



**Application Notes for MobileMax with Avaya Aura™
Communication Manager using Avaya Aura™ Application
Enablement Services – Issue 1.0**

Abstract

These Application Notes describe the configuration steps required for the MobileMax application running on a BlackBerry device to interoperate with Avaya Aura™ Communication Manager and Avaya Aura™ Application Enablement Services. The MobileMax application uses rules to intercept and route selected outgoing calls (e.g. roaming and international) via the Avaya Aura™ Communication Manager. As a result, the Caller-ID of the BlackBerry user's corporate office telephone is displayed for outgoing mobile calls and the user saves mobile charges on roaming and international calls.

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

1. Introduction

The MobileMax application uses rules to intercept and route selected outgoing calls (e.g. roaming and international) via the Avaya Aura™ Communication Manager. As a result, the Caller-ID of the BlackBerry user's corporate office telephone is displayed for outgoing mobile calls, and the user saves mobile charges on roaming and international calls.

There are two call routing methods available to users of the MobileMax application:

1. **Call out (2 stage dialing):** The “Call out” method takes advantage of the EC500 feature on Communication Manager. Using the “Call out” method, the MobileMax application intercepts selected outgoing calls from the BlackBerry device, terminates the original call, dials a Direct-Inward-Dial (DID) number associated with an idle call appearance of the BlackBerry user's office telephone, and then transmits DTMF signals to have Communication Manager dial the original destination number.
2. **Calling me back (click2call):** Using the “Calling me back” method, the MobileMax application registers a terminal on behalf of the BlackBerry user in Telecommuter mode (specifying the user's BlackBerry phone number as the Telecommuter number). The MobileMax application intercepts selected outgoing calls from a BlackBerry device, terminates the original call, and then issues a Device Media and Call Control (DMCC) “Make Call” request to Application Enablement Services (AES). Application Enablement Services forwards the request to Communication Manager. Communication Manager then places a call back to the Telecommuter number (i.e. the BlackBerry device). When the BlackBerry user answers the call back, Communication Manager then places another call to the original destination and connects the two endpoints.

1.1. Interoperability Compliance Testing

The interoperability compliance testing included both feature and serviceability testing.

The feature testing focused on verifying the ability of the MobileMax application to use both the “Call out” and “Calling me back” methods to intercept selected calls and completing the calls via Application Enablement Services and Communication Manager.

The serviceability testing focused on verifying the ability of MobileMax to recover from adverse conditions, such as busying out the CTI link and disconnecting the Ethernet cable from Communication Manager and Application Enablement Services, and powering down/up the BlackBerry device with the MobileMax application.

1.2. Support

Support for MobileMax can be obtained through the following:

- **Web:** <http://www.mobile-mx.com/index.aspx?id=2802>
- **Phone:** +972 9 9596400 or + 1 (203) 599-4735
- **Email:** info@mobile-mx.com

2. Reference Configuration

Figure 1 illustrates the configuration used during compliance testing as described in these Application Notes.

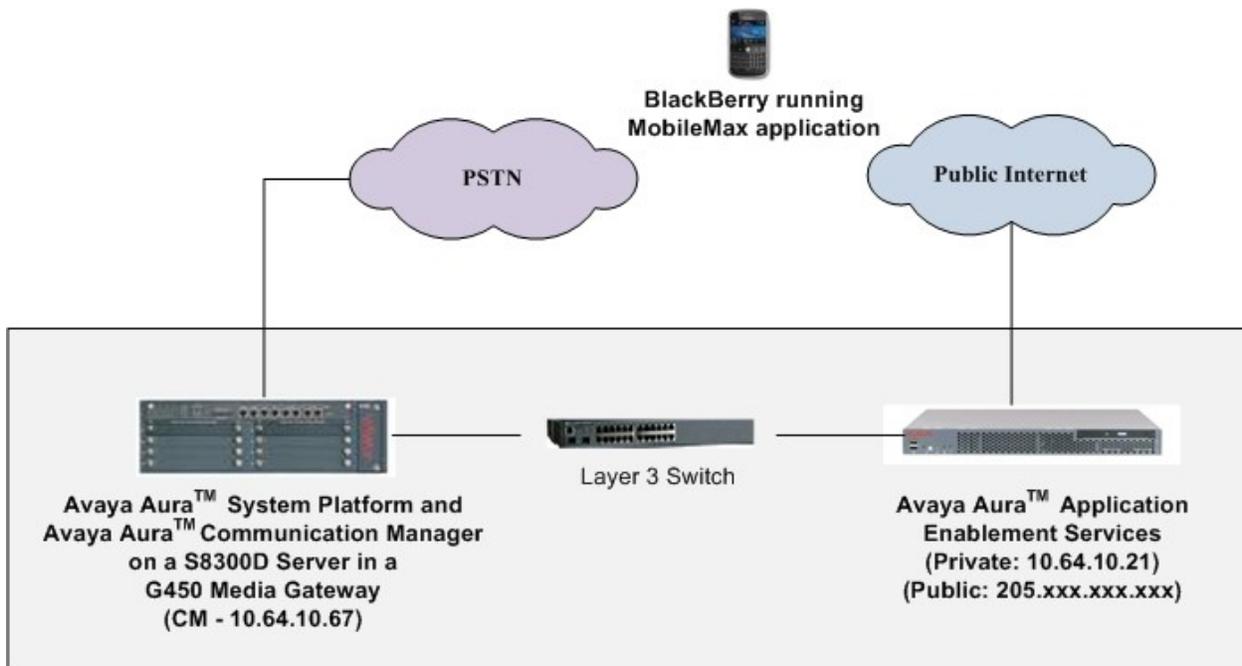


Figure 1: MobileMax with Communication Manager and AES

3. Equipment and Software Validated

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

Equipment	Software
Avaya S8300D Media Server	Avaya Aura™ Communication Manager 6.0, R016x.00.0.345.0
Avaya S8500C Server	Avaya Aura™ Application Enablement Services 5.2.2
Avaya 9620 one-X™ Deskphone Edition (H.323)	S3.110b
Avaya 9630 one-X™ Deskphone Edition (H.323)	S3.110b
Avaya 9640 one-X™ Deskphone Edition (H.323)	S3.110b
BlackBerry	5.0 (OS)
MobileMax application	7.4.51-152.7.3.02-2.1.00

4. Configure Avaya Aura™ Communication Manager

The detailed administration of Communication Manager devices and basic connectivity between Communication Manager and Application Enablement Services is not the focus of these Application Notes and will not be described. For administration of Communication Manager devices and basic connectivity to Application Enablement Services, refer to the appropriate documentation listed in **Section 10**.

This section provides the procedures for the following:

- Verify Communication Manager License
- Administer CTI link for TSAPI Service
- Add Stations
- EC500 Provisioning
- Configure Feature Name Extensions
- Configure Incoming Call Handling Treatment
- Save translations

4.1. Verify Communication Manager License

Log into the System Access Terminal (SAT) to verify that the Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the “display system-parameters customer-options” command to verify that the **Enhanced EC500** feature is enabled on **Page 4**.

```
display system-parameters customer-options                               Page 4 of 11
                                OPTIONAL FEATURES

Emergency Access to Attendant? y                                     IP Stations? y
  Enable 'dadmin' Login? y
  Enhanced Conferencing? y                                           ISDN Feature Plus? n
    Enhanced EC500? y                                               ISDN/SIP Network Call Redirection? y
  Enterprise Survivable Server? n                                     ISDN-BRI Trunks? y
  Enterprise Wide Licensing? n                                       ISDN-PRI? y
    ESS Administration? y                                           Local Survivable Processor? n
  Extended Cvg/Fwd Admin? y                                          Malicious Call Trace? y
  External Device Alarm Admin? y                                     Media Encryption Over IP? n
  Five Port Networks Max Per MCC? n                                   Mode Code for Centralized Voice Mail? n
  Flexible Billing? n
  Forced Entry of Account Codes? y                                     Multifrequency Signaling? y
  Global Call Classification? y                                       Multimedia Call Handling (Basic)? y
  Hospitality (Basic)? y                                             Multimedia Call Handling (Enhanced)? y
  Hospitality (G3V3 Enhancements)? y                                 Multimedia IP SIP Trunking? y
    IP Trunks? y

IP Attendant Consoles? y
(NOTE: You must logoff & login to effect the permission changes.)
```

4.2. Administer CTI Link for TSAPI Service

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. Enter “ADJ-IP” in the **Type** field, and a descriptive name in the **Name** field (optional). Default values may be used in the remaining fields. Submit these changes.

```
add cti-link 1                                     Page 1 of 3
                                         CTI LINK
CTI Link: 1
Extension: 6201
  Type: ADJ-IP
                                         COR: 1
  Name: to AES-10.64.10.21
```

4.3. Add Stations

The screens below show an example of an extension on Communication Manger (Avaya H.323 IP phone) that would be configured as the BlackBerry user’s office telephone. Since the office phone is an IP device, a virtual port (e.g. **S00003**) is automatically assigned by Communication Manager.

On **Page 1** of the form:

- Set the **Type** field to match the station type (e.g. **9640**)
- Set the **Name** field to a desired value (e.g. **Station 1**)
- Set the **Security Code** (optional) to a desired value (e.g. **123456**)

```
change station 6001                               Page 1 of 5
                                         STATION
Extension: 6001                                  Lock Messages? n          BCC: 0
  Type: 9640                                     Security Code: 123456     TN: 1
  Port: S00003                                  Coverage Path 1:         COR: 1
  Name: Station 1                               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: 6001
  Speakerphone: 2-way                          Mute Button Enabled? y
  Display Language: english                    Button Modules: 0
Survivable GK Node Name:                      Media Complex Ext:
  Survivable COR: internal                      IP SoftPhone? y
  Survivable Trunk Dest? y
                                         IP Video Softphone? n
                                         Short/Prefixed Registration Allowed: default
                                         Customizable Labels? y
```

On **Page 4** of the form:

- Select an empty button assignment and enter **ec500**. Let the **Timer?** field default to **n**. This button will enable the EC500 capability on the phone.
- Select an empty button assignment and enter **extnd-call**. This button will allow a user of this station to extend an active call to another phone number (e.g. the BlackBerry device) mapped to this extension.

By default, three call appearances are defined on the form.

```
change station 6001                                     Page 4 of 5
                                                    STATION
SITE DATA
  Room:                                                Headset? n
  Jack:                                                Speaker? n
  Cable:                                               Mounting: d
  Floor:                                               Cord Length: 0
  Building:                                           Set Color:

ABBREVIATED DIALING
  List1:                                               List2:
                                                    List3:

BUTTON ASSIGNMENTS
1: call-appr                                           5: extnd-call
2: call-appr                                           6:
3: call-appr                                           7:
4: ec500      Timer? n                                8:

voice-mail
```

4.4. EC500 Provisioning

EC500 allows calls for a Communication Manager station to be extended to a second destination endpoint. Typically this endpoint is a cell phone. When EC500 is enabled for a Communication Manager station (by pressing the **ec500** button administered in **Section 4.3**), any inbound call to that station will generate a new outbound call from Communication Manager to the provisioned EC500 destination endpoint. Similarly, if there is an existing active call at the station, pressing the **extnd-call** button (administered in **Section 4.3**) will generate a new outbound call from Communication Manager to the provisioned EC500 destination endpoint.

Note – Only the basic EC500 call redirection functionality was used in the reference configuration. EC500 supports significantly more features.

Use the “change off-pbx-telephone station mapping x” command where “x” is the Communication Manager station (e.g. **6001**).

- **Station Extension** – This field will automatically be populated.
- **Application** – Enter **EC500**.
- **Dial Prefix** - Enter an appropriate dial prefix, if necessary, depending on the Communication Manager configuration

- **Phone Number** – Enter the phone number of the BlackBerry device to be called (e.g. **3473855555**).
- **Trunk Selection** – Enter **ars** to route the calls via ars analysis to the BlackBerry device. Alternatively, a trunk group number can be entered here. The creation of ars analysis table entries, route patterns, signaling groups, and trunks groups are outside the scope of these application notes and are therefore not shown. However, the **Trunk Selection** field should be populated with an appropriate entry (**ars** or a trunk group number) to route calls to the PSTN and reach the BlackBerry device.
- **Config Set** – Enter **1**.
- Use the default values for all other fields.

```
change off-pbx-telephone station-mapping 6001 Page 1 of 3
STATIONS WITH OFF-PBX TELEPHONE INTEGRATION
```

Station	Application	Dial	CC	Phone Number	Trunk	Config	Dual
Extension		Prefix			Selection	Set	Mode
6001	EC500	1	-	3473855555	ars	1	

4.5. Configure Feature Name Extensions (FNE)

Create a Feature Name Extension (FNE) to allow the MobileMax application obtain an idle call appearance on Communication Manager when using the “Call out” method.

Use the “change off-pbx-telephone feature-name-extensions set 1” command to enter a valid extension for the **Idle Appearance Select** field on **Page 2**.

```
change off-pbx-telephone feature-name-extensions set 1 Page 2 of 2
EXTENSIONS TO CALL WHICH ACTIVATE FEATURES BY NAME
```

```

Exclusion (Toggle On/Off):
Extended Group Call Pickup:
Held Appearance Select:
Idle Appearance Select: 6999
Last Number Dialed:
Malicious Call Trace:
Malicious Call Trace Cancel:
Off-Pbx Call Enable:
Off-Pbx Call Disable:
Priority Call:
Recall:
Send All Calls:
Send All Calls Cancel:
Transfer Complete:
Transfer On Hang-Up:
Transfer to Voice Mail:
Whisper Page Activation:

```

4.6. Configure Incoming Call Handling Treatment

Two DID numbers were created for the MobileMax application. One was used to route calls from the PSTN to the Communication Manager extension associated with the BlackBerry device. The second one was used to route calls from the PSTN to the Idle Appear Select FNE. To convert the incoming numbers to the correct extension, use the “change inc-call-handling-trmt trunk-group x” command where “x” is the trunk group used to receive incoming calls from the PSTN (i.e. from the BlackBerry device). The screen below shows the values used during compliance testing.

```
change inc-call-handling-trmt trunk-group 2                               Page 1 of 3
                                INCOMING CALL HANDLING TREATMENT
Service/      Number   Number   Del Insert   Per Call Night
Feature       Len     Digits
tie           7    5383501    all 6001
tie           7    5383509    all 6999
tie
```

4.7. Save Avaya Aura™ Communication Manager Provisioning

Enter the *save translation* command to make the changes permanent.

5. Configure Avaya Application Enablement Services

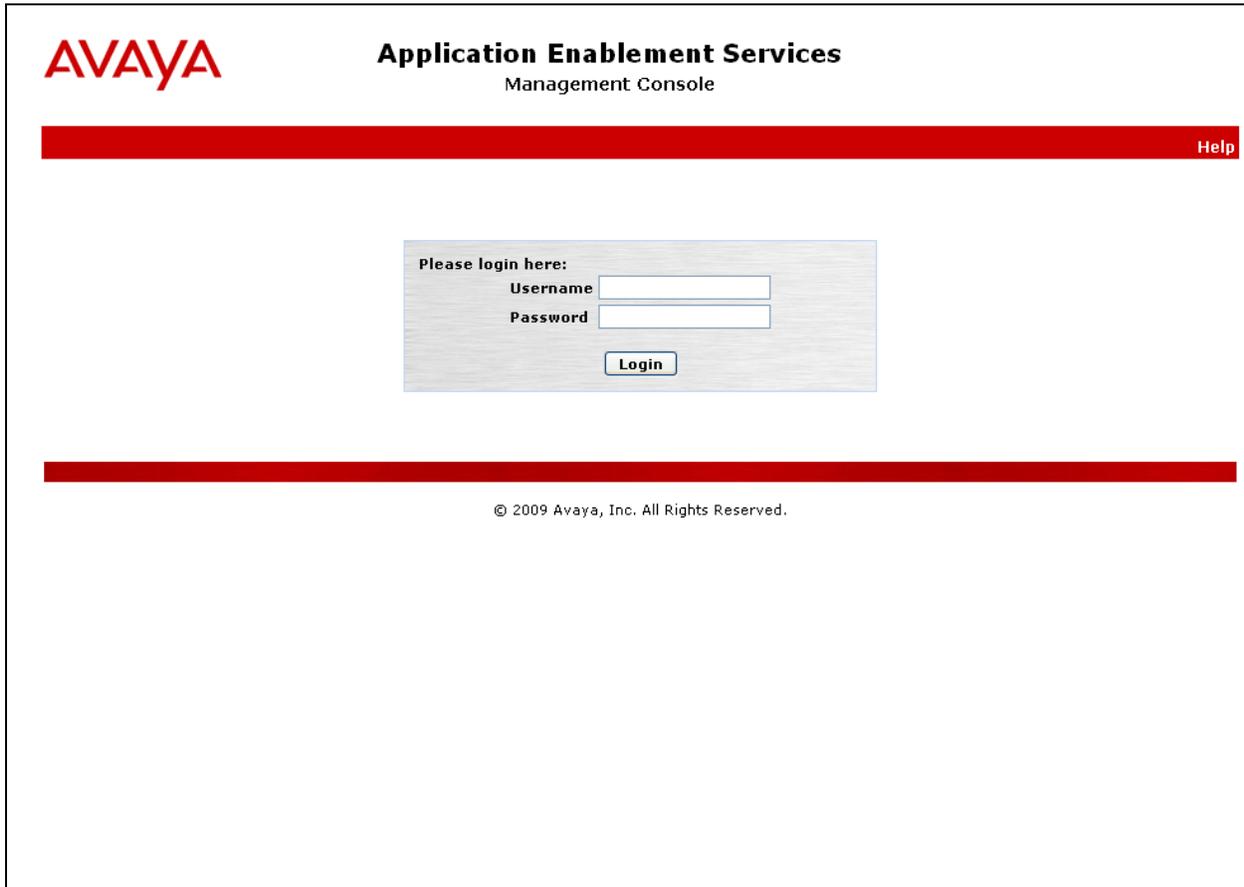
The detailed administration of connectivity between Application Enablement Services and Communication Manager is not the focus of these Application Notes and will not be described here. For administration of basic connectivity to Communication Manager, refer to the appropriate documentation listed in **Section 10**.

This section provides the procedures for the following areas:

- Verify Application Enablement Services license
- Administer TSAPI link
- Administer MobileMax user
- Restart TSAPI service

5.1. Verify Avaya Application Enablement Services License

Access the AES OAM web based interface by using the URL “https://ip-address” in an Internet browser window, where “ip-address” is the IP address of the AES server. Click the “Continue to Login” link (not shown). The **Login** screen is displayed as shown below. Log in using appropriate credentials.



The screenshot shows the Avaya Application Enablement Services Management Console login interface. At the top left is the AVAYA logo. To its right, the text reads "Application Enablement Services" and "Management Console". A red horizontal bar spans the width of the page, with a "Help" link on the right side. In the center, there is a login form with the text "Please login here:" followed by "Username" and "Password" labels, each with a corresponding text input field. Below these fields is a "Login" button. At the bottom of the page, a red horizontal bar is present, and below it, the copyright notice "© 2009 Avaya, Inc. All Rights Reserved." is displayed.

The **Welcome to OAM** screen is displayed, as shown below. Select **AE Services** from the left pane.

The screenshot shows the Avaya Application Enablement Services Management Console. At the top left is the Avaya logo. The main title is 'Application Enablement Services Management Console'. On the top right, there is a user information block: 'Welcome: User craft', 'Last login: Fri Jul 23 13:35:28 2010 from 10.64.10.51', 'HostName/IP: aesserver2/205.168.62.111', 'Server Offer Type: TURNKEY', and 'SW Version: r5-2-2-105-0'. Below this is a red navigation bar with 'Home' on the left and 'Home | Help | Logout' on the right. A left-hand navigation pane contains a list of menu items: 'AE Services', 'Communication Manager Interface', 'Licensing', 'Maintenance', 'Networking', 'Security', 'Status', 'User Management', 'Utilities', and 'Help'. The main content area is titled 'Welcome to OAM' and contains the following text: 'The AE Services Operations, Administration, and Management (OAM) Web provides you with tools for managing the AE Server. OAM spans the following administrative domains:'. This is followed by a bulleted list: '• AE Services - Use AE Services to manage all AE Services that you are licensed to use on the AE Server.', '• Communication Manager Interface - Use Communication Manager Interface to manage switch connection and dialplan.', '• Licensing - Use Licensing to manage the license server.', '• Maintenance - Use Maintenance to manage the routine maintenance tasks.', '• Networking - Use Networking to manage the network interfaces and ports.', '• Security - Use Security to manage Linux user accounts, certificate, host authentication and authorization, configure Linux-PAM (Pluggable Authentication Modules for Linux) and so on.', '• Status - Use Status to obtain server status infomations.', '• User Management - Use User Management to manage AE Services users and AE Services user-related resources.', '• Utilities - Use Utilities to carry out basic connectivity tests.', and '• Help - Use Help to obtain a few tips for using the OAM Help system'. Below the list, it states: 'Depending on your business requirements, these administrative domains can be served by one administrator for both domains, or a separate administrator for each domain.' At the bottom center, there is a copyright notice: '© 2009 Avaya, Inc. All Rights Reserved.'

The **AE Services** screen is displayed next. Verify that Application Enablement Services is licensed for the TSAPI and DMCC Services, as shown in the screen below (License Mode = NORMAL MODE). If the TSAPI and DMCC services are not licensed, contact the Avaya sales team or business partner for a proper license file.

The screenshot displays the Avaya Application Enablement Services Management Console. At the top left is the Avaya logo. The main title is "Application Enablement Services Management Console". On the top right, there is a welcome message: "Welcome: User craft", "Last login: Fri Jul 23 13:35:28 2010 from 10.64.10.51", "HostName/IP: aesserver2/205.168.62.111", "Server Offer Type: TURNKEY", and "SW Version: r5-2-2-105-0". Below this is a red navigation bar with "AE Services" on the left and "Home | Help | Logout" on the right. A left-hand navigation menu lists various categories: AE Services (expanded), CVLAN, DLG, DMCC, SMS, TSAPI, Communication Manager Interface, Licensing, Maintenance, Networking, Security, Status, User Management, Utilities, and Help. The main content area is titled "AE Services" and contains an important notice: "IMPORTANT: AE Services must be restarted for administrative changes to fully take effect. Changes to the Security Database do not require a restart." Below the notice is a table with the following data:

Service	Status	State	License Mode	Cause*
ASAI Link Manager	N/A	Running	N/A	N/A
CVLAN Service	OFFLINE	Running	N/A	N/A
DLG Service	OFFLINE	Running	N/A	N/A
DMCC Service	ONLINE	Running	NORMAL MODE	N/A
TSAPI Service	ONLINE	Running	NORMAL MODE	N/A
Transport Layer Service	N/A	Running	N/A	N/A

Below the table, there is a note: "For status on actual services, please use [Status and Control](#)". A footnote states: "* -- For more detail, please mouse over the Cause, you'll see the tooltip, or go to help page." At the bottom of the main content area, there is a "License Information" section stating: "You are licensed to run Application Enablement (CTI) version 5.0". At the very bottom of the page, the copyright notice reads: "© 2009 Avaya, Inc. All Rights Reserved."

5.2. Administer TSAPI Link

To administer a TSAPI link, select **AE Services > TSAPI > TSAPI Links** from the left pane. The **TSAPI Links** screen is displayed, as shown below. Click on **Add Link**.

The screenshot displays the Avaya Application Enablement Services Management Console. The top left features the Avaya logo and the title "Application Enablement Services Management Console". The top right shows user information: "Welcome: User craft", "Last login: Fri Jul 23 13:35:28 2010 from 10.64.10.51", "HostName/IP: aesserver2/205.168.62.111", "Server Offer Type: TURNKEY", and "SW Version: r5-2-2-105-0". A red navigation bar contains "AE Services | TSAPI | TSAPI Link" and "Home | Help | Logout".

The left sidebar lists navigation options: AE Services (expanded), CVLAN, DLG, DMCC, SMS, TSAPI (expanded), TSAPI Links (selected), TSAPI Properties, Communication Manager Interface, Licensing, Maintenance, Networking, Security, Status, User Management, Utilities, and Help.

The main content area is titled "TSAPI Links" and contains a table with the following data:

Link	Switch Connection	Switch CTI Link #	ASAI Link Version	Security
1	S8300mobile	1	4	Unencrypted
2	devcon31	1	4	Unencrypted

Below the table are three buttons: "Add Link", "Edit Link", and "Delete Link".

At the bottom of the page, the copyright notice reads: "© 2009 Avaya, Inc. All Rights Reserved."

The **Add TSAPI Links** screen is displayed next. The **Link** field is only local to the AES server, and may be set to any available number. For **Switch Connection**, select the relevant switch connection from the drop down list. In this case, the existing switch connection “S8300DCM6” is selected. For **Switch CTI Link Number**, select the CTI link number configured in **Section 4.2**. Click on **Apply Changes**.

The screenshot displays the Avaya Application Enablement Services Management Console. The top left features the Avaya logo and the title 'Application Enablement Services Management Console'. The top right shows user information: 'Welcome: User craft', 'Last login: Fri Jul 23 13:35:28 2010 from 10.64.10.51', 'HostName/IP: aesserver2/205.168.62.111', 'Server Offer Type: TURNKEY', and 'SW Version: r5-2-2-105-0'. A red navigation bar contains 'AE Services | TSAPI | TSAPI Link' and 'Home | Help | Logout'. The left sidebar lists navigation options: 'AE Services' (expanded), 'CVLAN', 'DLG', 'DMCC', 'SMS', 'TSAPI' (expanded), 'TSAPI Links' (selected), 'TSAPI Properties', 'Communication Manager Interface', 'Licensing', 'Maintenance', 'Networking', 'Security', 'Status', 'User Management', 'Utilities', and 'Help'. The main content area is titled 'Add TSAPI Links' and contains the following fields: 'Link' (value: 3), 'Switch Connection' (value: S8300DCM6), 'Switch CTI Link Number' (value: 1), 'ASAI Link Version' (value: 4), and 'Security' (value: Unencrypted). At the bottom of the form are 'Apply Changes' and 'Cancel Changes' buttons. The footer of the console reads '© 2009 Avaya, Inc. All Rights Reserved.'

The **Apply Changes to Link** screen is displayed. Click on **Apply**.

The screenshot displays the Avaya Application Enablement Services Management Console. At the top left is the Avaya logo. The main title is "Application Enablement Services Management Console". On the top right, there is a user information block: "Welcome: User craft", "Last login: Fri Jul 23 13:35:28 2010 from 10.64.10.51", "HostName/IP: aesserver2/205.168.62.111", "Server Offer Type: TURNKEY", and "SW Version: r5-2-2-105-0". Below this is a red navigation bar with "AE Services | TSAPI | TSAPI Link" on the left and "Home | Help | Logout" on the right. A left-hand navigation menu lists various categories: AE Services (with sub-items CVLAN, DLG, DMCC, SMS), TSAPI (with sub-items TSAPI Links, TSAPI Properties), Communication Manager Interface, Licensing, Maintenance, Networking, Security, Status, User Management, Utilities, and Help. The main content area is titled "Apply Changes to Link" and contains a warning message: "Warning! Are you sure you want to apply the changes? These changes can only take effect when the TSAPI server restarts. Please use the Maintenance -> Service Controller page to restart the TSAPI server." Below the warning are two buttons: "Apply" and "Cancel". At the bottom center of the page, there is a copyright notice: "© 2009 Avaya, Inc. All Rights Reserved."

5.3. Administer MobileMax User

Administer a user account for the MobileMax. Select **User Management > User Admin > Add User** from the left pane. The **Add User** screen is displayed, as shown below. Enter descriptive values for the **User Id**, **Common Name**, and **Surname**. Enter appropriate values for the **User Password** and **Confirm Password** fields to create a user account for MobileMax. Retain the default value of “None” for **Avaya Role**, and select “Yes” from the **CT User** drop down list. Click on **Apply** at the bottom of the screen (not shown).

The screenshot displays the Avaya Application Enablement Services Management Console. The top navigation bar includes the Avaya logo, the title 'Application Enablement Services Management Console', and a welcome message for 'User craft' with system details. The breadcrumb trail shows 'User Management | User Admin | Add User'. A left-hand navigation menu lists various system categories, with 'User Management' expanded to show 'User Admin' and 'Add User' selected. The main content area is the 'Add User' form, which contains several fields for user information. Fields marked with an asterisk are required. The 'Avaya Role' dropdown is set to 'None' and the 'CT User' dropdown is set to 'Yes'.

Field	Value
* User Id	MobileMax
* Common Name	MobileMax
* Surname	MobileMax
* User Password	*****
* Confirm Password	*****
Admin Note	
Avaya Role	None
Business Category	
Car License	
CM Home	
Css Home	
CT User	Yes
Department Number	
Display Name	
Employee Number	
Employee Type	
Enterprise Handle	
Given Name	
Home Phone	
Home Postal Address	
Initials	
Labeled URI	
Mail	
MM Home	
Mobile	

Select **Security > Security Database > CTI Users > List All Users** to get a listing of all CTI users, as shown below. Select the user ID created for MobileMax, and click the **Edit** button.

The screenshot shows the Avaya Application Enablement Services Management Console. The top navigation bar includes the Avaya logo, the title 'Application Enablement Services Management Console', and user information: 'Welcome: User craft', 'Last login: Tue Aug 17 21:26:02 2010 from 10.64.10.51', 'HostName/IP: aesserver2/205.168.62.111', 'Server Offer Type: TURNKEY', and 'SW Version: r5-2-2-105-0'. The breadcrumb trail is 'Security | Security Database | CTI Users | List All Users'. The left sidebar shows a tree view with 'Security Database' expanded to 'CTI Users' and 'List All Users' selected. The main content area displays a table of CTI Users:

User ID	Common Name	Worktop Name	Device ID
<input type="radio"/> Devtest	Devtest	NONE	NONE
<input checked="" type="radio"/> MobileMax	MobileMax	NONE	NONE
<input type="radio"/> Upstream	Upstream	NONE	NONE
<input type="radio"/> envision	envision	NONE	NONE

Below the table are two buttons: 'Edit' and 'List All'.

The **Edit CTI User** screen is displayed, as shown below. Check the **Unrestricted Access** checkbox, and click **Apply Changes**. This will provide the user with unrestricted access.

The screenshot displays the Avaya Application Enablement Services Management Console. The top navigation bar includes the Avaya logo, the title 'Application Enablement Services Management Console', and a welcome message for 'User craft' with system details. A red breadcrumb trail shows the path: Security | Security Database | CTI Users | List All Users. A left-hand navigation menu lists various system functions, with 'Security Database' and 'CTI Users' expanded. The main content area is titled 'Edit CTI User' and contains a form with the following fields and values:

User Profile:		
User ID		MobileMax
Common Name		MobileMax
Worktop Name		NONE
Unrestricted Access		<input checked="" type="checkbox"/>

Call Origination and Termination / Device Status		
		None

Call and Device Monitoring:		
Device		None
Call / Device		None
Call		<input type="checkbox"/>

Routing Control:		
Allow Routing on Listed Devices		None

At the bottom of the form are two buttons: 'Apply Changes' and 'Cancel Changes'.

5.4. Restart TSAPI Service

Select **Maintenance > Service Controller**. The **Service Controller** screen shows a listing of the services and the associated status of each service. Check the **TSAPI Service**, and click on **Restart Service**.

The screenshot displays the Avaya Application Enablement Services Management Console. The top left features the Avaya logo and the title "Application Enablement Services Management Console". The top right shows user information: "Welcome: User craft", "Last login: Fri Jul 23 13:35:28 2010 from 10.64.10.51", "HostName/IP: aesserver2/205.168.62.111", "Server Offer Type: TURNKEY", and "SW Version: r5-2-2-105-0". A red navigation bar contains "Maintenance | Service Controller" and "Home | Help | Logout". A left sidebar lists navigation options: AE Services, Communication Manager Interface, Licensing, Maintenance (selected), Date Time/NTP Server, Security Database, Service Controller (highlighted), Server Data, Networking, Security, Status, User Management, Utilities, and Help. The main content area is titled "Service Controller" and contains a table with two columns: "Service" and "Controller Status". The table lists several services, with "TSAPI Service" checked. Below the table, there is a link for "Status and Control" and a row of control buttons: Start, Stop, Restart Service, Restart AE Server, Restart Linux, and Restart Web Server. The footer of the console reads "© 2009 Avaya, Inc. All Rights Reserved."

Service	Controller Status
<input type="checkbox"/> ASAI Link Manager	Running
<input type="checkbox"/> DMCC Service	Running
<input type="checkbox"/> CVLAN Service	Running
<input type="checkbox"/> DLG Service	Running
<input type="checkbox"/> Transport Layer Service	Running
<input checked="" type="checkbox"/> TSAPI Service	Running

The following **Restart Service** screen is displayed. Click on **Restart** to confirm.

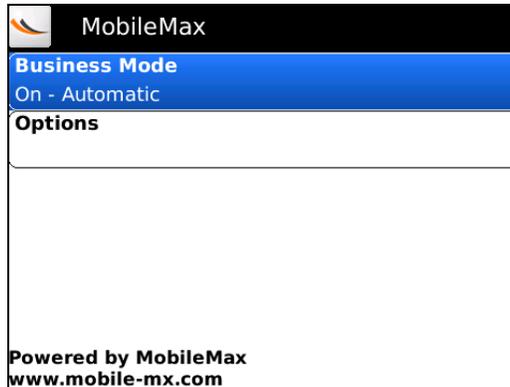
The screenshot displays the Avaya Application Enablement Services Management Console. At the top left is the Avaya logo. The main title is "Application Enablement Services Management Console". On the top right, there is a welcome message: "Welcome: User craft", "Last login: Fri Jul 23 13:35:28 2010 from 10.64.10.51", "HostName/IP: aesserver2/205.168.62.111", "Server Offer Type: TURNKEY", and "SW Version: r5-2-2-105-0". Below the title bar, there is a navigation menu with "Maintenance | Service Controller" and "Home | Help | Logout". The left sidebar contains a tree view with categories: AE Services, Communication Manager Interface, Licensing, Maintenance (expanded), Date Time/NTP Server, Security Database, Service Controller (highlighted), Server Data, Networking, Security, Status, User Management, Utilities, and Help. The main content area shows a "Restart Service" dialog box with the following text: "Warning! Are you sure you want to restart? Restarting will cause all existing connections to be dropped and associations lost." Below the text are two buttons: "Restart" and "Cancel". At the bottom of the page, there is a copyright notice: "© 2009 Avaya, Inc. All Rights Reserved."

6. Configure MobileMax

This section provides the procedures for configuring MobileMax. Select the MobileMax application from the main menu on the BlackBerry Device.

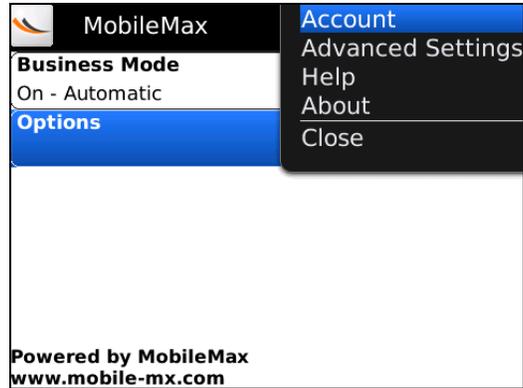


The following MobileMax application menu is displayed.



6.1. Configure Account

Configure the Application Enablement Services user account and mobile number to be used for a call back. Select **Options** → **Account** from the MobileMax application menu.

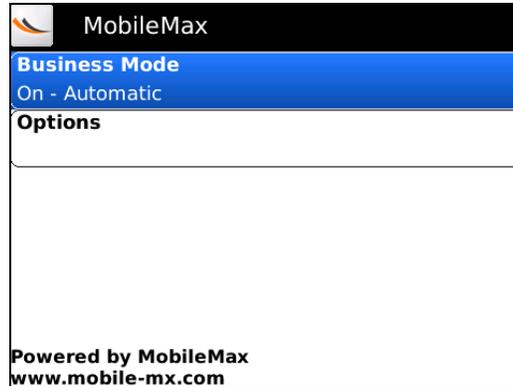


Enter the User Name and Password configured in **Section 5.3**. Enter the call back number for the **Mobile Number** field (i.e. the phone number of the BlackBerry device).

Account	
User Name	MobileMax
Password	*****
Mobile Number	13473855555

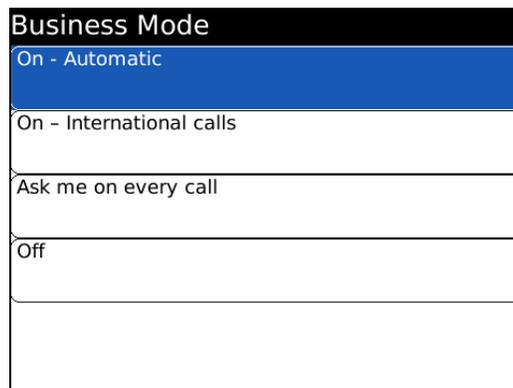
6.2. Configure Business Mode

Configure which outgoing calls should be intercepted by the MobileMax application. Select **Business Mode** from the MobileMax application menu.



The following screen is displayed. Select the desired Business Mode from the following options:

- **On – Automatic**
- **On – International calls**
- **Ask me on every call**
- **Off**



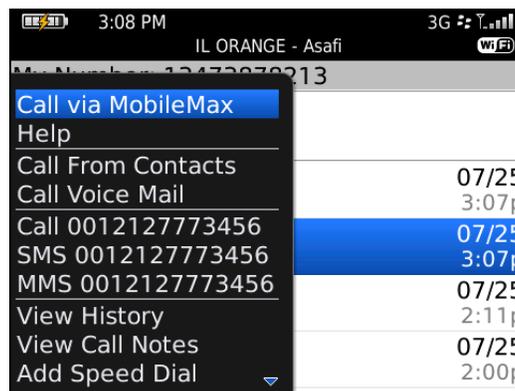
When **Business Mode** is set to **On – Automatic**, the application will route calls according to the user's location. If the BlackBerry user is in their home location (the United States, for example), international calls will be routed with MobileMax intercepting the call and using "Call-out" method. If the user is outside of their home location, then MobileMax application will route all outgoing calls to numbers with 7 digits or longer using the "Calling me back" method.

When **Business mode** is set to **On – International calls**, only calls starting with 011 or + (except for +1) will be routed via the MobileMax application. The method (either “Call out” or “Calling me back”) will be chosen by the configuration of the **Connect By** field under **Advanced Settings**.

When **Business Mode** is set to **Ask me on every call**, the MobileMax application will prompt the user for every call for a routing selection. The user can choose between routing the call via the MobileMax application or making the call directly without MobileMax intercepting the call.

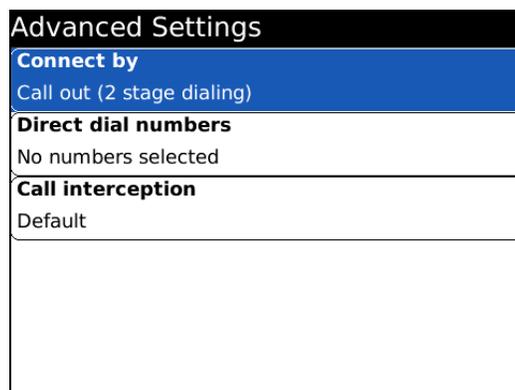
When **Business mode** is set to **Off**, the MobileMax application will not route any calls.

BlackBerry users can decide to route a specific call via MobileMax regardless of the business mode setting. This is done by choosing a number to call from the keypad, contacts, or call log, and then pressing the Blackberry option button and selecting “Call via MobileMax”. This option works even if the **Business Mode** is set to **Off**.



6.3. Configure MobileMax Routing Method

Configure the call routing method to be used by the MobileMax application. Select **Options** → **Advanced Settings** → **Connect by** from the MobileMax application menu.



The following screen is displayed.

Connect by
Decide Automatically
Calling me back (click2call)
Call out (2 stage dialing)

When **Connect by** is set to **Decide Automatically**, the call will be routed based on the user location. If the user is in their home location, the call will be routed via the “Call out” method. If the user is outside of their home location, the call will be routed via the “Calling me back” method.

If the user would like to manually choose the routing method, they may set **Connect by** to either **Calling me back (click2call)** or **Call out (2 stage dialing)**.

By manually setting the **Connect by** value, the MobileMax application will not take into consideration the user’s location. This should be useful for testing purposes to override the automatic behavior according the user’s location.

6.4. Configure Direct Dial Numbers

User can manually add destination numbers that will be excluded from the MobileMax dialing configuration. For example, if there are specific private family numbers that should never be routed via the corporate network, users may add those numbers to the Direct Dial Numbers list. Calls to those numbers will always go directly through the cellular service provider and not routed through the corporate network. Select **Options** → **Advanced Settings** → **Direct Dial Numbers** from the MobileMax application menu.

Select **Add New** and enter the appropriate values for the **Name** and **Numbers** fields on the next screen.

Direct Dial Numbers
Calls to these numbers are dialed directly and will not be routed automatically via Citi
Add new
Back

Add new contact
Name:
Number:
Select from address book
Back

7. General Test Approach and Test Results

The interoperability compliance testing included feature and serviceability testing.

7.1. General Test Approach

The interoperability compliance testing included feature and serviceability testing.

The feature testing focused on verifying the ability of the MobileMax application to use both the “Call out” and “Calling me back” methods to intercept selected calls and completing the calls via Application Enablement Services and Communication Manager.

The serviceability testing focused on verifying the ability of MobileMax to recover from adverse conditions, such as busying out the CTI link and disconnecting the Ethernet cable from Communication Manager and Application Enablement Services, and powering down/up the BlackBerry device with the MobileMax application.

Basic point-to-point calls were tested with a single Blackberry device. Features such as hold, transfer, conference, etc., were not tested as part of this compliance testing.

During testing, calls from the BlackBerry device occasional failed due to poor reception in the lab.

7.2. Test Results

All feature test cases were executed and passed.

8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Application Enablement Services, Communication Manager, and MobileMax.

8.1. Verify Avaya Application Enablement Services

On Application Enablement Services, verify the status of the switch connection by selecting **Status > Status and Control > Switch Conn Summary** from the left pane. Verify that the **Conn State** is “Talking” for the relevant switch connection. In this case, the switch connection is “S8300DCM6”.

AVAYA Application Enablement Services Management Console

Welcome: User craft
 Last login: Fri Jul 23 13:36:37 2010 from 10.64.10.51
 HostName/IP: aesserver2/205.168.62.111
 Server Offer Type: TURNKEY
 SW Version: r5-2-2-105-0

Status | Status and Control | Switch Conn Summary Home | Help | Logout

Switch Connections Summary

Enable page refresh every 60 seconds

	Switch Conn	Conn State	Since	Online/Offline	Active/Admin'd AEP Conns	Num of TCI Conns	SSL	Msgs To Switch	Msgs From Switch	Msg Period
<input checked="" type="radio"/>	S8300DCM6	Talking	Wed Jul 21 10:06:28 2010	Online	1 / 1	2	Enabled	614	629	30
<input type="radio"/>	S8300mobile	Talking	Wed Jul 21 09:56:46 2010	Online	1 / 1	2	Enabled	615	630	30
<input type="radio"/>	devcon31	Talking	Wed Jul 21 09:56:46 2010	Online	1 / 1	2	Enabled	615	630	30

Online Offline Connection Details Per Service Connections Details

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Verify the status of the TSAPI link by selecting **Status > Status and Control > TSAPI Service Summary** from the left pane. The **TSAPI Link Details** screen is displayed. Verify the **Status** is “Talking” for the TSAPI link administered in **Section 4.2**, as shown below.

AVAYA Application Enablement Services Management Console

Welcome: User craft
 Last login: Fri Jul 23 13:36:37 2010 from 10.64.10.51
 HostName/IP: aesserver2/205.168.62.111
 Server Offer Type: TURNKEY
 SW Version: r5-2-2-105-0

Status | Status and Control | TSAPI Service Summary Home | Help | Logout

> AE Services
 > Communication Manager Interface
 > Licensing
 > Maintenance
 > Networking
 > Security
 > Status
 Alarm Viewer
 > Logs
 > Status and Control
 ▪ CVLAN Service Summary
 ▪ DLG Services Summary
 ▪ DMCC Service Summary
 ▪ Switch Conn Summary
 ▪ **TSAPI Service Summary**
 > User Management
 > Utilities
 > Help

TSAPI Link Details

Enable page refresh every 60 seconds

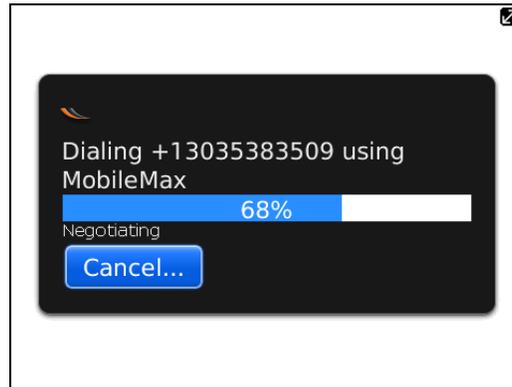
	Link	Switch Name	Switch CTI Link ID	Status	Since	State	Switch Version	Associations	Msgs to Switch	Msgs from Switch	Msgs Period
<input type="radio"/>	1	S8300mobile	1	Talking	Wed Jul 21 09:57:19 2010	Online	14	0	15	15	30
<input type="radio"/>	2	devcon31	1	Talking	Wed Jul 21 09:57:19 2010	Online	15	0	15	15	30
<input checked="" type="radio"/>	3	S8300DCM6	1	Talking	Fri Jul 23 13:41:04 2010	Online	16	0	15	15	30

For service-wide information, choose one of the following:

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8.2. Verify MobileMax

Place several calls from the BlackBerry. Verify that calls that should be intercepted by the MobileMax application are intercepted and the calls are placed using the correct call method (“Call Out” or “Calling me back”). Verify that the BlackBerry device indicates if the call is being placed via MobileMax as shown in the screen below:



- Verify the calls that should not be intercepted by the MobileMax application are not intercepted.
- Verify the calls that would typically be intercepted by the MobileMax application but are administered on the “Direct Dial Numbers” list are not intercepted.

9. Conclusion

These Application Notes describe the configuration steps required for the MobileMax 7.60 to interoperate with Avaya Aura™ Communication Manager 6.0 using Avaya Aura™ Application Enablement Services 5.2.2. All feature and serviceability test cases were completed successfully.

10. Additional References

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

- *Administering Avaya Aura™ Communication Manager*, Document 03-300509, Release 6.0, Issue 6.0, June 2010, available at <http://support.avaya.com>.
- *Avaya Aura™ Application Enablement Services Administration and Maintenance Guide*, Document ID 02-300357, Release 5.2, Issue 11, November 2009, available at <http://support.avaya.com>.

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