Avaya Solution & Interoperability Test Lab

Application Notes for PensEra TimeKM Extend VoIP with Avaya Aura™ Communication Manager and Avaya Aura™ Application Enablement Services – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for the PensEra Knowledge Technologies TimeKM Extend VoIP to interoperate with Avaya Aura™ Communication Manager and Avaya Aura™ Application Enablement Services. PensEra TimeKM Extend VoIP is a capture technology that uses the Device, Media, and Call Control interface from Avaya Aura Application Enablement Services to monitor and obtain call information for users with Avaya 4625SW, 9640/9640G, and 9670G IP Telephones on Avaya Aura Communication Manager, and uses the Avaya IP Telephone Push API to send and collect account code information for calls associated with the users.

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 the PensEra Knowledge Technologies TimeKM Extend VoIP to interoperate with Avaya Aura™ Communication Manager and Avaya Aura™ Application Enablement Services. PensEra TimeKM Extend VoIP is a capture technology that uses the Device, Media, and Call Control (DMCC) interface from Avaya Aura Application Enablement Services to monitor and obtain call information for users with Avaya 4625SW, 9640/9640G, and 9670G IP Telephones on Avaya Aura Communication Manager, and uses the Avaya IP Telephone Push API to send and collect account code information for calls associated with the users.

The DMCC interface from Avaya Aura Application Enablement Services is used by PensEra TimeKM Extend VoIP to monitor users on Avaya Aura Communication Manager with Avaya 4625SW, 9640/9640G, and 9670G IP Telephones. Upon notification of a connected call, PensEra TimeKM Extend VoIP uses the user information from the DMCC events to retrieve the list of account codes that are associated with the user from the database. The Avaya IP Telephone Push interface is used by PensEra TimeKM Extend VoIP to push the account codes to the user's telephone, and to collect the account code selection from the user for proper billing of time spent on telephone communications.

1.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the following on the PensEra TimeKM Extend VoIP:

- Handling of real-time DMCC events from Avaya Aura Application Enablement Services.
- Use of DMCC events to retrieve account codes for the users.
- Ability to push the account codes to the users' telephones.
- Ability to respond to different button selections by the users such as saving an account code selection or displaying the list of account codes in alternative ways.
- Log and display of each telephone communication with proper association of account code and call information.

The serviceability testing focused on verifying the ability of PensEra TimeKM Extend VoIP to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet cable to the PensEra TimeKM Extend VoIP server.

1.2. Support

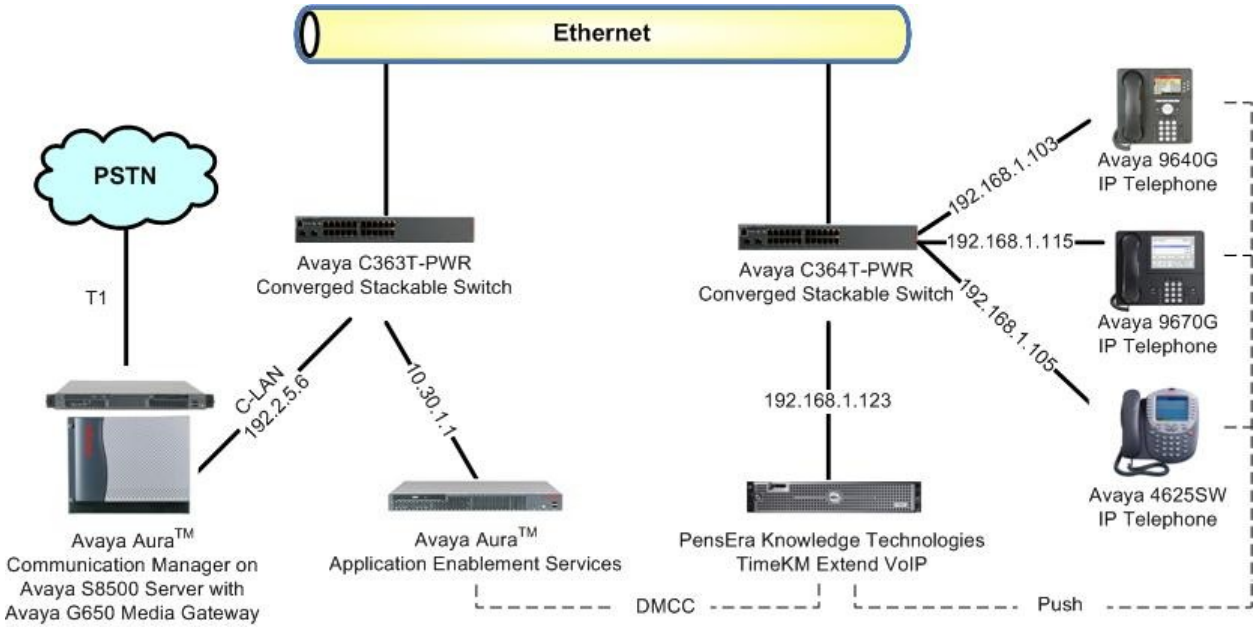
Technical support on PensEra TimeKM Extend VoIP can be obtained through the following:

- **Phone:** (813) 909-9855
- **Email:** info@timekm.com

2. Reference Configuration

PensEra TimeKM Extend VoIP can be configured on a single server or with components distributed across multiple servers. The solution consists of a VoIP, Extend, Web, and Database components. The compliance test configuration used a single server to host all components needed for PensEra TimeKM Extend VoIP, as shown below.

The detailed administration of basic connectivity between Avaya Aura Communication Manager and Avaya Aura Application Enablement Services is not the focus of these Application Notes and will not be described.



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 Aura Application Enablement Services	4.2
Avaya 4625SW IP Telephones (H.323)	2.9
Avaya 9640G and 9670G IP Telephones (H.323)	2.0
PensEra TimeKM Extend VoIP	1.0

4. Configure Avaya Aura™ Communication Manager

This section provides the procedures for configuring Avaya Aura Communication Manager. The procedures include the following areas:

- Administer DMCC CTI link
- Administer stations

4.1. Administer DMCC CTI Link

Add a CTI link using the "add cti-link n" command, where "n" is an available CTI link number. Enter an available extension number in the **Extension** field. Note that the CTI link number and extension number may vary. Enter "ADJ-IP" in the **Type** field, and a descriptive name in the **Name** field. Default values may be used in the remaining fields.

```
add cti-link 1                                                Page   1 of   3
                                    CTI LINK
 CTI Link: 1
Extension: 60100
     Type: ADJ-IP
                                                                    COR: 1
     Name: PensEra DMCC Link
```

4.2. Administer Stations

Add a station for each IP Telephone user using the "add station n" command, where "n" is an available extension number. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Type:** The type of the IP telephone, in this case "4625".
- **Name:** A descriptive name.
- **Security Code:** A desired security code for authentication.

Note that the IP telephones supported by PensEra are 4625SW, 9640/9640G, and 9670G. Use "9640" as the type alias for the 9670G IP telephone.

```
add station 66001                                          Page   1 of   5
                                   STATION

Extension: 66001                      Lock Messages? n               BCC: 0
     Type: 4625                       Security Code: 66001            TN: 1
     Port: IP                       Coverage Path 1:                 COR: 1
     Name: PensEra 4625 user        Coverage Path 2:                 COS: 1
                                    Hunt-to Station:
STATION OPTIONS
                                         Time of Day Lock Table:
             Loss Group: 19          Personalized Ringing Pattern: 1
                                              Message Lamp Ext: 66001
           Speakerphone: 2-way             Mute Button Enabled? y
        Display Language: english             Expansion Module? n
 Survivable GK Node Name:
          Survivable COR: internal          Media Complex Ext:
   Survivable Trunk Dest? y                      IP SoftPhone? n


                                            Customizable Labels? y
```

Repeat this section to administer all desired IP telephones. For the compliance testing, three stations were administered as shown below.

```
list station 66001 count 3

                                STATIONS

Ext/          Port/   Name/                       Room/         Cv1/ COR/ Cable/
 Hunt-to       Type      Surv GK NN        Move    Data Ext      Cv2  COS  Jack

66001         S00009  PensEra 4625 user                            1
               4625                        no                       1
66002         S00006  PensEra 9640 user                            1
               9640                        no                       1
66003         S00010  PensEra 9670 user                            1
               9640                        no                       1
```

5. Configure Avaya Aura™ Application Enablement Services

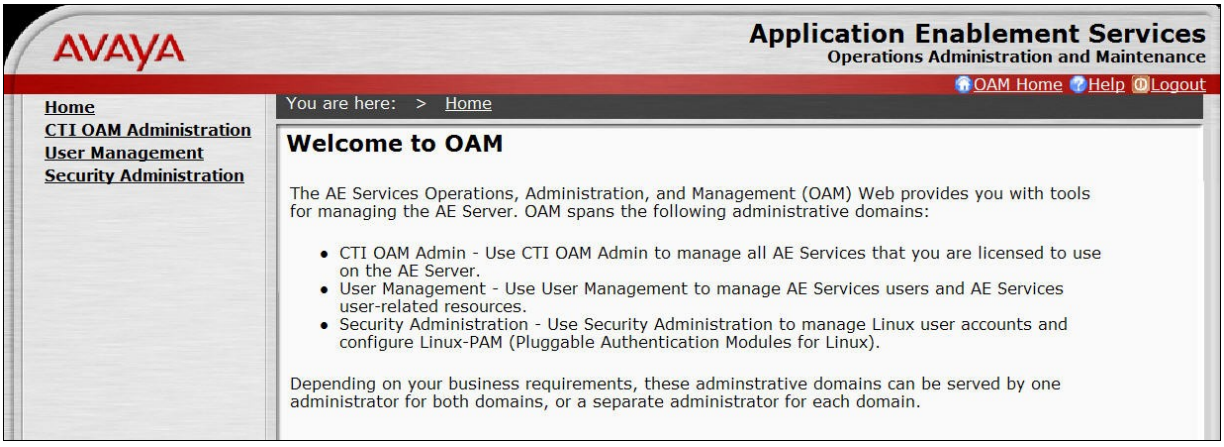
This section provides the procedures for configuring Avaya Aura Application Enablement Services. The procedures include the following areas:

- Verify DMCC license
- Obtain H.323 gatekeeper
- Administer PensEra user

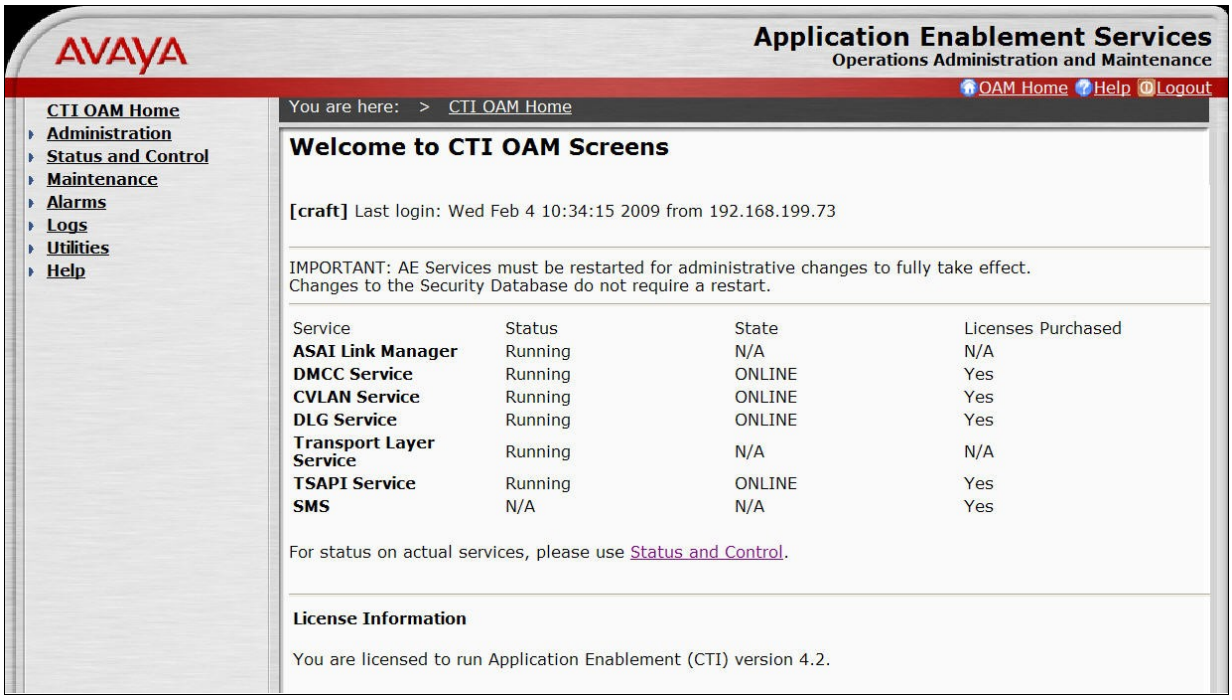
5.1. Verify DMCC License

Access the Application Enablement Services OAM web-based interface by using the URL "https://ip-address:8443/MVAP" in an Internet browser window, where "ip-address" is the IP address of the Application Enablement Services server. The **Logon** screen is displayed as shown below. Log in with the appropriate credentials.

The **Welcome to OAM** screen is displayed next. Select **CTI OAM Administration** from the left pane.

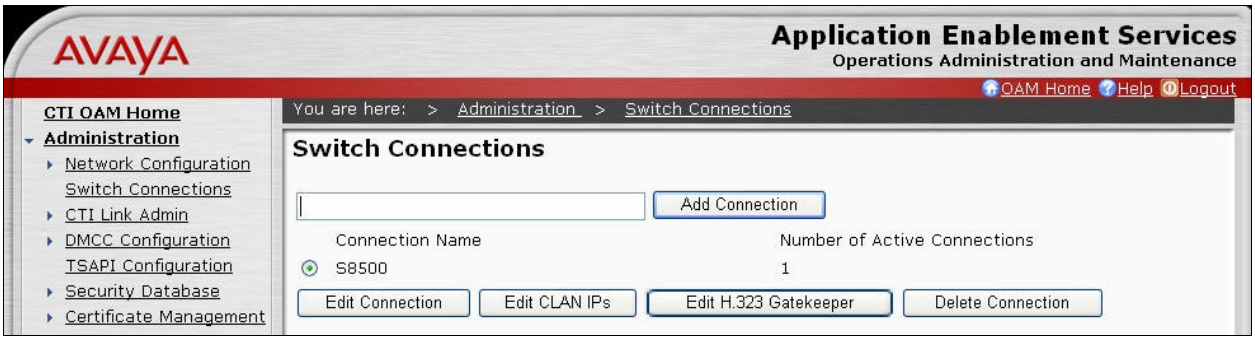


The **Welcome to CTI OAM Screens** is displayed. Verify that the **DMCC Service** is licensed, as shown below. If the service is not licensed, contact the Avaya sales team or business partner for a proper license file.



5.2. Obtain H.323 Gatekeeper

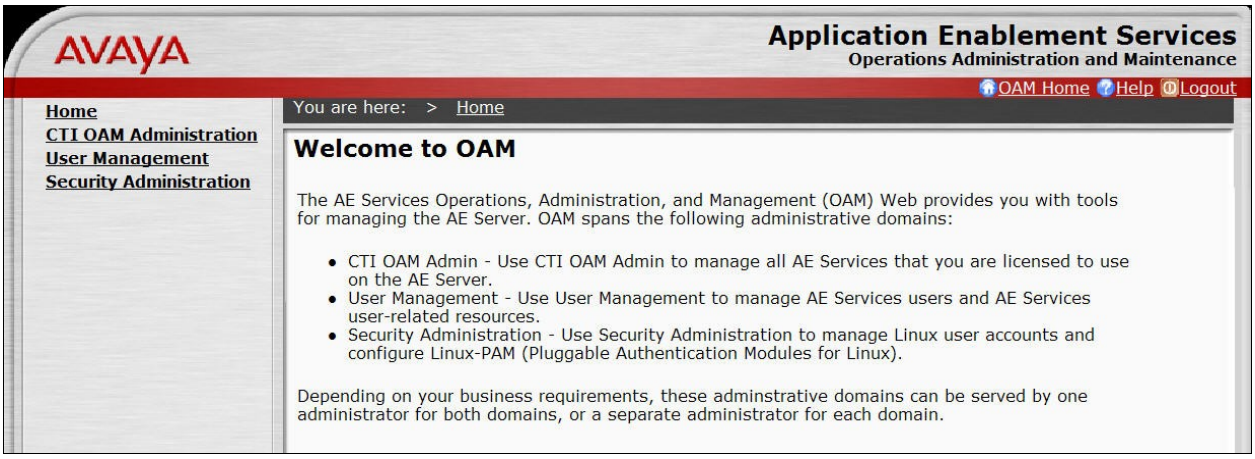
Select **Administration > Switch Connections** from the left pane. The **Switch Connections** screen shows a listing of the existing switch connections. Locate the connection name associated with the relevant Avaya Aura Communication Manager, in this case "S8500", and select the corresponding radio button. Click **Edit H.323 Gatekeeper**.



The **Edit H.323 Gatekeeper** screen is displayed. Note the IP address, for this value will be used later to configure the PensEra TimeKM Extend VoIP server.

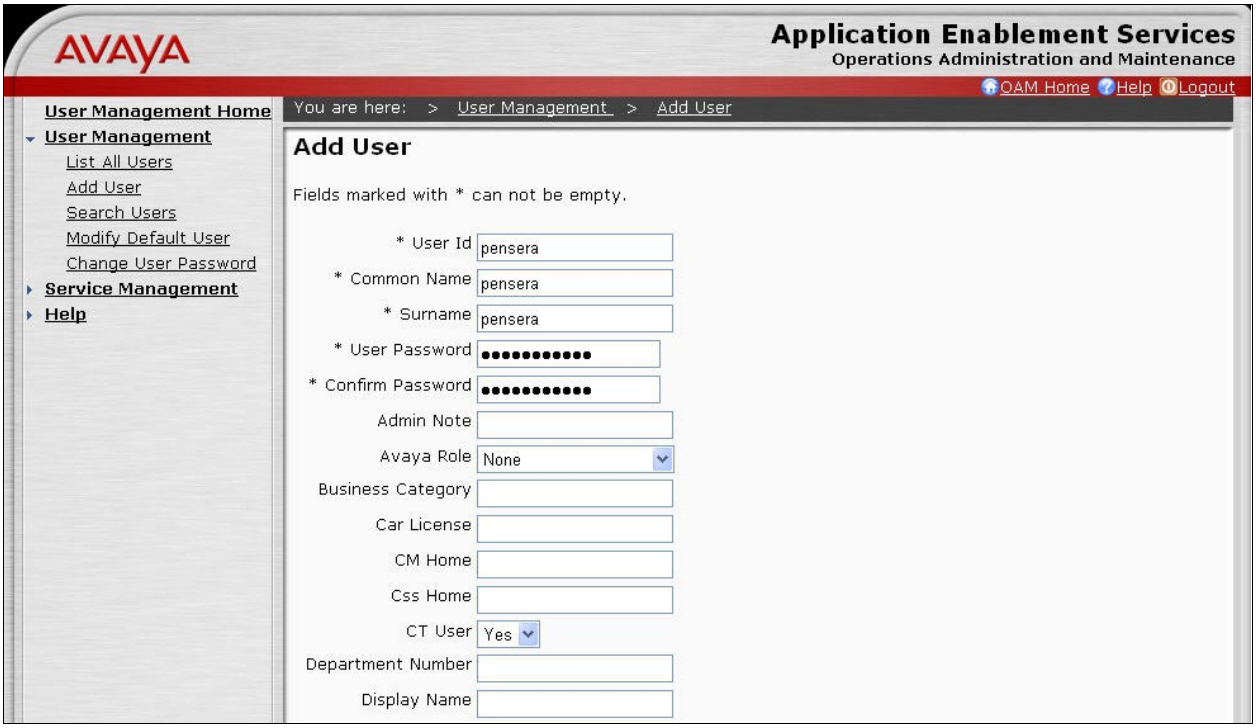
5.3. Administer PensEra User

Administer a new user account for PensEra, which is created from the User Management web pages. Select **OAM Home**, located at the upper right corner of the screen, to display the **Welcome to OAM** screen below. Select **User Management** from the left pane.



The **Welcome to the User Management home page** screen is displayed, as shown below.

Select **User Management > Add User** from the left pane. In the **Add User** screen shown below, enter descriptive values for the **User Id**, **Common Name**, **Surname**, **User Password**, and **Confirm Password** fields. For the **CT User** field, select "Yes" from the drop-down list. Retain the default value in the remaining fields. Click **Apply** at the bottom of the screen (not shown below).



6. Configure Avaya IP Telephones

This section provides the procedures for configuring the Avaya 4625SW, 9640/9640G, and 9670G IP Telephones to support the push interface. The procedures include the following areas:

- Administer common parameters
- Administer 4625 parameters
- Administer 9640 parameters
- Administer 9670 parameters
- Reboot telephones

6.1. Administer Common Parameters

From the appropriate HTTP and TFTP servers serving the Avaya 4625SW, 9640/9640G, and 9670G IP Telephones, locate the **46xxsettings.txt** file. Navigate to the **HTTP SERVER SETTINGS** section. Set the **HTTPSRVR**, **HTTPPORT**, **AUTH** and **TPSLIST** parameters as shown below, where "192.168.1.123" is the IP address of the PensEra server running the TimeKM Extend VoIP component.

```
##################  HTTP SERVER SETTINGS  ##################
##
## HTTP Server Addresses
##   [If you set your HTTP Server Addresses via DHCP, do not
##   set them here as they will override your DHCP settings.
##   Also, use TLSSRVR instead if you require an
##   authenticated server]
##   Server used to download configuration script files.
##   Zero or more HTTP server IP addresses in dotted-decimal
##   or DNS name format, separated by commas without any
##   intervening spaces. (0 to 255 ASCII characters,
##   including commas). For 96xx SIP phones, this parameter
##   may also be changed via LLDP.
## SET HTTPSRVR 192.168.0.5
##
             .
             .
##
## Server Authentication
##   Sets whether script files are downloaded from an
##   authenticated server over an HTTPS link.
##   0 for optional, 1 for mandatory
## SET AUTH 0

SET HTTPSRVR 192.168.1.123
SET HTTPPORT 80
SET AUTH 0
SET TPSLIST 192.168.1.123
```

6.2. Administer 4625 Parameters

Navigate to the **SETTINGS4625** section. Under **WML BROWSER SETTINGS**, set the **WMLHOME** and **WMLIDLEURI** parameters as shown below, where "192.168.1.123" is the IP address of the PensEra server running the TimeKM Extend VoIP component.

```
##############################################################
#
# SETTINGS4625
#
##############################################################
##
             .
             .
##
#################  WML BROWSER SETTINGS  ##################
##
## The WMLHOME setting is used to enable and
## administer the 'Web' Application.
##
## The WMLIDLEURI setting acts as an idle screen when the
## phone has been idle (see WMLIDLETIME value). By default
## this URL is NULL ("") and this screen is not activated.
##
## NOTE:
##   Avaya hosts a web site for IP Phones.
##   The WMLHOME and WMLIDLEURI parameters are set up
##   to point your IP telephones to this hosted site.
##   To enable access to this site, remove the "## "
##   from the SET WMLHOME ... and SET WMLIDLEURI ... lines.
##   To change the web site that your phones point to,
##   replace the provided URL in the SET WMLHOME .. and
##   SET WMLIDELURI ...lines with the URL of your site.
##
## SET WMLHOME http://support.avaya.com/elmodocs2/avayaip/4625/home.wml
## SET WMLIDLEURI http://support.avaya.com/elmodocs2/avayaip/4625/idle.wml

SET WMLHOME    http://192.168.1.123/TimeKM/en/timekm/timavaya.asp?do=home4625
SET WMLIDLEURI http://192.168.1.123/TimeKM/en/timekm/timavaya.asp?do=home4625

##
GOTO END
```

6.3. Administer 9640 Parameters

Navigate to the **SETTINGS9640** section, and set the **WMLHOME** and **WMLIDLEURI** parameters as shown below, where "192.168.1.123" is the IP address of the PensEra server running the TimeKM Extend VoIP component.

```
SET WMLHOME    http://192.168.1.123/TimeKM/en/timekm/timavaya.asp?do=home9640
SET WMLIDLEURI http://192.168.1.123/TimeKM/en/timekm/timavaya.asp?do=home9640
```

6.4. Administer 9670 Parameters

Navigate to the **SETTINGS9670** section, and set the **WMLHOME** and **WMLIDLEURI** parameters as shown below, where "192.168.1.123" is the IP address of the PensEra server running the TimeKM Extend VoIP component.

```
SET WMLHOME    http://192.168.1.123/TimeKM/en/timekm/timavaya.asp?do=home9670
SET WMLIDLEURI http://192.168.1.123/TimeKM/en/timekm/timavaya.asp?do=home9670
```

6.5. Reboot Telephones

Manually reboot the Avaya 4625SW, 9640/9640G, and 9670G IP Telephones to pick up the new settings.

7. Configure PensEra TimeKM Extend VoIP

This section provides the procedures for configuring PensEra TimeKM Extend VoIP. The procedures include the following areas:

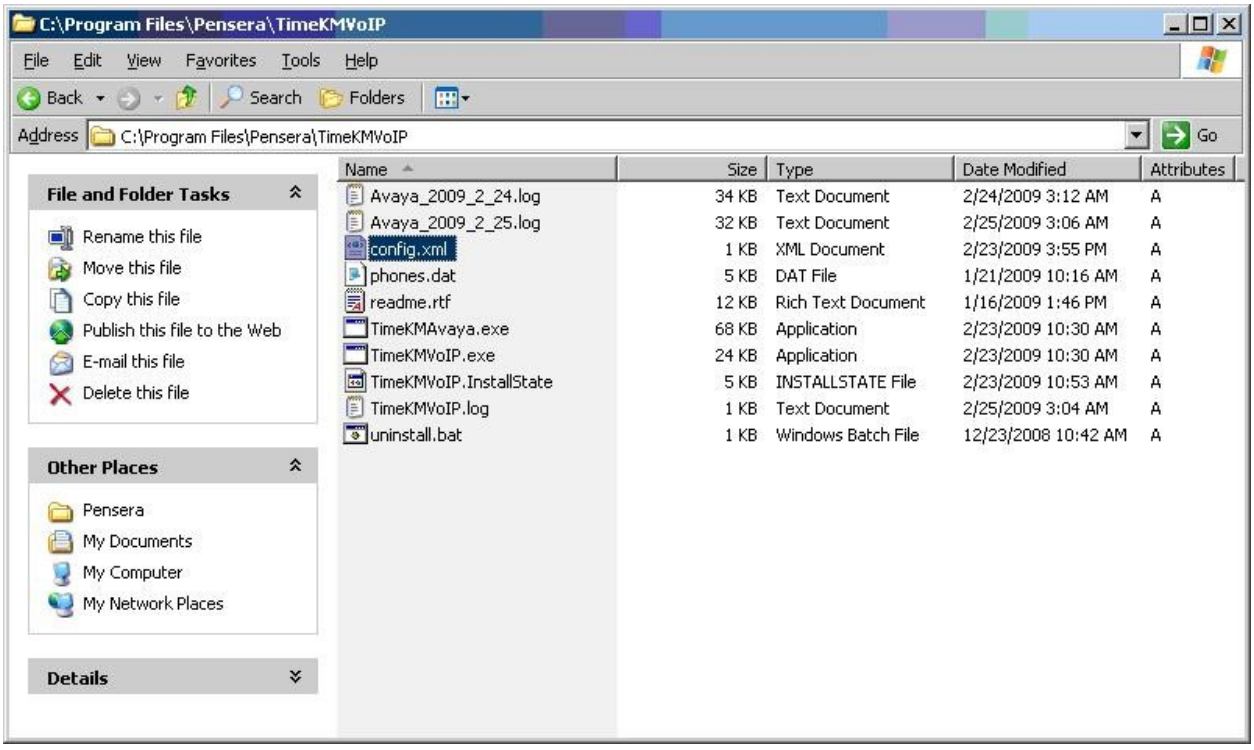
- Administer config.xml
- Administer phones.dat

The configuration of PensEra TimeKM Extend VoIP is typically performed by PensEra deployment engineers. The procedural steps are presented in these Application Notes for informational purposes.

The configuration of the PensEra TimeKM Extend VoIP database component is assumed to be in place, and will not be described in these Application Notes.

7.1. Administer config.xml

From the PensEra TimeKM Extend VoIP server running the VoIP component, navigate to the **TimeKMVoIP** directory to edit the **config.xml** file.



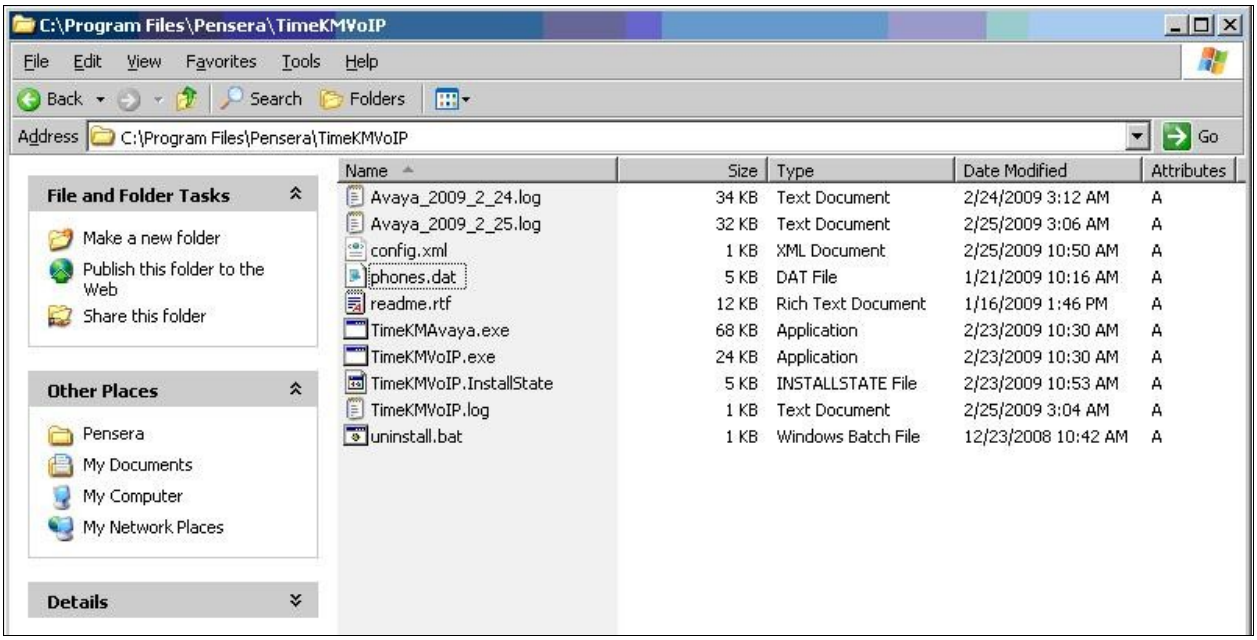
Enter the following values for the specified fields, and retain the default values for the remaining fields. Save the changes.

- **callserver_ip:** The IP address of the H.323 gatekeeper from **Section 5.2**.
- **dmcc_server_ip:** The IP address of the Avaya AES server.
- **dmcc_username:** The PensEra user credentials from **Section 5.3**.
- **dmcc_password:** The PensEra user credentials from **Section 5.3**.
- **timekm_server_url:** Use the IP address of the TimeKM Extend VoIP component.
- **error_notify_to_email:** A desired email address for notification of server errors.

```
<?xml version="1.0" encoding="utf-8" ?>
<!--  This is sample of System Configuration. Please modify the parameters accordingly  -->
- <configuration>
    <callserver_ip>192.2.5.6</callserver_ip>
    <dmcc_server_ip>10.30.1.1</dmcc_server_ip>
    <dmcc_username>pensera</dmcc_username>
    <dmcc_password>PensEra123;</dmcc_password>
    <dmcc_protocol_version>http://www.ecma-international.org/standards/ecma-323/csta/ed3/priv2<
    <dmcc_server_port>4721</dmcc_server_port>
    <dmcc_secure>false</dmcc_secure>
    <timekm_server_url>http://192.168.1.123/TimeKM/EN/timekm</timekm_server_url>
    <max_phones>500</max_phones>
    <log_debug>false</log_debug>
    <error_notify_to_email>tlt@avaya.com</error_notify_to_email>
  </configuration>
```

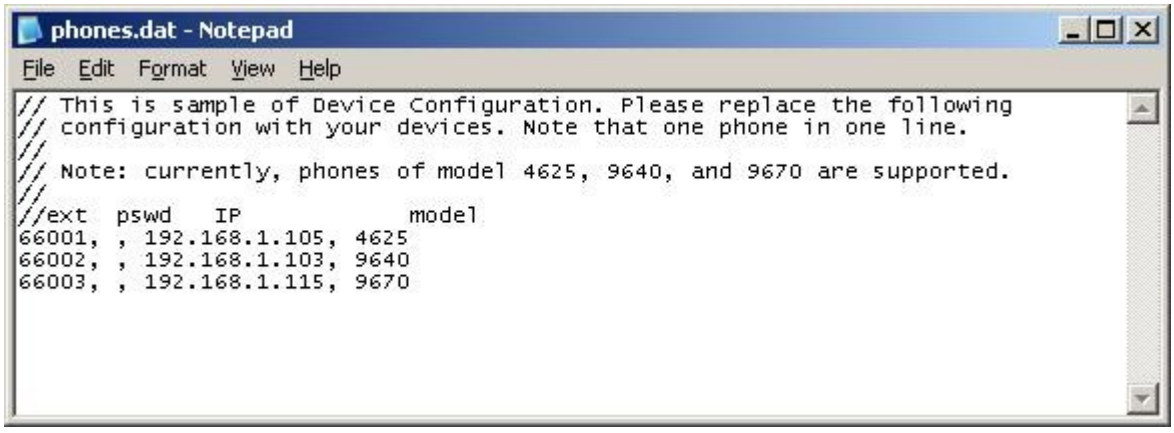
7.2. Administer phones.dat

From the PensEra TimeKM Extend VoIP server running the VoIP component, navigate to the **TimeKMVoIP** directory to edit the **phones.dat** file.



In the **phones.dat** file, enter a line for every Avaya 4625SW, 9640/9640G, and 9670G IP telephones that are monitored by TimeKM Extend VoIP. In the compliance testing, three Avaya IP Telephones were configured to be monitored as shown below.

- **ext:** The extension of the telephone user on Avaya Aura Communication Manager.
- **IP:** The IP address of the telephone.
- **model:** The model number of the telephone.



8. General Test Approach and Test Results

The feature test cases were performed manually. Incoming trunk, outgoing trunk, and internal calls were made to users with Avaya 4625SW, 9640G, and 9670G IP Telephones. The scenarios also include hold, reconnect, new user, removed user, and error conditions such as configuration with invalid user extension or IP address. The verification included viewing the PensEra TimeKM Extend VoIP logs and using the PensEra TimeKM Extend VoIP web interface to check the logging and display of each telephone communication.

The serviceability test cases were performed manually by disconnecting/reconnecting Ethernet cable to the PensEra TimeKM Extend VoIP server.

All feature and serviceability test cases were completed. The one observation noted from the compliance test is that transfer and conference scenarios are not supported in the current version of PensEra TimeKM Extend VoIP.

9. Verification Steps

This section provides the test that can be performed to verify proper configuration of Avaya Aura Communication Manager, Avaya Aura Application Enablement Services, and PensEra TimeKM Extend VoIP.

9.1. Verify Avaya Aura™ Communication Manager

On Avaya Aura Communication Manager, verify the status of the administered CTI link by using the "status aesvcs cti-link" command. Verify that the **Service State** is "established" for the CTI link number administered in **Section 4.1**, as shown below.

```
status aesvcs cti-link

                          AE SERVICES CTI LINK STATUS

CTI   Version  Mnt   AE Services      Service       Msgs     Msgs
Link           Busy  Server           State         Sent     Rcvd

1     4        no    AES-Test         established   14       14
```

Use the "list registered-ip-stations" command to verify that all IP stations from **Section 4.2** registered successfully with Avaya Aura Communication Manager, as shown below.

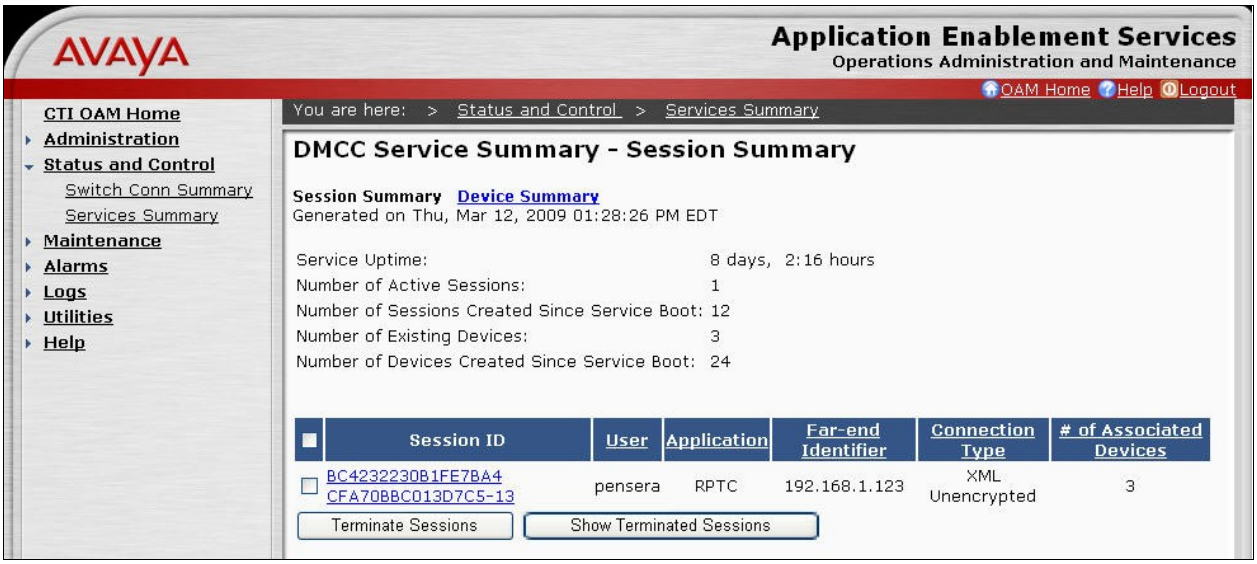
```
list registered-ip-stations

                            REGISTERED IP STATIONS

Station Ext   Set Type/ Prod ID/   TCP Station IP Address/
or Orig Port  Net Rgn   Release    Skt Gatekeeper IP Address
------------- --------- ---------- --- ---------------------------------------
66001         4625      IP_Phone    y  192.168.1.105
              1         2.9            192.2.5.6
66002         9640      IP_Phone    y  192.168.1.103
              1         2.0000         192.2.5.6
66003         9640      IP_Phone    y  192.168.1.115
              1         2.0000         192.2.5.6
```

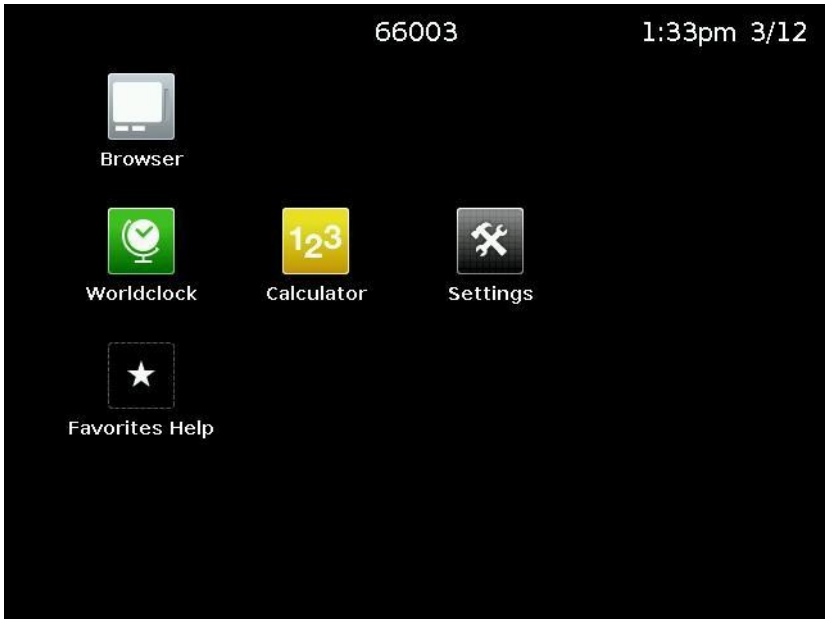
9.2. Verify Avaya Aura™ Application Enablement Services

On Avaya Aura Application Enablement Services, verify the status of the DMCC link by selecting **Status and Control > Services Summary** from the left pane. Click on **DMCC Service**, followed by **Details** (not shown below). The **DMCC Service Summary – Session Summary** screen is displayed. Verify that the **User** column shows an active session with the PensEra user name from **Section 5.3**, and that the **# of Associated Devices** column reflects the number of monitored IP telephones from **Section 7.2**.



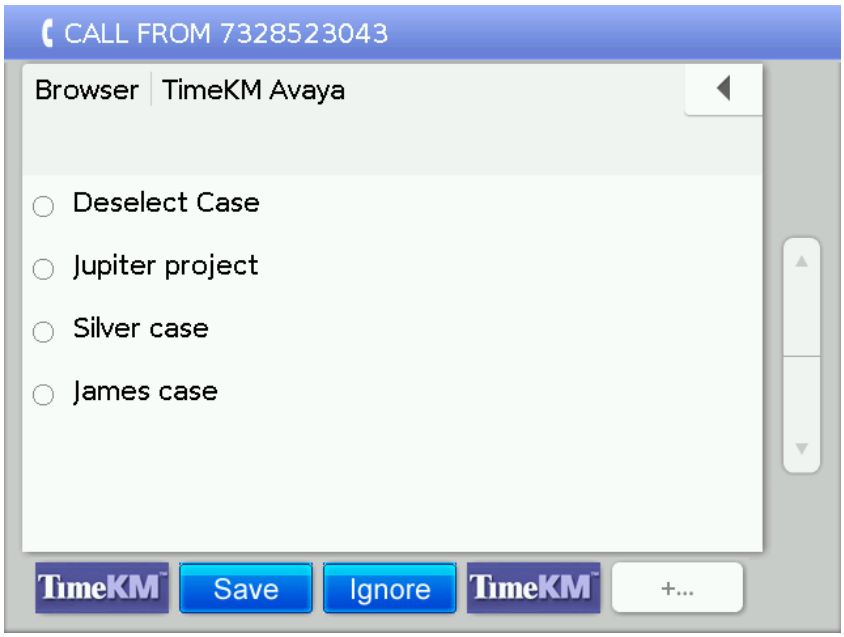
9.3. Verify PensEra TimeKM Extend VoIP

From the Avaya 9670G IP Telephone monitored by PensEra TimeKM Extend VoIP, press the **Home** button. Verify that the telephone screen is updated, and includes a **Browser** icon shown below. Press the **Browser** icon.



Verify that the telephone screen is updated with a logo screen from TimeKM Extend VoIP.

Make an incoming trunk call to the user and answer the call. Verify that the telephone screen is updated with a list of cases/account codes from TimeKM Extend VoIP.



10. Conclusion

These Application Notes describe the configuration steps required for PensEra TimeKM Extend VoIP to successfully interoperate with Avaya Aura Communication Manager and Avaya Aura Application Enablement Services.

All feature and serviceability test cases were completed with an observation listed in **Section 8**.

11. 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. *Avaya MultiVantage Application Enablement Services Administration and Maintenance Guide*, Release 4.2, Document ID 02-300357, Issue 10, May 2008, available at http://support.avaya.com.

3. *TimeKM Extend VoIP (Version 1.0) Administrator Guide*, provided as part of installation or via request to PensEra support.

4. *TimeKM Extend VoIP (Version 1.0) User Guide*, provided as part of installation or via request to PensEra support.

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.