Avaya Solution & Interoperability Test Lab

Application Notes for Virsae Service Management with Avaya Aura® System Manager - Issue 1.0

Abstract

These Application Notes describe the procedures for configuring Virsae Service Management R174 to interoperate with Avaya Aura® System Manager R10.1.

Virsae Service Management provides real-time monitoring and management solutions for IP telephony networks. Virsae Service Management provides visibility of Avaya and other vendor's IP Telephony solutions from a single console and enables a reduction in complexity when managing complex IP telephony environments.

Virsae Service Management integrates directly to System Manager using Secure Shell (SSH) and uses Simple Network Management Protocol (SNMP) to query System Manager.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as any observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

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 Virsae Service Management (herein after referred to as VSM) with Avaya Aura® System Manager (herein after referred to as System Manager). VSM is a cloud-based service management platform that brings visibility, service transparency and cost savings to Unified Communications environments over the short, medium and long term.

The Virsae product uses SNMP, SFTP and Linux shell access integration method to monitor System Manager.

- SNMP collection –Virsae uses SNMP to collect alarm and status information from System Manager.

- SSH – Virsae establishes a Linux Shell connection to run the "sar" command and obtain system information. This command typically collects, reports, and saves CPU, Memory, I/O usage in the Linux operating system.

- SFTP – Virsae provides a SFTP access to System Manager for backup of data.

2. General Test Approach and Test Results

The general test approach was to verify VSM using SNMP and SSH connection to monitor and display system status from System Manager. SFTP was also verified for backup of System Manager data to VSM.

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.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in these DevConnect Application Notes included the enablement of supported encryption capabilities in the Avaya products. Readers should consult the appropriate Avaya product documentation for further information regarding security and encryption capabilities supported by those Avaya products.

Support for these security and encryption capabilities in any non-Avaya solution component is the responsibility of each individual vendor. Readers should consult the appropriate vendor-supplied product documentation for more information regarding those products.

For the testing associated with these Application Notes, the interface between Avaya systems and VSM utilized encrypted capabilities of SSH, SFTP and SNMP as requested by Virsae.

This test was conducted in a lab environment simulating a basic customer enterprise network environment. The testing focused on the standards-based interface between the Avaya solution and the third-party solution. The results of testing are therefore considered to be applicable to either a premise-based deployment or to a hosted or cloud deployment where some elements of the third-party solution may reside beyond the boundaries of the enterprise network, or at a different physical location from the Avaya components.

Readers should be aware that network behaviors (e.g., jitter, packet loss, delay, speed, etc.) can vary significantly from one location to another and may affect the reliability or performance of the overall solution. Different network elements (e.g., session border controllers, soft switches, firewalls, NAT appliances, etc.) can also affect how the solution performs.

If a customer is considering implementation of this solution in a cloud environment, the customer should evaluate and discuss the network characteristics with their cloud service provider and network organizations and evaluate if the solution is viable to be deployed in the cloud.

The network characteristics required to support this solution are outside the scope of these Application Notes. Readers should consult the appropriate Avaya and third-party documentation for the product network requirements. Avaya makes no guarantee that this solution will work in all potential deployment configurations.

2.1. Interoperability Compliance Testing

For feature testing, VSM dashboard was used to view the configurations of System Manager such as the memory and CPU utilizations, disk usage and status from data collected via SSH and alarms via SNMP. SFTP backup of System Manager data to VSM was also verified.

For serviceability testing, reboots were applied to the VSM to simulate system unavailability. Loss of network connectivity to VSM was also performed during testing.

2.2. Test Results

All test cases passed successfully with the following observation.

- The “sar” command cannot be executed in the System Manager version used during this compliance testing since the “Sysstat” directory is not used in this version of Linux platform. By not being able to execute this command, only the CPU occupancy information could not be obtained.

2.3. Support

For technical support on Virsae Service Management, contact the Virsae Support Team at:

- Tel: +1 800 248 7080 (Americas)
  +44 0808 234 2729 (UK and Europe)
  +64 9 477 0696 (Asia Pacific)
- Email: support@virsae.com

3. Reference Configuration

Figure 1 illustrates the test configuration used to verify VSM interoperability with System Manager. The configuration consists of a Communication Manager system with an Avaya G430 Media Gateway. The system has H.323/SIP Deskphones and softphones configured for making and receiving calls. Avaya Aura® System Manager and Avaya Aura® Session Manager provided SIP support to the Avaya SIP endpoints. VSM was installed on a server running Microsoft Windows Server 2016. Architecturally the VSM Service relies on an appliance being placed on a corporate LAN and being configured to connect to a Unified Communication platform as well as the Microsoft Azure cloud via the internet. The VSM appliance contains Probe Service use to collect service management data. The VSM appliance acts as a collector and compresses, encrypts then forwards data from all sources to the Virsae cloud computing service. A PC/Laptop is used to access the Virsae portal to manage VSM services, add additional users and view reporting data on the equipment being managed.

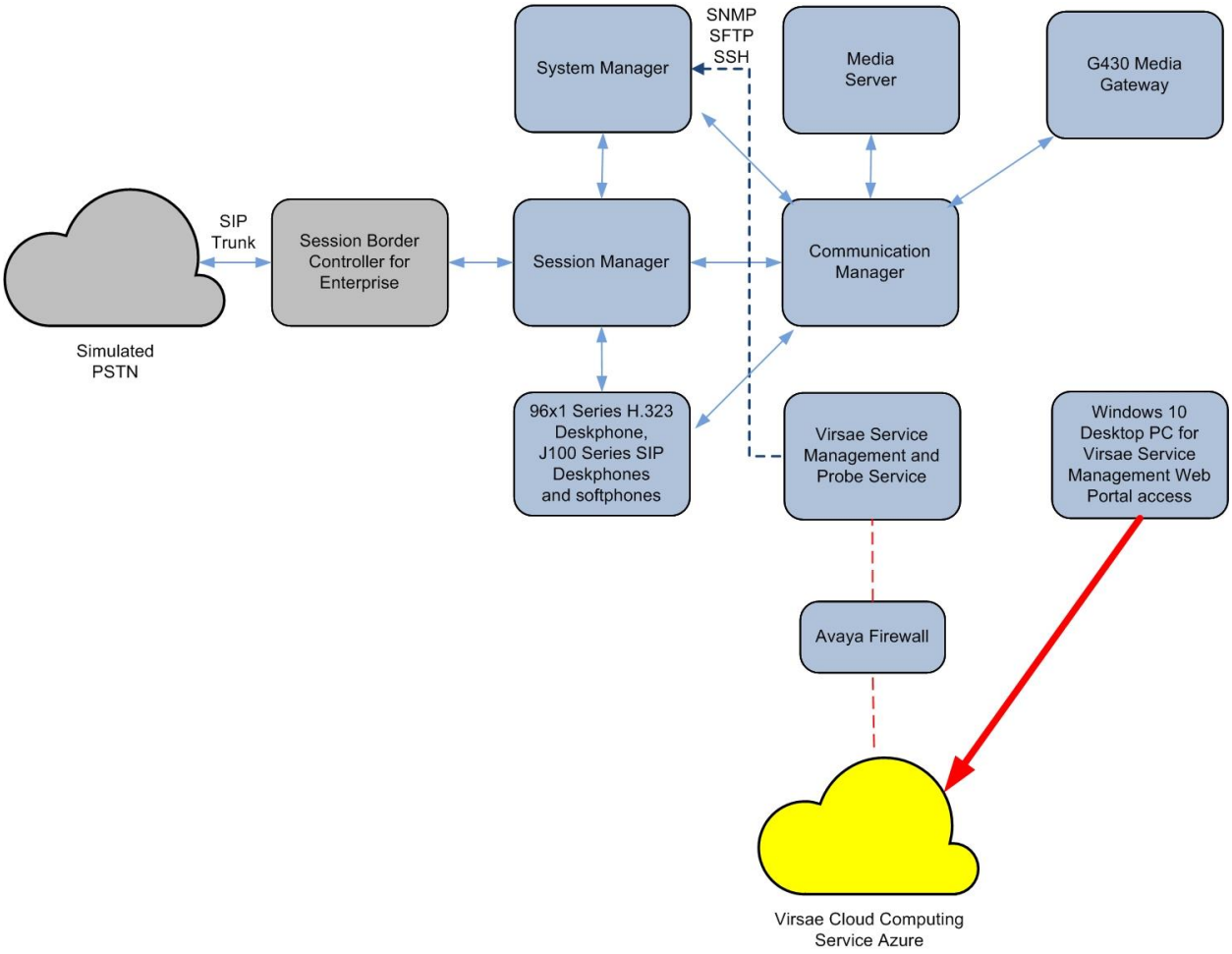


Figure 1: Test Configuration

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 Virtual Server	10.1 (10.1.0.0.0.974.27293)
Avaya G430 Media Gateway	42.4.0
Avaya Aura® Media Server running on Virtual Server	10.1.0.77
Avaya Aura® Session Manager running on Virtual Server	10.1 (10.1.0.0.1010019)
Avaya Aura® System Manager running on Virtual Server	10.1 Build No. - 10.1.0.0.537353 Software Update Revision No: 10.1.0.0.0614119
Avaya 96x1 Series (H.323)	6.8523
Avaya J100 Series (SIP)	4.0.11.0
Avaya Workplace Client for Windows (SIP)	3.27
Avaya Agent for Desktop (H.323)	2.0.6.22.3003
Virsae Service Management and Probe Service running on Windows 2016	174.1.2.268

5. Configure Avaya Aura® System Manager

This section describes the steps needed to configure System Manager to interoperate with VSM. This includes creating a login account for VSM to access System Manager and enabling SNMP.

5.1. Configure Login Account

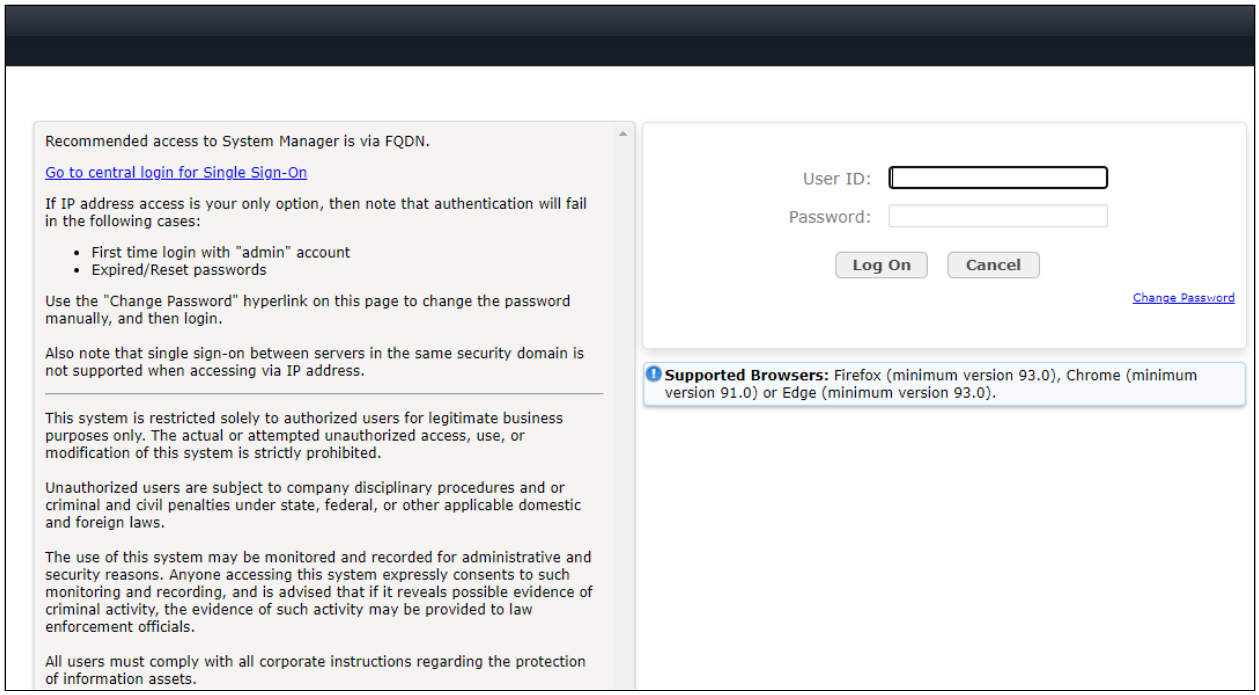
Create an Administrator account on System Manager since the VSM Probe requires access to System Manager with Administrative Rights. The new account should be like the default administrator account. Login to System Manager console with root access and run the following command.

```
useradd <NAME>       ;Add User
passwd <NAME>        ;Enter password twice
chage -M 99999 <NAME>       ;Lengthen the expiry date of account
```

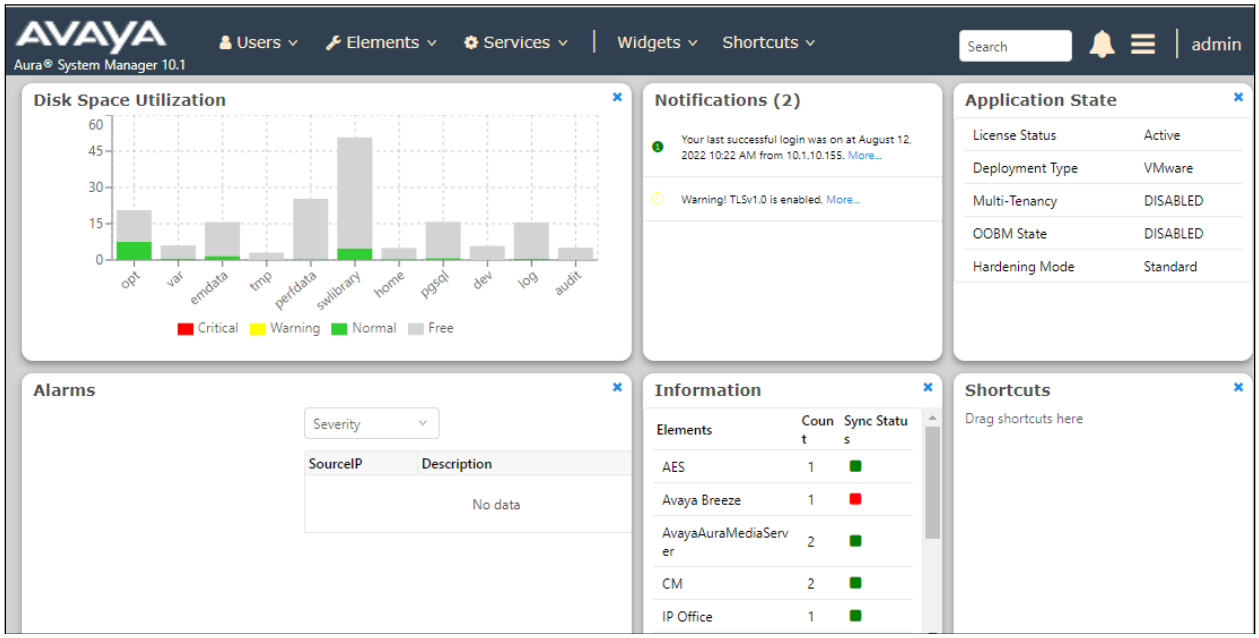
5.2. Configure SNMP

SNMP is used to capture alarms raised by Session Manager. All configurations are done via Avaya Aura® System Manager (System Manager).

Using a web browser, enter **https://<IP address of System Manager>** to connect to the System Manager server and log in using appropriate credentials as shown below.

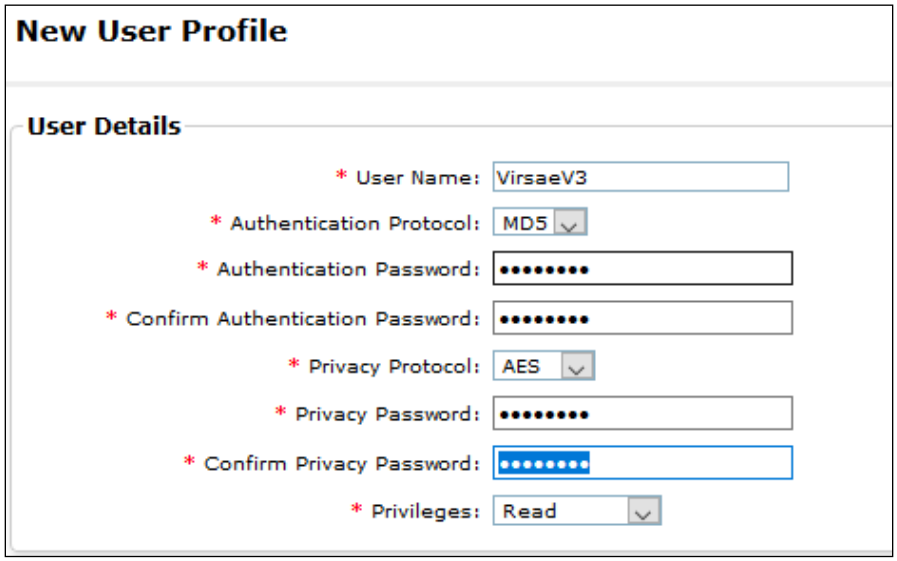


The main System Manager dashboard page is shown below.

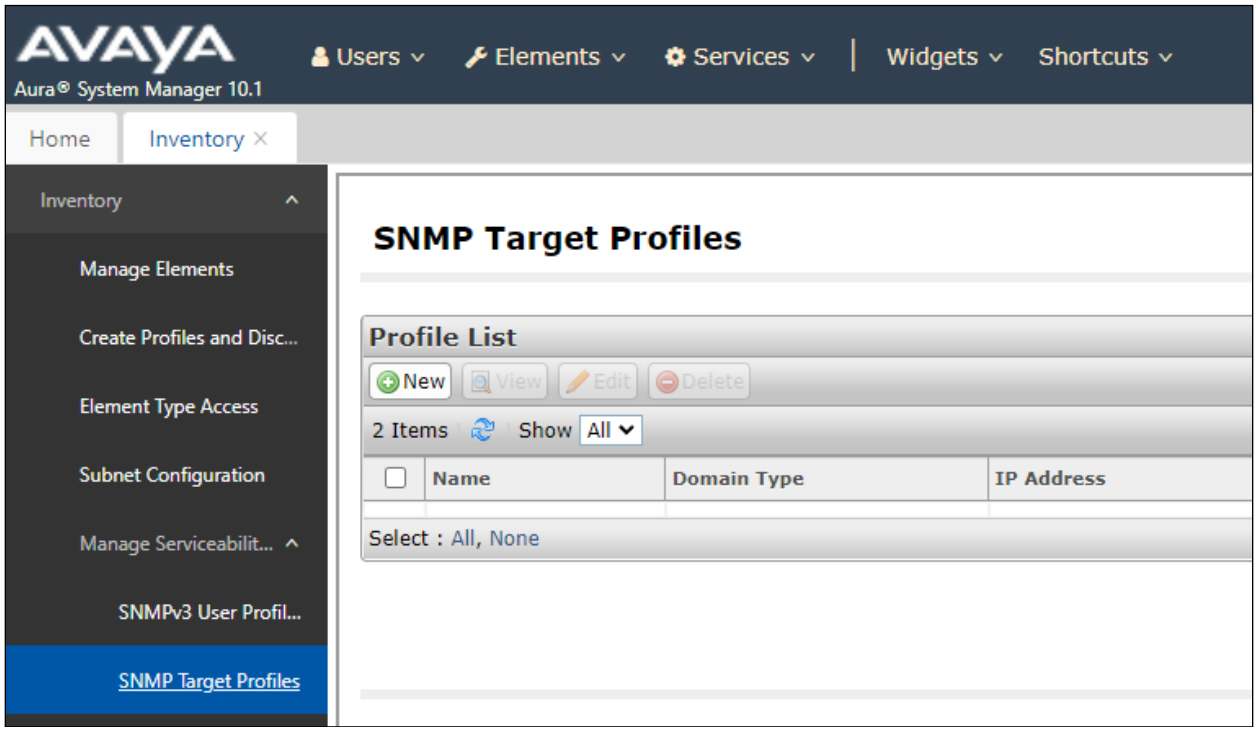


Then navigate to **Manage Servicability Agents → SNMPv3 User Profiles** and click **New** (not shown). Configure the following:

- **User Name**: Descriptive name for SNMPv3.
- **Authentication Protocol**: Select "MD5 or SHA".
- **Authentication Password** and **Confirm Authentication Password**: Enter password.
- **Privacy Protocol**: Select "AES, DES or none".
- **Privacy Password** and **Confirm Privacy Password:** Enter password.



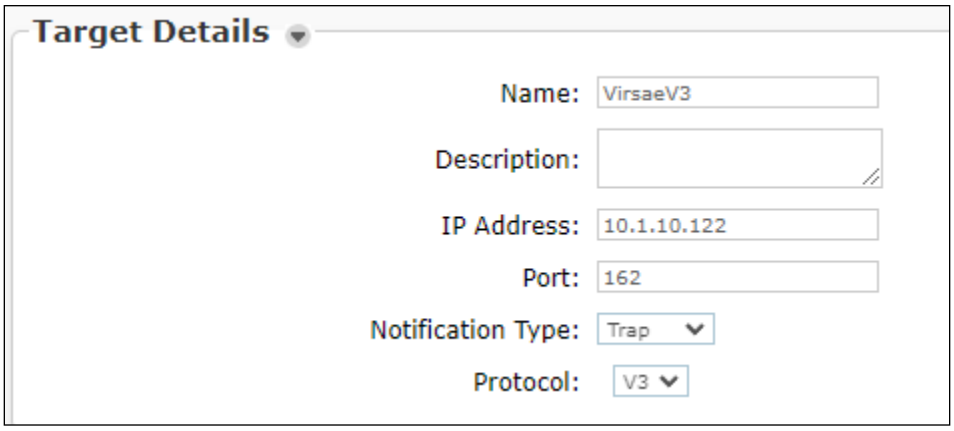
Navigate to **Services → Inventory → Manage Servicability Agents → SNMP Target Profiles** as shown in the screen below. Click on **New**.



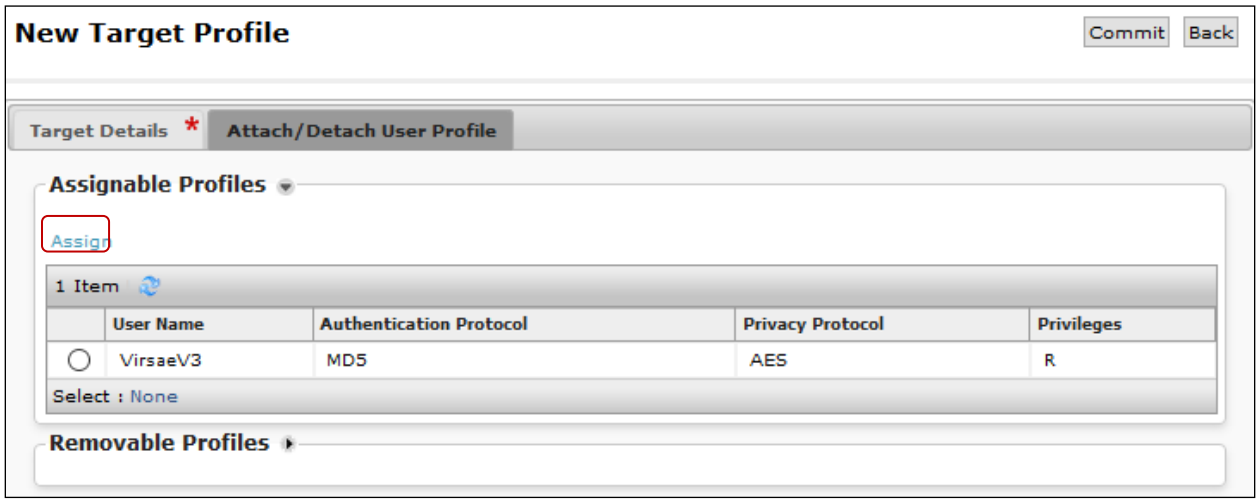
From the **New Target Profile** window, under the **Target Details** tab, configure the following.

- **Name:** A descriptive name.
- **IP Address:** The VSM IP address.
- **Notification Type:** Select "Trap" from the drop-down menu.
- **Protocol:** Select **V3** from the drop-down menu.

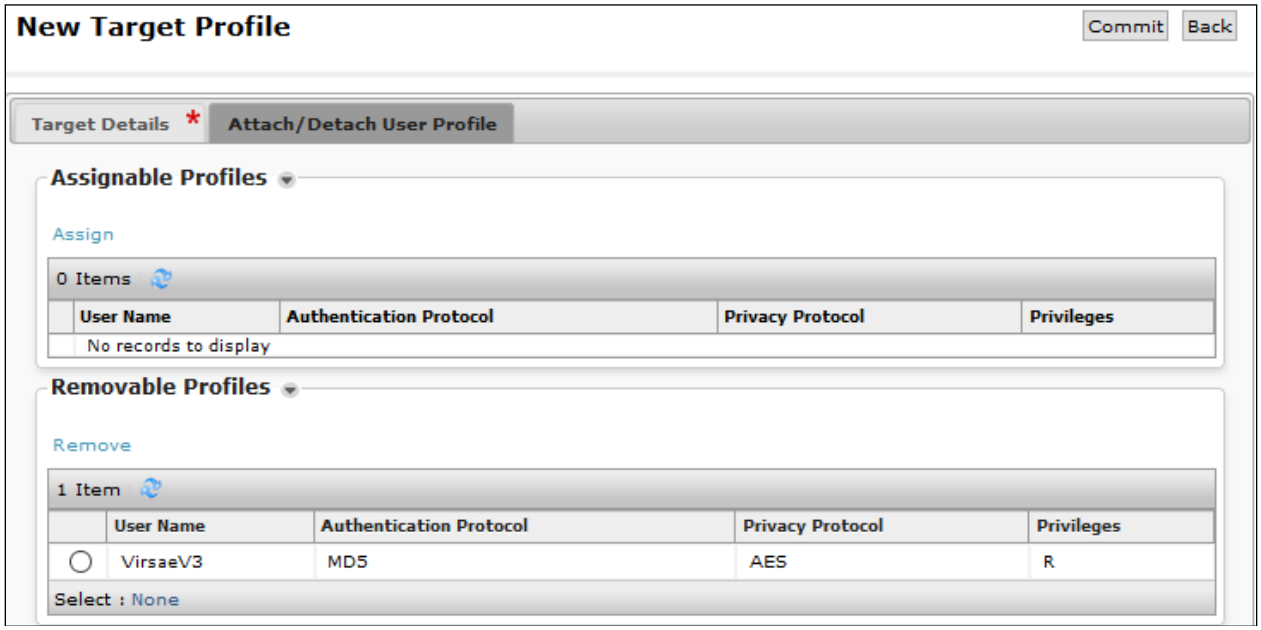
Retain default values for all other fields and click on the **Attach/Detach User Profile** (not shown).



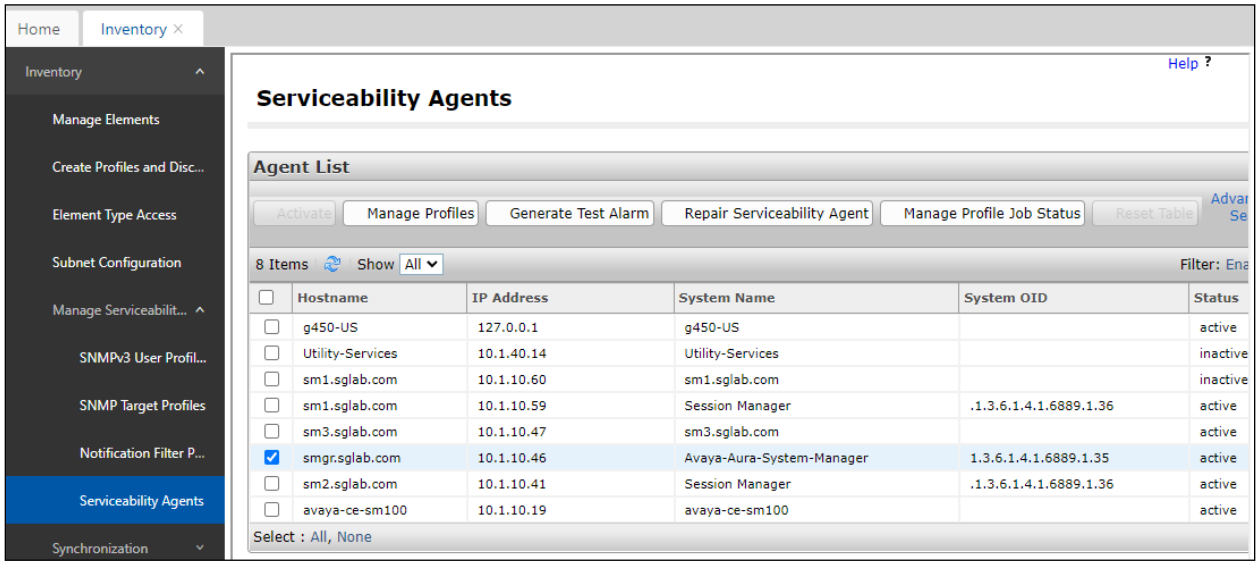
Select the **VirsaeV3** user profile created earlier and click **Assign**.



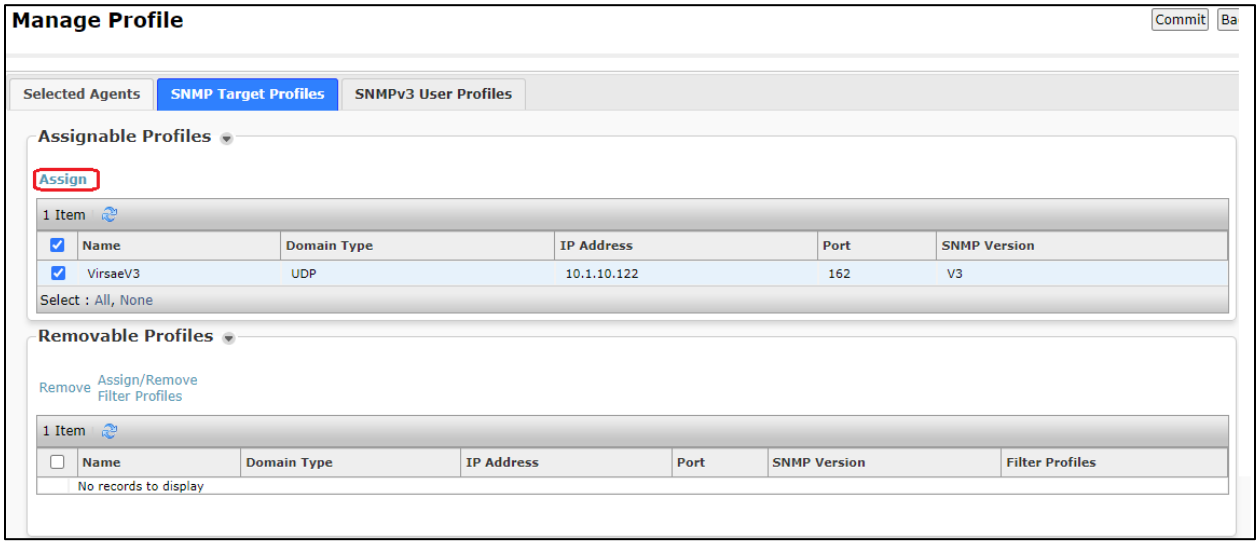
The **VirsaeV3** user profile is shown below as assigned to the Target.

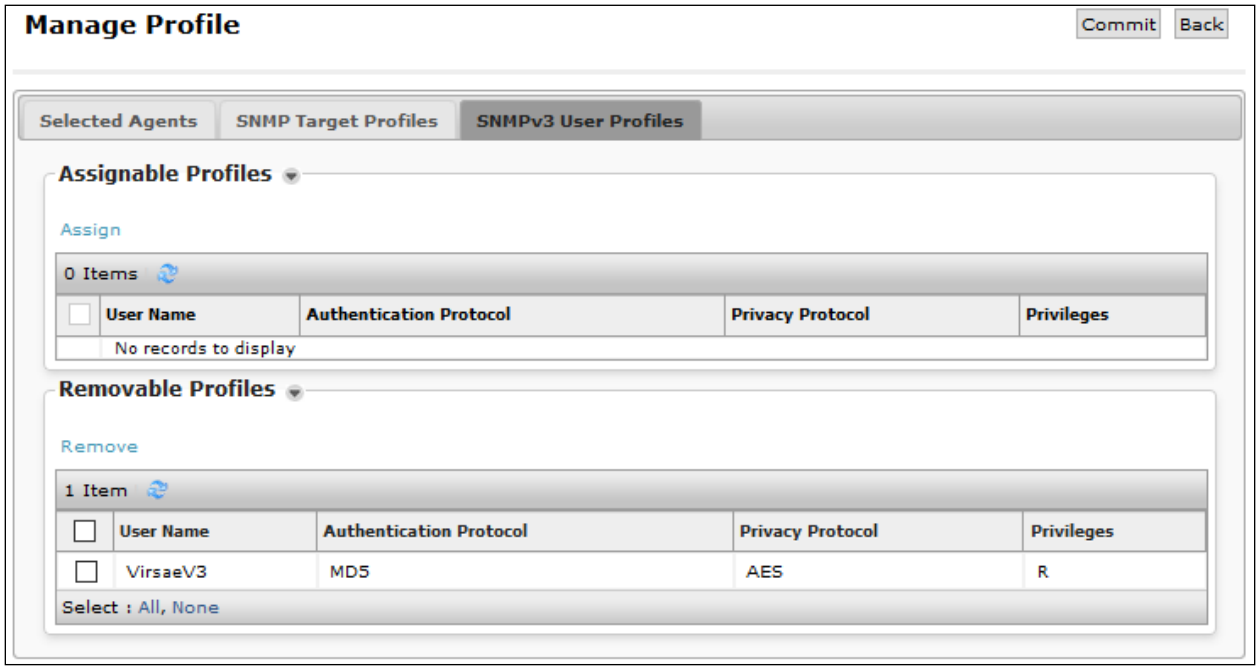


Then navigate to **Manage Servicability Agents → Servicability Agents** as shown in the screen below. Select System Manager agent from the **Agent List** window, in this case the **Avaya-Aura-System-Manager** and click on the **Manage Profiles** button.



From the **Manage Profile** window, under the **SNMP Target Profiles** tab, select the **VirsaeV3** profile, click on **Assign**. Then click the **Commit** button. Do the same for **SNMPv3 User Profiles** tab.





6. Configure Virsae Service Management

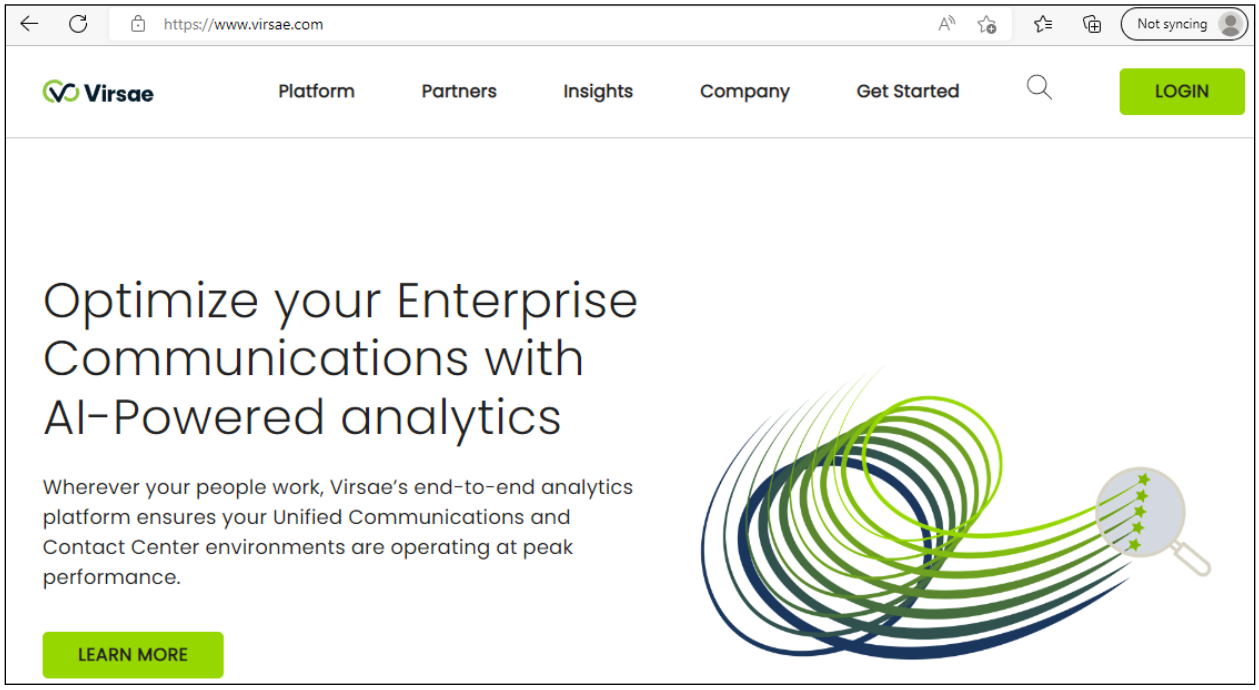
This section describes the configuration of VSM required to interoperate with System Manager.

This section provides a "snapshot" of VSM configuration used during compliance testing. Virsae creates the business partner portal in the cloud environment and is beyond the scope of this Application Notes. The screen shots and partial configuration shown below are provided only for reference. These represent only an example of the configuration GUI of VSM, available through the web Portal. Contact Virsae for details on how to configure VSM. The configuration operations described in this section can be summarized as follows:

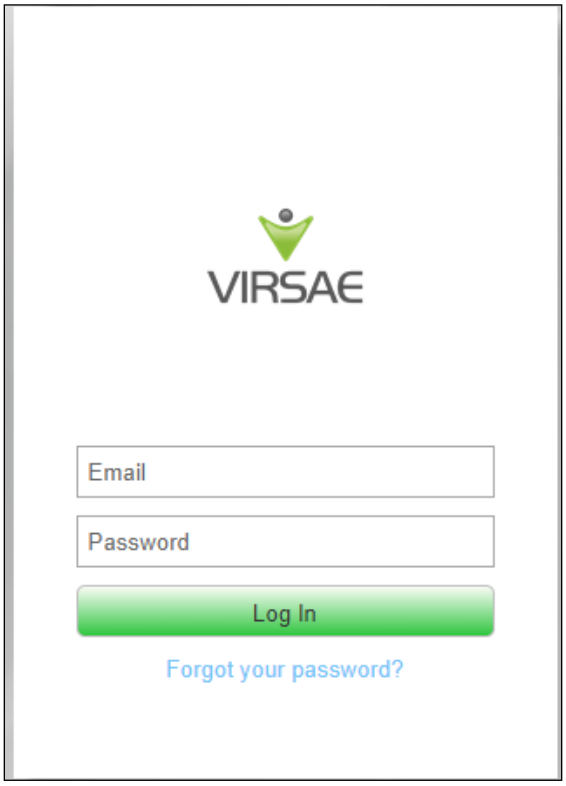
- Login to the Web Portal
- Configuring Avaya Aura® System Manager
- Configure Dashboard

6.1. Login to the Web Portal

A portal for the business partner will be created by Virsae on the cloud and can be accessed by the business partner by typing the URL *www.virsae.com* in a web browser. During compliance testing the same URL used. Click on the **LOGIN** shown on the top right below.

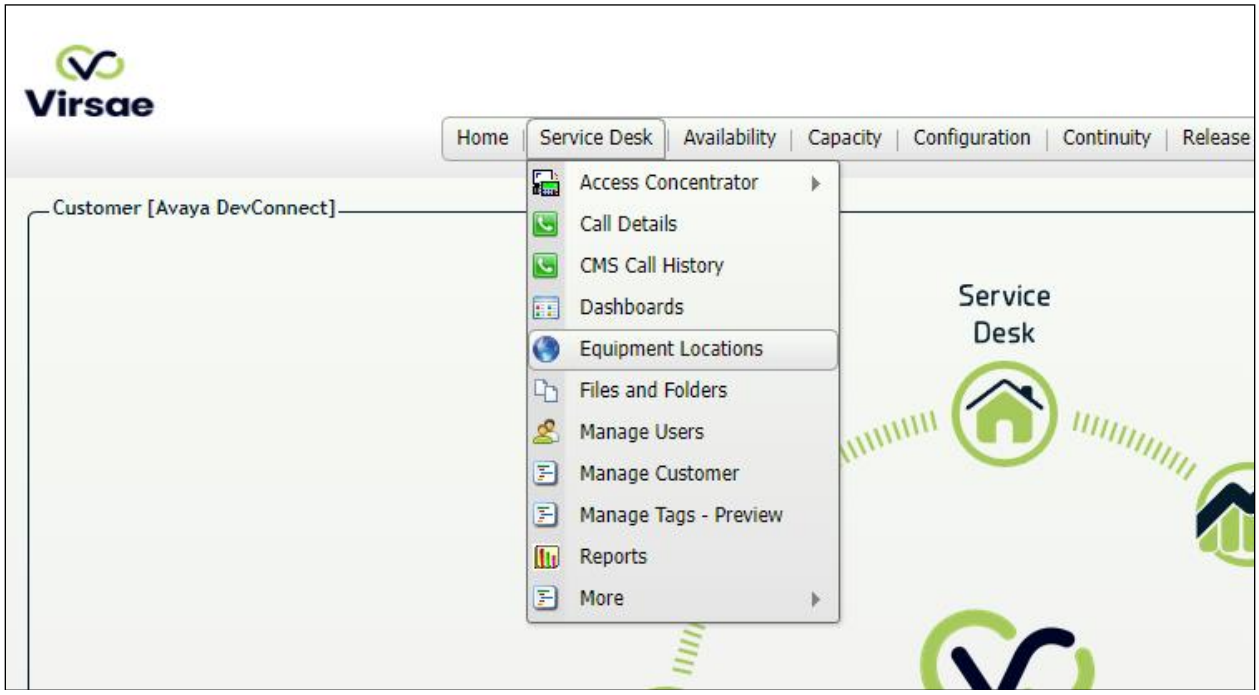


Enter the **Email** and **Password** and click on the **Log In** button.

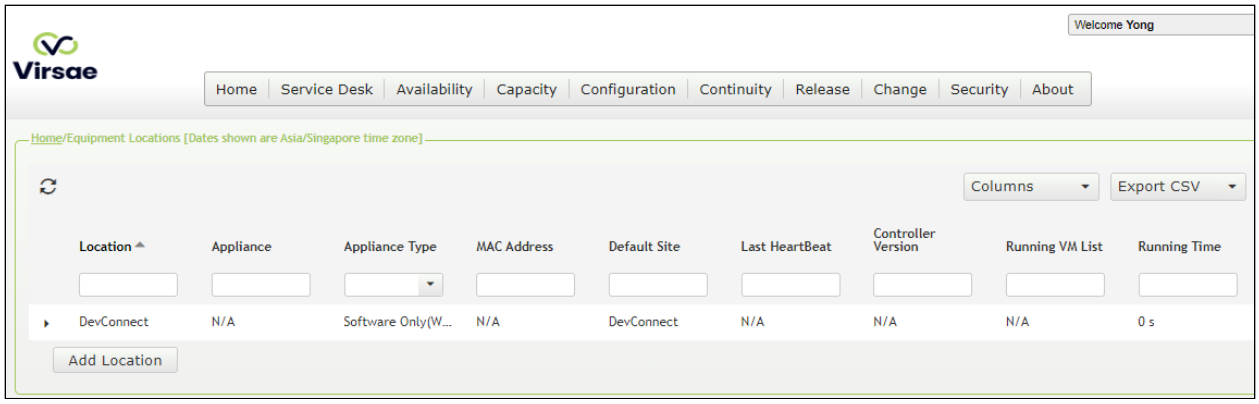


The customer screen is shown. During compliance testing the customer created by Virsae can be seen near the top right corner. Note the version running is shown at the bottom i.e., **174.1.2.268**.

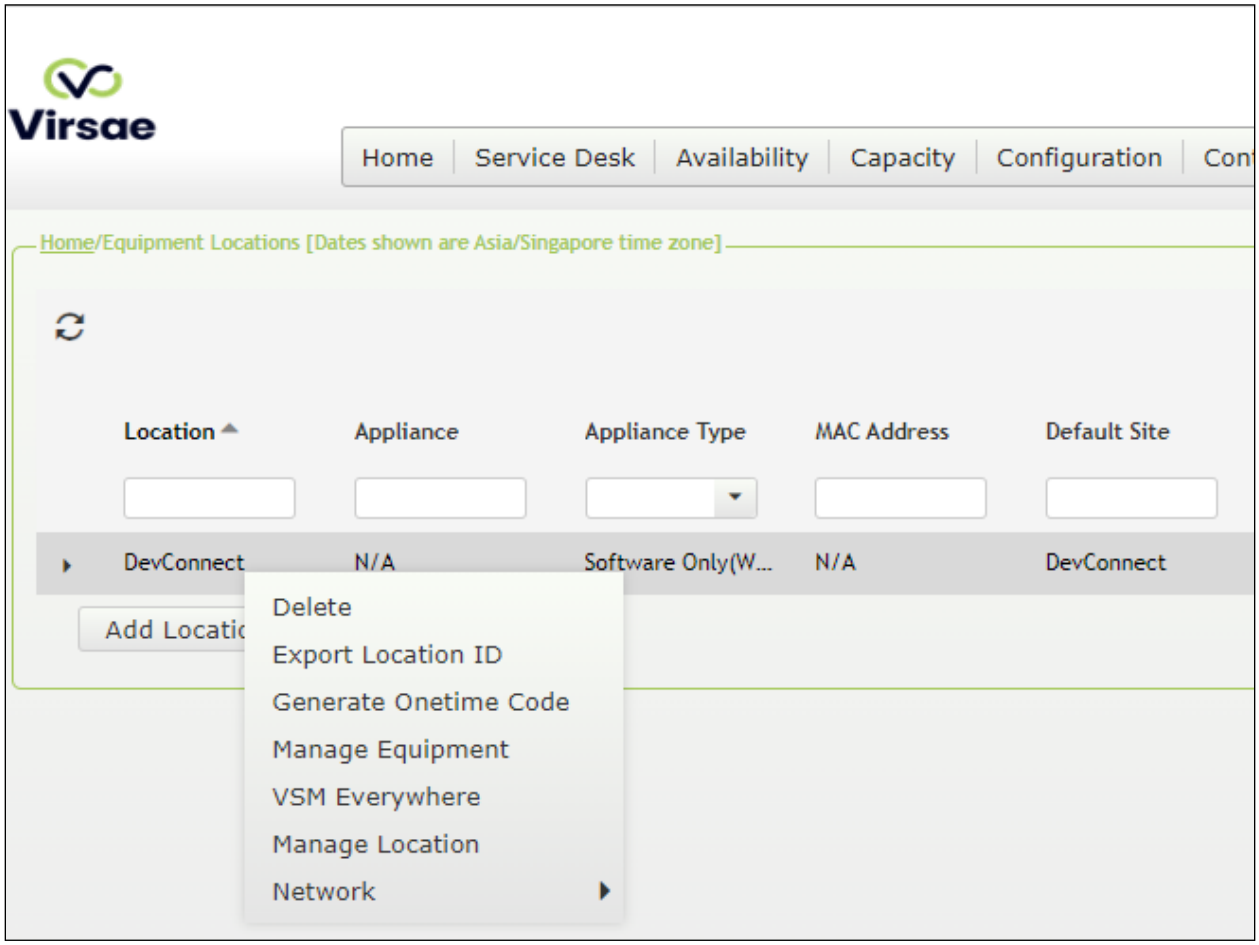
Navigate to **Service Desk → Equipment Locations** as shown below.



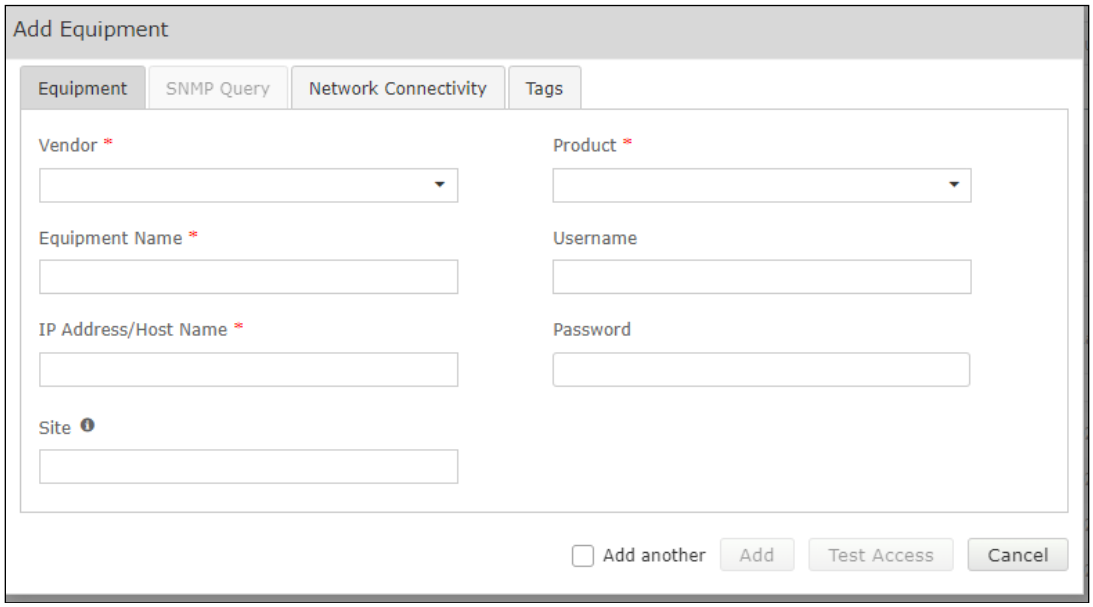
A **Location** called **DevConnect** is already configured as shown below.



Right click on the **DevConnect** and select **Manage Equipment**.



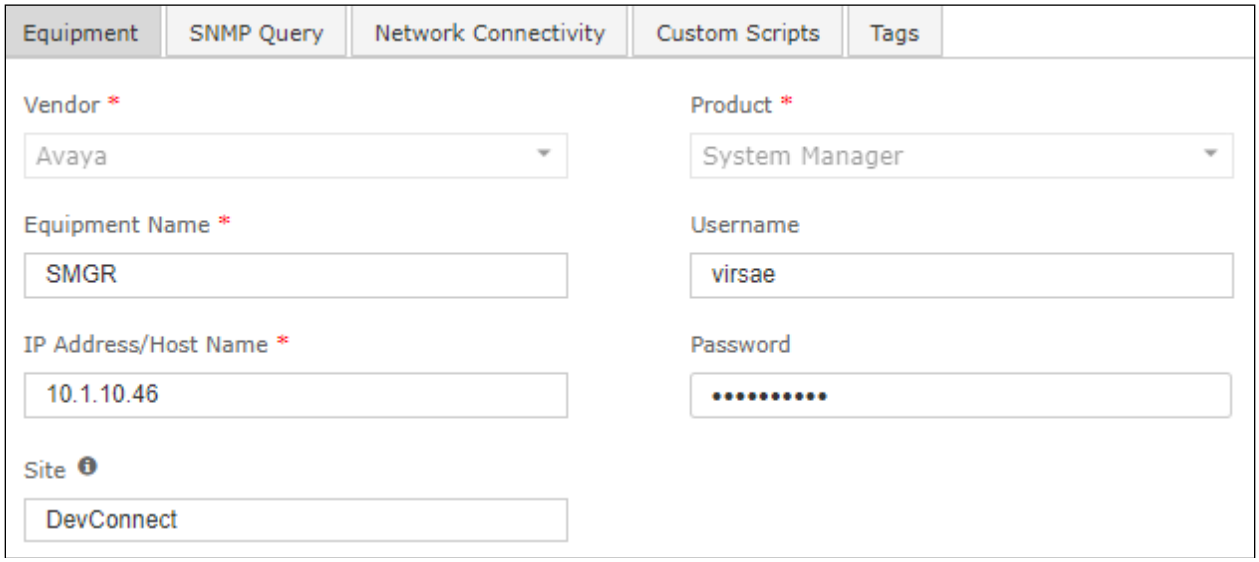
Click **Add Equipment** (not shown) and the screen below pops up:



6.2. Configuring Avaya Aura® System Manager

From the **Add Equipment** window, add a System Manager to the Location. Select **Avaya** from the **Vendor** list. Select **System Manager** from the **Product** list. Configure the following values.

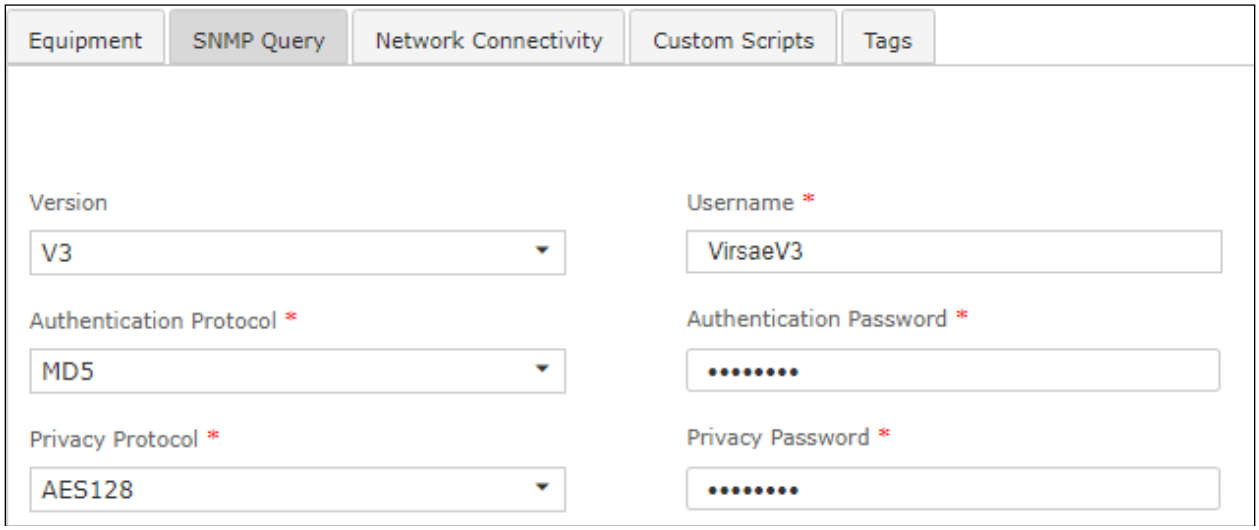
- **Equipment Name:** A descriptive name.
- **Username:** The username configured in **Section 5.1**.
- **Password:** The password configured in **Section 5.1**.
- **IP Address/Host Name:** IP address of System Manager.
- **Site:** A descriptive site name.



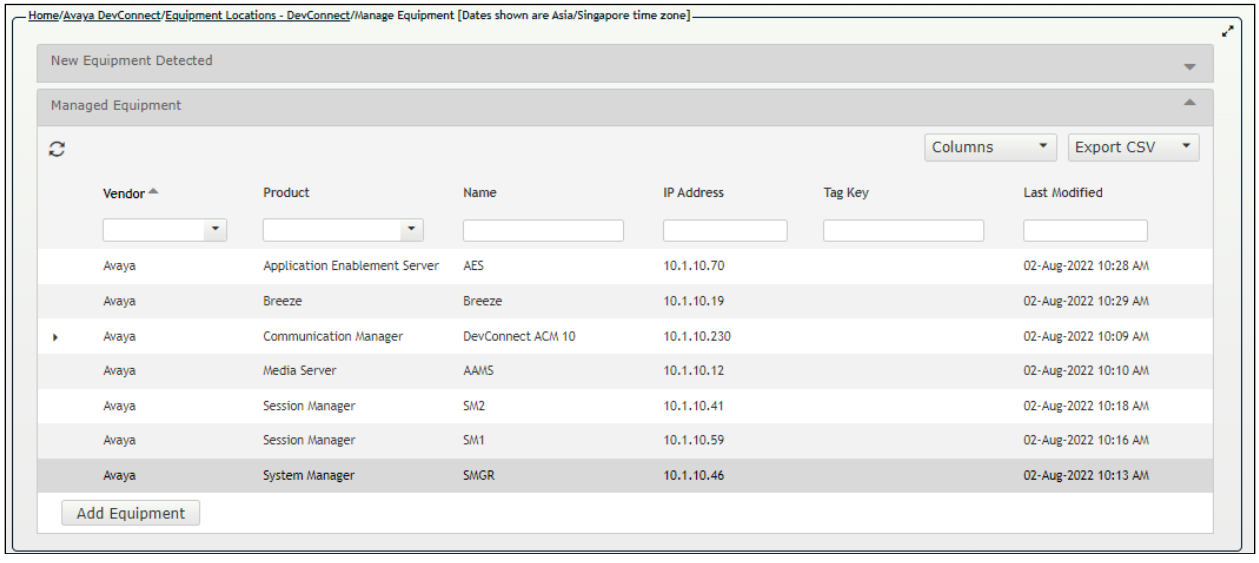
In the **SNMP Query** tab, configure the following values.

- **Version:** Select **V3** from the drop-down menu.
- **Username:** Enter username configured in **Section 5.2.**
- **Authentication Protocol**: Protocol configured in **Section 5.2**.
- **Authentication Password**: Password configured in **Section 5.2**.
- **Privacy Protocol**: Protocol configured in **Section 5.2**.
- **Privacy Password**: Password configured in **Section 5.2**.

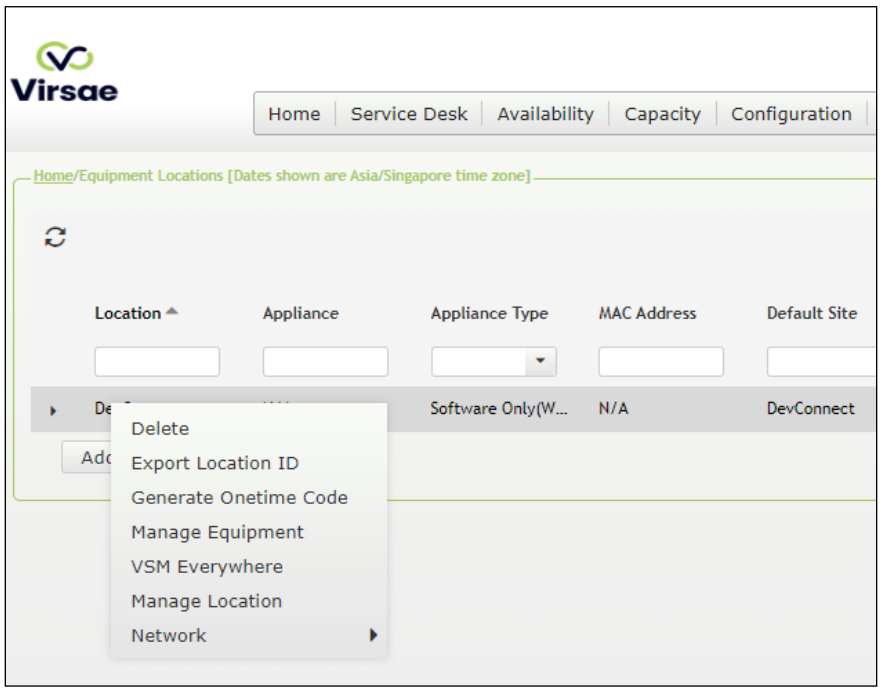
Click on the **Save** (not shown) button to complete the configuration.



The screen below shows the added System Manager equipment.

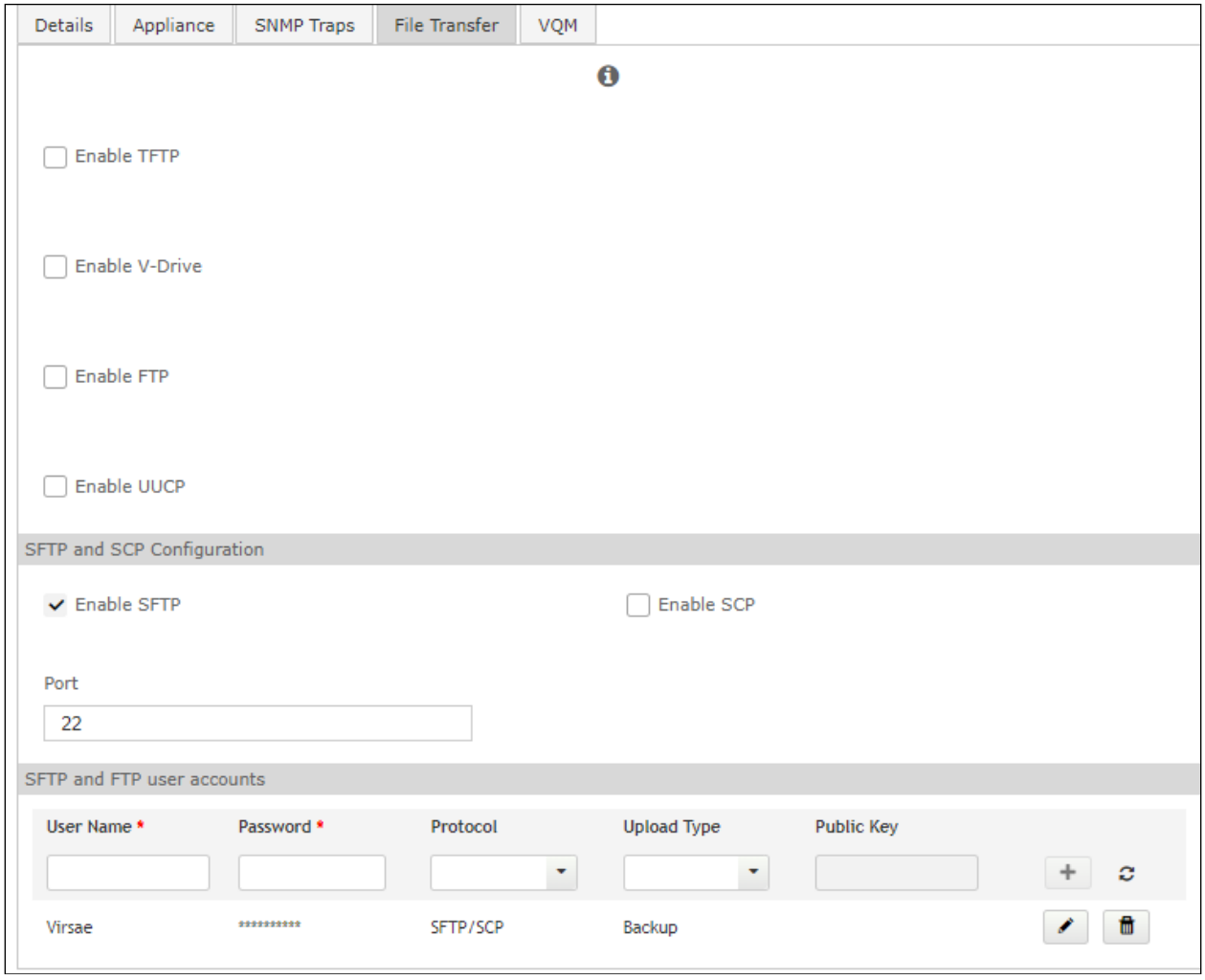


Navigate to **Service Desk → Equipment Locations** (not shown), right click on the **DevConnect** and select **Manage Location**.



From the screen that pops up below, click on the **File Transfer** tab. Check **Enable SFTP** is turn on i.e., tick and configure the SFTP user accounts for System Manager backup.

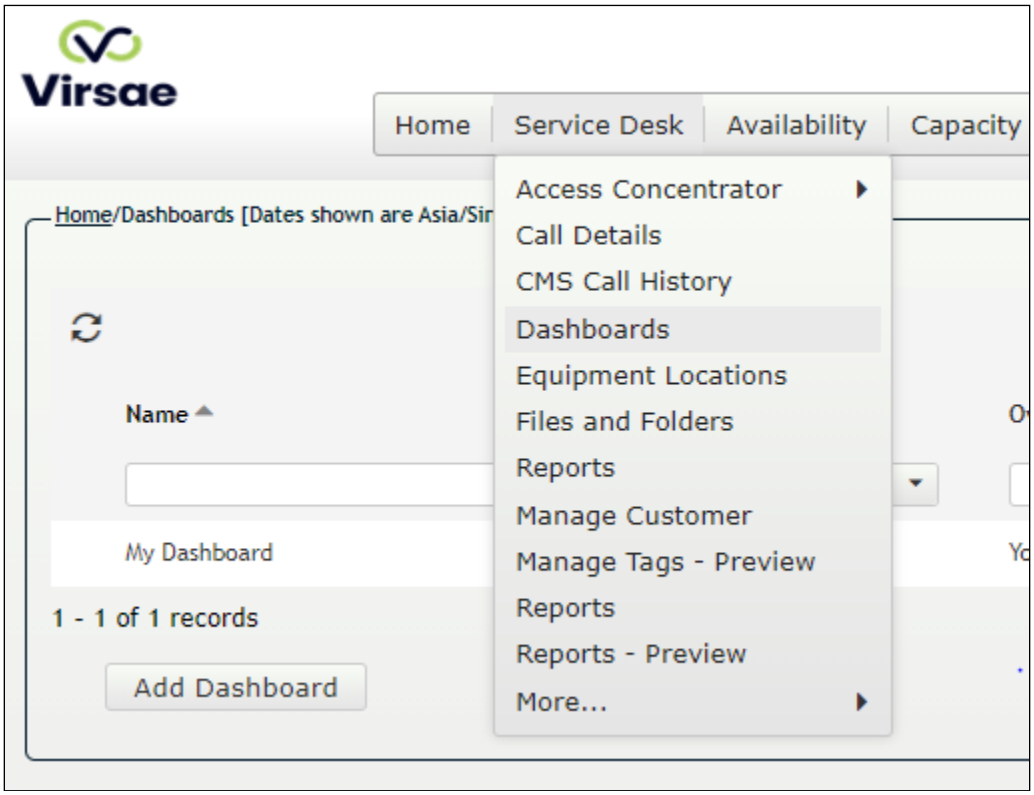
- **User Name and Password**: Enter the name and password to be used by System Manager.
- **Protocol**: Select **SFTP/SCP** from the drop-down menu.
- **Upload Type**: Select **Backup** from the drop-down menu.



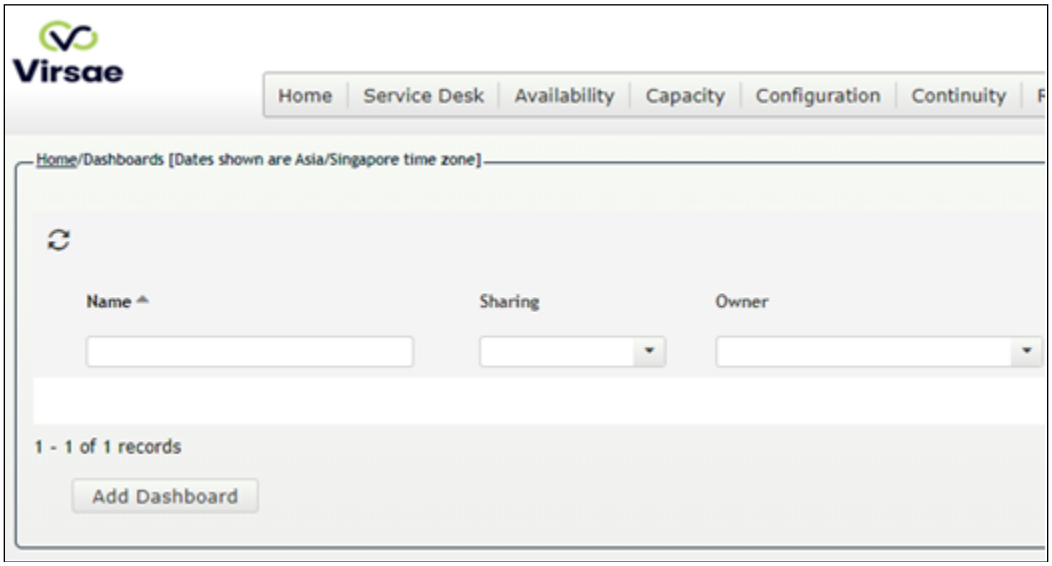
6.3. Configure Dashboard

This section shows the steps to configure System Manager on the dashboard.

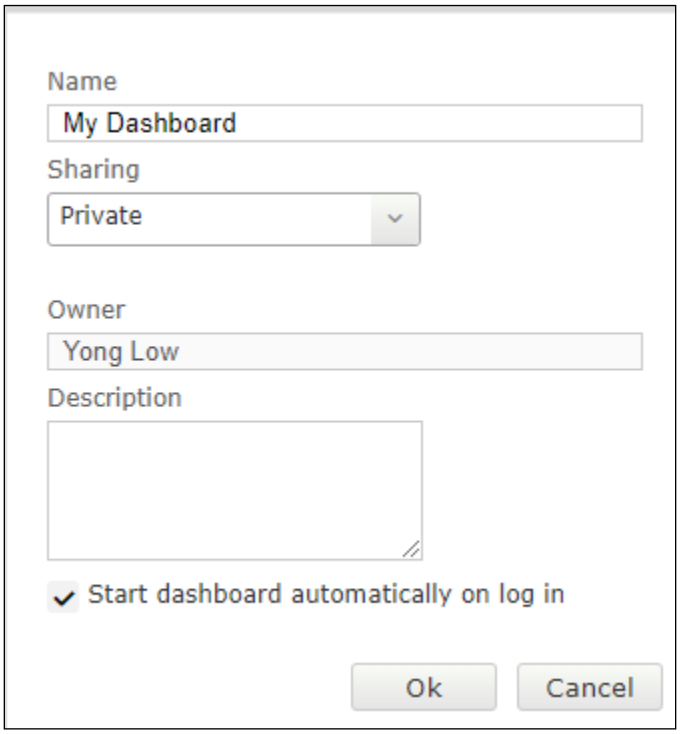
From the home screen, navigate to **Service Desk → Dashboards** as shown below.



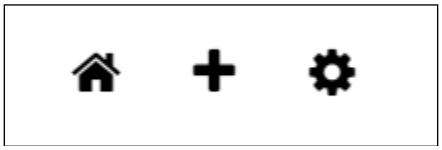
From the **Dashboards** window, click on the **Add Dashboard** button.



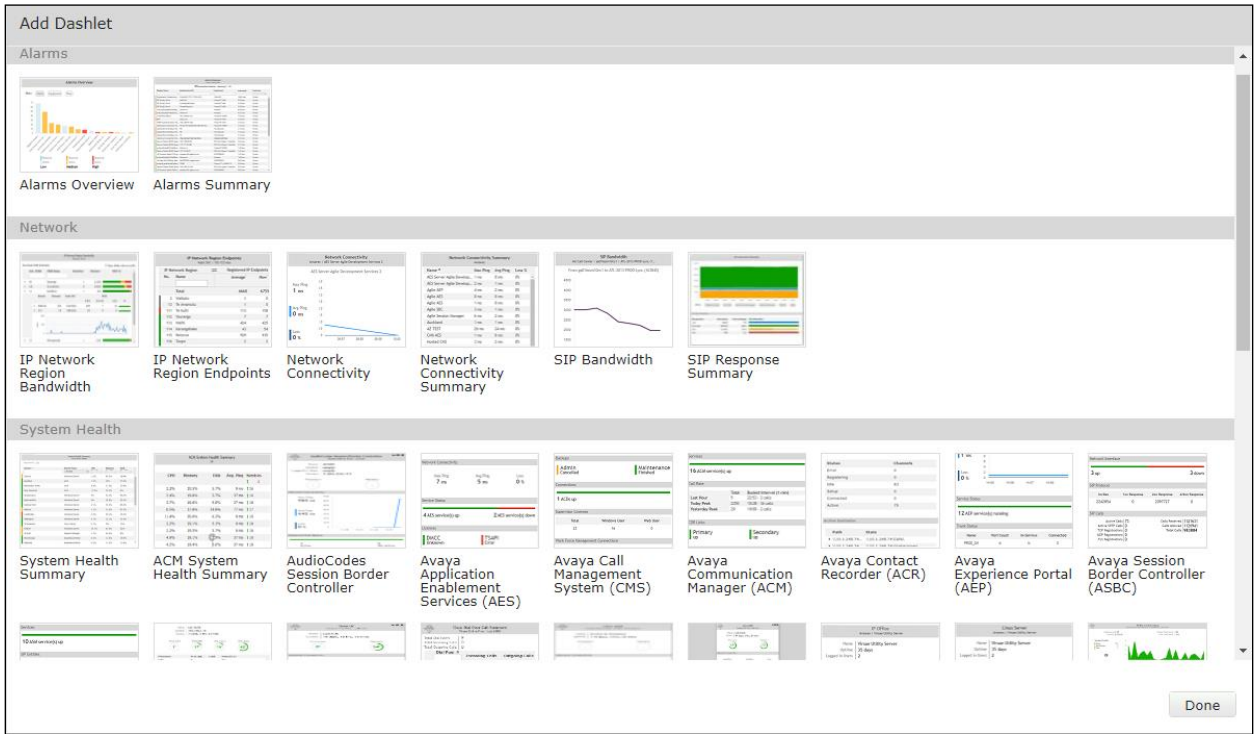
In the **Add Dashboard** window, type a descriptive name for **Name** field as shown below. Retain default values for all other fields. Click on **Start dashboard automatically on log in** box and then click on **Ok** to submit**.**



In the dashboard window bottom shown below, click on **"+"** sign at the bottom.

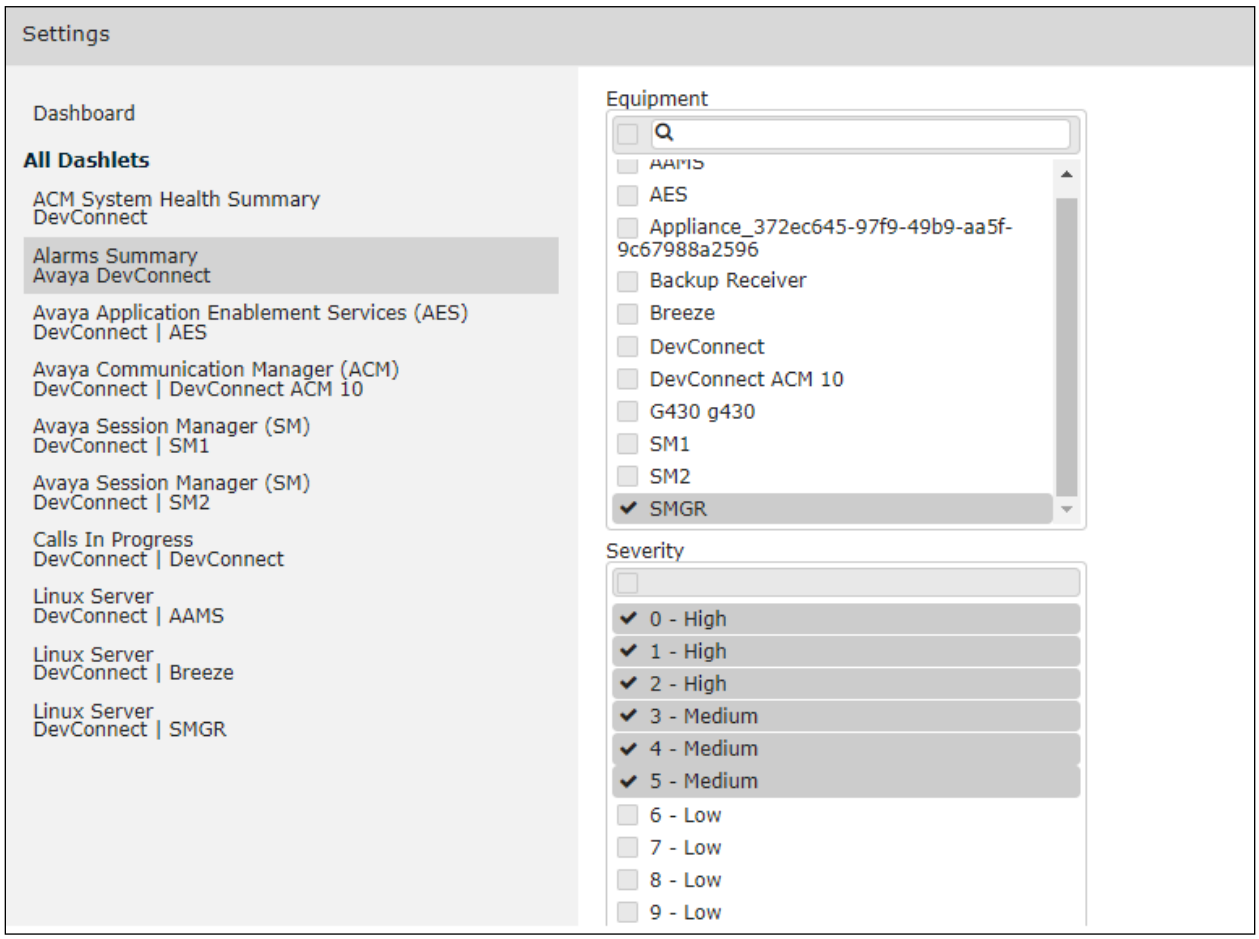


In the **Add Dashlet** window that pops up, select the **Alarms Summary** from the available dashlet by hovering the "+" image over it and click **Done**.

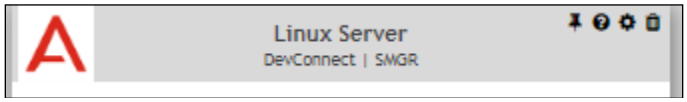


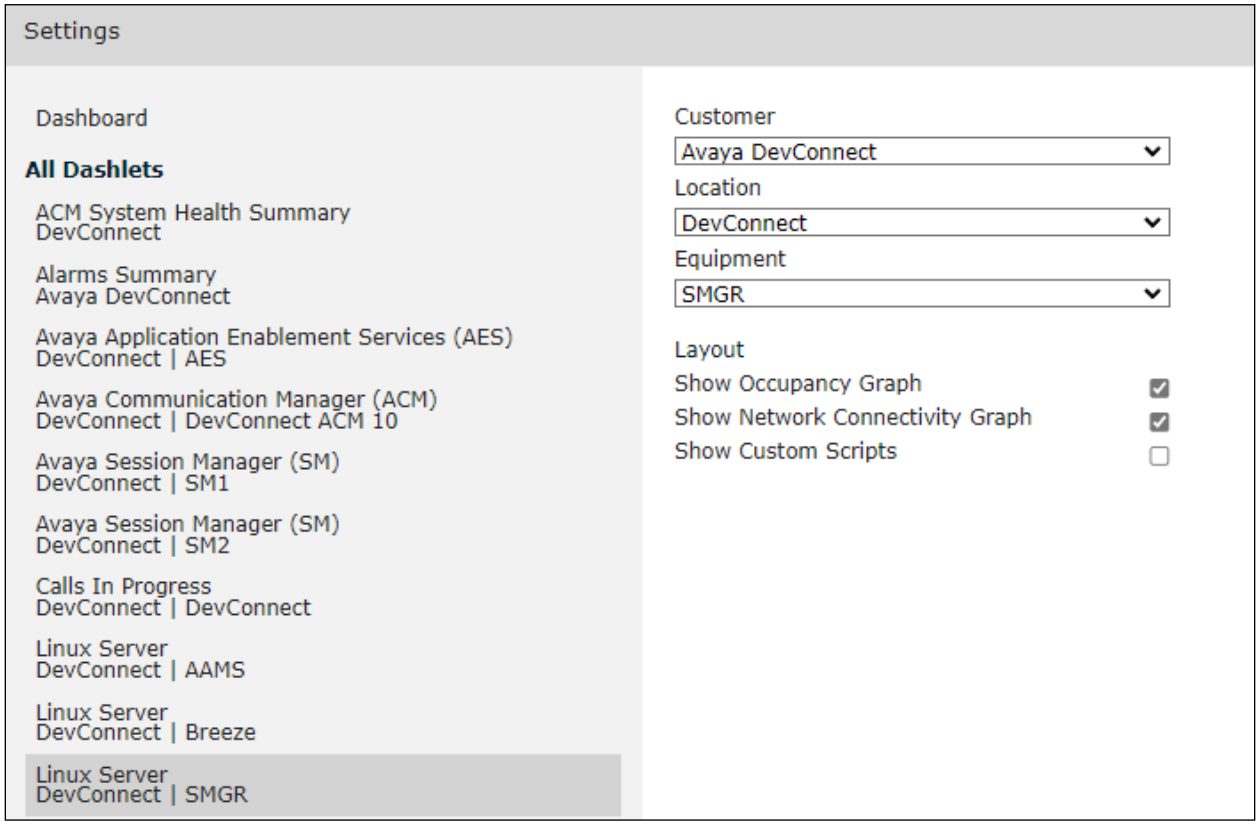
From the **Alarms Summary** window, select the **setup cog** on the top right corner of the box.

Select the appropriate **Equipment** i.e., **SMGR** for System Manager and the Severity of alarms desired to be shown. Click **Done** (not shown) to complete.

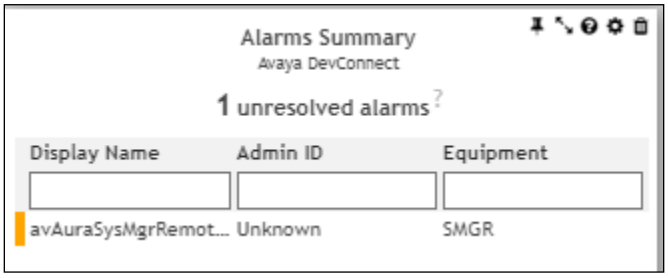


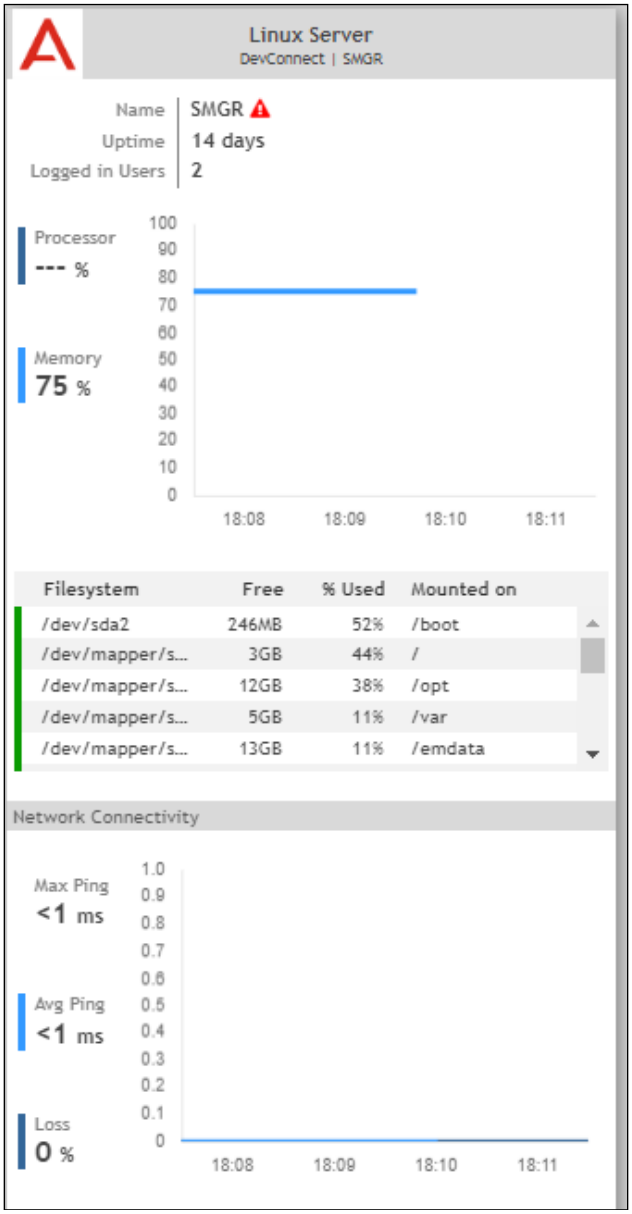
Repeat the same for the **Linux Server** dashboard and in addition select the desired **Layout**.





The two dashboards with the configured equipment are shown below. The above steps can be repeated to configure other equipment and/or dashboard parameters.

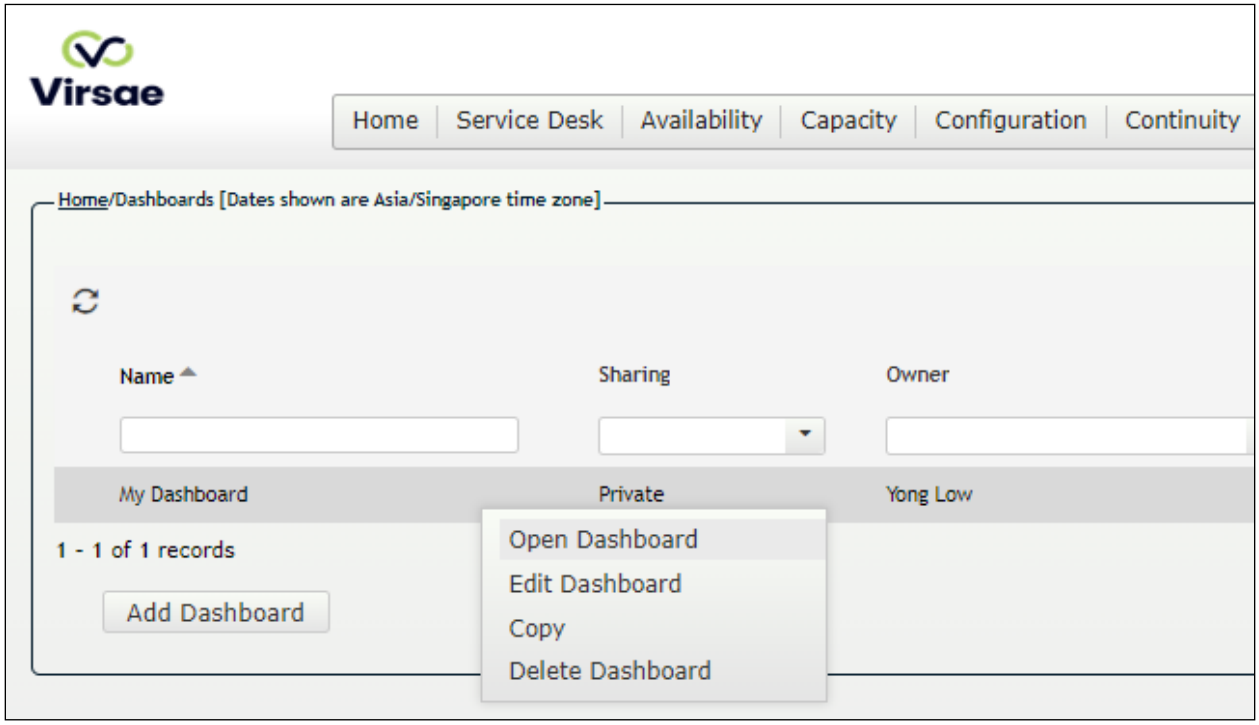




7. Verification Steps

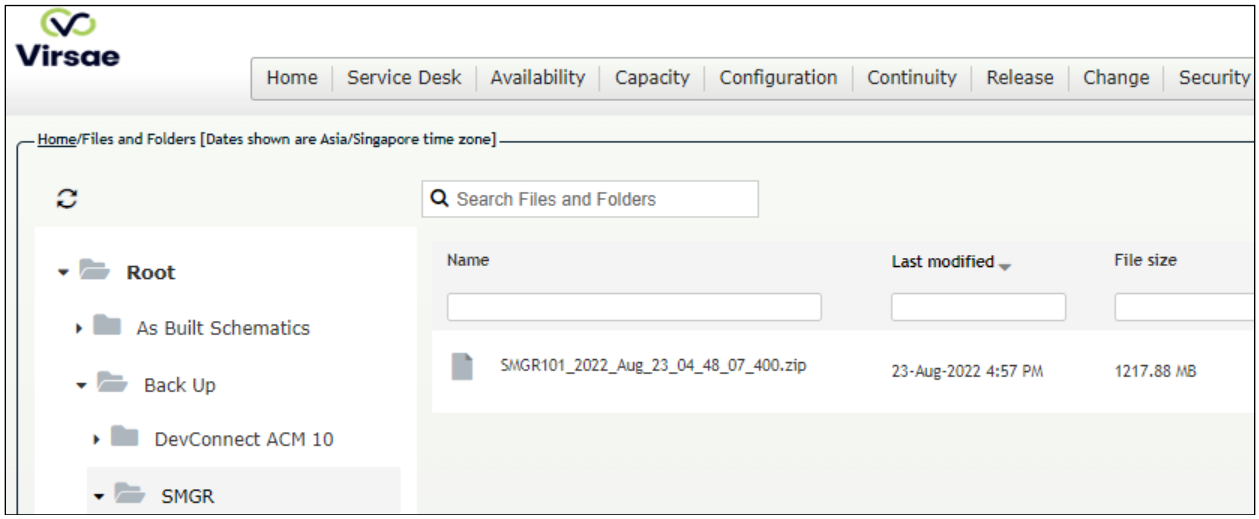
This section provides the tests that can be performed to verify proper configuration of System Manager and VSM. The following steps are done by accessing the VSM web portal for the business partner.

After login to the web portal, navigate to **Service Desk → Dashboards** (not shown) and the screen is shown as below. Right click "My Dashboard" and select "Open Dashboard".

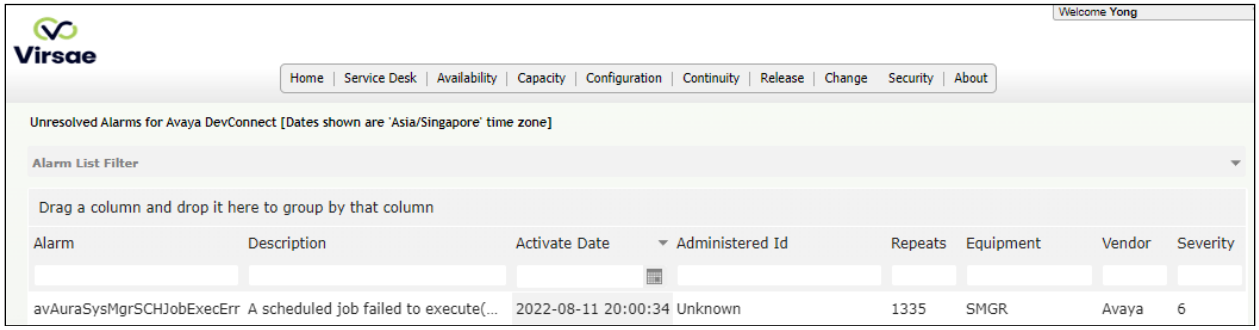


Whatever is configured during setup will be shown here. However, if the dashboard is configured to open automatically on startup in **Section 6.3**, once login, all the dashboards last configured at the end of **Section 6.3** will be populated in a new tab on the browser.

Perform a backup of the System Manager to VSM. Refer to reference **[2]** for details of how to backup SMGR. To view the off-site backups on VSM, navigate to **Continuity → Browse Backups** (not shown). Screen below shows an example of backups for System Manager.



To view alarms using reporting, navigate to **Availability → Manage Alarms** (not shown). A list of all unresolved alarms for all equipment is shown. In the **Equipment** column, look for SMGR and the related alarms.



8. Conclusion

These Application Notes describe the procedures for configuring the Virsae Service Management R174 to interoperate with Avaya Aura® System Manager R10.1. During compliance testing, all test cases were completed successfully with observations noted in **Section 2.2**.

9. Additional References

This section references the product documentation relevant to these Application Notes.

Product documentation for Avaya products may be found at http://support.avaya.com.

1. *Deploying Avaya Aura® System Manager in Virtualized Environment*, Release 10.1, Issue 2, Mar 2022.
2. *Administering Avaya Aura® System Manager,* Release 10.1, Issue 3, Feb 2022.

Product documentation for Virsae products may be found at https://documentation.virsae.com.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DevConnect Program at devconnect@avaya.com.