Avaya Solution & Interoperability Test Lab

Application Notes for WildPackets OmniEngine Enterprise with Avaya Aura™ Communication Manager – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for WildPackets OmniEngine Enterprise to interoperate with Avaya Aura™ Communication Manager using Avaya IP Telephones. WildPackets OmniEngine Enterprise provides analysis on the VoIP call signaling and RTP flows from Avaya IP Telephones for monitoring and troubleshooting quality of calls placed across the network.

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 configuration steps required for WildPackets OmniEngine Enterprise to interoperate with Avaya Aura™ Communication Manager using Avaya IP Telephones. WildPackets OmniEngine Enterprise provides analysis on the VoIP call signaling and RTP flows from Avaya IP Telephones for monitoring and troubleshooting quality of calls placed across the network.

WildPackets OmniEngine Enterprise monitors the Avaya Common Control Messaging Set (CCMS) signaling streams and the H.323 RTP streams from the Avaya IP Telephones, and analyzes the packets to identify voice quality problems. The Avaya CCMS signaling streams are used by WildPackets OmniEngine Enterprise to obtain information such as calling and called party extensions, and to reassemble the call from the captured packets.

WildPackets OmniEngine Enterprise is typically deployed to remote sites within a distributed enterprise network, and uses the WildPackets OmniPeek Enterprise user interface for displaying captured packets and analyzed reports.

1.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying WildPackets OmniEngine Enterprise's capture of packet streams, and analysis of voice quality from the Avaya IP Telephones. The captured packets and analyzed reports were viewed from the user interface provided by WildPackets OmniPeek Enterprise. The call scenarios included registration, audio codecs with and without IP media shuffling, encryption, and VoIP impairment.

The serviceability testing focused on verifying the ability of WildPackets OmniEngine Enterprise to recover from adverse conditions, such as disconnecting the Ethernet cable to WildPackets OmniEngine Enterprise.

1.2. Support

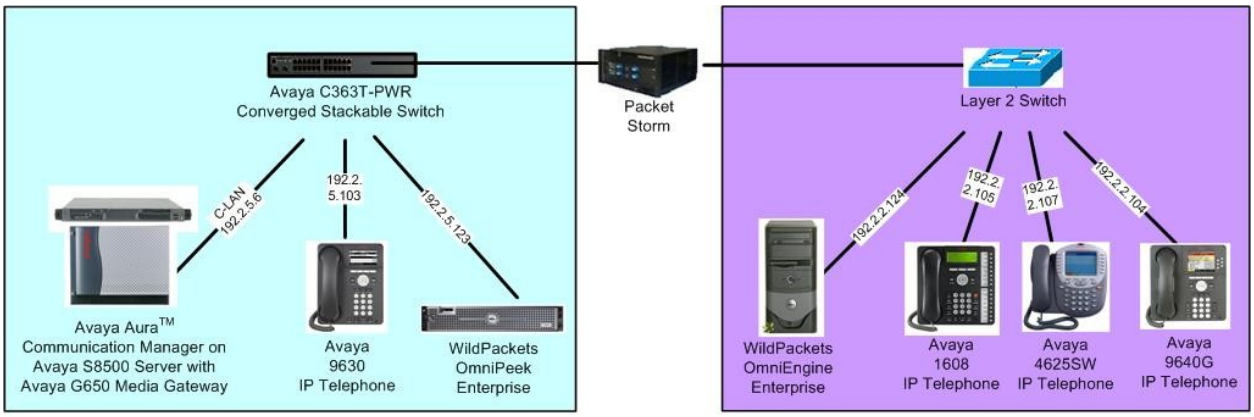
Technical support on WildPackets OmniEngine Enterprise can be requested at www.wildpackets.com/support/contact.

2. Reference Configuration

In the test configuration shown below, WildPackets OmniEngine Enterprise monitored the Avaya IP Telephones at the Remote site, and WildPackets OmniPeek Enterprise monitored the Avaya IP Telephone at the Central site. The WildPackets OmniPeek Enterprise was also used as a software console for the WildPackets OmniEngine Enterprise.

The packet streams for the Avaya IP Telephones at the Remote site were mirrored on the local Layer 2 switch, and sent over to WildPackets OmniEngine Enterprise for analysis. The Packet Storm was used as a tool to inject VoIP impairments, such as jitter and loss, into the network for calls between the Central and Remote sites.

The Avaya IP Telephony infrastructure and the integration between WildPackets OmniPeek Enterprise with Avaya Aura Communication Manager are not the focus of these Application Notes and will not be described. Furthermore, the port mirroring on the Remote switch and the VoIP impairment injection on the Packet Storm will also not be described. Note that other network tapping methods, besides port mirroring, may be used for the purpose of packet captures.



3. Equipment and Software Validated

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

Equipment	Software
Avaya S8500 Server	Avaya Aura Communication Manager 5.2, R015x.02.0.947.3
Avaya G650 Media Gateway • TN799DP C-LAN Circuit Pack	 HW01 FW017
Avaya 1600 Series IP Telephones (H.323)	1.02
Avaya 4600 Series IP Telephones (H.323)	2.9
Avaya 9600 Series IP Telephones (H.323)	2.0
Packet Storm	10.5v1
WildPackets OmniPeek Enterprise	6.0.2
WildPackets OmniEngine Enterprise	6.0.2

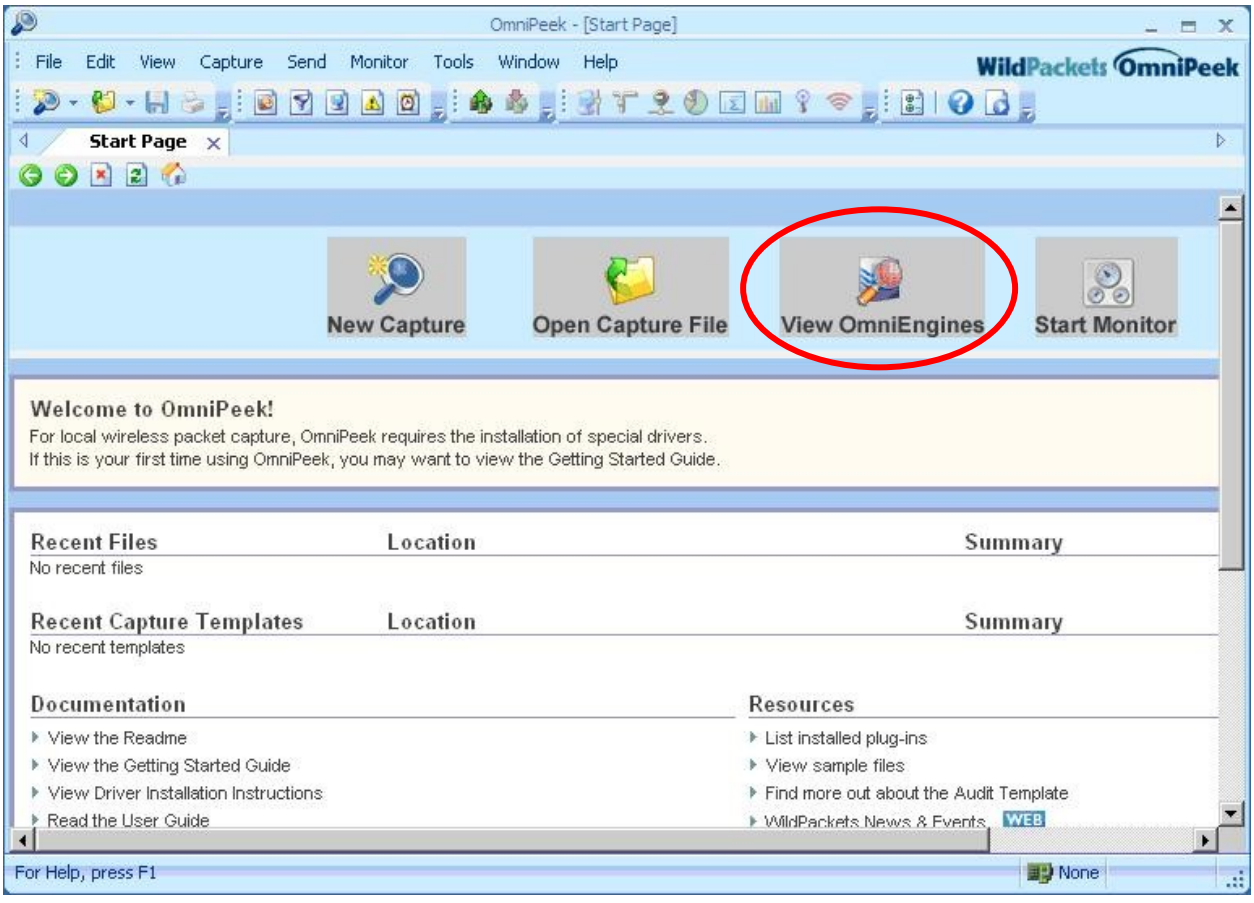
4. Configure WildPackets OmniEngine Enterprise

This section provides the procedures for configuring WildPackets OmniEngine Enterprise. The procedures fall into the following areas:

- Launch OmniPeek
- Insert engine
- Administer new capture
- Start capture

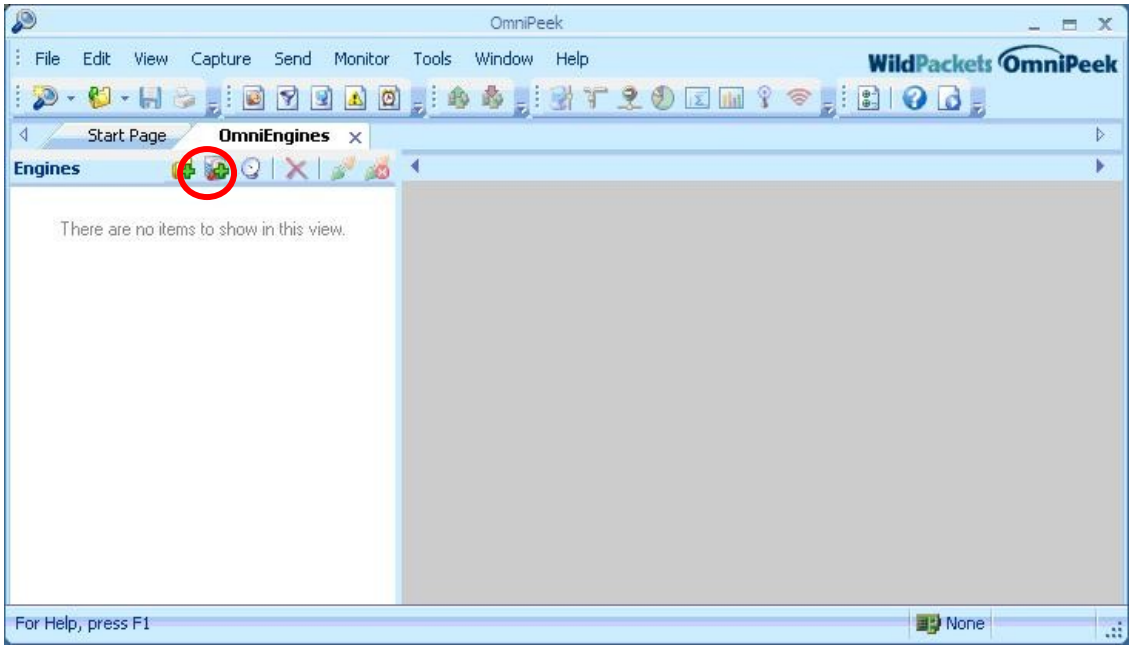
4.1. Launch OmniPeek

The user interface for OmniEngine is provided by OmniPeek. Therefore, from the OmniPeek Enterprise server, select **Start > All Programs > WildPackets OmniPeek**. The **OmniPeek – [Start Page]** screen is displayed, as shown below. Select **View OmniEngines**.

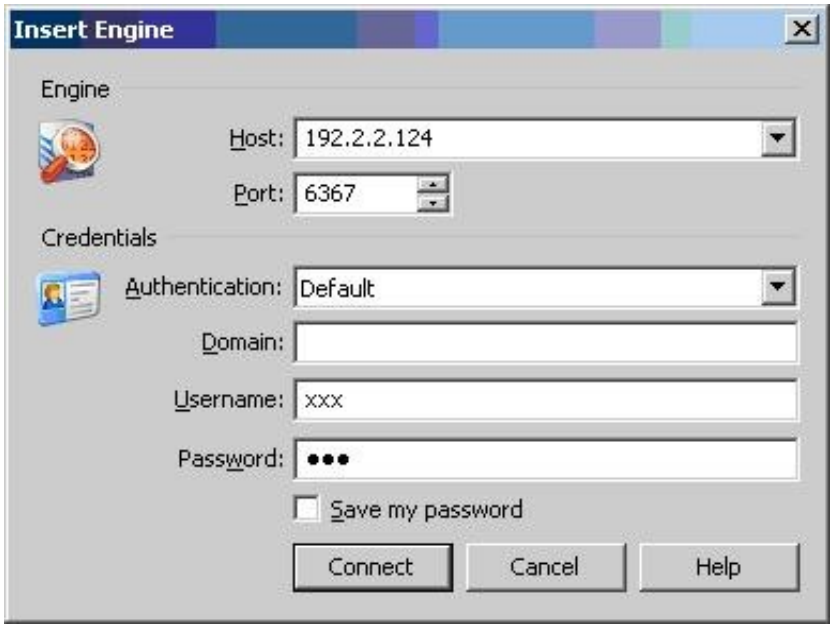


4.2. Insert Engine

The **OmniPeek** screen is updated with an **OmniEngines** tab, as shown below. Click on the Insert Engine icon circled below to add an OmniEngine.

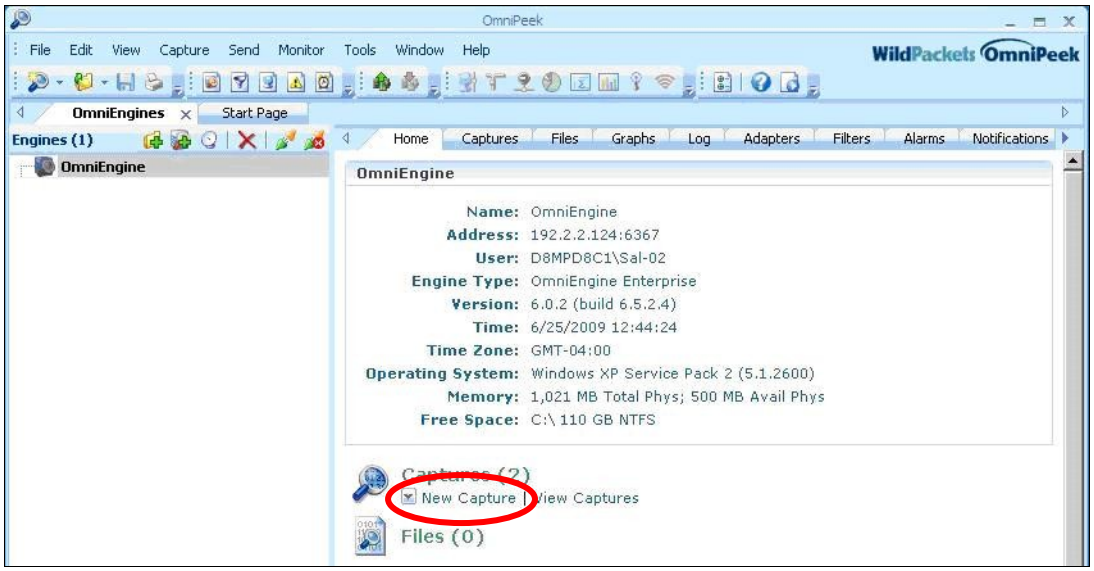


The **Insert Engine** screen is displayed. Enter the IP address of the OmniPeek Engine in the **Host** field, and enter the administrator credentials for the OmniPeek Engine machine in the **Username** and **Password** fields. Retain the default values in the remaining fields, and click **Connect**.

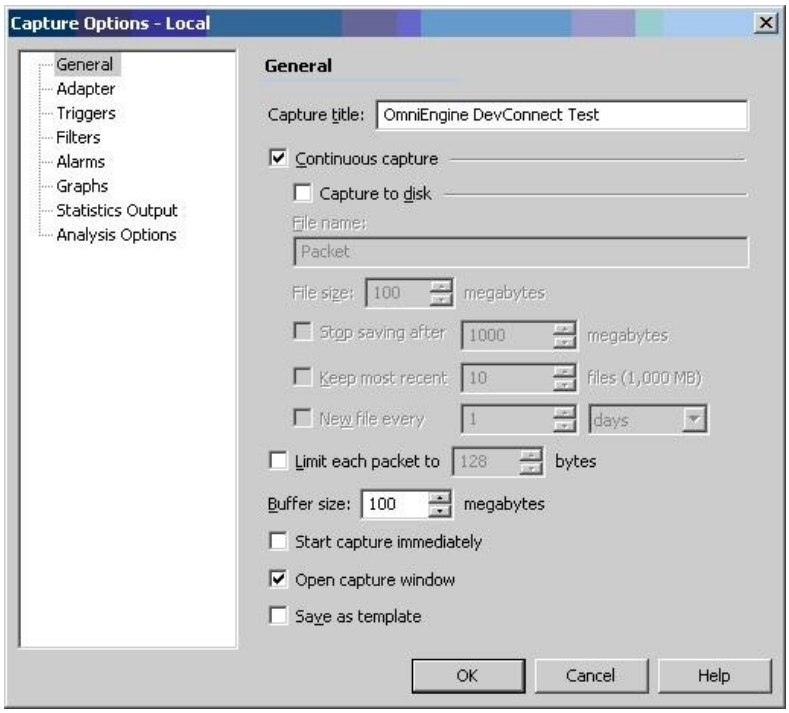


4.3. Administer New Capture

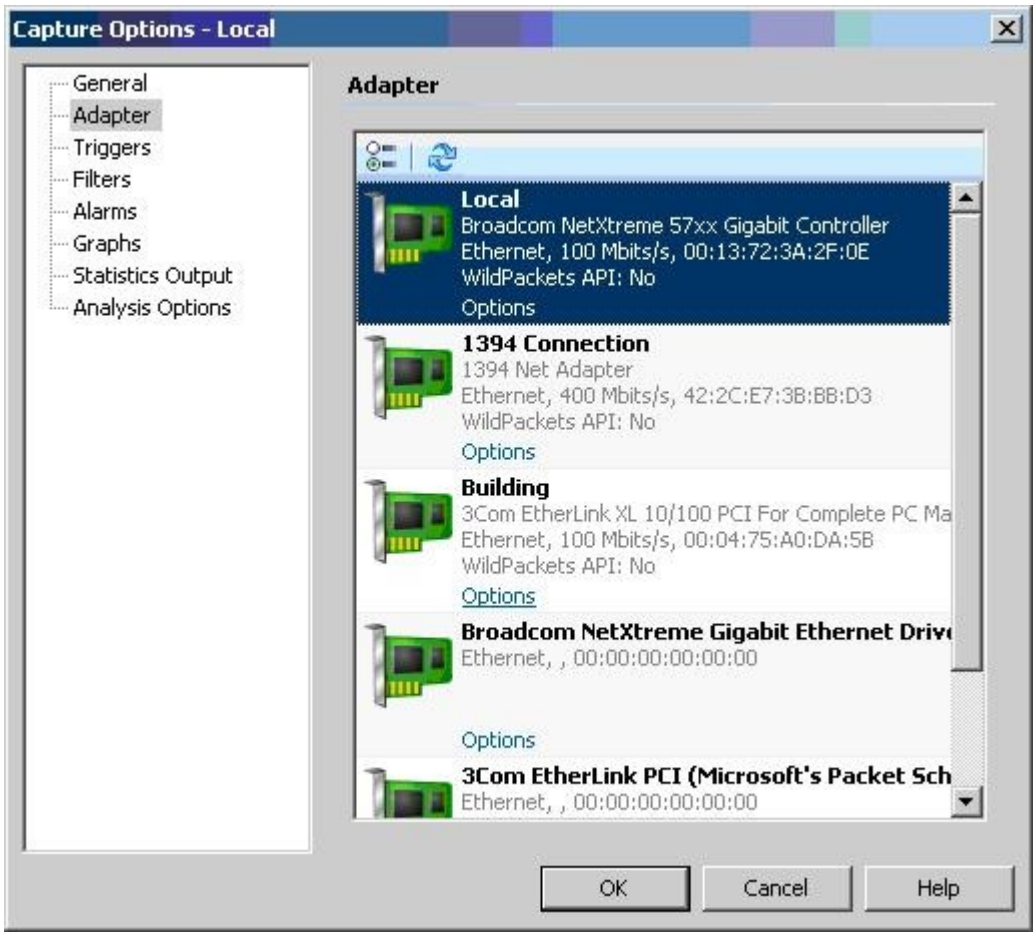
The **OmniPeek** screen is updated with information for the connected OmniEngine, as shown below. Click **New Capture**.



The **Capture Options** screen is displayed. Select **General** from the left pane. In the **Capture title** field, enter a descriptive name for the capture. The remaining fields may be modified as needed. For the compliance testing, all default values were retained, which allows the capture to continue until the buffer is filled with 100 megabytes of data.

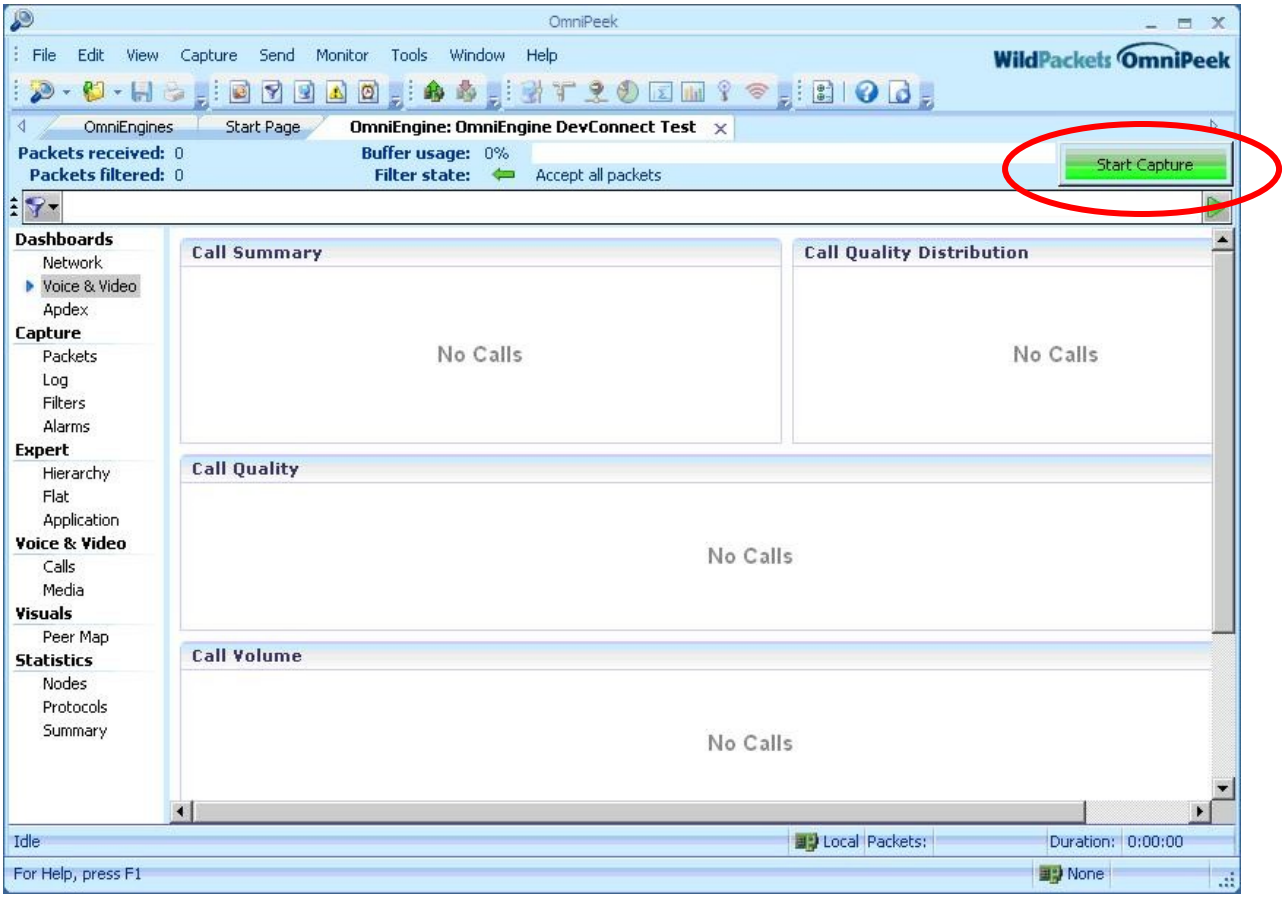


Select **Adapter** from the left pane to display a list of available adapters for the OmniEngine. Select an appropriate network adapter to use for the testing. Click **OK**.



4.4. Start Capture

The **OmniPeek** screen is displayed again, as shown below. Click **Start Capture** to start the data capture.



5. General Test Approach and Test Results

All tests were performed manually. The Packet Storm was used to inject VoIP impairments, such as jitter and loss, into the network for calls between the two sites.

The serviceability test cases were performed manually by disconnecting and reconnecting the LAN cable to WildPackets OmniEngine Enterprise.

The verification of all tests included proper display of captured data using the user interface provided by WildPackets OmniPeek Enterprise. The reported VoIP impairments from WildPackets OmniEngine Enterprise were compared with the impairment injections from the Packet Storm, and with the network audio quality data reported on the Avaya IP Telephones.

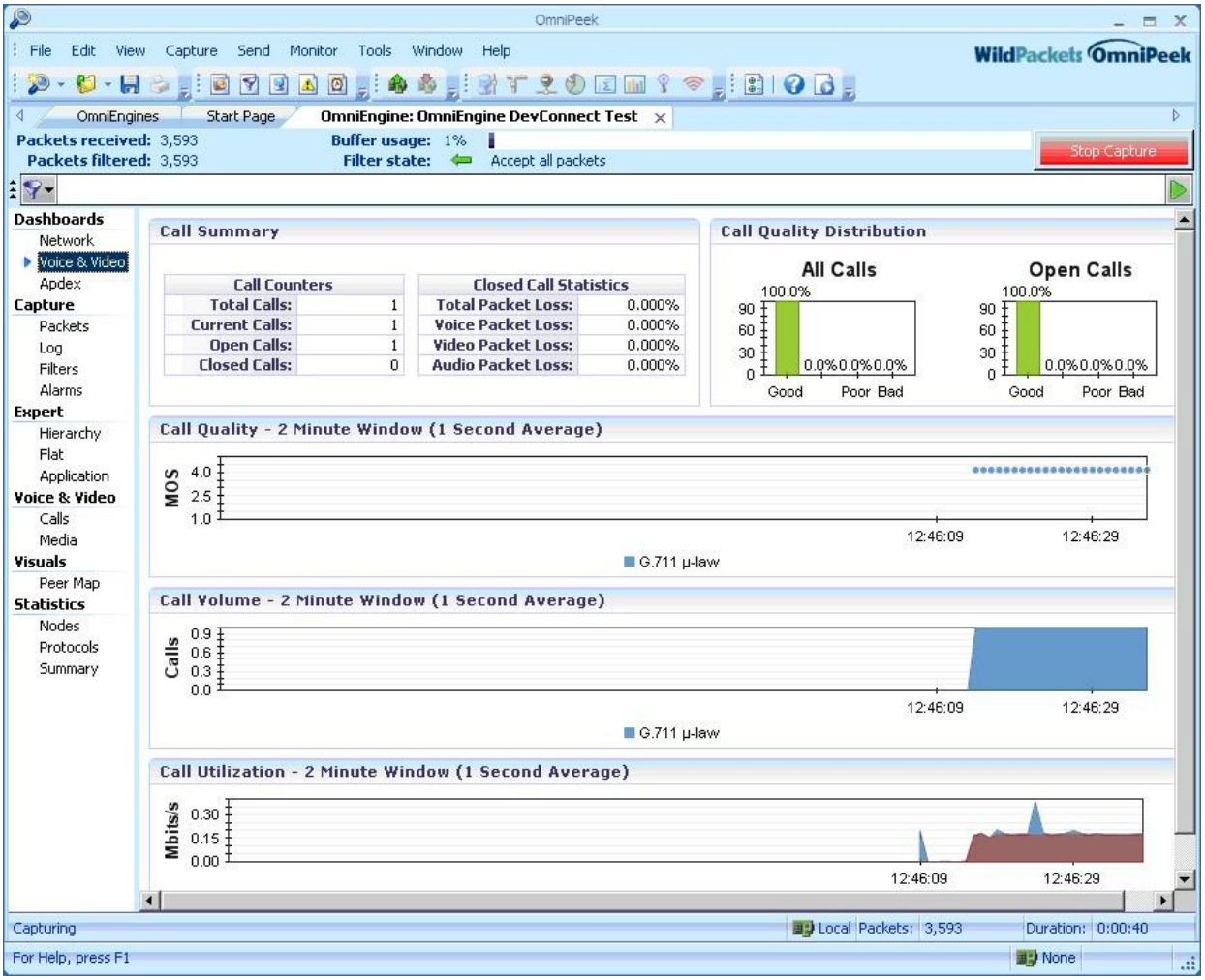
All test cases were executed and passed.

There were three observations from the compliance testing. First, the extension associated with the non-monitored user is not always updated in the call and media entries. Second, when a monitored user ends one call and makes another one immediately, there is a race condition that may result in the reporting of the new call as continuation of the previous call. Third, the reported delay value appears to be twice of what was injected.

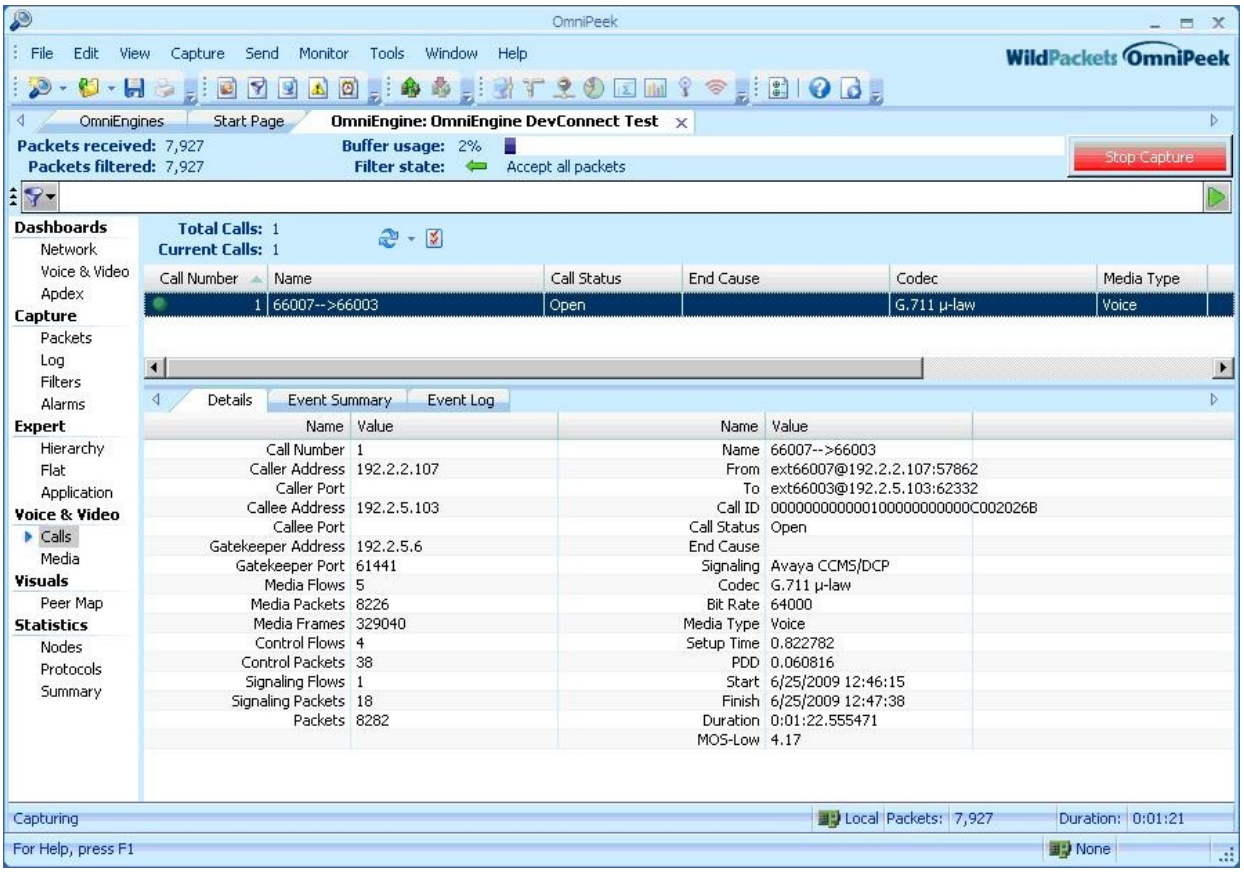
6. Verification Steps

This section provides the tests that can be performed to verify proper configuration of WildPackets OmniEngine Enterprise. Prior to verification, establish a call between the Central and Remote sites.

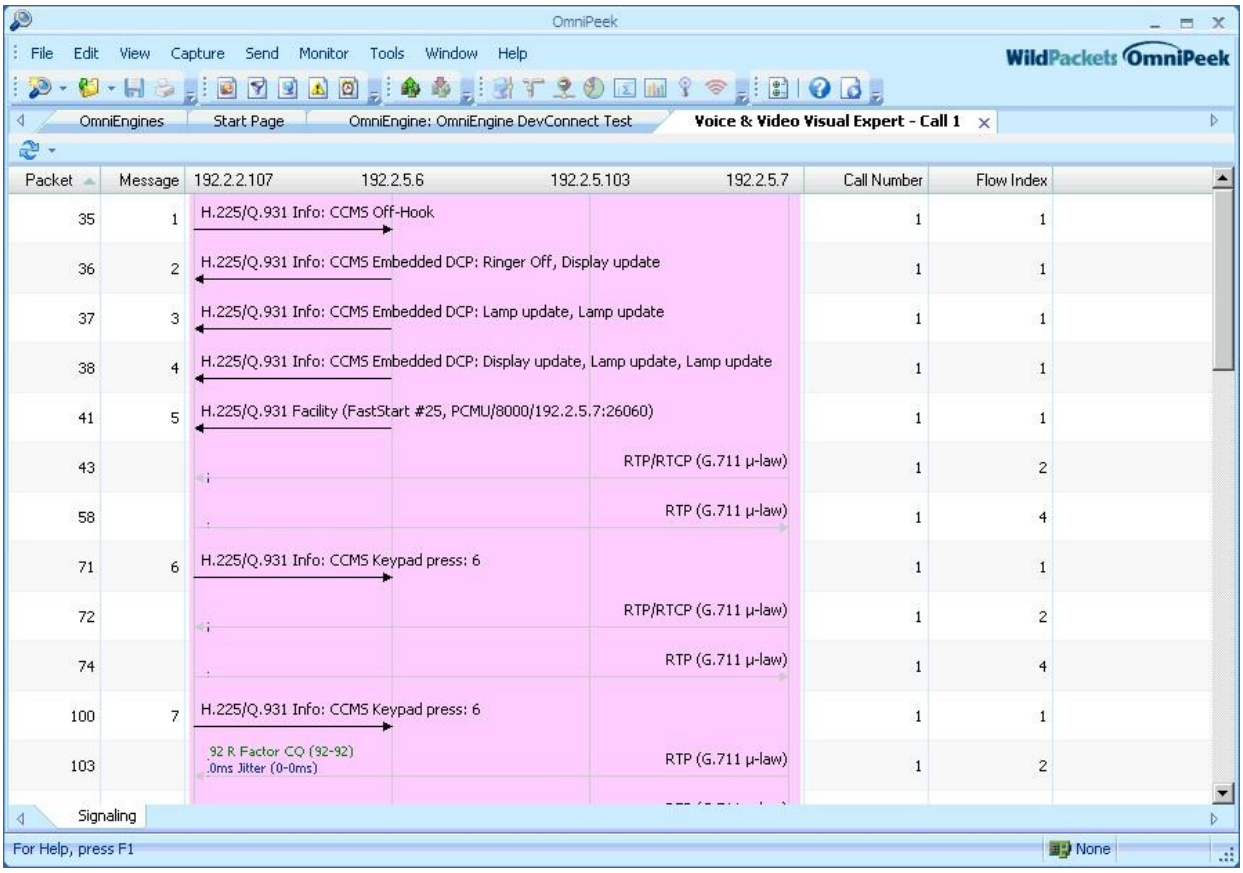
In the **OmniPeek** screen, select **Dashboards > Voice & Video** from the left pane. Verify that a visual display of **Call Summary**, **Call Quality**, **Call Volume**, and **Call Utilization** is presented, as shown below.



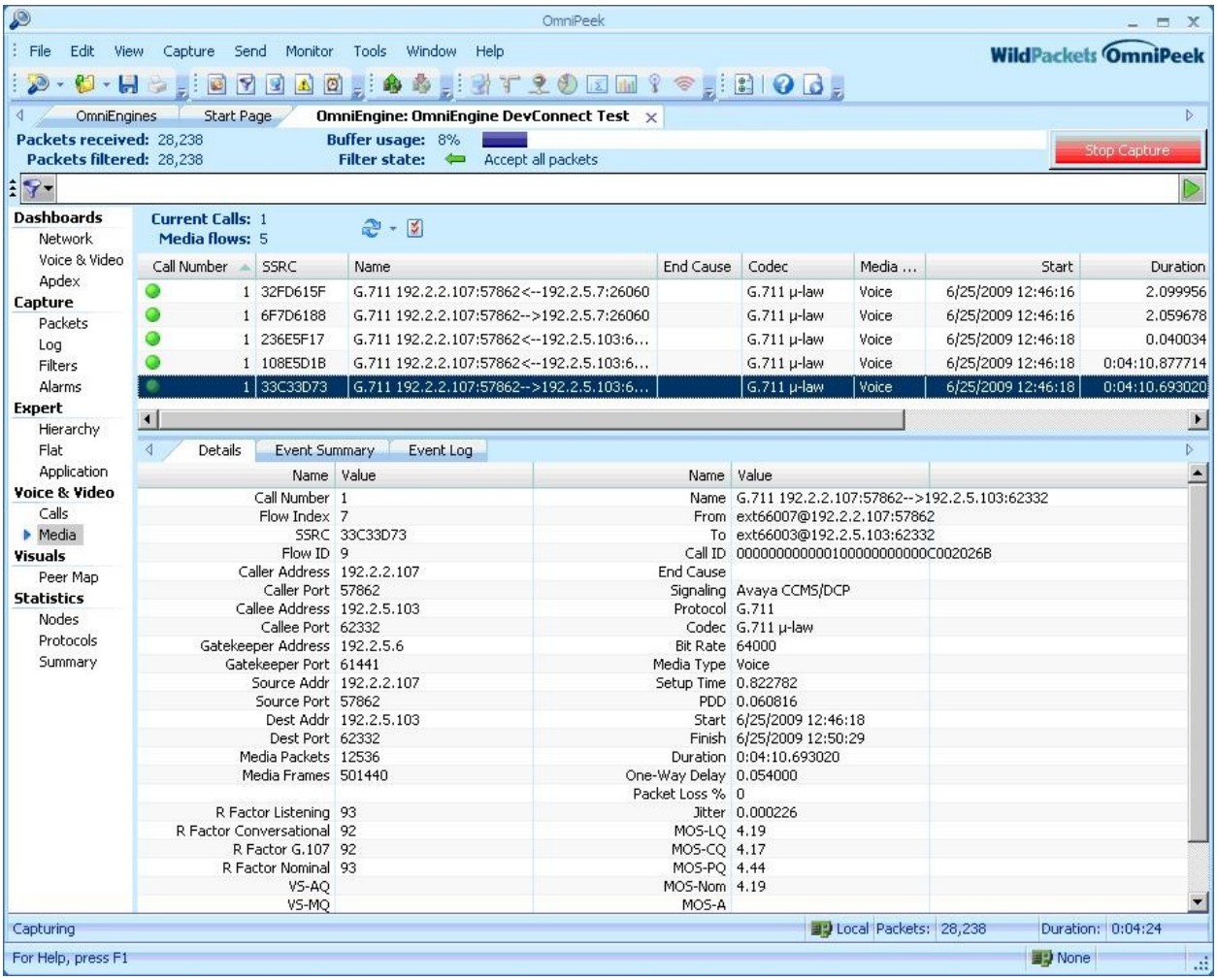
Select **Voice & Video > Calls** from the left pane. Verify that a call entry is displayed in the top pane for the active call. Select the call entry, and verify that the lower pane is updated with the call detail information. Double click on the call entry in the top pane to launch the Voice & Video Expert.



The **OmniPeek** screen is updated with a **Voice & Video Visual Expert** tab, along with a graphical view of every packet captured for the call.



Select **Voice & Video > Media** from the left pane. Verify that media entries are displayed for the active call. Select a media entry, and verify that the lower pane is updated with the media detail information, including audio quality parameters.



7. Conclusion

These Application Notes describe the configuration steps required for WildPackets OmniEngine Enterprise 6.0.2 to interoperate with Avaya Aura Communication Manager via Avaya IP Telephones. All feature and serviceability test cases were completed successfully.

8. Additional References

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

1. *Administering Avaya Aura*™ *Communication Manager*, Document 03-300509, Issue 5.0, Release 5.2, May 2009, available at http://support.avaya.com.

2. *WildPackets OmniEngine Getting Started Guide,* available on OmniEngine Enterprise installation CD.

3. *WildPackets OmniPeek User Guide*, available on OmniPeek Enterprise installation CD.

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.