



Application Notes for Configuring Avaya Modular Messaging R5.2 to interoperate with Integrated Research PROGNOSIS IP Telephony Manager R9.6 – Issue 1.0

Abstract

These Application Notes describe the procedures for configuring Integrated Research PROGNOSIS IP Telephony Manager R9.6 to interoperate with Avaya Modular Messaging R5.2.

PROGNOSIS IP Telephony Manager is a performance management solution for multi-vendor IP telephony solutions. PROGNOSIS IP Telephony Manager provides visibility of Avaya and other vendor's IP Telephony solutions from a single console. Targeted at multi-site enterprises and managed service providers of IP telephony solutions, PROGNOSIS IP Telephony Manager offers a multi-customer, multi-PBX perspective, enabling a significant reduction in complexity when managing complex IP telephony environments.

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

1. Introduction

These Application Notes describe the compliance tested configuration used to validate Integrated Research PROGNOSIS IP Telephony Manager (IPTM) with Avaya Modular Messaging.

The Integrated Research PROGNOSIS IP Telephony Manager is based on the Integrated Research PROGNOSIS product-family architecture for the scalable monitoring of business critical systems. The Integrated Research PROGNOSIS product consists of:

- One or more Integrated Research PROGNOSIS Monitoring Nodes (Server Nodes). These are servers used by the Integrated Research PROGNOSIS product to collect, relay and store information collected from Communication Manager.
- The Integrated Research PROGNOSIS IP Telephony Manager GUI is a Microsoft Windows client program which is used to connect to a PROGNOSIS Monitoring Node and display the information collected by the Monitoring Node. The PROGNOSIS GUI may either be installed on a Monitoring Node or on a separate computer.

The Integrated Research PROGNOSIS IP Telephony Manager product uses two methods to monitor a Modular Messaging system.

- Windows Management Instrumentation (WMI) - The Integrated Research PROGNOSIS IP Telephony Manager uses WMI to monitor the activities and processes running on the Avaya Modular Messaging Application Server (MAS).
- Simple Network Management Protocol (SNMP) – The Integrated Research PROGNOSIS IP Telephony Manager uses SNMP to monitor events and processes running on the Avaya Modular Messaging Storage Server (MSS).

2. General Test Approach and Test Results

The general test approach was to use the IPTM GUI to display the status and activities, current and historical, of the Modular Messaging MAS and MSS.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

2.1. Interoperability Compliance Testing

For feature testing, the IPTM GUI was used to verify the correct status of the MSS and MAS, under the following conditions:

- Established SNMP and WMI connection to MSS and MAS respectively
- Voicemail Port Utilization
- TUI activity
- Incoming call activity
- CPU, memory, processes, network and storage statistics for MSS and MAS
- MSS and MAS availability
- Incorrect connection credentials
- Message Waiting Indication (MWI) statistics
- Real-time update of graphical and statistical presentation

2.2. Test Results

All test cases passed successfully.

2.3. Support

For technical support on Integrated Research PROGNOSIS IP Telephony Manager, contact the Integrated Research Support Team at:

- Hotline: +61 (2) 9921 1524
- Email: support@prognosis.com

3. Reference Configuration

Figure 1 illustrates the test configuration used to verify interoperability of Integrated Research PROGNOSIS IP Telephony Manager with Modular Messaging. The solution consists of Communication Manager running on an S8800 server with a G650 Media Gateway connected by a SIP trunk to Session Manager which is controlled by System Manager each running on an S8800 server. A SIP connection between Session Manager and the Modular Messaging Application Server completes the connectivity for routing between Communication Manager and Modular Messaging. The MAS and MSS are each hosted on an S3500 server. A 9641G one-X H323 Deskphone and 9650C H323 Deskphone were used as endpoints in the compliance test. IPTM is hosted on a VMware server with network connectivity to the MAS and MSS Servers.

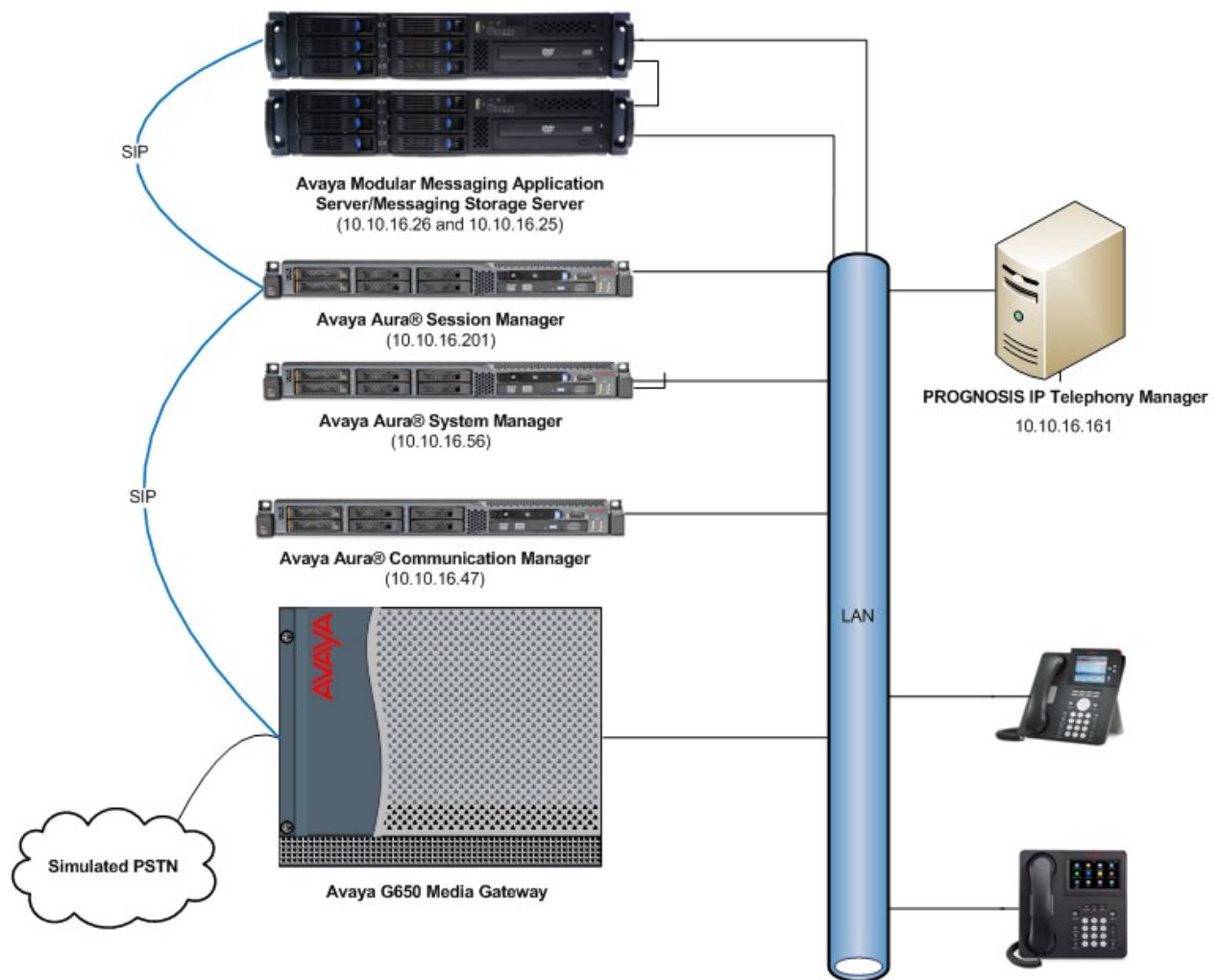


Figure 1: Avaya Aura® Communication Manager, Avaya Aura® Session Manager, Avaya Aura® System Manager and Avaya Modular Messaging with PROGNOSIS IP Telephony Manager Configuration

4. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment/Software	Release/Version
Avaya Aura® Communication Manager running on Avaya S8800 Server	R6.0.1 SP6 R016x.00.1.510.1-19350
Avaya G650 Media Gateway: <ul style="list-style-type: none">• TN2602AP• TN799DP	HW8 FW61 HW01 FW040
Avaya Aura® Session Manager running on Avaya S8800 Server	R6.1 SP6 6.1.6.0.616008
Avaya Aura® System Manager running on Avaya S8800 Server	R6.1 SP6 Build Number 6.1.0.0.7345-6.1.5.606 Software Update Revision Number 6.1.10.1.1774
Avaya Modular Messaging running on S3500 Servers	5.2 Patch 8 MAS - 9.2.150.13
VMware Server	ESXi 4.1 Integrated Research PROGNOSIS IP Telephony Manager 9.6

5. Configure Avaya Aura® Communication Manager

It is assumed that Communication Manager is already configured and stations on Communication Manager are able to access and use Modular Messaging. No special configuration is required on Communication Manager for the use of PROGNOSIS IP Telephony Manager with Modular Messaging.

6. Configure Avaya Aura® Session Manager

It is assumed that Session Manager is already configured with the relevant routing information for successful routing between Modular Messaging and Communication Manager. No special configuration is required on Session Manager for the use of PROGNOSIS IP Telephony Manager with Modular Messaging.

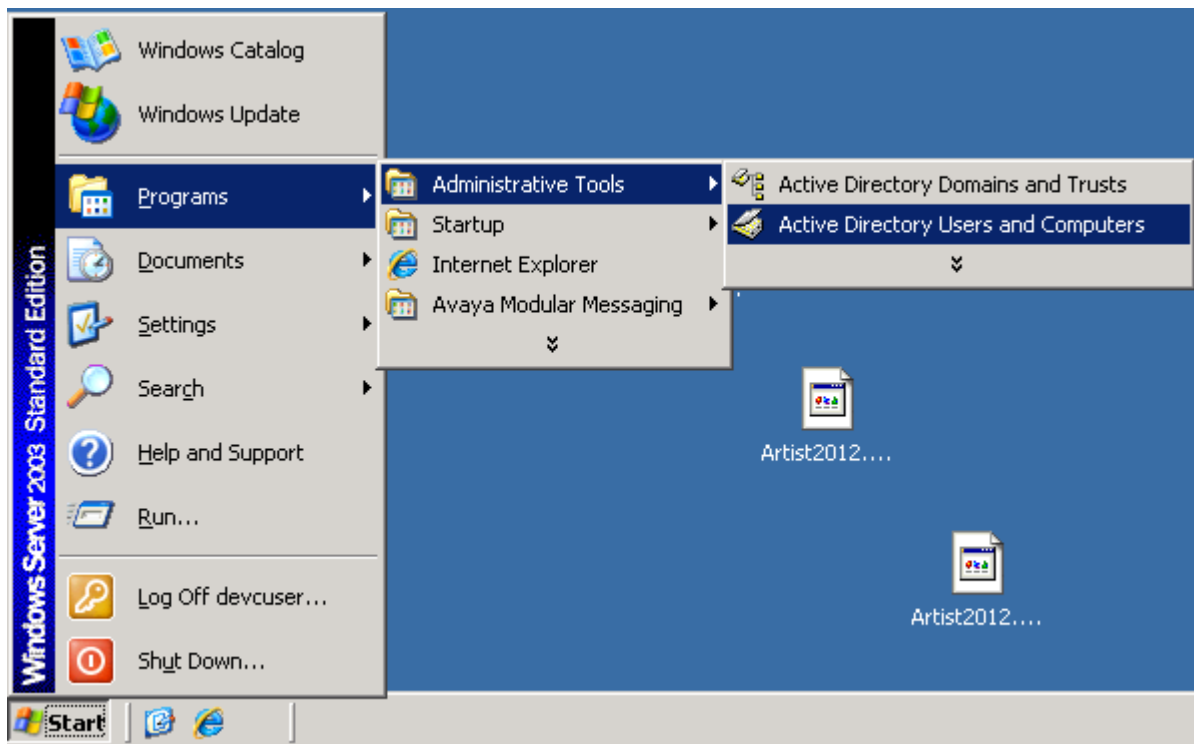
7. Configure Avaya Modular Messaging

While it is assumed that a functioning Modular Messaging solution is already in place with mailboxes configured and connectivity to Communication Manager established via Session Manager. The configuration required to interoperate with PROGNOSIS IP Telephony Manager can be summarized as follows:

- Configure Active Directory user and password
- Enable WMI connectivity
- Configure SNMP Community
- Configure SNMP Query Originators

7.1. Configure Active Directory user and password

In order for PROGNOSIS IPTM to connect to the MAS to collect WMI information, a username and password must be configured on Active Directory with the correct access rights. By default Modular Messaging is provisioned with a user with sufficient privileges. Login to the Windows MAS server using the relevant administrator credentials and click **Start → Programs → Administrative Tools → Active Directory Users and Computers** as shown below.

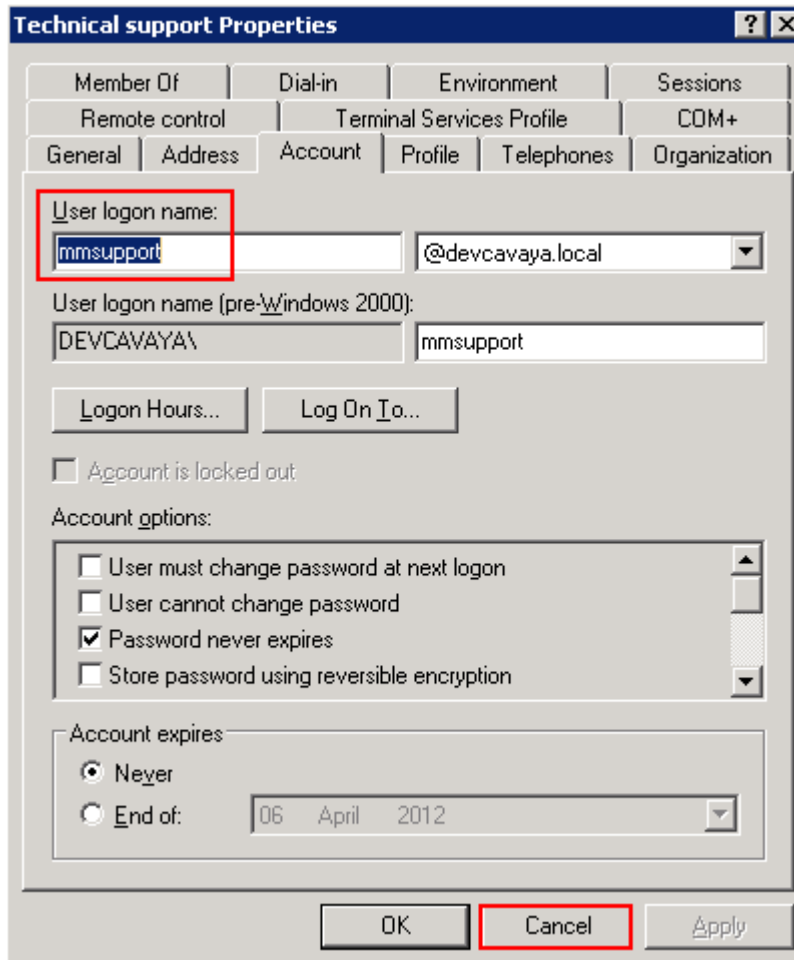


A screen will appear displaying the administered users, locate and select the user with the description **Modular Messaging Technical Support Account**.

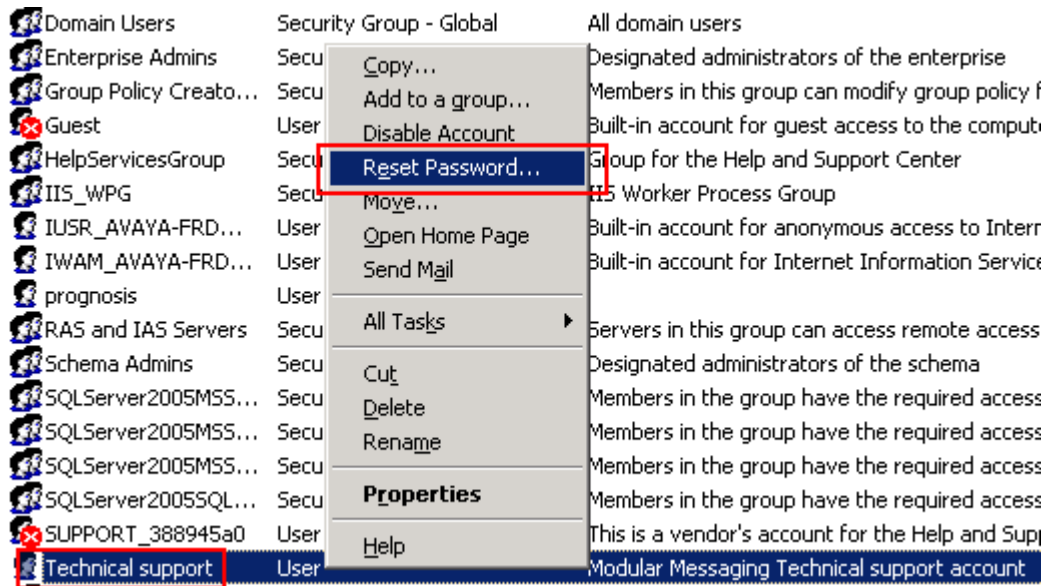
The screenshot shows the 'Active Directory Users and Computers' console. The left pane shows the tree structure with 'Users' selected under 'devcavaya.local'. The right pane displays a table of 31 objects. The table has three columns: Name, Type, and Description. The 'Technical support' user is highlighted with a red box.

Name	Type	Description
ASPNET	User	Account used for running the ASP.NET worker p
Cert Publishers	Security Group - Domain Local	Members of this group are permitted to publish i
Customer account	User	Modular Messaging Customer account
devcuser	User	Built-in account for administering the computer/i
DHCP Administrators	Security Group - Domain Local	Members who have administrative access to DH
DHCP Users	Security Group - Domain Local	Members who have view-only access to the DH
DnsAdmins	Security Group - Domain Local	DNS Administrators Group
DnsUpdateProxy	Security Group - Global	DNS clients who are permitted to perform dynar
Domain Admins	Security Group - Global	Designated administrators of the domain
Domain Computers	Security Group - Global	All workstations and servers joined to the doma
Domain Controllers	Security Group - Global	All domain controllers in the domain
Domain Guests	Security Group - Global	All domain guests
Domain Users	Security Group - Global	All domain users
Enterprise Admins	Security Group - Global	Designated administrators of the enterprise
Group Policy Creato...	Security Group - Global	Members in this group can modify group policy f
Guest	User	Built-in account for guest access to the compute
HelpServicesGroup	Security Group - Domain Local	Group for the Help and Support Center
IIS_WPG	Security Group - Domain Local	IIS Worker Process Group
IUSR_AVAYA-FRD...	User	Built-in account for anonymous access to Intern
IWAM_AVAYA-FRD...	User	Built-in account for Internet Information Service
prognosis	User	
RAS and IAS Servers	Security Group - Domain Local	Servers in this group can access remote access
Schema Admins	Security Group - Global	Designated administrators of the schema
SQLServer2005MSS...	Security Group - Domain Local	Members in the group have the required access
SQLServer2005MSS...	Security Group - Domain Local	Members in the group have the required access
SQLServer2005MSS...	Security Group - Domain Local	Members in the group have the required access
SQLServer2005SQL...	Security Group - Domain Local	Members in the group have the required access
SUPPORT_388945a0	User	This is a vendor's account for the Help and Supp
Technical support	User	Modular Messaging Technical support account
TelnetClients	Security Group - Domain Local	Members of this group have access to Telnet Se
WINS Users	Security Group - Domain Local	Members who have view-only access to the WIF

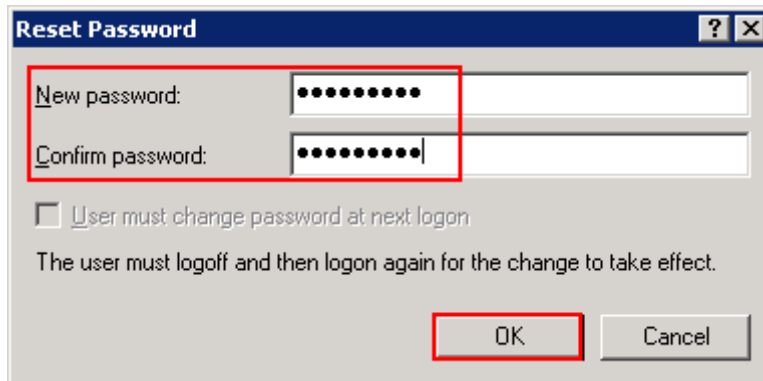
Right click on the user and select **Properties** (not shown), the properties box will appear, click the **Account** tab and note the **User logon name** and click **Cancel**.



Right click on the user again, and select **Reset Password** if the password for this user is not known.

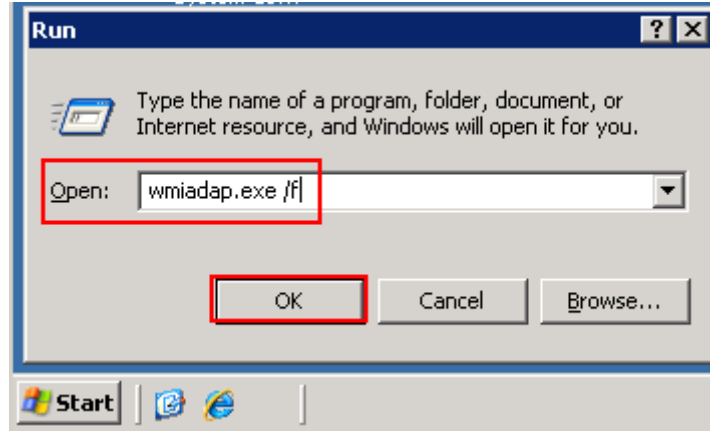


On the page which appears, enter a password sufficient to meet the Active Directory requirements and click **OK**.



7.2. Enable WMI connectivity

The MAS server must be configured in order to enable PROGNOSIS IPTM to connect for WMI information. Click on **Start** → **Run** enter **wmiadap.exe /f** in the **Open** box and click **OK**.



7.3. Configure SNMP Community

An SNMP Community must be added so that PROGNOSIS IPTM can connect to the MSS for server information and statistics. Click **SNMP** → **Add** enter **public** in the **Community** field and select **read-only**, click **Save** when done.

The screenshot shows the Avaya web interface. At the top left is the Avaya logo. Below it is a navigation menu with categories: Mail Delivery, Ping Another Server, Name Server Lookup, Software Management, Messaging Software Display, Server Software Display, Software Installation, Software Verification, Software Removal, Software Update, Advanced Installation, Security, and Alarming. The 'SNMP Community' option under the 'Alarming' category is highlighted with a red box. The main content area is titled 'Add New SNMP Community'. It contains two input fields: 'Community' with the value 'public' and 'Apply To' with a dropdown menu set to 'read-only'. Both fields are enclosed in a red box. Below the input fields are three buttons: 'Back', 'Save', and 'Help'. The 'Save' button is highlighted with a red box.

7.4. Configure Query Originators

A query origination must be added so that the IP address of the server hosting PROGNOSIS IPTM can connect to the MSS for SNMP information. Click **Query Originators** → **Add**, the **Add New Query Originator** screen will appear, in the **IP Address or Hostname** enter the details of the PROGNOSIS IPTM server and select the **Community** created in **Section 7.3** from the drop down box, click **Save** when done.

AVAYA

Help Log Off

Alarm Origination
LDAP Connection
SMTP Connection
POP3 Connection
IMAP4 Connection
Mail Delivery
Ping Another Server
Name Server Lookup
Software Management
Messaging Software Display
Server Software Display
Software Installation
Software Verification
Software Removal
Software Update
Advanced Installation
Security
Change My Password
Password Rules
Administrative Roles
Local Administrators
AAA Configuration
ASG Login Administration
ASG Login Display
ASG Login Violation
Subscriber Access
PPP Configuration
Certificate Management
Avaya Root Certificate
Security Warning
Alarming
Alarming Configuration
SNMP MIB II Parameters
Query Originators
SNMP Trap Destinations
SAL Destinations
SNMP Community
SNMP Users
HTTPS Servers

Add New Query Originator

IP Address or Host Name 10.10.16.161

Community public

Back Save Help

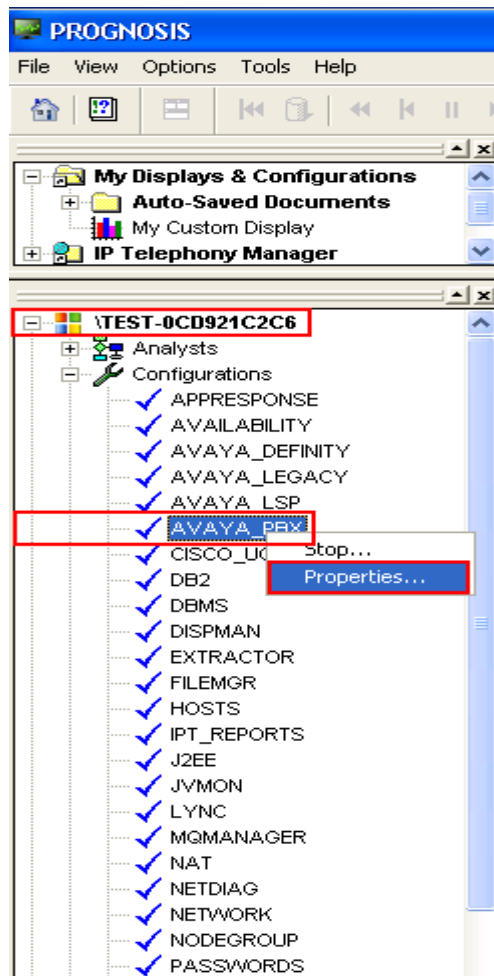
8. Configure Integrated Research PROGNOSIS IP Telephony Manager

For the purposes of the compliance test PROGNOSIS IP Telephony Manager service and client was hosted upon a Microsoft Windows XP SP2 PC and was provided installed by Integrated Research. The configuration required to connect to the Avaya solution can be summarized as follows:

- Define MAS and MSS IP addresses
- Configure WMI connection to MAS
- Configure SNMP connection to MSS

8.1. Define MAS and MSS IP addresses

In order for PROGNOSIS IPTM to connect to the MAS and MSS the corresponding IP addresses must be defined. Login to the PROGNOSIS IPTM client in the **Managed Nodes** pane, which is displayed and removed by clicking **F4**, double click on the name of the PROGNOSIS IPTM Server, in this case `\TEST-0CB921C2C6`, double click on **Configurations**, right click on **AVAYA_PBX** and select **Properties**.



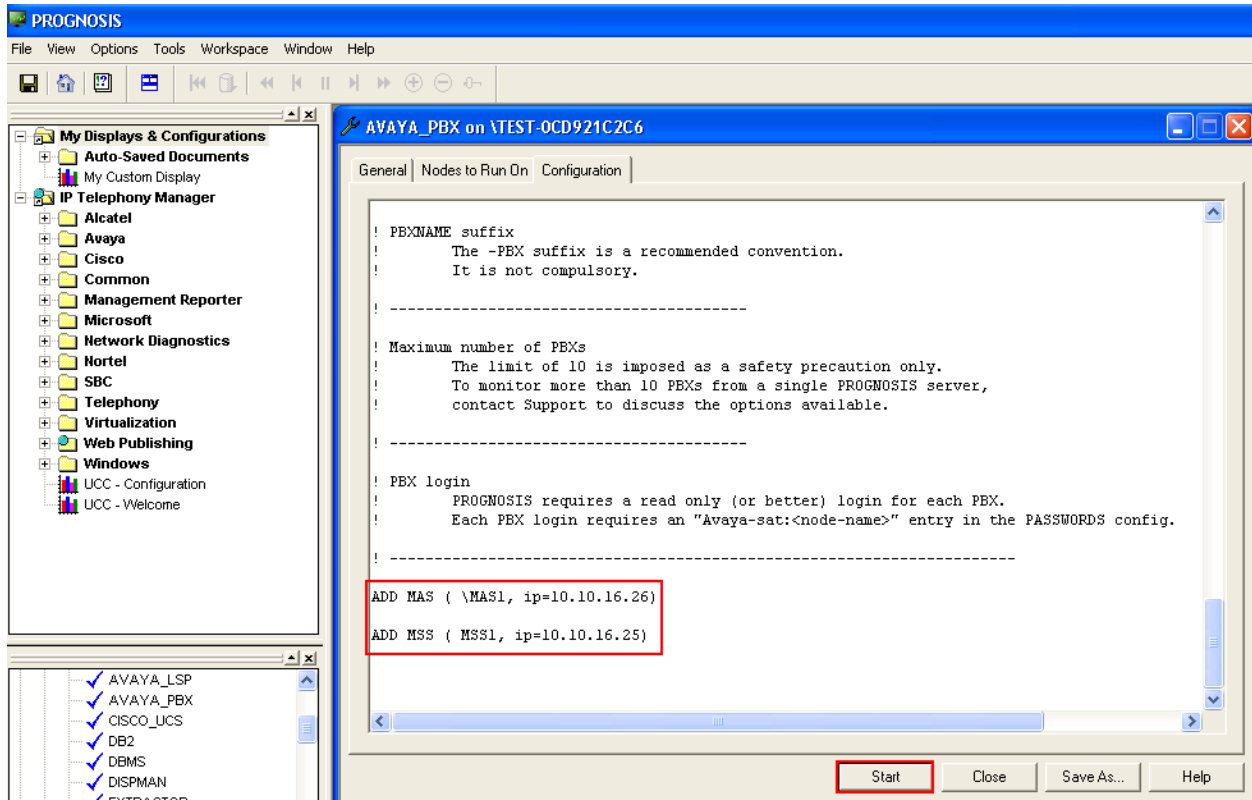
Click on the **Configuration** tab and scroll down to the bottom of the screen, enter the following at the bottom of the configuration page and click **Start**:

```
ADD MAS ( \MAS_ID, ip=IP_OF_MAS)
ADD MSS (MSS_ID, ip=IP_OF_MSS)
```

In this case:

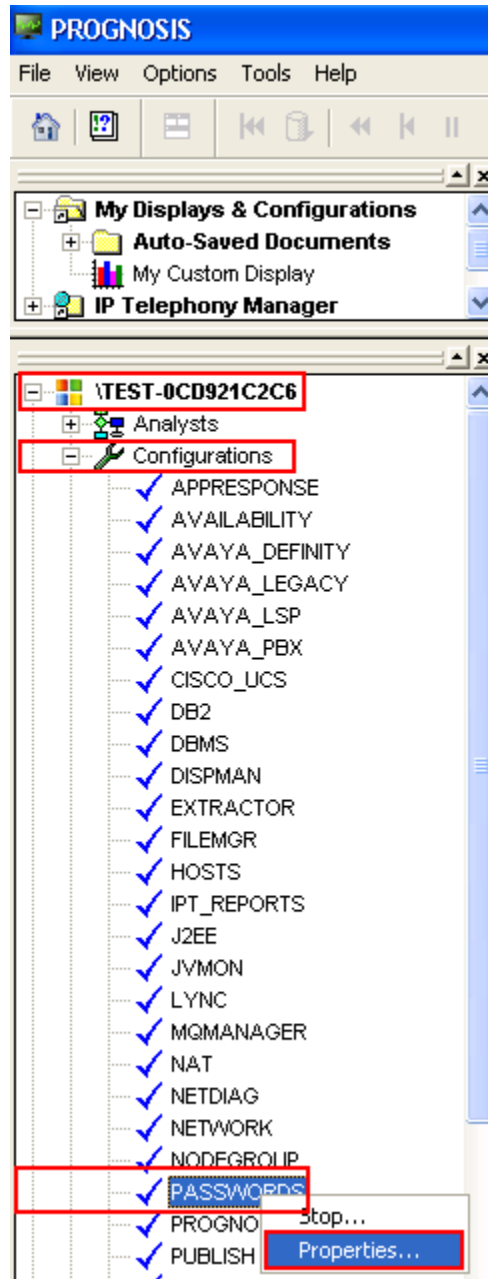
```
ADD MAS ( \MAS1, ip=10.10.16.26)
ADD MSS ( MSS1, ip=10.10.16.25)
```

Note: The MAS and MSS IDs are for reference purposes only and need not reflect the actual hostname configured on the respective servers. PROGNOSIS IPTM uses only the IP addresses to connect to the MAS and MSS servers.

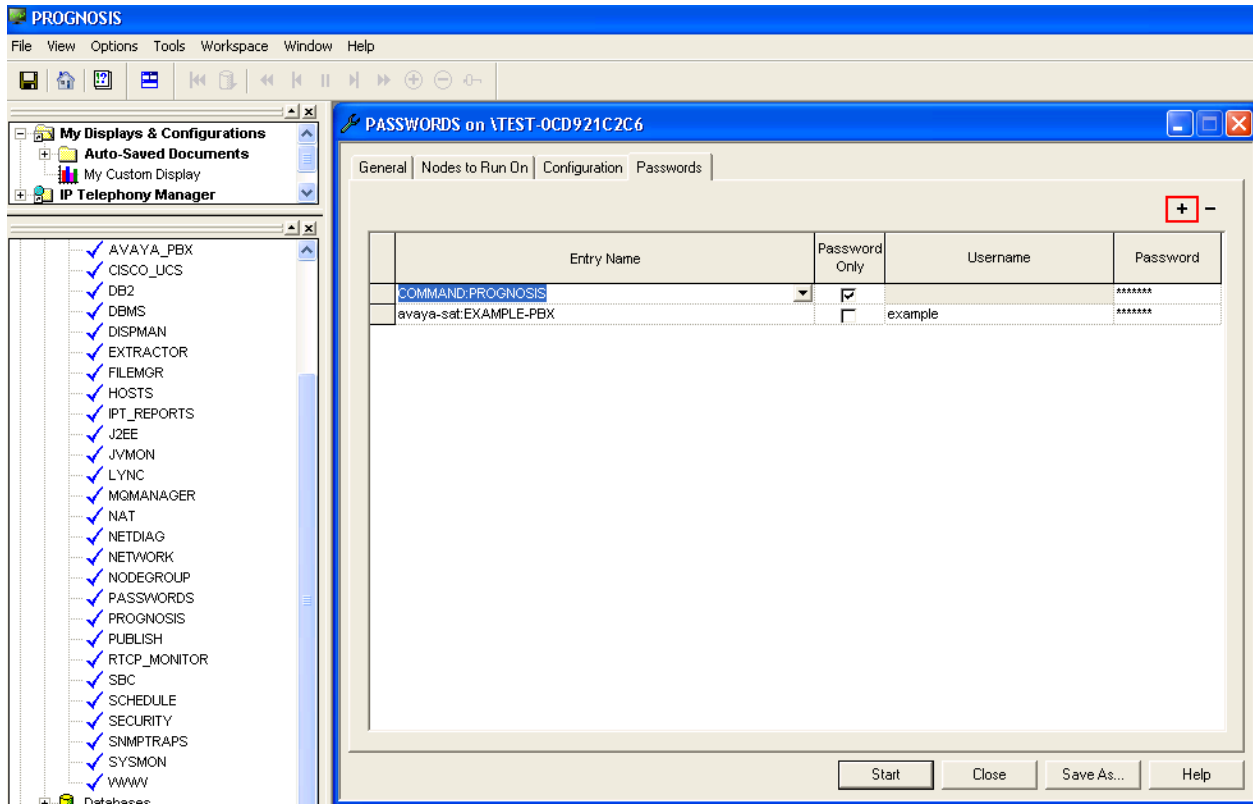


8.2. Configure WMI connection to MAS

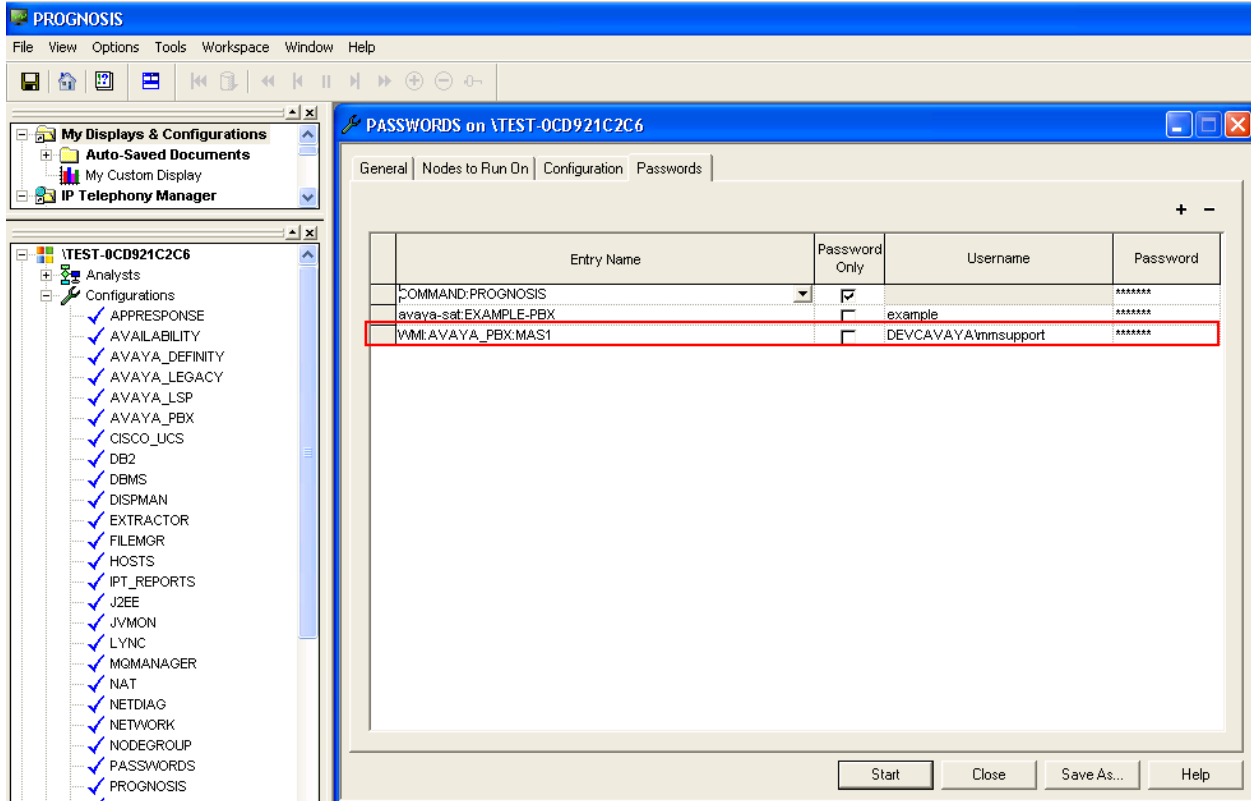
In order for PROGNOSIS IPTM to connect to the MAS for WMI information, the username and password configured in **Section 7.1** must be defined. In the **Managed Nodes** pane, right click on **PASSWORDS** and select **Properties**.



At the screen which appears click on the +.

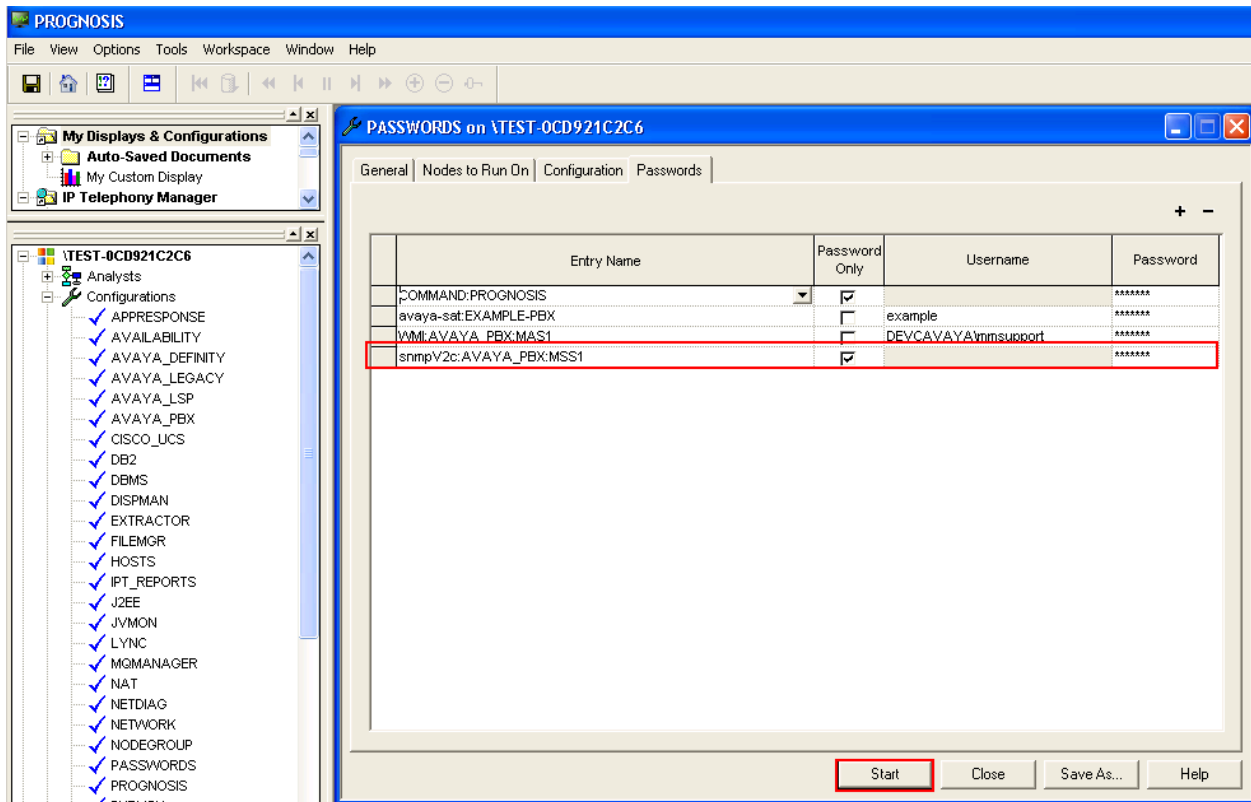


Enter **WMI:AVAYA_PBX:MAS_ID** in this case **WMI:AVAYA_PBX:MAS1** in the **Entry Name** column, and the user credentials created in **Section 7.1**, where **DEVCAVAYA** is the Active Directory Domain Name and click **Start**.



8.3. Configure SNMP connection to MSS

In order to collect SNMP information from the MSS, the SNMP string configured in **Section 7.5** must be defined. Using the same method specified in **Section 8.2** add an entry containing **snmpV2c:AVAYA_PBX:MSS_ID** in this case **snmpV2c:AVAYA_PBX:MSS1**, place a tick in the **Password Only** column and enter the community string specified in **Section 8.2** as the password, click **Start** when done.

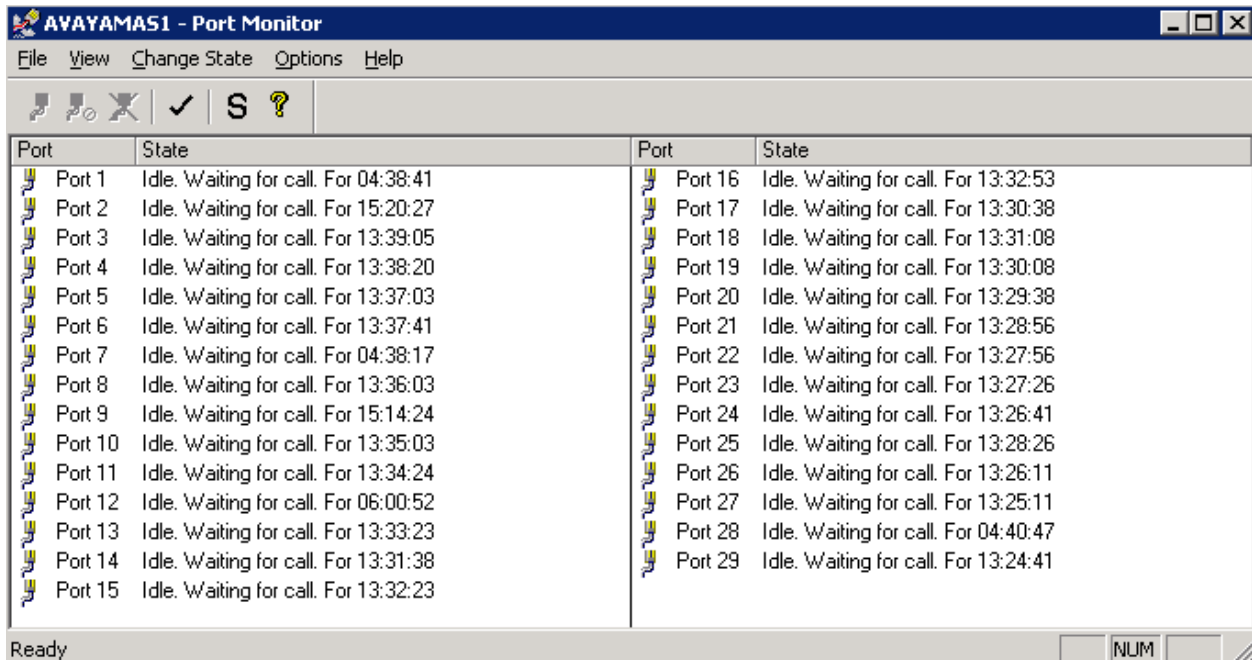


9. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Modular Messaging and PROGNOSIS IP Telephony Manager.

9.1. Verify Modular Messaging Port Status

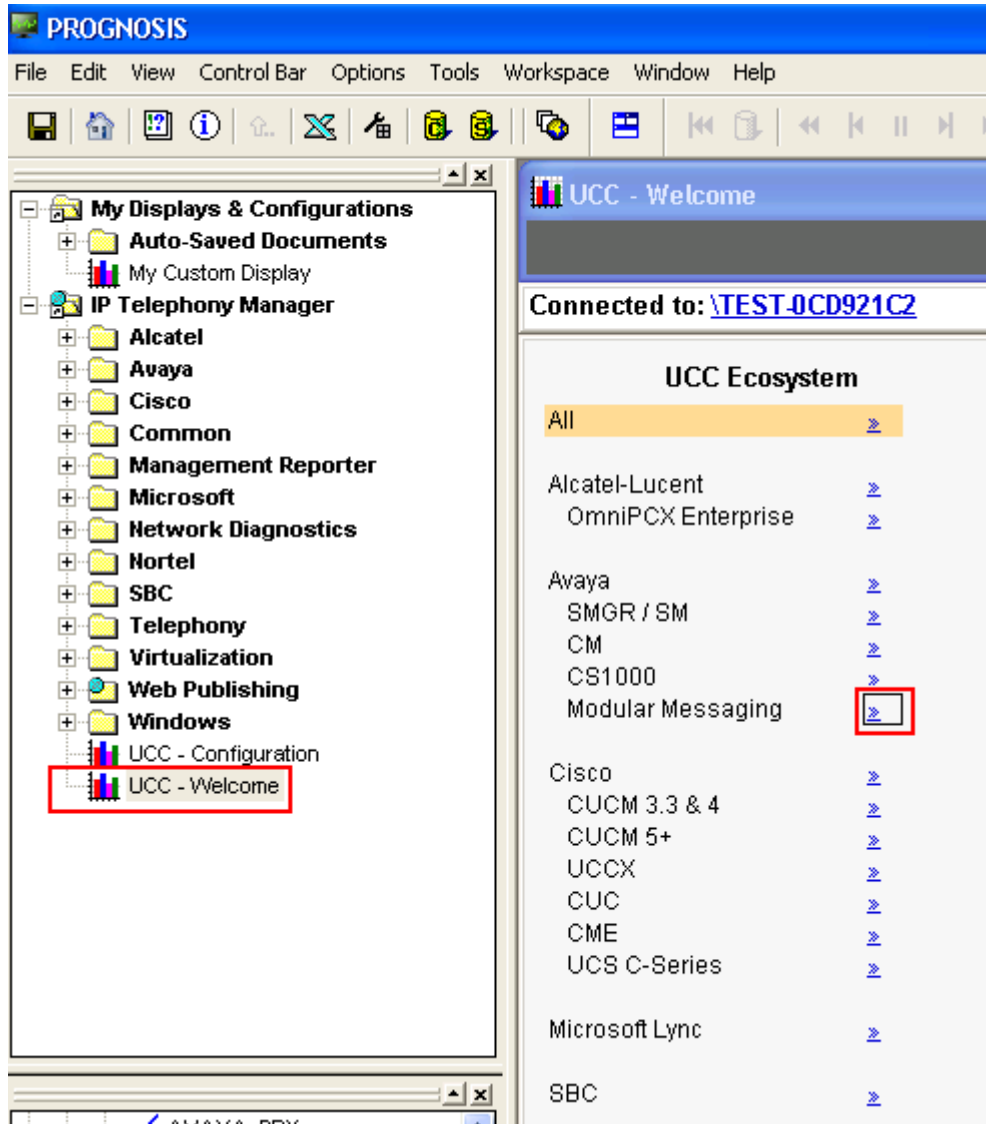
From the MAS server, click **Start** → **Programs** → **Avaya Modular Messaging Port Monitor** and verify the status of the voicemail ports is accurate according to activity on Modular Messaging. In the image below, no applications provided by Modular Messaging are being accessed and all the ports are idle and waiting for a call.



Port	State	Port	State
Port 1	Idle. Waiting for call. For 04:38:41	Port 16	Idle. Waiting for call. For 13:32:53
Port 2	Idle. Waiting for call. For 15:20:27	Port 17	Idle. Waiting for call. For 13:30:38
Port 3	Idle. Waiting for call. For 13:39:05	Port 18	Idle. Waiting for call. For 13:31:08
Port 4	Idle. Waiting for call. For 13:38:20	Port 19	Idle. Waiting for call. For 13:30:08
Port 5	Idle. Waiting for call. For 13:37:03	Port 20	Idle. Waiting for call. For 13:29:38
Port 6	Idle. Waiting for call. For 13:37:41	Port 21	Idle. Waiting for call. For 13:28:56
Port 7	Idle. Waiting for call. For 04:38:17	Port 22	Idle. Waiting for call. For 13:27:56
Port 8	Idle. Waiting for call. For 13:36:03	Port 23	Idle. Waiting for call. For 13:27:26
Port 9	Idle. Waiting for call. For 15:14:24	Port 24	Idle. Waiting for call. For 13:26:41
Port 10	Idle. Waiting for call. For 13:35:03	Port 25	Idle. Waiting for call. For 13:28:26
Port 11	Idle. Waiting for call. For 13:34:24	Port 26	Idle. Waiting for call. For 13:26:11
Port 12	Idle. Waiting for call. For 06:00:52	Port 27	Idle. Waiting for call. For 13:25:11
Port 13	Idle. Waiting for call. For 13:33:23	Port 28	Idle. Waiting for call. For 04:40:47
Port 14	Idle. Waiting for call. For 13:31:38	Port 29	Idle. Waiting for call. For 13:24:41
Port 15	Idle. Waiting for call. For 13:32:23		

9.2. Verify Integrated Research IP Telephony Manager Status

From the PROGNOSIS IPTM client click **UCC Welcome**, in the page which appears click on the double chevron next to **Modular Messaging** (highlighted in the screen below).



In the **Avaya Modular Messaging – Welcome** window that appears, verify that both the MAS and MSS servers are visible with their corresponding IP addresses and **Yes** in the **Cont** column.

AV-Modular Messaging - Welcome

Avaya Modular Messaging - Welcome

Connected to: TEST-0CD921C2 [Alerts](#)

Avaya Modular Messaging Application Servers						Avaya Modular Messaging Storage Servers			
Name	IP Address	Cont	Ports	Util %	Reports	Name	IP Address	Cont	Reports
MAS1	10.10.16.26	Yes	29 of 29	0.00	▶	MSS1	10.10.16.25	Yes	▶

Click on **MAS1 → Ports**, verify the port usage is displayed and corresponds to true activity through Modular Messaging and the Port Status field shown in **Section 9.1**. Place a call into Modular Messaging and verify that the channels in use increase accordingly.

AV-MAS Voice Mail Ports

Avaya Modular Messaging Voice Mail Ports

MAS1

Voice Mail Ports Status

Legend:
■ Idle (29)
■ Busy (0)
■ Disabled (0)
■ Disabling (0)

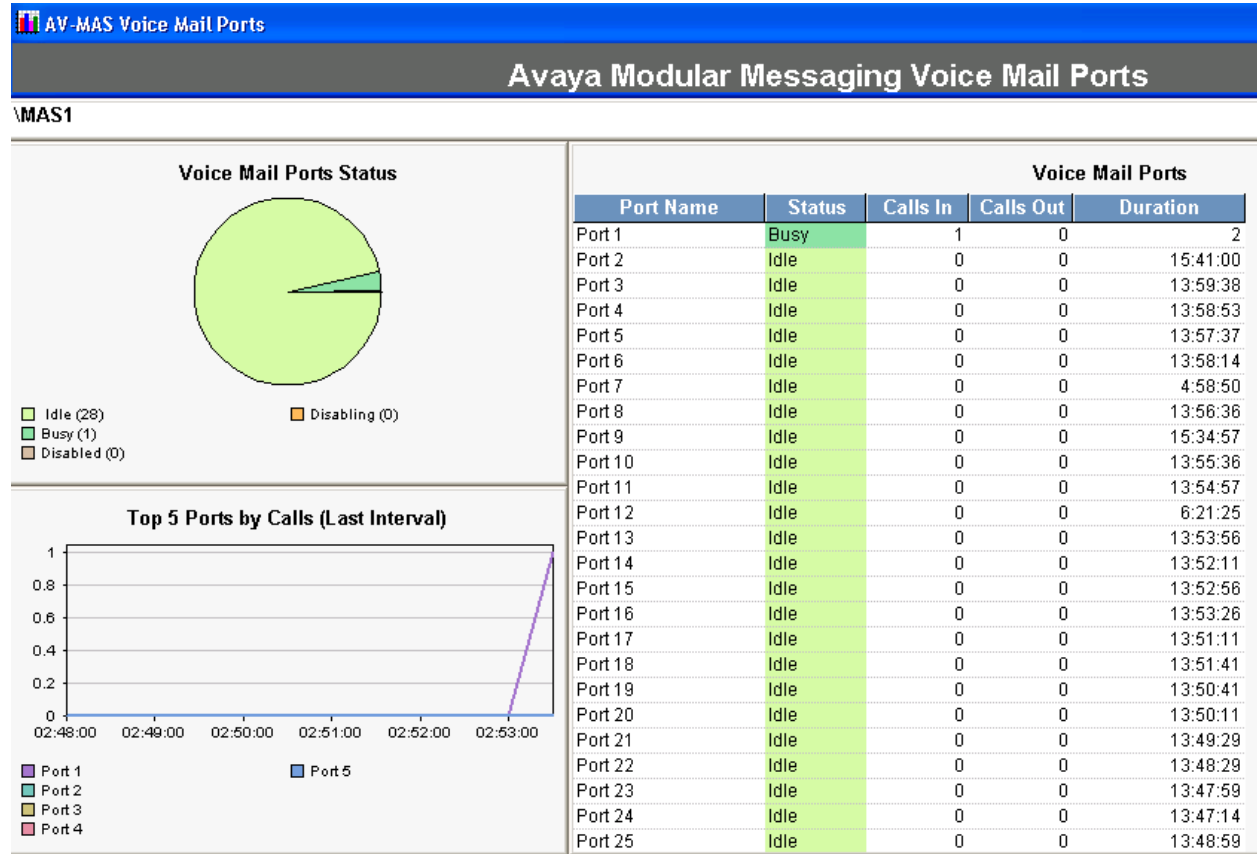
Voice Mail Ports

Port Name	Status	Calls In	Calls Out	Duration
Port 1	Idle	0	0	4:57:14
Port 2	Idle	0	0	15:39:00
Port 3	Idle	0	0	13:57:38
Port 4	Idle	0	0	13:56:53
Port 5	Idle	0	0	13:55:36
Port 6	Idle	0	0	13:56:14
Port 7	Idle	0	0	4:56:50
Port 8	Idle	0	0	13:54:36
Port 9	Idle	0	0	15:32:57
Port 10	Idle	0	0	13:53:36
Port 11	Idle	0	0	13:52:57
Port 12	Idle	0	0	6:19:25
Port 13	Idle	0	0	13:51:56
Port 14	Idle	0	0	13:50:11
Port 15	Idle	0	0	13:50:56
Port 16	Idle	0	0	13:51:26
Port 17	Idle	0	0	13:49:11
Port 18	Idle	0	0	13:49:41
Port 19	Idle	0	0	13:48:41
Port 20	Idle	0	0	13:48:11
Port 21	Idle	0	0	13:47:29
Port 22	Idle	0	0	13:46:29
Port 23	Idle	0	0	13:45:59
Port 24	Idle	0	0	13:45:14
Port 25	Idle	0	0	13:46:59

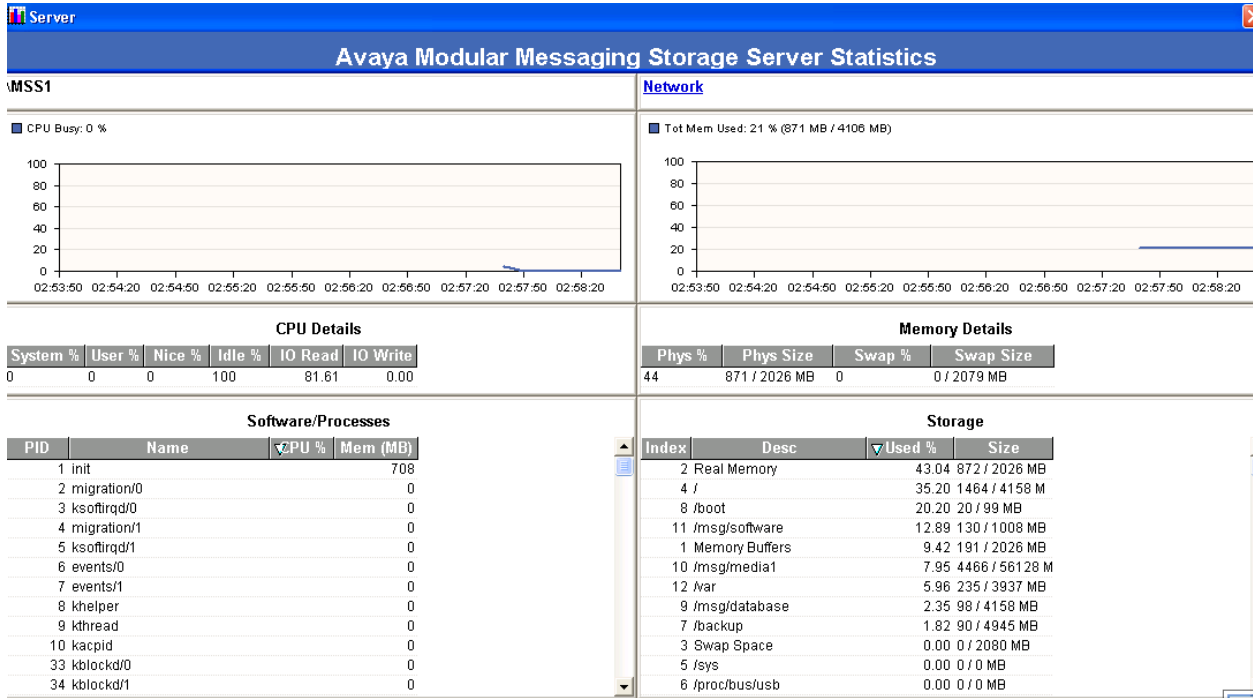
Top 5 Ports by Calls (Last Interval)

Legend:
■ Port 1
■ Port 2
■ Port 3
■ Port 4
■ Port 5

Place a call into Modular Messaging and verify that the Voice Mail Ports status is displayed accordingly.



Return to the **Avaya Modular Messaging – Welcome** screen and click on **MSS1** verify the presence of MSS details accurately reflecting the status of the MSS.



10. Conclusion

These Application Notes describe the procedures for configuring the Integrated Research PROGNOSIS IP Telephony Manager to interoperate with Avaya Modular Messaging. In the configuration described in these Application Notes, PROGNOSIS IP Telephony Manager established SNMP and WMI connections to Avaya Modular Messaging servers to view the status and statistics of the Messaging Application Server and Message Storage Server. During compliance testing, all test cases were completed successfully as mentioned in **Section 2.2**.

11. Additional References

The following Avaya documents are available from <http://support.avaya.com>

- [1] Avaya Modular Messaging Admin Guide Release 5.2 with Avaya MSS

The following PROGNOSIS documents were provided by Integrated Research.

- [2] IPTM Avaya Modular Messaging Certification Test Plan v0.3.doc

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