Avaya Solution & Interoperability Test Lab

Application Notes for Integrated Research's Collaborate - Prognosis Server 12.1 with Avaya Session Border Controller for Enterprise R10.1 - Issue 1.0

Abstract

These Application Notes describe the procedures for configuring Collaborate - Prognosis Server R12.1 to interoperate with Avaya Session Border Controller for Enterprise (SBCE) R10.1.

Prognosis provides real-time monitoring and management solutions for IP telephony networks. Prognosis provides visibility of Avaya and other vendor's IP Telephony solutions from a single console. Prognosis monitors directly to SBCE using SNMP connection. At the same time, Prognosis processes Real-time Transport Control Protocol (RTCP) from SBCE. Syslog is also used to collect data sent from Avaya SBCE for troubleshooting purpose.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the 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 Collaborate - Prognosis Server R12.1 (herein after referred to as Prognosis) with Avaya Session Border Controller for Enterprise (SBCE) R10.1.

Prognosis uses Simple Network Management Protocol (SNMP) to monitor SBCE server configuration, availability, utilization and alerts. In addition, SNMP also provides the SIP messages statistics like active call count and registration as well as count of certain SIP messages. Prognosis also uses Real Time Transport Control Protocol (RTCP) for voice streams display. Syslog is also used to collect data sent from Avaya SBCE for troubleshooting purpose.

2. General Test Approach and Test Results

The general test approach was to verify Prognosis using SNMP connection to monitor and display system status from SBCE. This included configuration, availability, utilization and alerts. For the collection of RTCP information, calls were made which include inbound and outbound PSTN calls.

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 the Prognosis did not include use of any specific encryption features as requested by Integrated Research.

2.1. Interoperability Compliance Testing

The feature test of the interoperability compliance testing was to verify Prognosis using web interface to display correct information of SBCE.

Verify that the server statistics information for the SBCE is populated on Prognosis display: SBCE IP Configuration, Prognosis Raised Alerts, Incidences, Call and Registrations, SIP Messages, Voice Streams and Network Hops. For collection of RTCP information, calls were made that include inbound and outbound trunk calls.

For serviceability testing, reboots were applied to Prognosis to simulate system unavailability. Loss of network connections by Prognosis and SBCE were also performed during testing.

2.2. Test Results

All test cases were passed and met the requirements as shown in **Section 2.1** with following observation:

- RADIUS is currently not supported.
- SBC – Performance data is not currently used in Prognosis for SBCE.
- Patch sbce-10.1.0.0-32-21432 is needed to resolve a syslog related issue.

2.3. Support

For technical support on Integrated Research Prognosis, contact the Integrated Research Support Team at:

- Hotline: +61 (2) 9966 1066
- Email: support@ir.com

3. Reference Configuration

Figure 1 illustrates the test configuration used to verify the Prognosis application with Avaya Aura® Application Enablement Services. The configuration consists of a duplex Avaya Aura® Communication Manager with an Avaya G430 Media Gateway, and Avaya Aura® Media Server. Avaya SIP and H.323 endpoints were configured for making and receiving calls. Avaya Aura® Session Managers were configured via Avaya Aura® System Manager to provide SIP Deskphones. Avaya Session Border Controller for Enterprise was used to complete a SIP trunk connection to simulate a PSTN connection to the Enterprise solution. Prognosis was installed on Microsoft Windows Server 2019. Both the Monitoring Node and Web Application software were installed on this server.

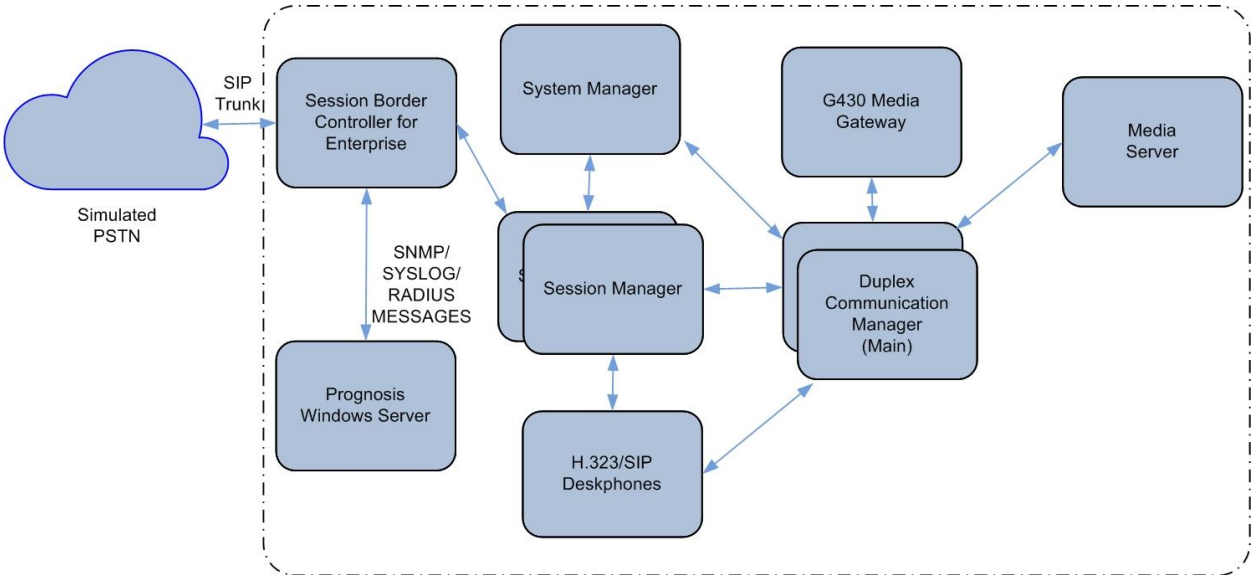


Figure 1: Test Configuration Diagram

4. Equipment and Software Validated

The following equipment and software were used for the compliance test provided:

Equipment/Software	Release/Version
Avaya Session Border Controller for Enterprise	10.1 (10.1.0.0-32-21432)
Avaya Aura® Communication Manager	10.1 (10.1.0.0.0.974.27293)
Avaya Aura® Media Server	10.1.0.77
Avaya G430 Media Gateway - MGP	42.4.0
Avaya Aura® System Manager	10.1 Build No. - 10.1.0.0.537353 Software Update Revision No: 10.1.0.0.0614119
Avaya Aura® Session Manager	10.1 (10.1.0.0.1010019)
J100 Series IP Telephones - J179 - J129	4.0.11.0 (SIP)
96x1 Series IP Telephones - 9641G - 9611G	9.8511 (H.323)
Collaborate – Prognosis Server running on Microsoft Windows Server 2019	12.1

Note: All Avaya Aura® systems and Prognosis runs on VMware 6.7 virtual platform.

5. Configure Avaya Aura® Communication Manager

The configuration of Communication Manager and SBCE is assumed to be in place and will not be discussed in this document. For more information of how to configure Communication Manager and SBCE, please refer to **Section 11**.

6. Configure Avaya Aura® Session Manager

The configuration of Session Manager is assumed to be in place and will not be discussed in this document. For more information of how to configure Session Manager, please refer to **Section 11**.

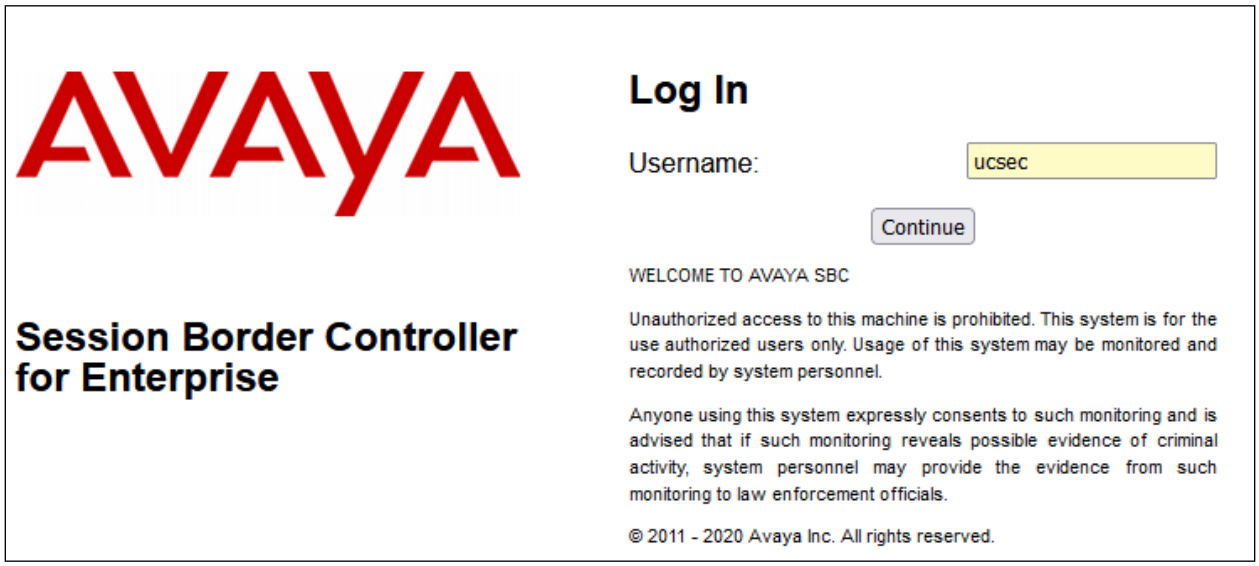
7. Configure Avaya Session Border Controller for Enterprise

The initial administration of SBCE and the connection to Session Manager, and Service Provider (simulated) is assumed to be in place and will not be covered here. This section covers the SBCE configuration of SYSLOG, SNMP and RTCP monitoring that is required for the purpose of administering Prognosis.

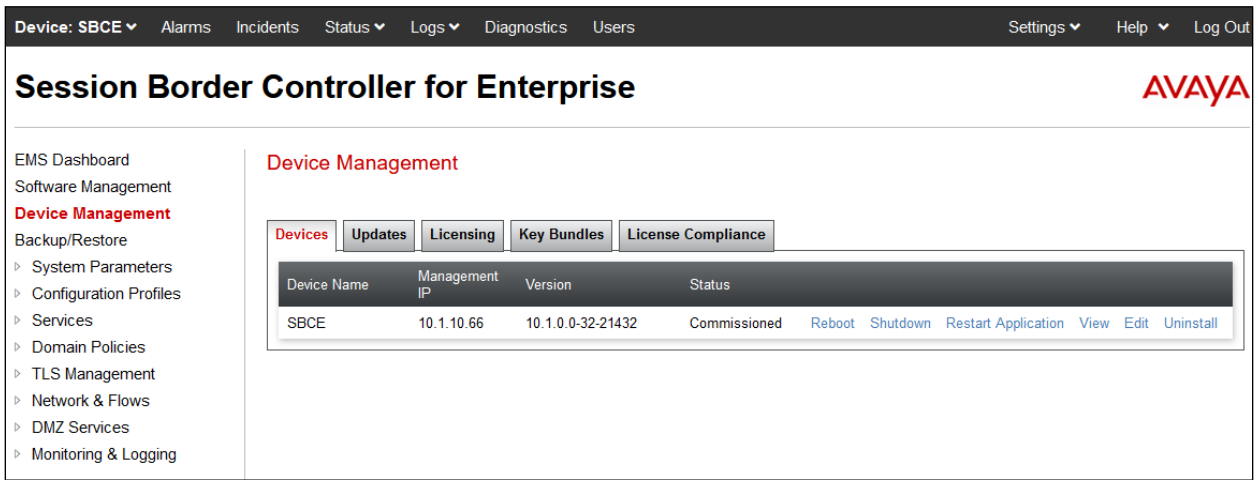
7.1. Configure SNMP

SNMP is used not only to capture the availability of the server but also include configuration, utilization and alerts. SNMP information also included statistics like SIP call counts and messages. All configurations are done via Avaya SBCE web interface.

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

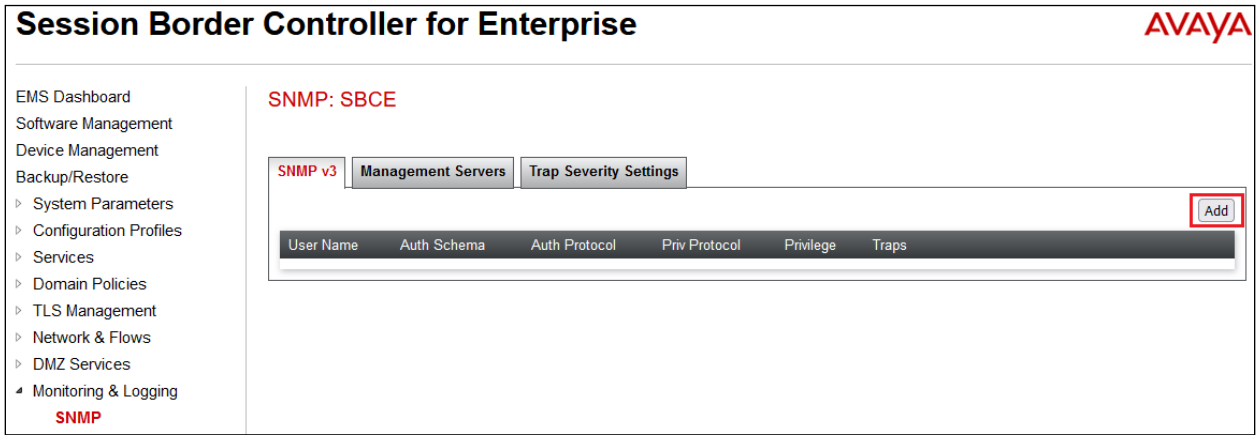


Once logged in, a dashboard is presented with a menu on the left-hand side for EMS (not shown). Select "SBCE" under **Device** from the left top drop-down options for SBCE configuration as shown below.



Navigate to **Backup/Restore → Monitoring & Logging → SNMP** from the dashboard.

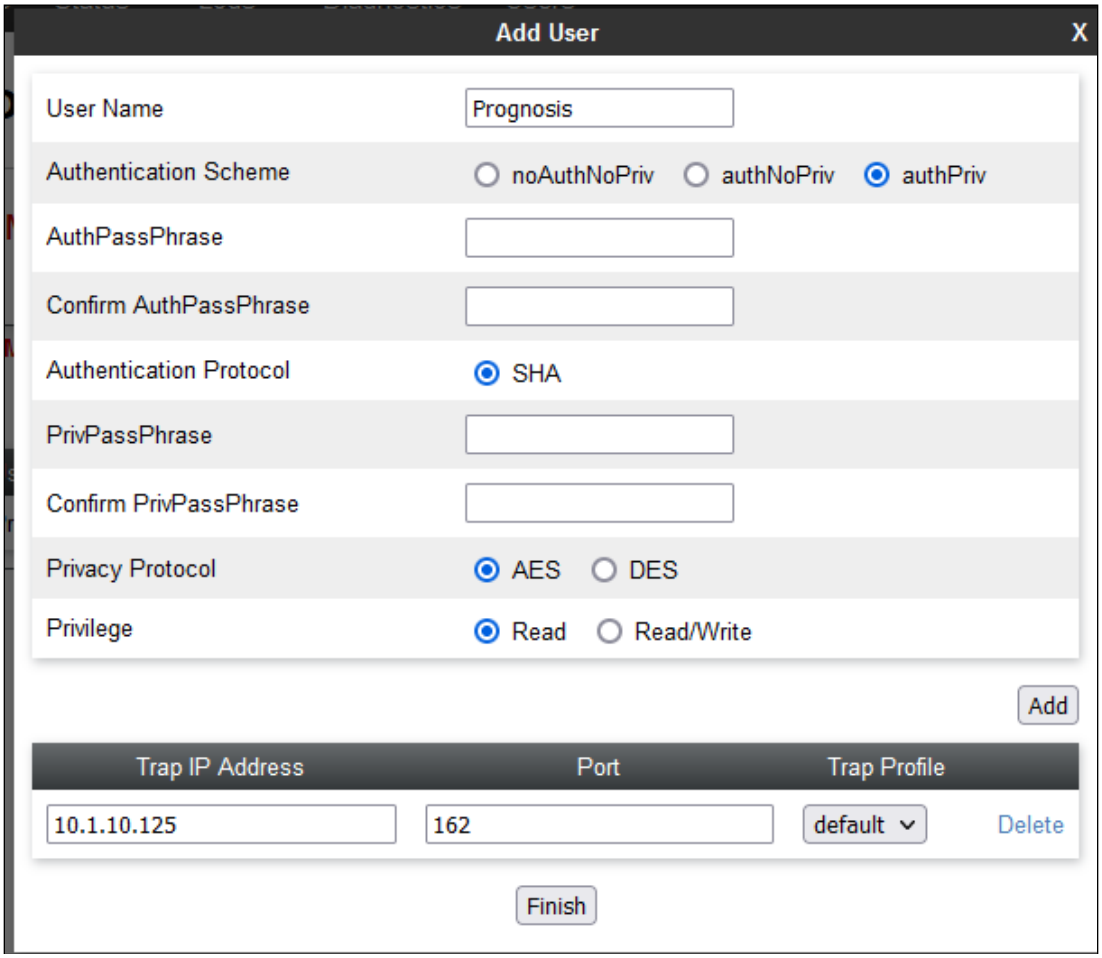
The **SNMP** page is seen as shown below. Select **SNMP v3** tab. Click on the **Add** button.



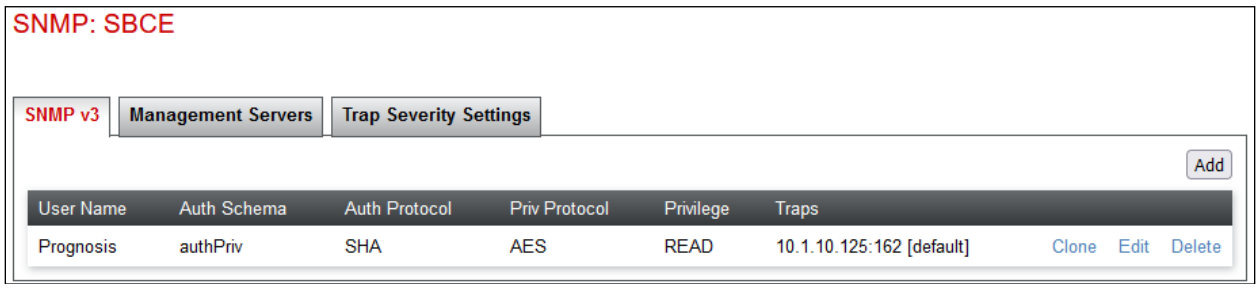
In the **Add User** window shown below, configure the following.

- **User Name:** A descriptive name.
- **Authentication Scheme:** Select the radio button for **authPriv**.
- Enter a password for **AuthPassPhrase** and confirm in **Confirm AuthPassPhrase**.
- **Authentication Protocol:** Select the radio button for **SHA**.
- Enter a password for **PrivPassPhrase** and confirm in **Confirm PrivPassPhrase**.
- **Privacy Protocol**: Select **AES** radio button.
- **Privilege**: Select **Read** radio button.
- **Trap IP Address**: Enter the IP Address of the Prognosis Server.
- **Port**: Enter **162**.

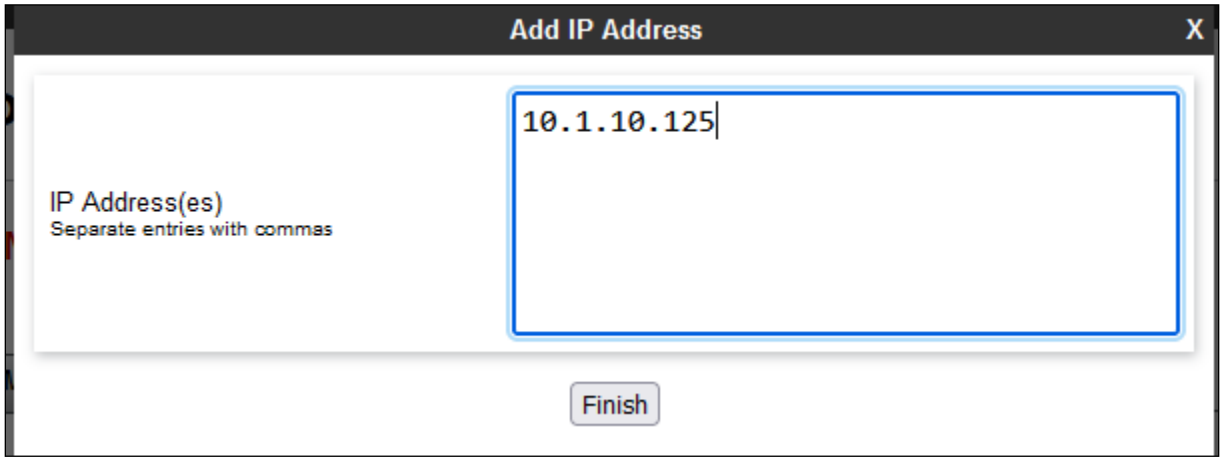
Retain default values for all other fields and click on the **Finish** button.



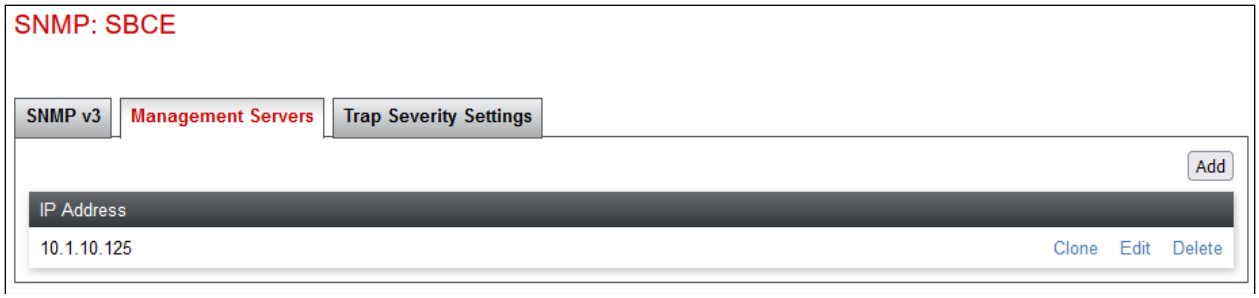
Screen below shows the SNMP v3 configured for SBCE device. Select the **Management Servers** tab and click on the **Add** button.



In the **Add IP Address** window shown below, configure the Prognosis server IP Address and click the **Finish** button.



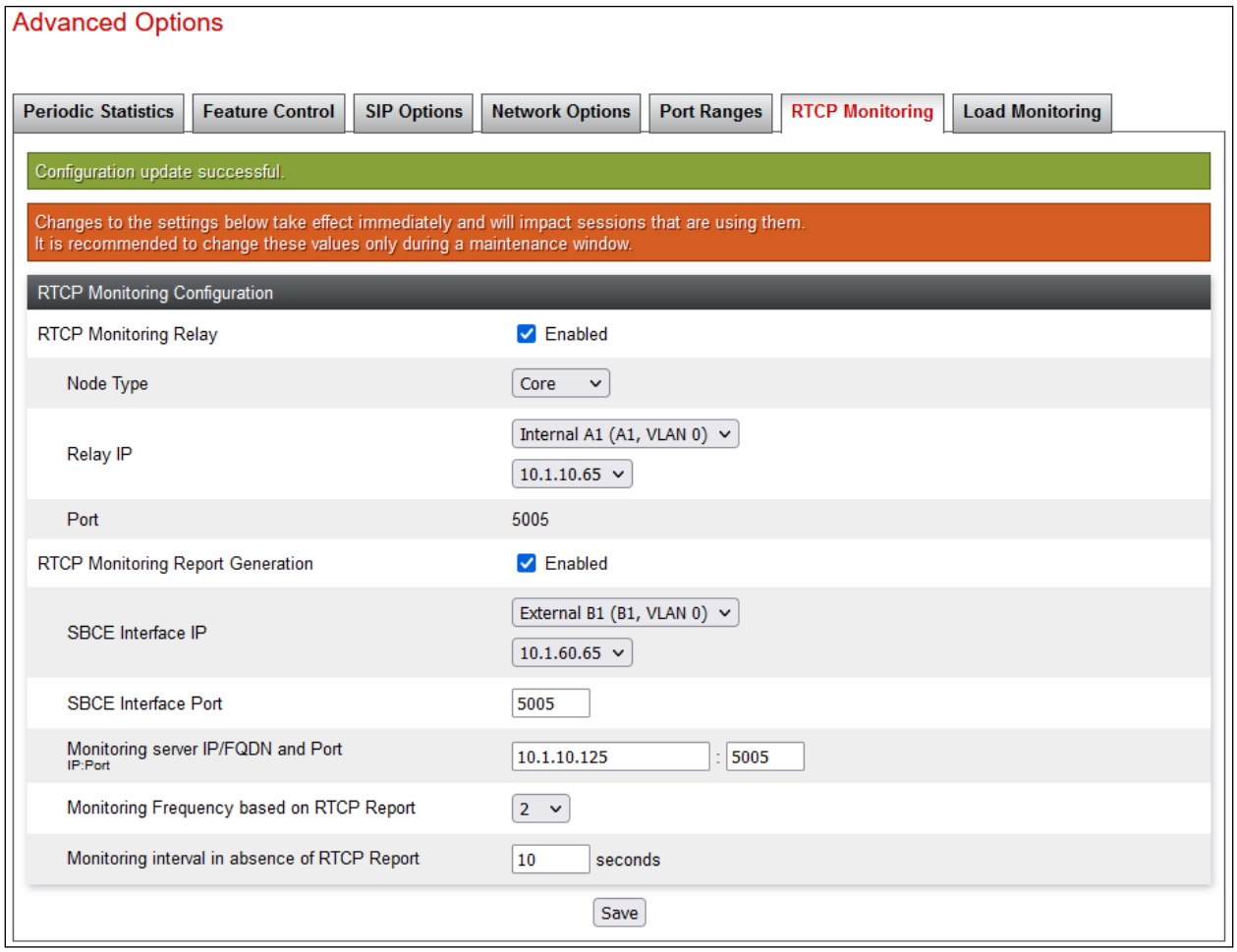
Screen below shows the Management Servers configured for **SBCE** device



7.2. Configure RTCP Monitoring feature

To setup RTCP Monitoring, under **Device: SBCE** navigate to **Backup/Restore → Network & Flows → Advance Options**. Select the **RTCP Monitoring** tab and configure the following:

- Tick **Enabled** the **RTCP Monitoring Relay**.
- **Node Type**: **Core** since only one SBCE is setup.
- **Relay IP**: Select the internal interface as relay IP.
- **Port**: Enter **5005**.
- Tick **Enabled** the **RTCP Monitoring Report Generation**.
- **SBCE Interface IP**: Select the external interface as IP for public trunk. This feature is only for public SIP trunk with Avaya SBCE receiving RTCP streams without having specific control. Avaya SBCE converts the RTCP streams into Avaya specific format before sending it to the monitoring server.
- **SBCE Interface Port**: Enter **5005**.
- **Monitoring server IP/FQDN and Port**: Enter Prognosis server IP address and port **5005**.



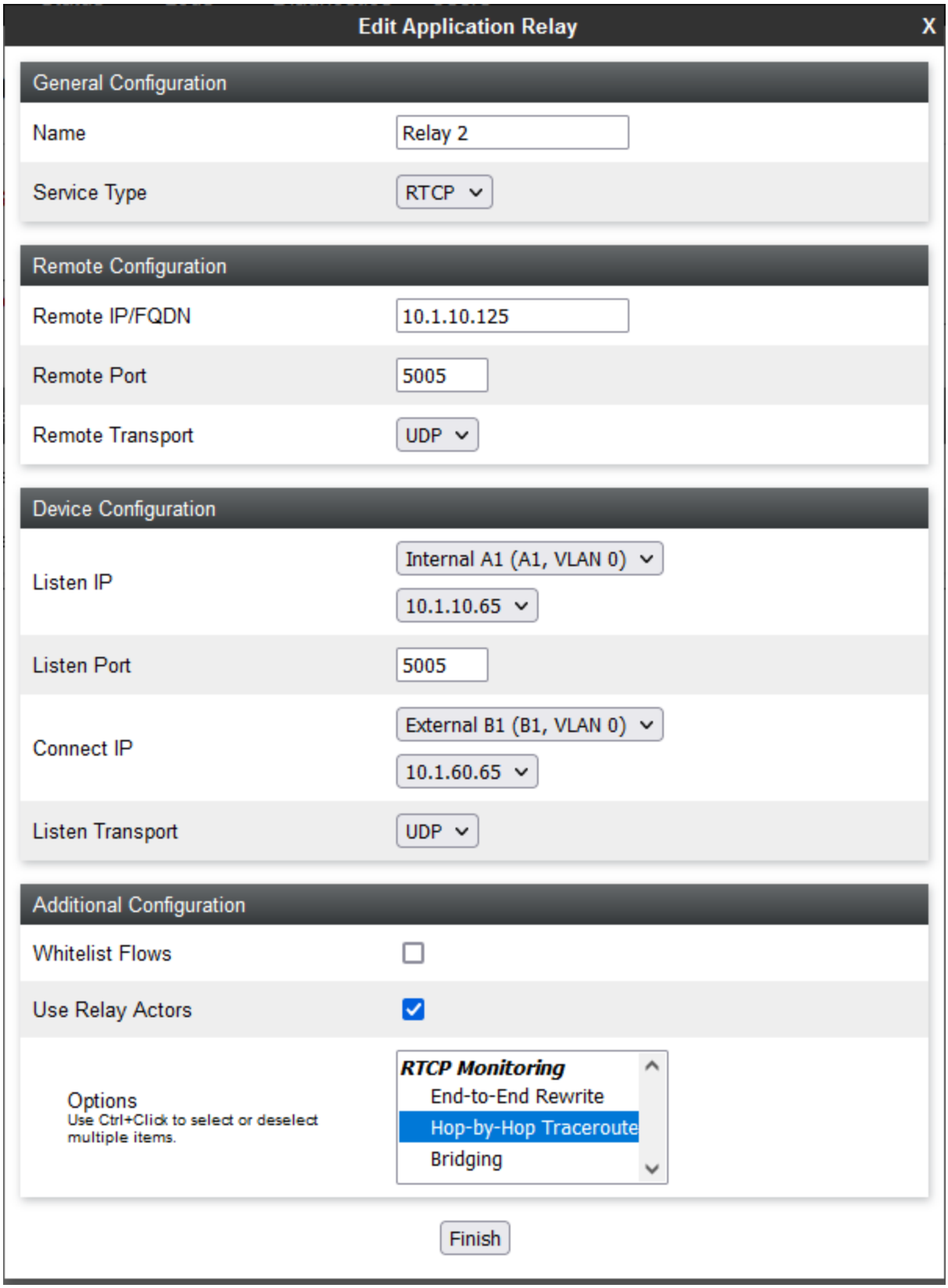
In a back-to-back Avaya SBCE deployment, two relay services needs to be configured to send RTCP monitoring traffic to Prognosis server on each SBCE. This is needed for Core Avaya SBCE, DMZ Avaya SBCE and remote Avaya SBCE. In this compliance testing, only Core Avaya SBCE is setup. Refer to **Section** Error! Reference source not found. reference **[6]** for overview and further explanation.

To configure application relay services to send the RTCP monitoring traffic to Prognosis, under **Device: SBCE,** navigate to **Backup/Restore → DMZ Services → Relay**. Click **Add**. Configure the following. A screen shot is shown on the next page.

- **Name:** Enter descriptive name.
- **Service Type**: **RTCP**.
- **Remote IP/FQDN**: Prognosis IP address.
- **Remote Port**: Enter **5005**.
- **Remote Transport:** Select **UDP**.
- **Listen IP**: Select internal private interface.
- **Listen Port**: Enter **5005**.
- **Connect IP**: Select another internal private interface to relay which is routable to Prognosis server.
- **Listen Transport:** Select **UDP**.
- Tick **Use Relay Actors** and select **Options** as **Hop-By-Hop Traceroute**.

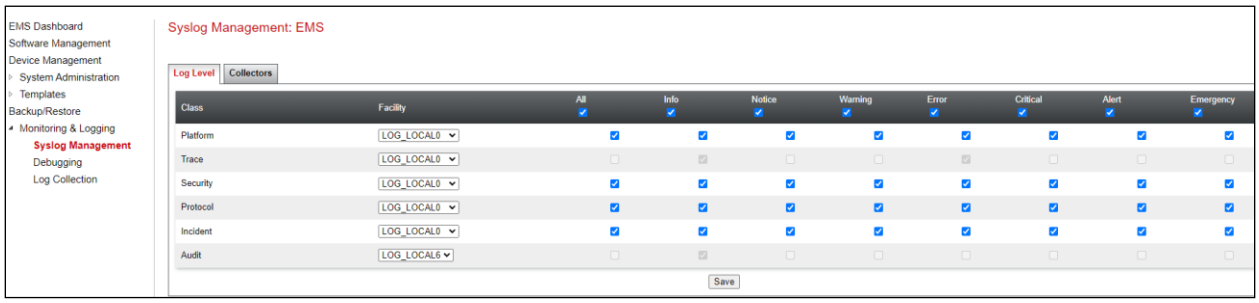
Repeat the same for Relay 2 with the **Listen IP** using the external public interface.

The RTCP monitoring server i.e., the Listen IP where RTCP traffic will be received, needs to be configured on phone groups via System Manager for SIP endpoints in Session Manager, Media Server and Communication Manager. Refer to the reference **[5]** and **[4]** respectively in **Section 11**.



7.3. Configure SYSLOG

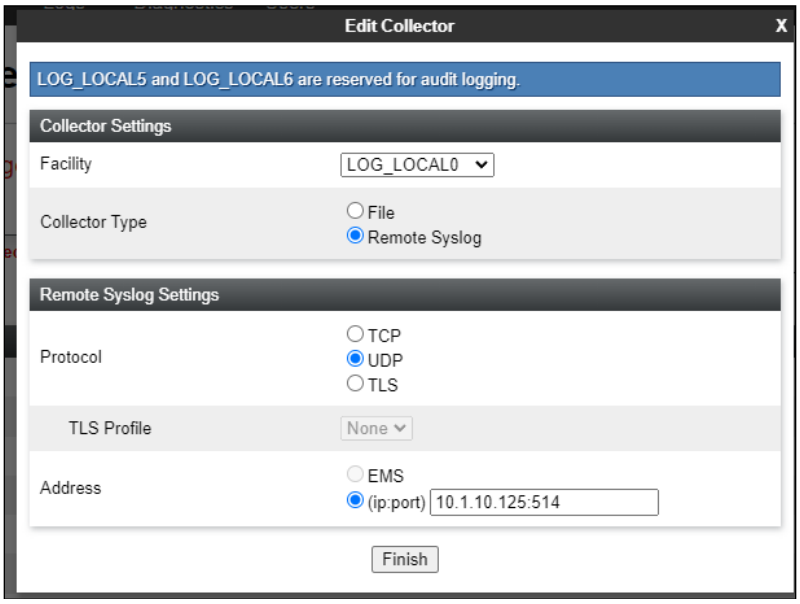
To setup SYSLOG, under **Device: EMS** navigate to **Backup/Restore → Monitoring & Logging → Syslog Management** and select the **Log Level** tab on the right pane. Configure the log level for the **Class**. In the following **LOG_LEVEL0** is setup for all **Class** except Audit which is not configurable and the appropriate information level.



Next, click the **Collectors** tab. Click on **Edit** on any of the LOG_LOCALx entry except 5 and 6. In this compliance testing, **LOG_LOCAL0** was picked above and configured below for external SYSLOG server such as Prognosis.

In the **Edit Collector** window shown below, configure the following.

- **Collector Type**: Select the **Remote Syslog** radio button.
- **Protocol**: Select **UDP**.
- **Address**: Select the **(ip:port)** radio button and enter the IP Address of Prognosis and the port as **514**.



The screen below shows the configured result. Repeat the above under **Device: SBCE**. Note that SYSLOG messages is only sent from SBCE via the Management IP Address and not through the other interfaces.

Syslog Management: EMS

Log Level | Collectors

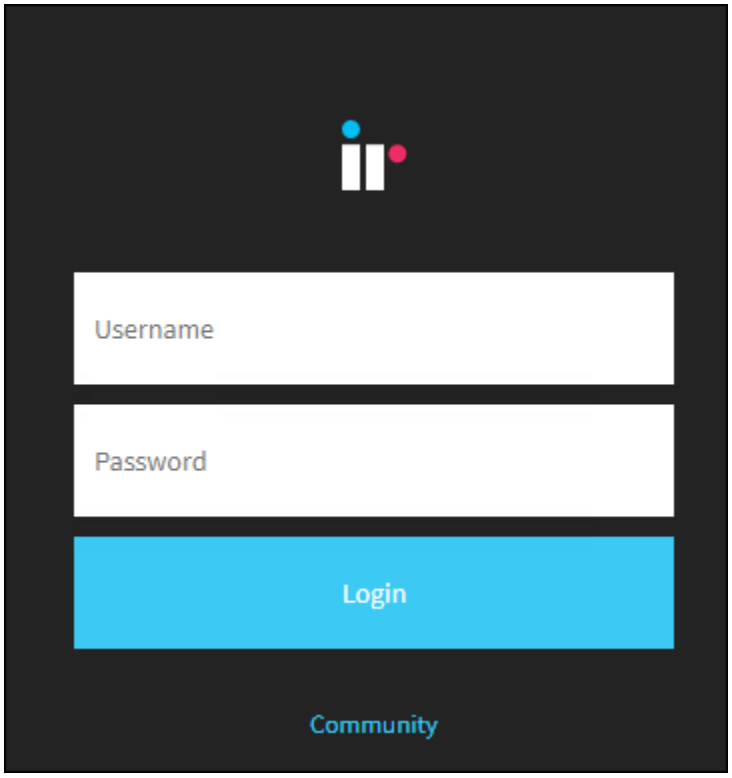
Add

Facility	Destination Location		
LOG_LOCAL1	/archive/syslog/ipcs/ipcs.log	Edit	Delete
LOG_LOCAL2	/archive/syslog/ipcs/ipcs.log	Edit	Delete
LOG_LOCAL3	/archive/syslog/ipcs/ipcs.log	Edit	Delete
LOG_LOCAL4	/archive/syslog/ipcs/ipcs.log	Edit	Delete
LOG_LOCAL5	/archive/syslog/ipcs/slic.log	Edit	
LOG_LOCAL6	/archive/syslog/ipcs/audit.log	Edit	
LOG_LOCAL7	/archive/syslog/ipcs/ipcs.log	Edit	Delete
LOG_DAEMON	/archive/syslog/ipcs/ipcs.log	Edit	Delete
LOG_LOCAL0	UDP:10.1.10.125:514	Edit	Delete

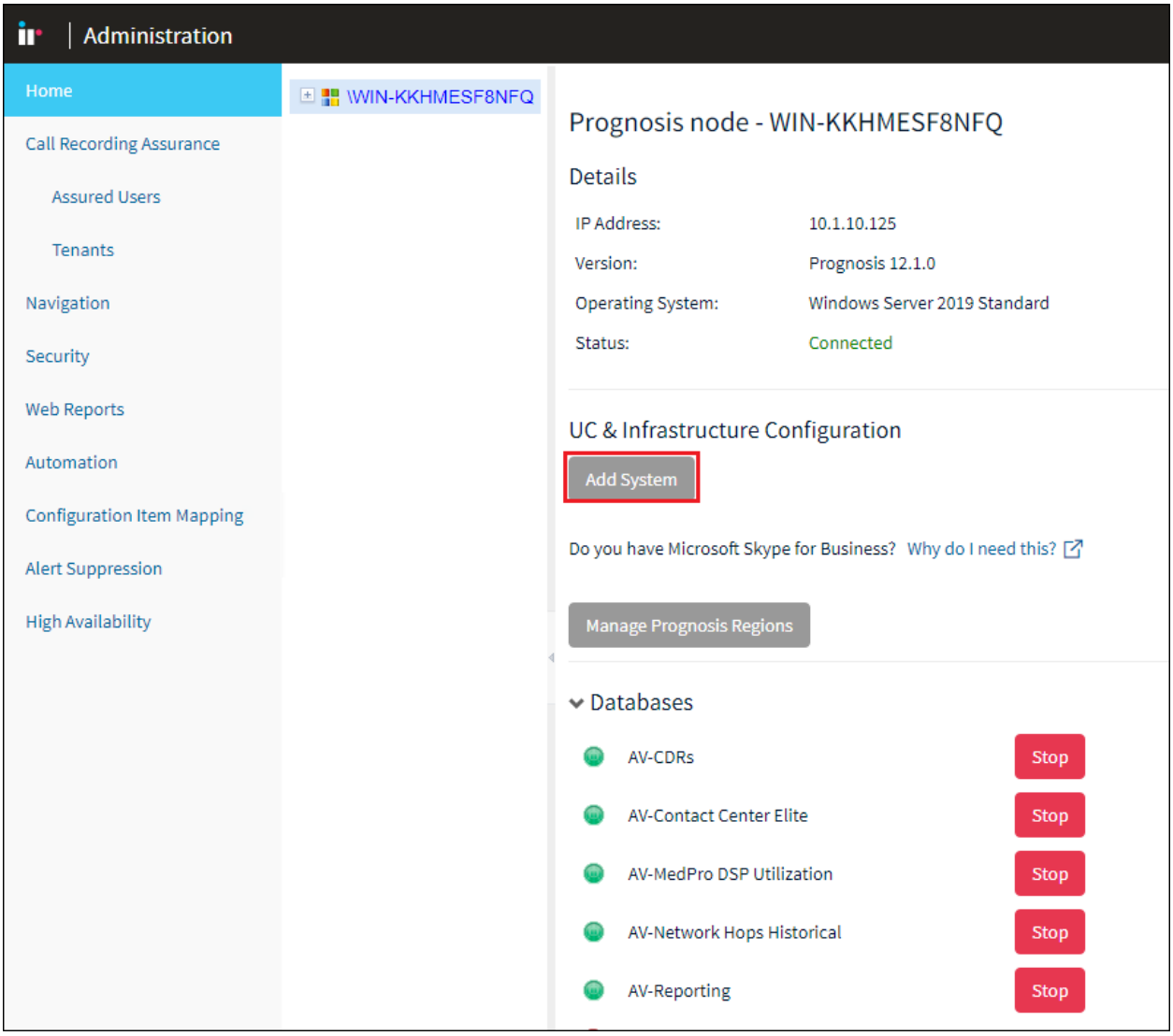
8. Configure Prognosis

This section describes the configuration of Prognosis required to interoperate with SBCE. Initial setup and installation will be done by Integrated Research and will not be detailed here. Below is the configuration for information purposes only.

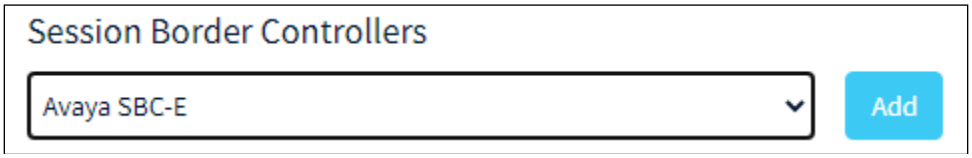
Log in to the Prognosis with administrative privileges. Launch the Prognosis Administration by clicking **Start → All Programs →Prognosis → Administration** and log in with the appropriate password.



The **Prognosis Administration** homepage is displayed as shown below. Click **Add System**.



Scroll below to **Session Border Controllers**. Select **Avaya SBCE-E** from the drop-down menu. Click **Add** to add a new SBCE.



In this test configuration, the following entries are added for SBCE with display name of **SBCE101** and with IP addresses of **10.1.10.66**.

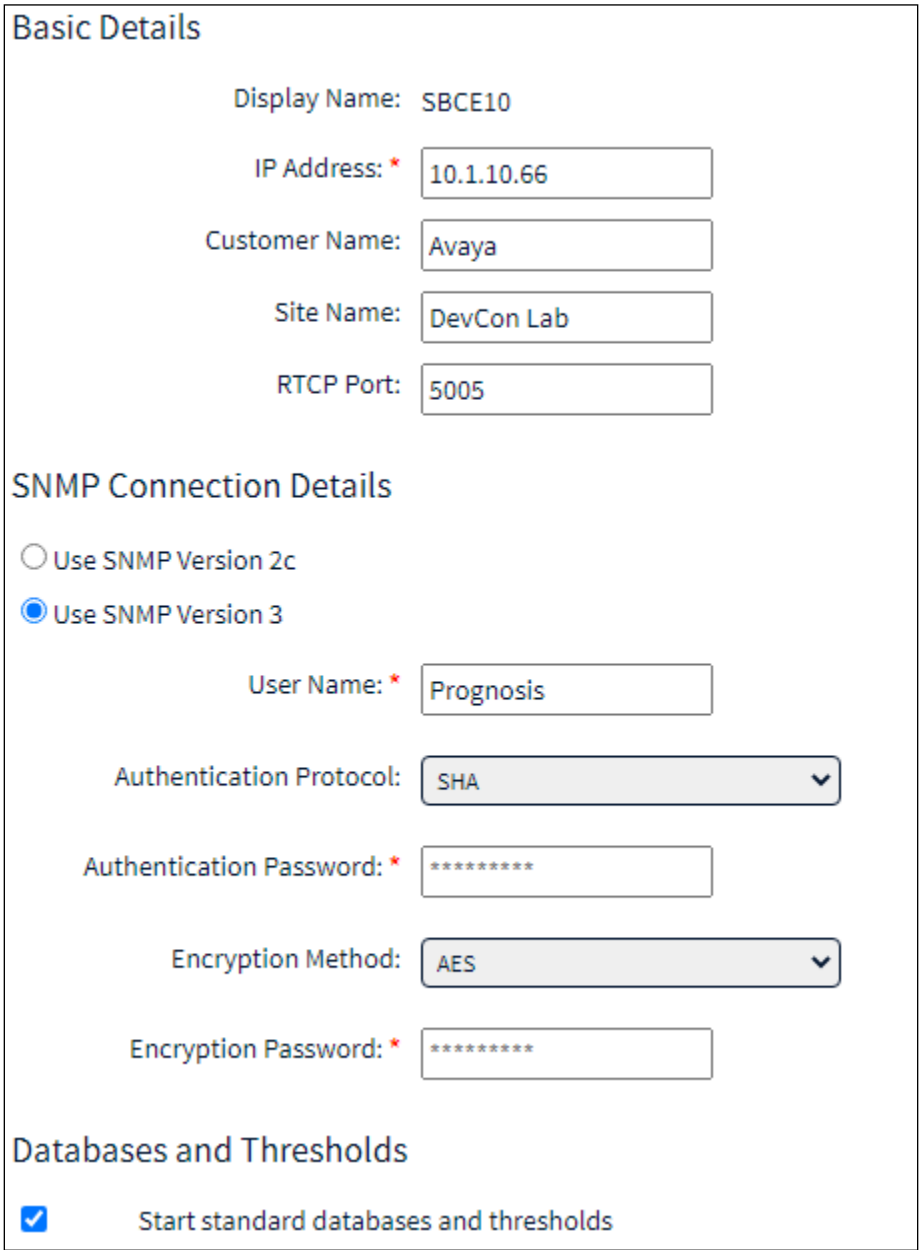
The following settings were used during the compliance test.
Basic Details:

- **Display Name: SBCE101**
- **IP address: 10.1.10.66**
- **Customer Name: Avaya**
- **Site Name: DevCon Lab**

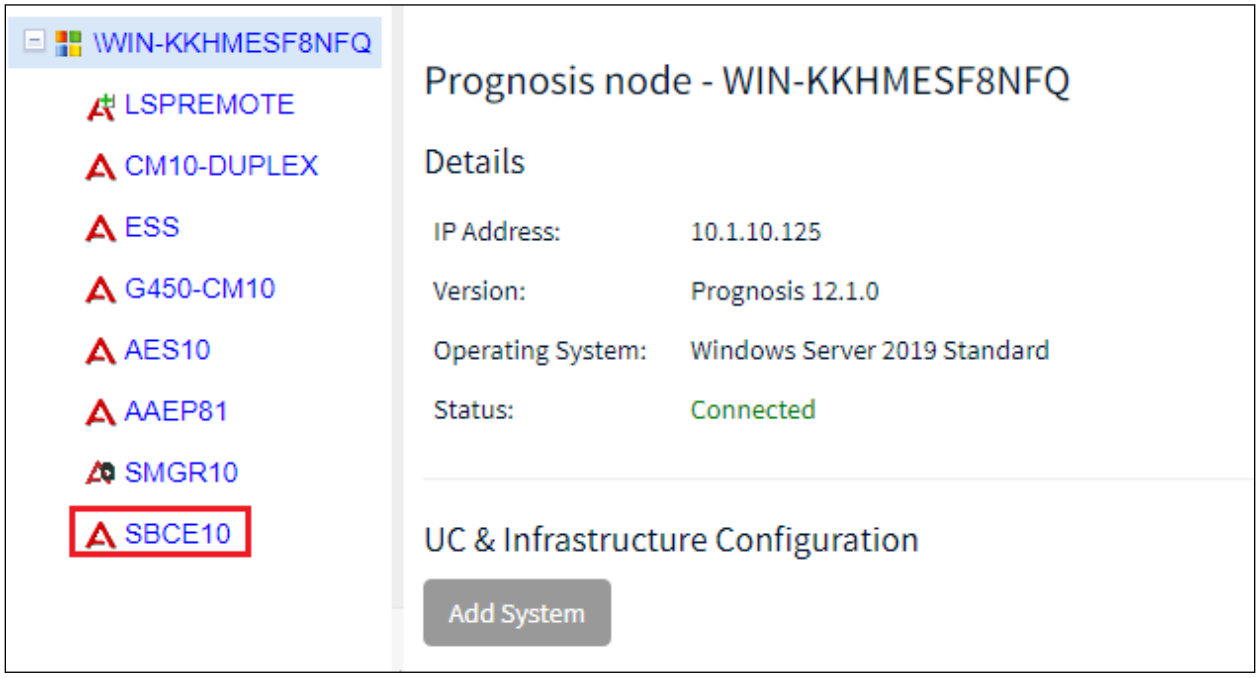
SNMP Connection Details:

- Select **Use SNMP Version 3**
- Authentication Protocol: As configured in **Section 7.1**
- Authentication Password: As configured in **Section 7.1**
- Encryption Method: As configured in **Section 7.1**
- Encryption Password: As configured in **Section 7.1**

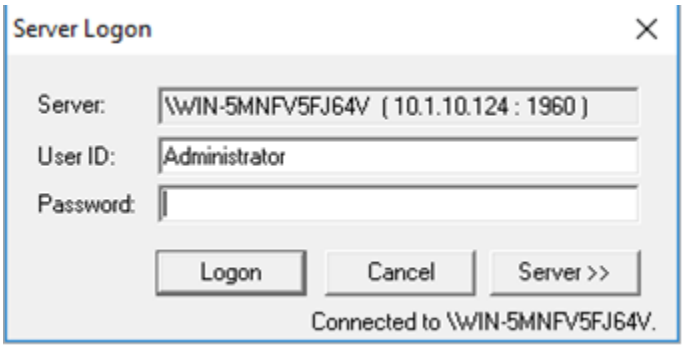
Leave the **Databases and Thresholds** as checked. Click **Add** to affect the addition (not shown).



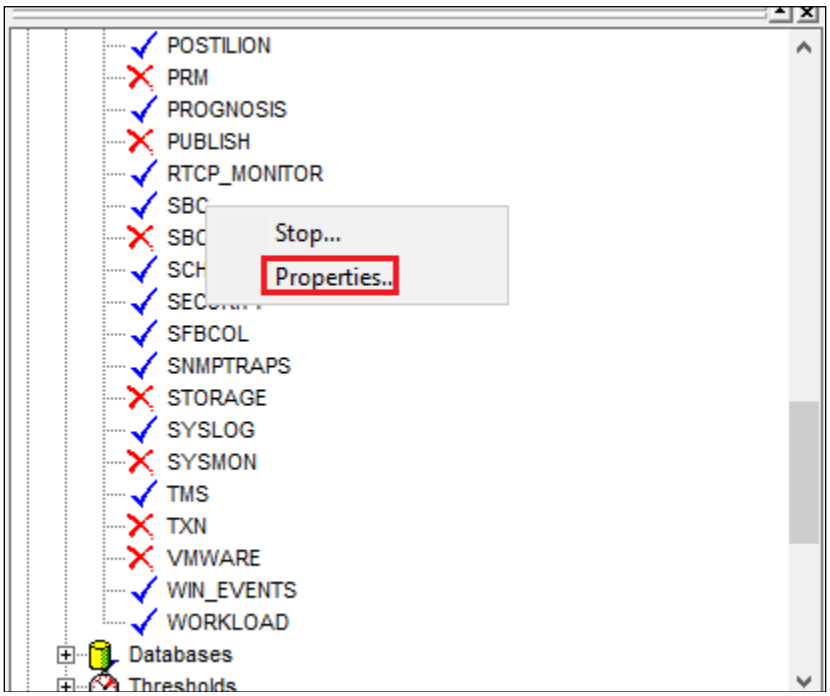
Below is the result of the addition of SBCE in the Admin home page.



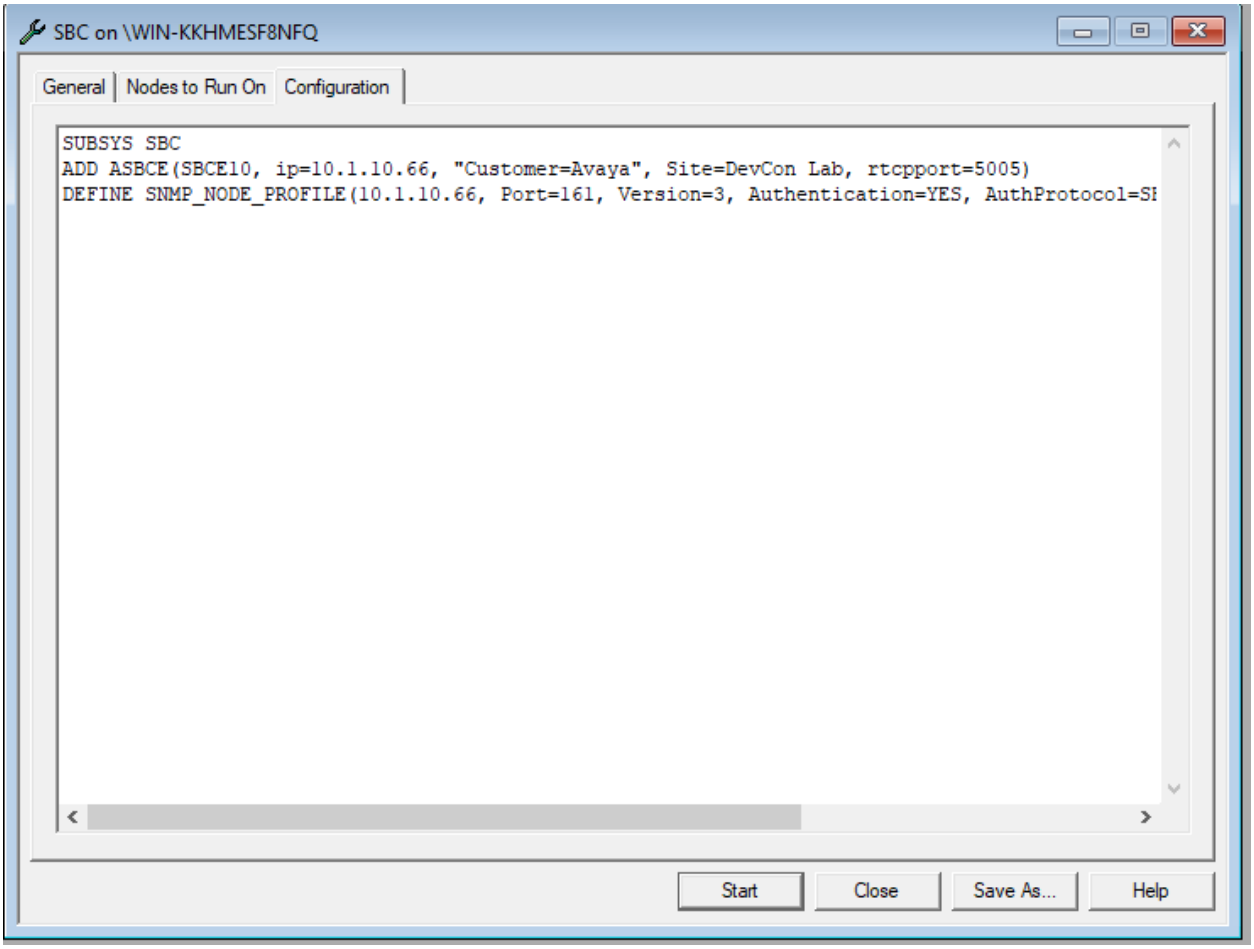
On Prognosis server, click **Start → All Programs → Prognosis → Prognosis Client** to start the Windows Client application. Log in with the appropriate credentials.



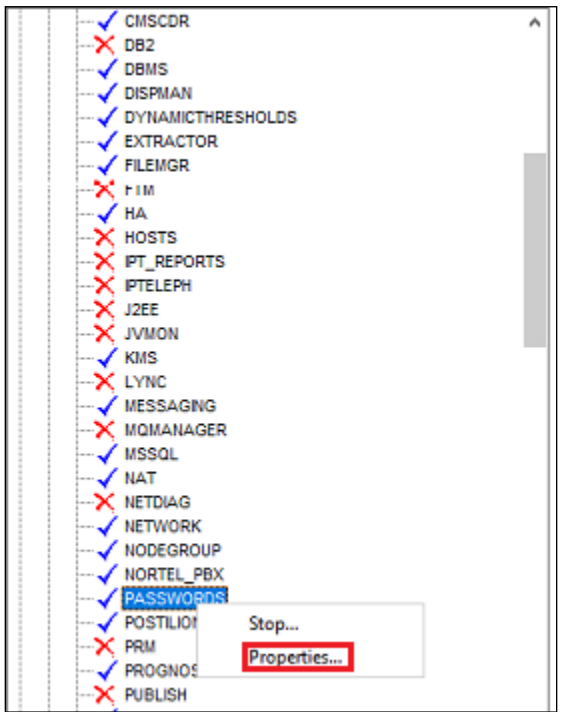
To check the configurations of the SBCE to be monitored, expand **Configurations** of the Monitoring Node on the left pane, right-click on **SBC** and select **Properties**.



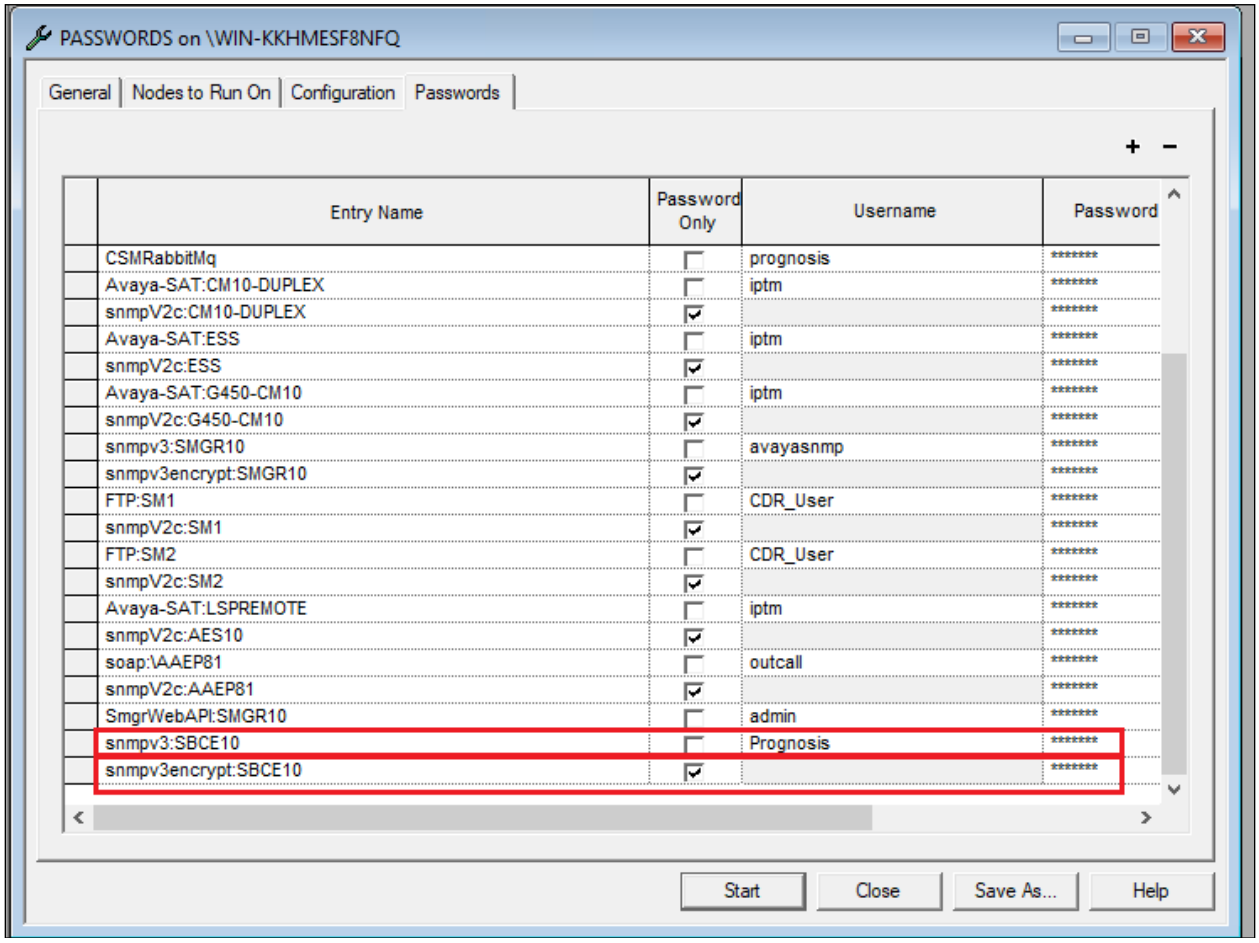
The **SBCE** entry configured earlier is displayed below:



To check the configurations of the password to be monitored, expand Configurations of the Monitoring Node on the left pane, right-click on **PASSWORDS** and select **Properties**.



The password entries are displayed. In the compliance test, the first entry of SBCE was added **snmpv3:SBCE10** with the password (Community String) as configured in **Section 8.1**.

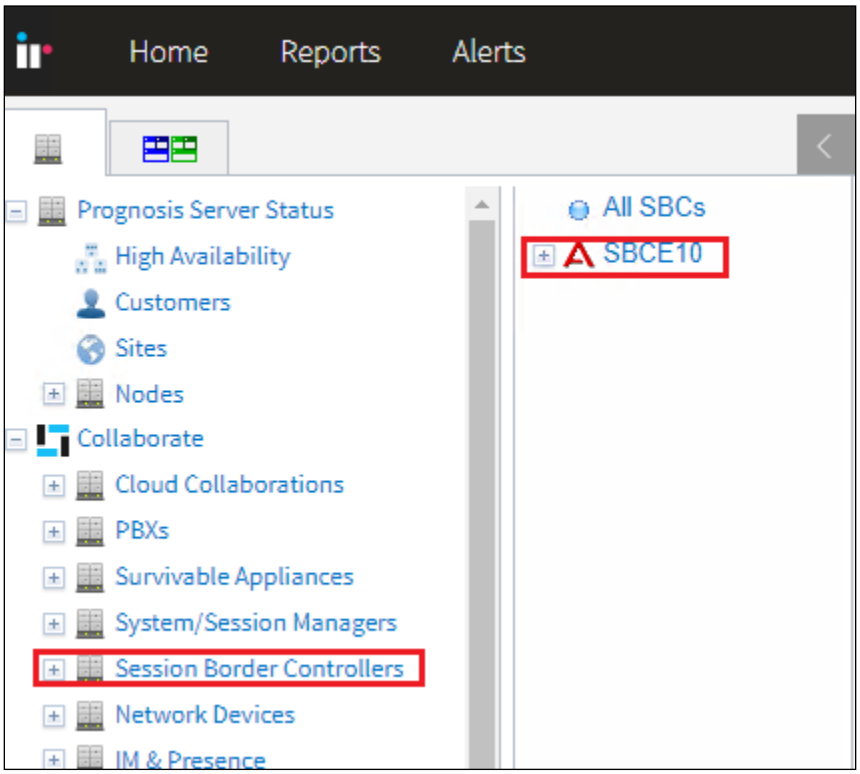


Entry Name	Password Only	Username	Password
CSMRabbitMq	☐	prognosis	*******
Avaya-SAT:CM10-DUPLEX	☐	iptm	*******
snmpV2c:CM10-DUPLEX	☑		*******
Avaya-SAT:ESS	☐	iptm	*******
snmpV2c:ESS	☑		*******
Avaya-SAT:G450-CM10	☐	iptm	*******
snmpV2c:G450-CM10	☑		*******
snmpv3:SMGR10	☐	avayasnmp	*******
snmpv3encrypt:SMGR10	☑		*******
FTP:SM1	☐	CDR_User	*******
snmpV2c:SM1	☑		*******
FTP:SM2	☐	CDR_User	*******
snmpV2c:SM2	☑		*******
Avaya-SAT:LSPREMOTE	☐	iptm	*******
snmpV2c:AES10	☑		*******
soap:\AAEP81	☐	outcall	*******
snmpV2c:AAEP81	☑		*******
SmgrWebAPI:SMGR10	☐	admin	*******
snmpv3:SBCE10	☐	Prognosis	*******
snmpv3encrypt:SBCE10	☑		*******

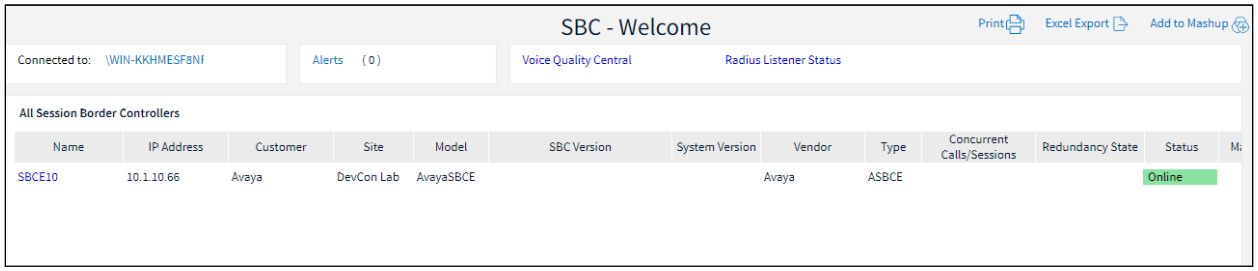
By default, Prognosis is listening to Syslog at UDP port 514. The Syslog DB database needs to be started which will not be detailed here.

9. Verification Steps

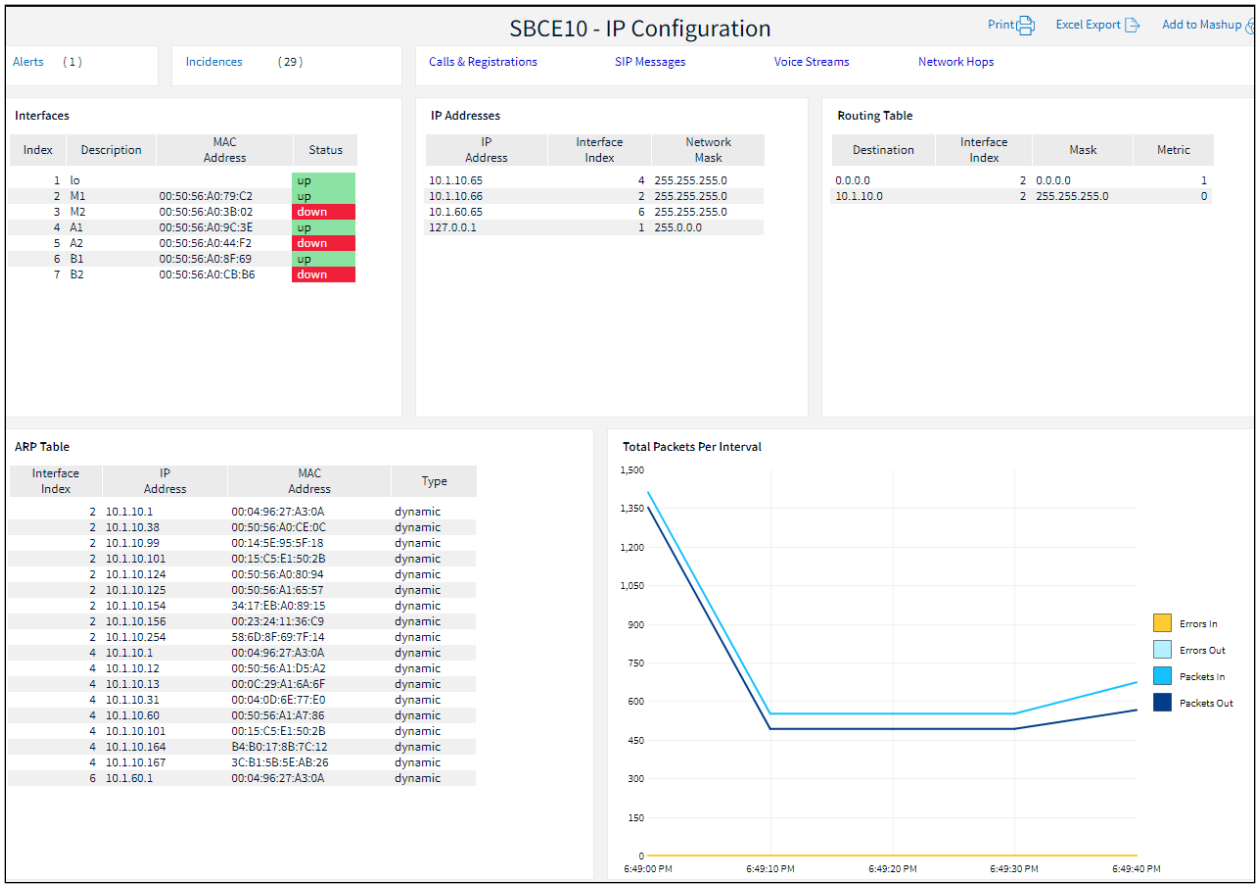
This section provides the tests that can be performed to verify proper configuration of SBCE and Prognosis. Log in to the Prognosis with administrative privileges. Navigate to **Collaborate → Session Border Controllers**. **SBCE10** is listed as one of the SBCs in the middle pane.



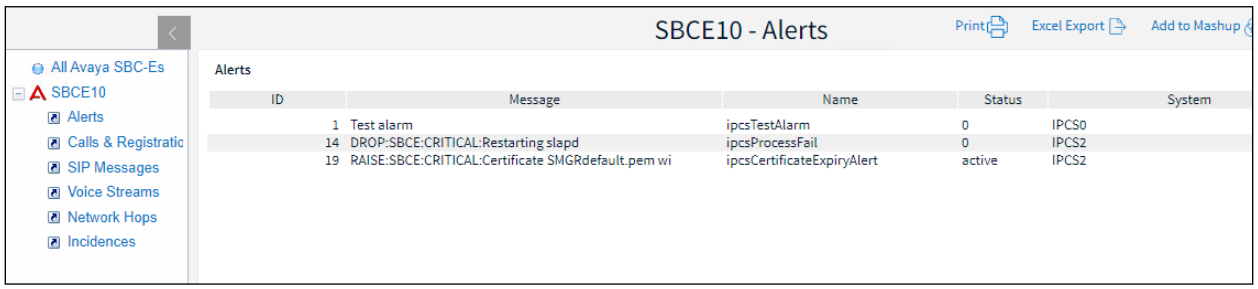
The right pane shows the **SBC – Welcome** screen below.



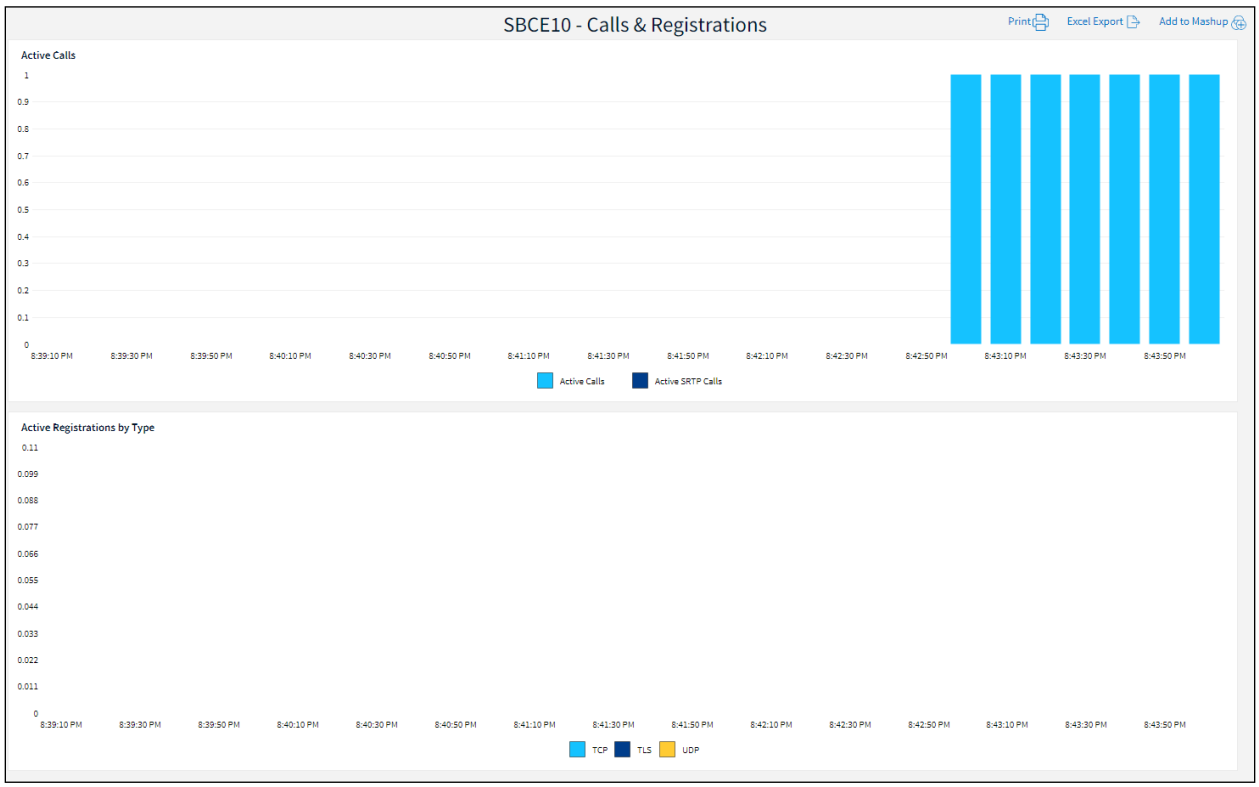
Click on the **SBCE10** and below shows the details of the SBCE **IP Configuration**.

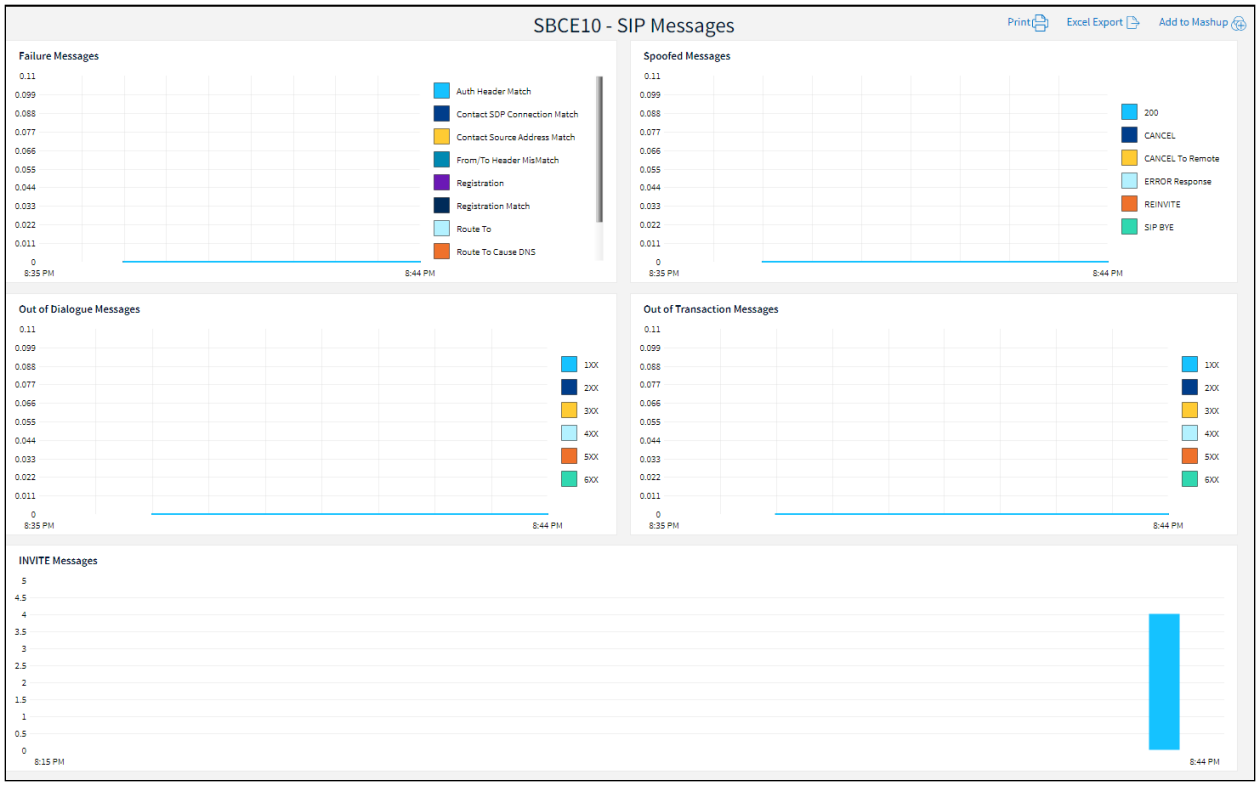


Verify the **Alerts** and **Incidences** on the Prognosis with the SBCE from the sub-header of the **SBCE10 IP Configuration**. Below shows the **Alerts** displayed.



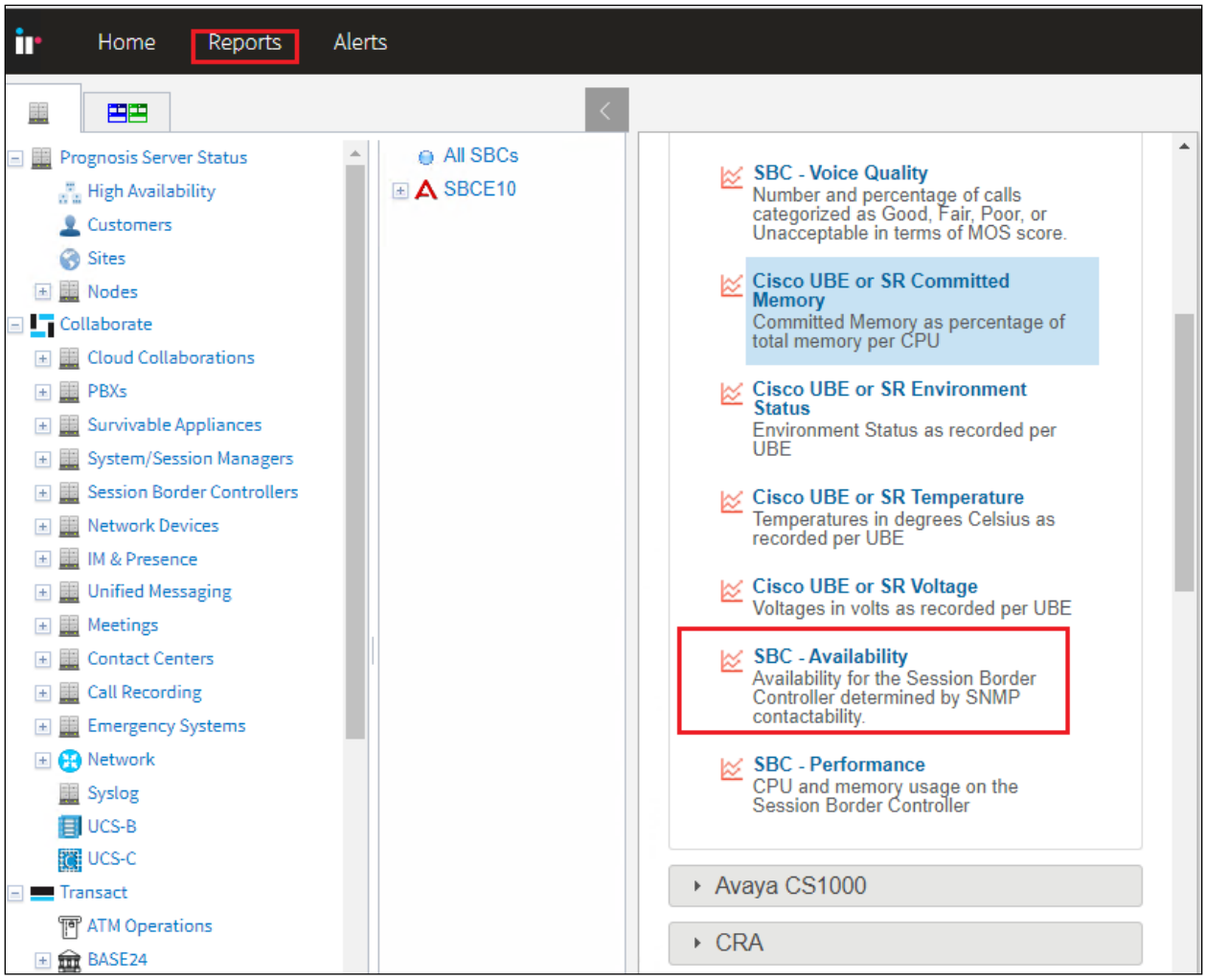
Make an inbound or outbound call from/to Service Provider. Verify the details such as **Calls & Registrations** and **SIP Messages** are displaying data as shown below and on the next page.



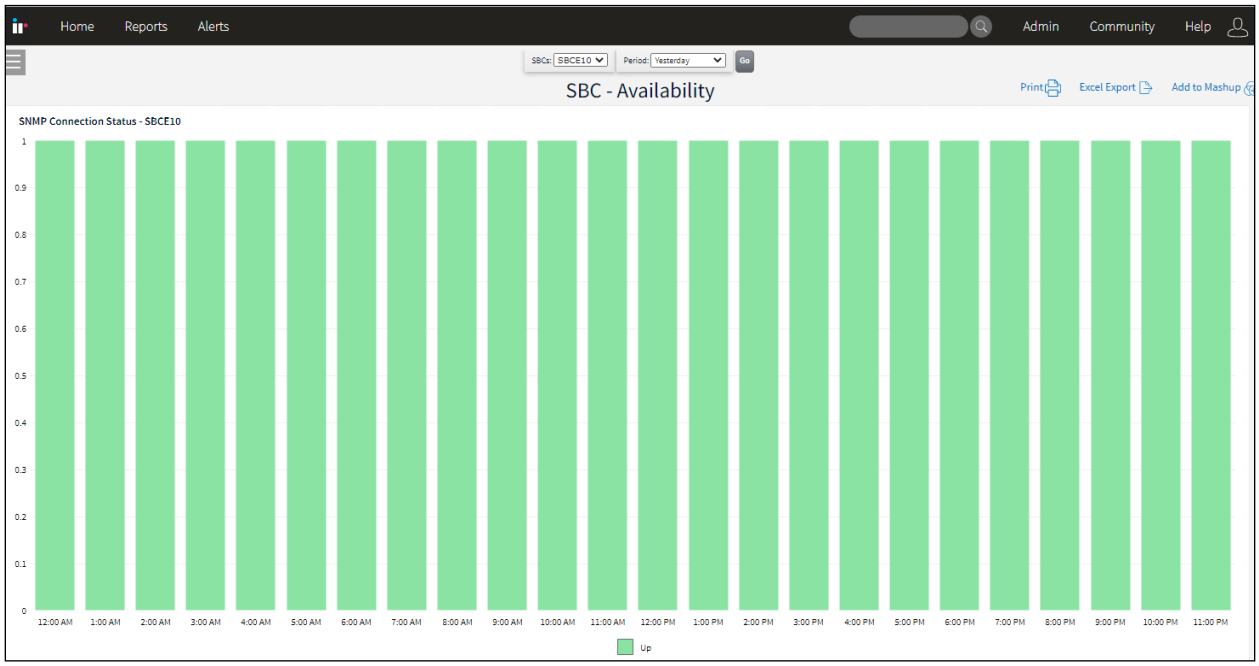


To view SYSLOG, from the home screen navigate to **Collaborate → Network → Syslog**. Below is a screenshot of the SYSLOG data collected from SBCE with IP Address shown below.

Reports can be generated for SBCE – Availability or Performance. From the login home screen in **Section 8**, select **Reports** and navigate to **Session Border Controller** (not shown) on the right pane. Select say **SBC – Availability** below.



The SBCE availability should be shown after selecting the SBC and duration as below by clicking **Go**. Note that **SBC – Performance** data is not currently being used as indicated in **Section 2.2** observations.



10. Conclusion

These Application Notes describe the procedures for configuring the Collaborate - Prognosis Server R12.1 to interoperate with Avaya Session Border Controller for Enterprise R10.1. During compliance testing, all test cases were completed successfully with observation noted in **Section 2.2**.

11. Additional References

The following Avaya documentations can be obtained on the http://support.avaya.com.

[1] *Administering Avaya Aura® Communication Manager*, Release 10.1.x, Issue 1, Dec 2021.
[2] *Administering Avaya Aura® Session Manager*, Release 10.1, Issue 1, Dec 2021.
[3] *Administering Avaya Session Controller for Enterprise*, Release 10.1.x, Issue 1, Dec 2021.
[4] *Application Notes for Integrated Research's Collaborate - Prognosis Server R12.1 with Avaya Aura® Communication Manager R10.1*.
[5] *Application Notes for Integrated Research's* Collaborate - Prognosis Server R12.1 *with Avaya Aura® Session Manager R10.1*.
[6] *Avaya Session Border Controller for Enterprise Overview and Specification*, Release 10.1.x, Issue 1, Dec 2021.

Prognosis documentations are provided in the online help that comes with the software package.

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.