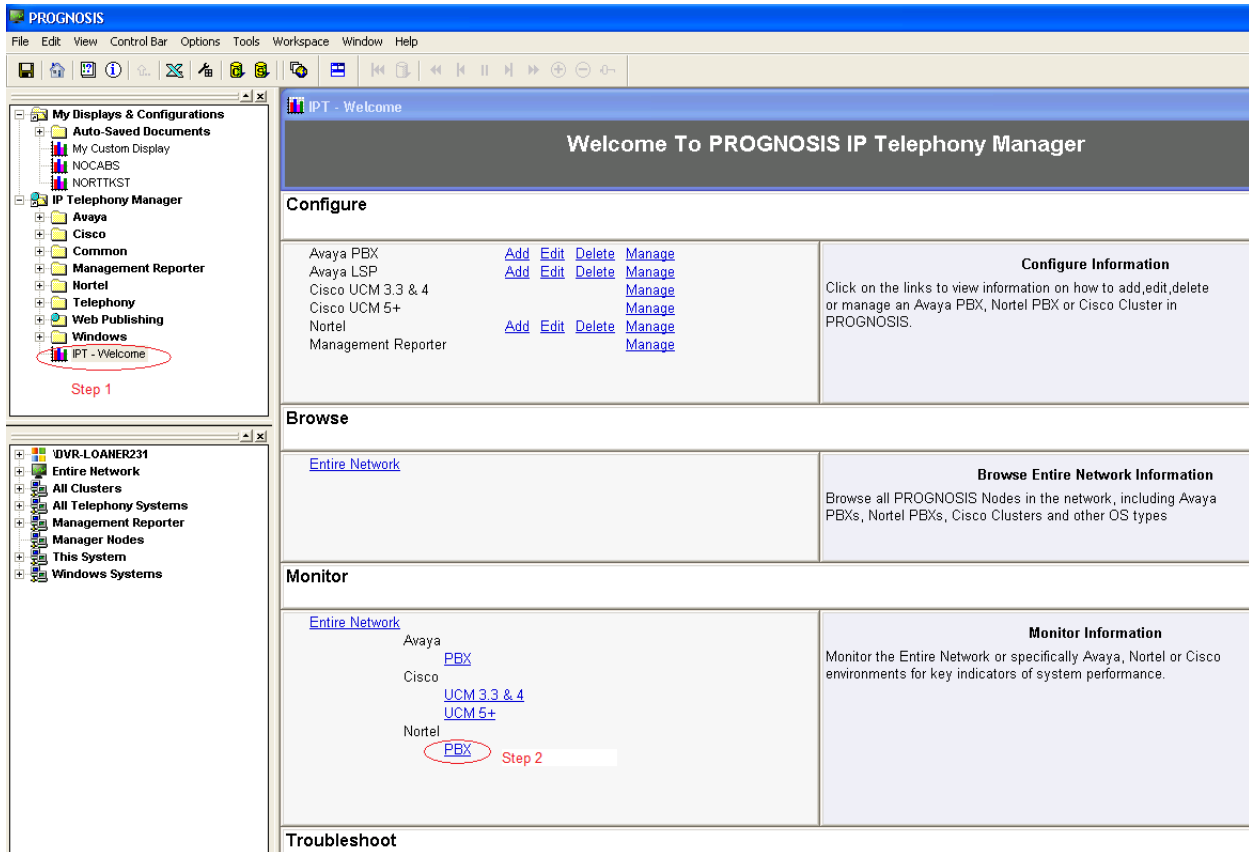
A red circle highlights the "View All Cmds" button in the bottom left corner of the main content area, with a red arrow pointing to it from the text "Step 5". Below it is a "View Unsuccessful Cmds" button with a right-pointing arrow.

9. Observe that all commands defined in Table 2 and Table 3 above appear in the list.

10. Observe that execution status for all commands is displayed and successful.

7.3. Observe the CPU utilization.

1. Open the PROGNOSIS GUI and login.
2. In the “Node Navigator” page, observe a node exists for the CS 1000 PBX.



3. In the “Node Navigator”, observe the node for the CS 1000 PBX is shown as active.
4. From the “Welcome To PROGNOSIS IP Telephony Manager” display drill down on “Nortel PBX” to open the “Nortel Systems” display.

5. Observe the Change as “Config”.

The screenshot shows the PROGNOSIS software interface. The main window is titled 'Nortel Systems' and displays a table of system configurations. A red circle highlights the 'Change Config' button in the table. Below the table, there is a 'Voice Quality Samples' graph with a y-axis ranging from 0.0 to 1.0. A red box labeled 'Step 3' is positioned near the 'Change Config' button.

Name	Site ID	Customer	Site	Ver	Cont	IP	Routes	Zones	Change
ICS1000-R60-PBX	46379	Nortel	Lab	R6.0	Yes	47.248.100.13	4 of 8	5 of 8	Change Config

The screenshot shows the 'Nortel Monitoring Node' configuration window for 'DVR-LOANER231'. The window is divided into several sections:

- Monitored PBXs:** A table showing the monitored PBX 'ICS1000-R60-PBX' with collector 'NORTELE_PBX'.
- Utilization Reporting Database:** Status is 'Running'. Includes the instruction 'Make sure this is running'.
- Status Log Database:** Status is 'Running'. Includes the instruction 'Make sure this is running'.
- Nortel PBX Alerts:** Status is 'Running'. Includes the instruction 'Make sure this is running'.
- Total Packets / Sec:** A line graph showing network traffic over time, with a significant spike around 09:30:00.
- CPU Utilization:** A dual-axis graph showing CPU usage (orange line) and CPU queue (purple bars) over time. A red box labeled 'Step 4' is around this graph.

8. Conclusion

These Application Notes describe a solution comprised of Avaya Communication Server 1000 Release 6.0 and Prognosis IP Telephony Manager 9.5.2 (patch 10). All of the executed test cases have passed and met the objectives outlined in **Section 6.1**, with some limitations/exceptions outlined in **Section 6.2**.

9. Additional References

Product documentation for Avaya products may be found at:

<http://support.nortel.com/go/main.jsp>

Product documentation for Prognosis IPTM may be found in the Prognosis release CD.

For more information, please refer to the link www.prognosis.com

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