

<b>Title</b>	Avaya ACM PMS pass through
<b>Document</b>	TB000024
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## Audience

This document is intended for IT professionals and system administrators of the Avaya ACM system.

# Overview

This document provides guidelines for the configuration of the ACM system to accommodate the passing of PMS data to the ACM system from the DuVoice system. For DuVoice configuration please reference the DuVoice manual [http://manual.duvoice.com/idh\\_sys\\_hostel\\_phone.htm](http://manual.duvoice.com/idh_sys_hostel_phone.htm) and set phone control to Avaya ACM.

Avaya document references include:

- *Avaya GuestWorks and DEFINITY Enterprise Communications Server Property Management System Interface Specifications (#555-231-601)*
- *Avaya GuestWorks and DEFINITY Enterprise Communications Server Release 9 Technician Handbook for Hospitality Installations (#555-231-743)*

# Installation

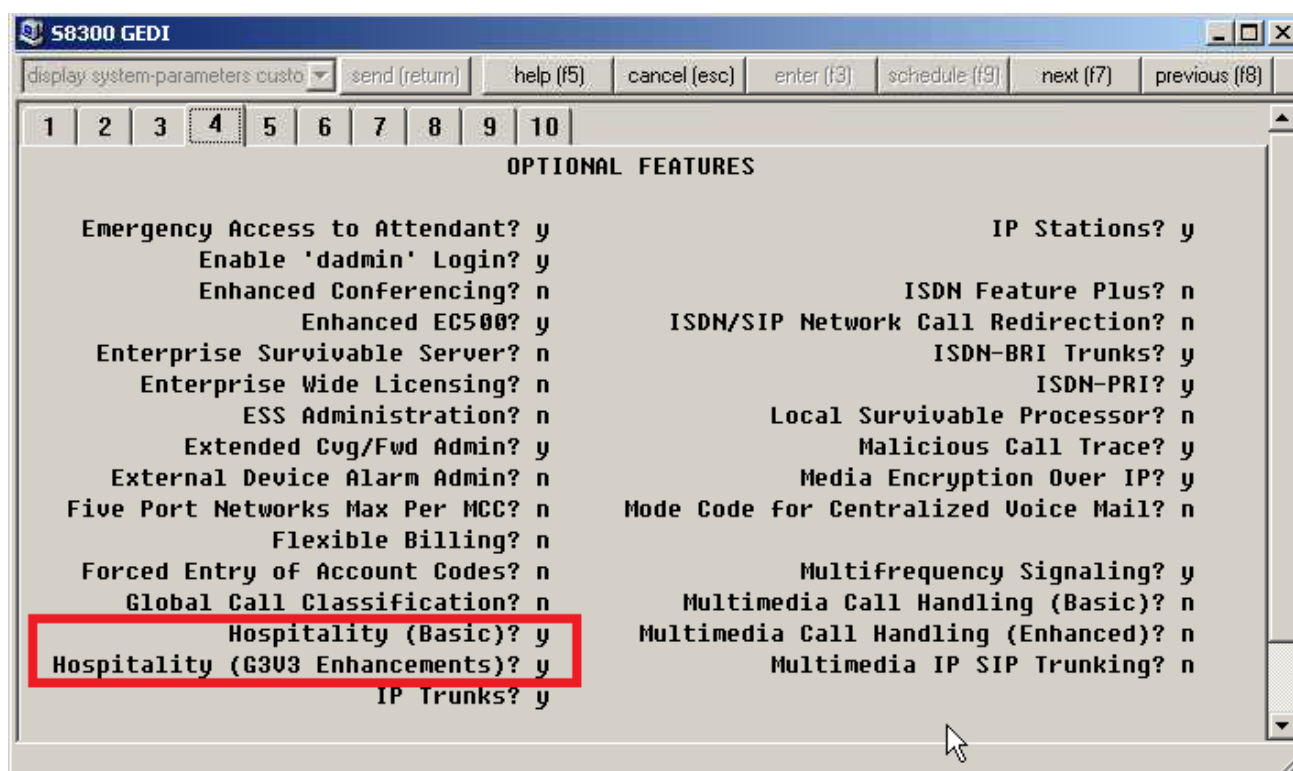
- No installation required on ACM only configurations
- DuVoice must be assigned a static IP address and be within the local LAN of the ACM server.

# Avaya ACM Configuration

There are several settings that need to be configured on the ACM to enable the DV2000 to connect to it using the PMS link.

## Display system-parameters customer-options

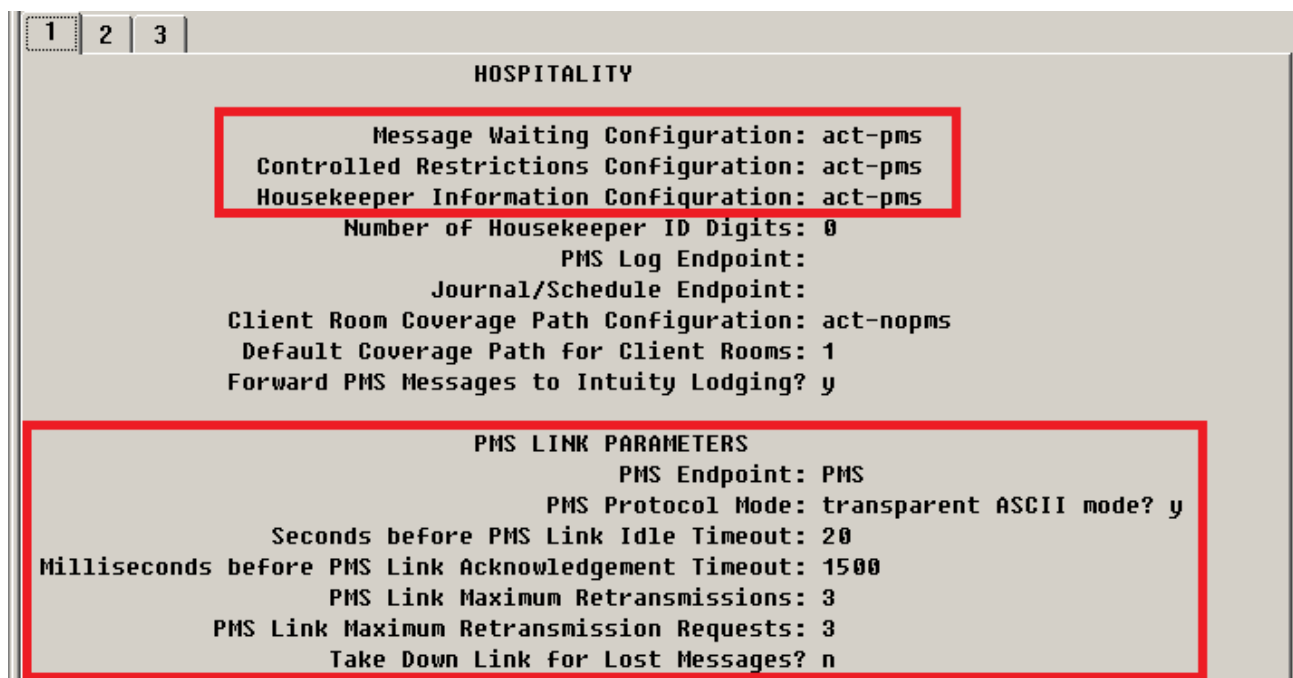
Verify that both hospitality settings on page 4 are enabled, as shown in the figure below:



## Change system-parameters hospitality

As shown in the figure below, make the following configuration changes on page 1 of system-parameters hospitality:

- Set *Message Waiting Configuration* to **act-pms**
- Set *Controlled Restrictions Configuration* to **act-pms**
- Set *Housekeeper Information Configuration* to **act-pms**
- Set *PMS Endpoint* to **PMS**
- Set *PMS Protocol Mode* to **transparent**
- Set *ASCII mode* to **y**
- Set *Seconds before PMS Link Idle Timeout* to **20**
- Set *Milliseconds before PMS Link Acknowledgment Timeout* to **1500**
- Set *PMS Link Maximum Retransmissions* to **3**
- Set *Take Down Link for Lost Messages* to **n**



Note: Do not change any of the wake-up settings on page 2.

Click the **Enter** button or press **F3** to save your changes.

## Change node-names ip

As shown in the figure below, add a node name **duvoice** and set its IP address to the static IP address of the DV2000 server (your system's IP address may differ from that shown).

IP NODE NAMES	
Name	IP Address
SES	192.168.11.70
default	0.0.0.0
<b>duvoice</b>	<b>192.168.11.26</b>
duvip	192.168.11.25
msgserver	192.168.11.62
procr	192.168.11.70

Click the **Enter** button or press **F3** to save your changes.

## Change ip-services

Configure the PMS service type as shown in the figure below. Set *Local Node* to **procr**, the *Local Port* to **0**, the *Remote Node* to the name you added in the previous step (e.g. **duvoice**) and the *Remote Port* to the port number you wish to use to connect with the DV2000. In this example, it is set to use port **5000**.

IP SERVICES					
Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port
<b>PMS</b>		<b>procr</b>	<b>0</b>	<b>duvoice</b>	<b>5000</b>

Click the **Enter** button or press **F3** to save your changes.

## Change feature-access-codes

Although the DV2000 supports sending housekeeping codes using a special access code in the guest room mailbox, configuring these settings as shown in the figure below allows the staff to dial the codes directly without having to access the guest mailbox. Note that these settings are on page 6.

The codes shown in the figure are for demonstrative purposes only; your configuration may vary. Code assignments should be coordinated with those supported by the PMS you are using. At a minimum, if the PMS supports 5 housekeeping codes, you should also configure the first 5 housekeeping codes on this page.

1	2	3	4	5	6	7
FEATURE ACCESS CODE (FAC) Hospitality Features						
Automatic Wakeup Call Access Code:						
Housekeeping Status (Client Room) Access Code: *61						
Housekeeping Status (Client Room) Access Code: *62						
Housekeeping Status (Client Room) Access Code: *63						
Housekeeping Status (Client Room) Access Code: *64						
Housekeeping Status (Client Room) Access Code: *65						
Housekeeping Status (Client Room) Access Code:						
Housekeeping Status (Station) Access Code:						

Click the **Enter** button or press **F3** to save any changes.

## Change cos

As shown in the figure below, configure one of the classes of service so that the *Client Room* setting is set to **y**. This COS must then be assigned to all guest room extensions, and should be a different COS than that used by staff extensions. In this example, COS 1 is the one configured with Client Room enabled.

1	2
CLASS OF SERVICE	
	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Auto Callback	n y y n y n y n y n y n y n y n
Call Fwd-All Calls	n y n y y n n y y n n y y n n n
Data Privacy	n n n n n y y y y n n n n y y y
Priority Calling	n n n n n n n n n y y y y y y n
Console Permissions	n n n n n n n n n n n n n n n n
Off-hook Alert	n n n n n n n n n n n n n n n n
Client Room	n y n n n n n n n n n n n n n n
Restrict Call Fwd-Off Net	y y y y y y y y y y y y y y y y
Call Forwarding Busy/DA	n y n n n n n n n n n n n n n n

Click the **Enter** button or press **F3** to save the change.

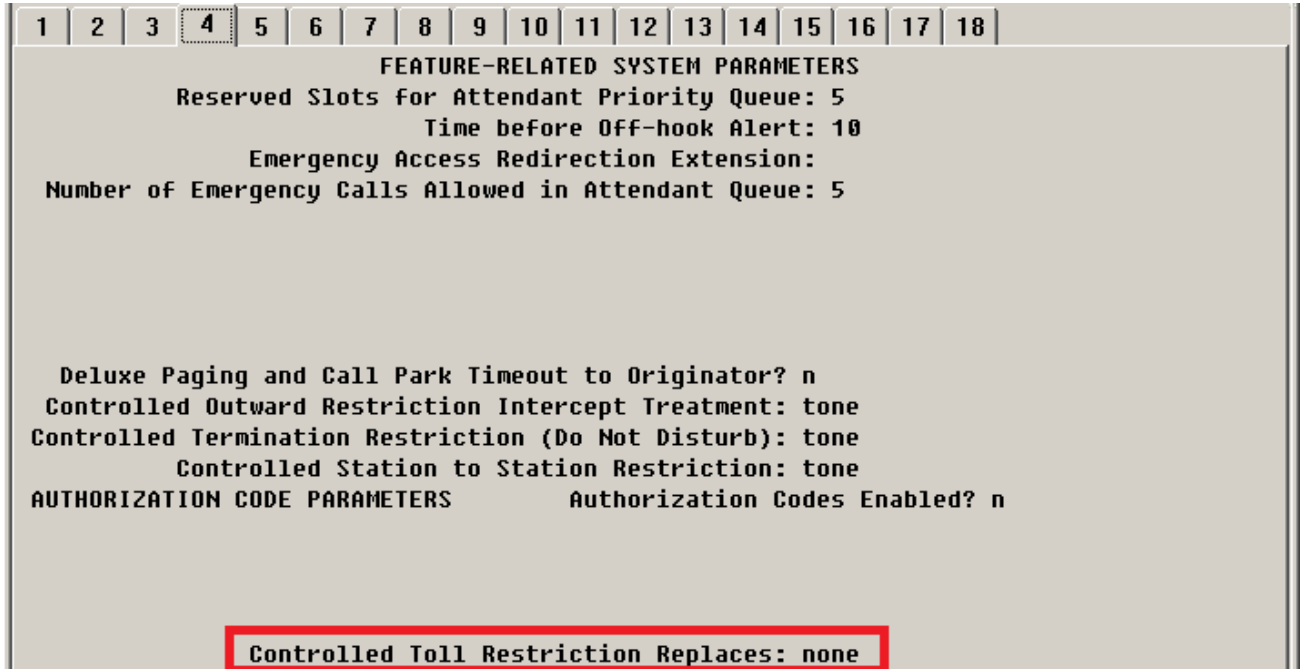
## Change system-parameters features

One of the features supported by the PMS interface between the DV2000 and the ACM is the ability to change the controlled restriction level assigned to a guest phone, usually as the result of a command sent to the DV2000 by a connected property management system (PMS). The ACM PMS interface specification supports eight controlled restriction levels, numbered 0 through 7, as listed below:

- 0 = No restriction
- 1 = Outward / toll restriction (configured on the PBX)
- 2 = Station-to-station / toll restriction (configured on the PBX)
- 3 = Combination of #1 and #2
- 4 = Total restriction (that is, cannot make or receive any calls)
- 5 = Termination restriction (cannot receive calls)

- 6 = Combination of #1 and #5
- 7 = Combination of #2 and #5

As noted, the meaning of level 1 or 2 (but not both) can be changed via configuration in the ACM. This configuration option is listed on page 4 of the dialog displayed when you enter the command *change system-parameters features*. This dialog is shown below:



If you wish controlled restriction value 1 to mean *toll restriction* rather than *outward*, change the indicated value from *none* to *outward*.

On the other hand, if you wish controlled restriction value 2 to mean *toll restriction* rather than *station-to-station*, change the indicated value from *none* to *station-station*.

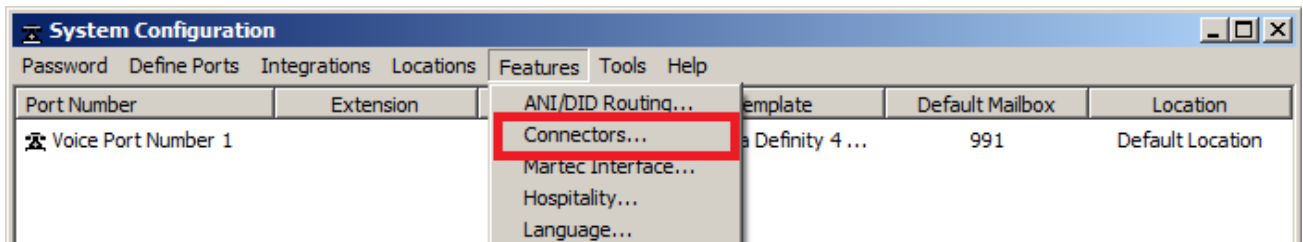
Click the **Enter** button or press **F3** to save the change.

## Configure the DV2000

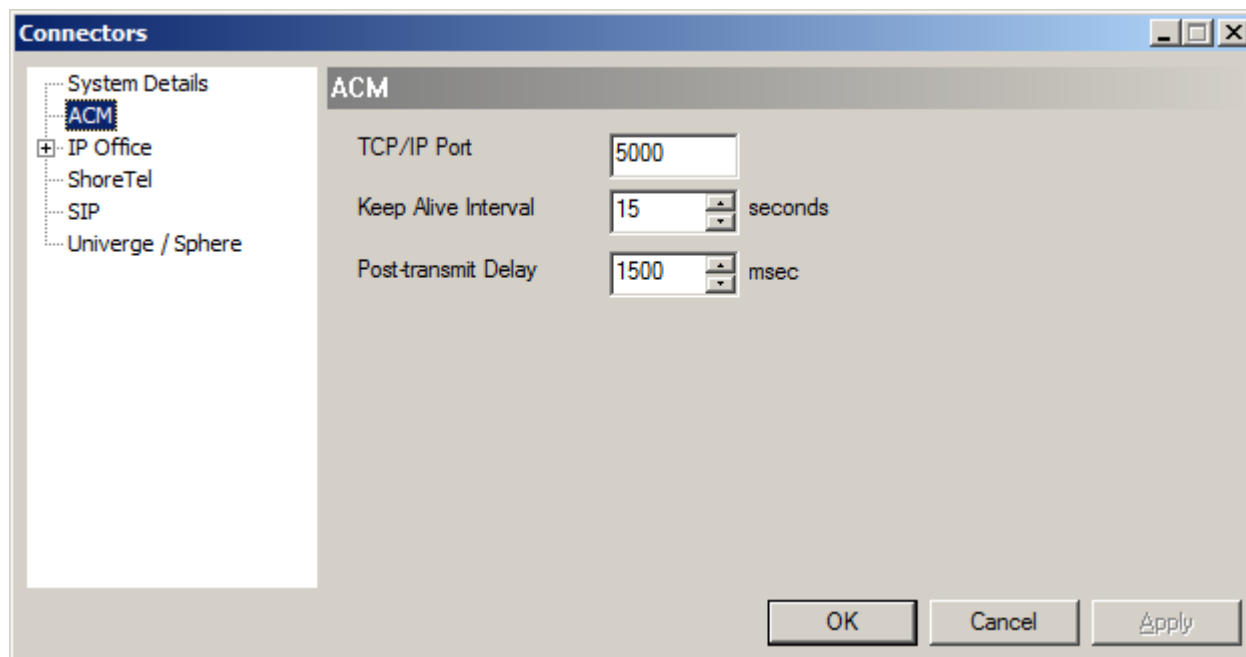
To configure the DV2000 system, run the System Configuration program. Enter the password if prompted to do so; the default password is **duvoice**.

## Configure the ACM Server Port

To configure the port number used to connect with the ACM, select **Features | Hospitality** from the main menu, as shown in the figure below:



This will open the Connectors dialog, shown below. On the left pane, click on the *ACM* option to display the ACM-related settings.



### TCP/IP Port

Set this value to the same port number you selected in the *Change ip-services* section above. In the example given, the port was set to **5000**, which is the default value assigned in the DV2000, as seen in the figure above.

### Keep Alive Interval

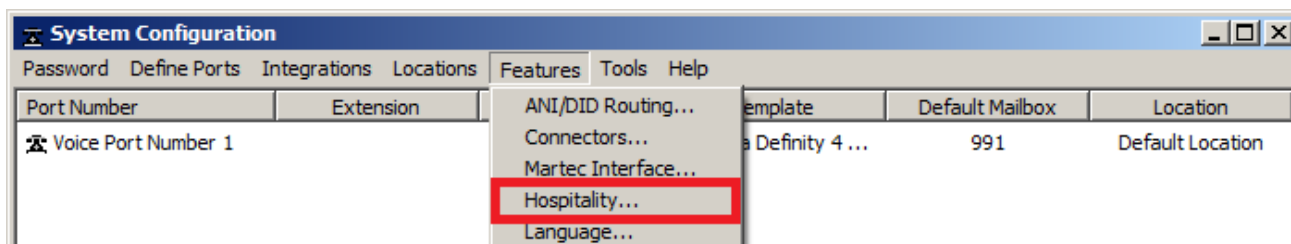
Set this value to a number that is lower than the *Seconds Before PMS Link Idle Timeout* setting that you configured on the *Change system-parameters hospitality* section above. If you configured that setting with the suggested default of 20 seconds, then the default for this setting—**15** seconds—should be sufficient.

### Post-transmit Delay

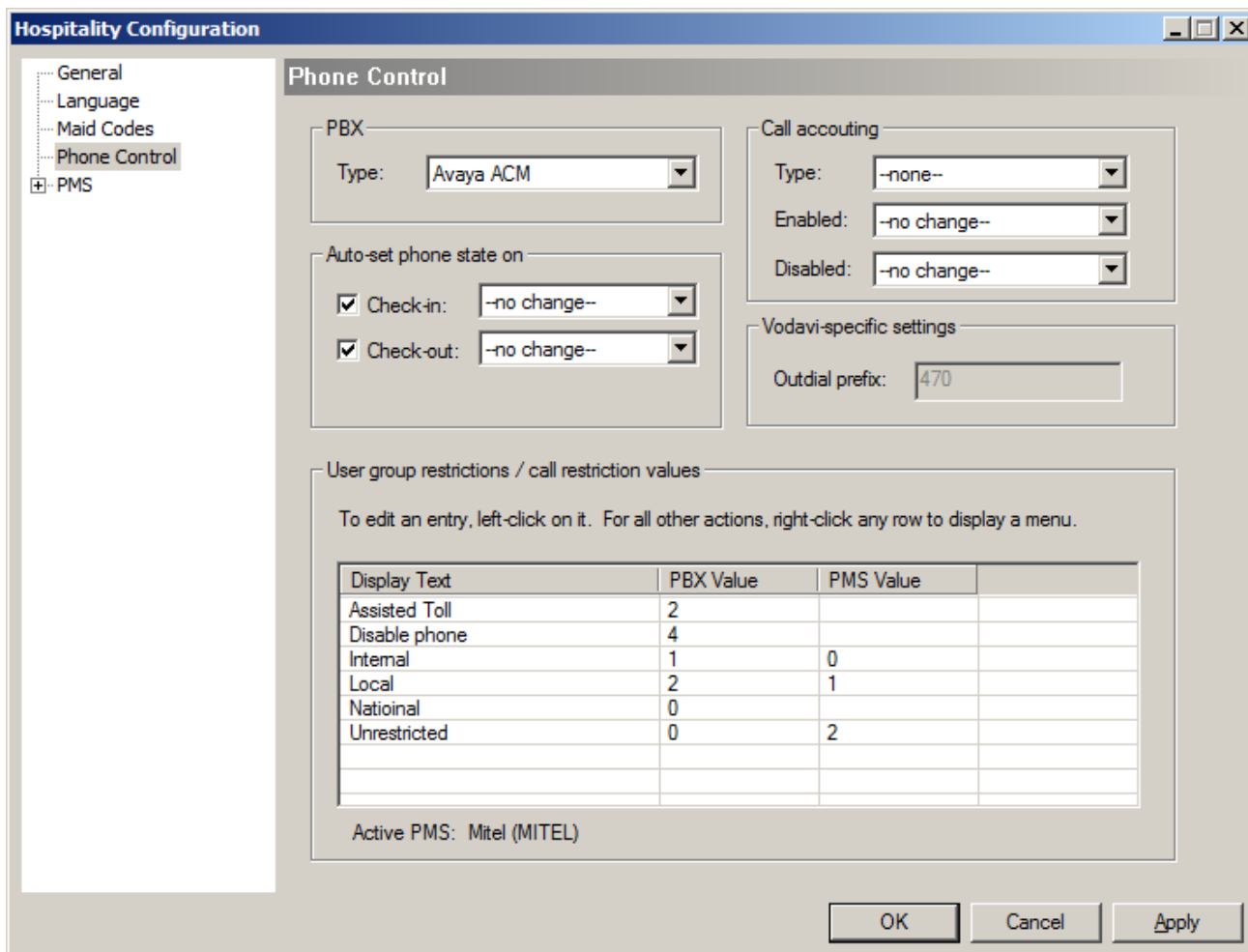
This setting determines how long (in milliseconds) to wait after the ACM has acknowledged a message from the DV2000 before the DV2000 will try to send another message to the ACM. In some cases, the ACM may not be able to keep up with messages being sent to quickly and this delay will artificially slow the pace of message traffic. The default value of **1500** milliseconds should be sufficient.

## Configure the Hospitality Phone Control Settings

To configure the hospitality phone control settings, select **Features | Hospitality** as shown in the figure below:



In the Hospitality dialog, select the *Phone Control* option in the left pane, as shown in the figure below:



## PBX Type

Select **Avaya ACM** as the PBX type, as shown in the figure above.

### Auto-set phone state on

These options allow the DV2000 to automatically assign a phone class of service (COS) at check in and/or at check out. To enable the option, check the check box next to the option you wish to enable and then select the COS name from the drop-down box provided. Note that selecting "--no change--" is equivalent to removing the check from the check box.

**You should not enable these settings if the DV2000 is connected to a PMS that will send phone control packets at check in and check out, since one will**



**override the other and may result in the room phone being assigned an incorrect COS.**

The COS options displayed in the drop-down box are configured in the User group restrictions table discussed in the next section.

## **User group restrictions**

The user group restrictions table is used to map the supported PBX values to the supported PMS values and to provide a text description for each COS. That text is then used wherever a human-readable text description is required, such as in the other drop-down boxes on this dialog and also in the InnDesk web application.

### **Display Text**

Each class of service (or restriction level) you wish to support must have a name (that is, a descriptive word or short phrase) that can be used when displaying the COS in a human-readable format.

### **PBX Value**

The PBX value is either a digit representing the COS (or call restriction level) or a text string indicating a group or profile name. In the case of the ACM, the supported PBX values are the digits 0 through 7, defined as follows (no other values are supported):

- 0 = No restriction
- 1 = Outward / toll restriction (configured on the PBX)
- 2 = Station-to-station / toll restriction (configured on the PBX)
- 3 = Combination of #1 and #2
- 4 = Total restriction (that is, cannot make or receive any calls)
- 5 = Termination restriction (cannot receive calls)
- 6 = Combination of #1 and #5
- 7 = Combination of #2 and #5

**Note:** The meaning of #1 and #2 depend on configuration. One or the other, but not both, may be changed from its default meaning (*outward* or *station-to-station*, respectively) to *toll restriction*. This is covered under **Avaya ACM Configuration**, above, in the section *Change system-parameters features*.

Where possible, always match a PBX value to each possible PMS value, even if you must use the same PBX value for more than one PMS value (such as when the PMS supports more options than the ACM). That way, whenever the PMS sends the DV2000 a set phone restriction packet, the DV2000 will know what it should send to the ACM to effect the desired change.

### **PMS Value**

The PMS value is typically a digit representing a COS (or call restriction level) as defined by the PMS protocol in use. These values will vary depending on the PMS you are using; consult your PMS documentation or vendor for more details.

## Default Settings

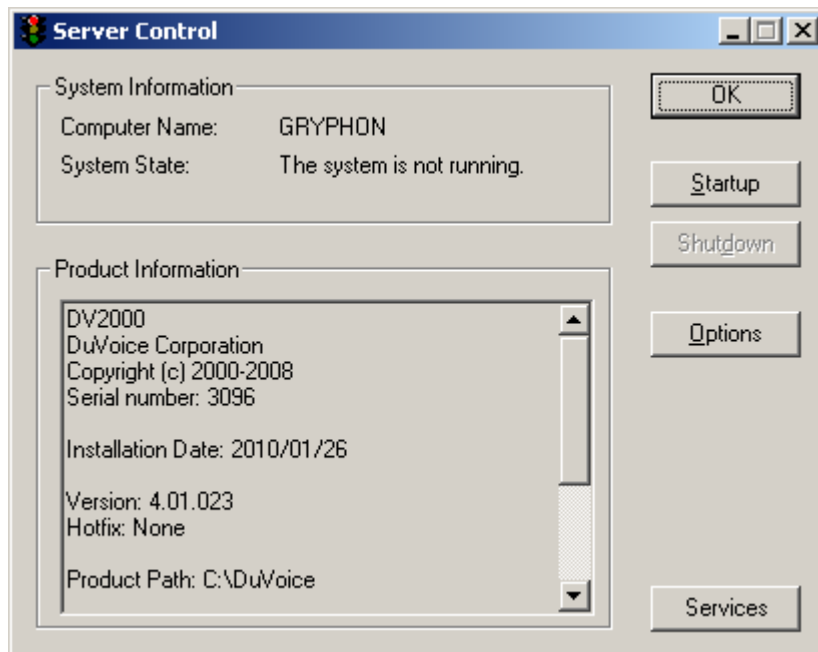
Where possible, the DV2000 will suggest a default mapping of PBX to PMS values whenever you change either the PMS or the PBX type.

**Note:** If you change the values and need to go back to the default settings, right-click on the table and select *Reset to defaults*.

## Saving Your Changes

After you have configured the Connectors and Phone Control settings to your satisfaction, save your settings by clicking the **OK** button.

To make these settings take effect, you will need to stop and restart the main DV2000 service. You can do this by clicking on the Windows Start button and then selecting **All Programs -> DuVoice -> Server Control**. This will launch the Server Control application, as shown below.



To stop the system, click **Shutdown** and then wait until the progress bar disappears and the Shutdown button is grayed-out (as it is in the figure above). Then, to restart the system, click **Startup**. Once the progress bar goes away, the system will be running and you can click **OK** to close the Server Control application.

## Verifying the Link

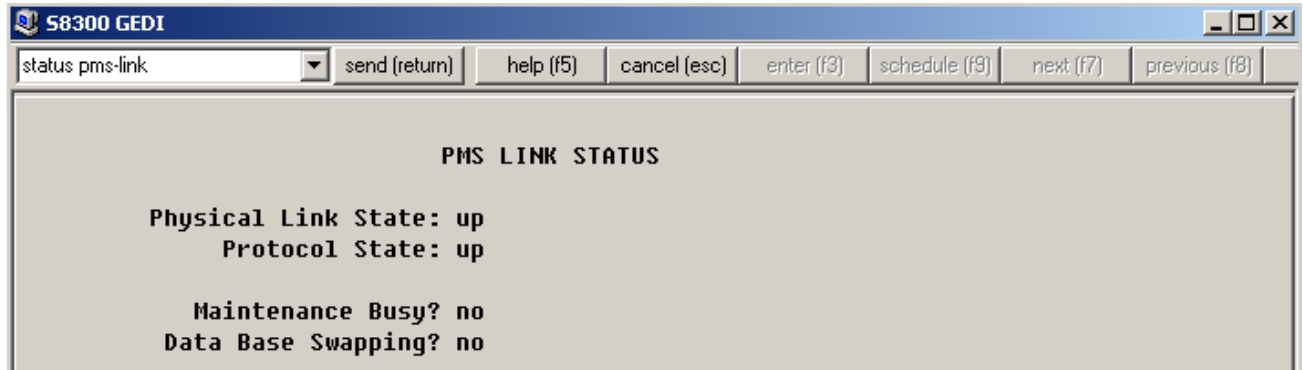
Once you have finished configuring both the ACM and the DV2000 and both systems are up and running with the new configurations, you should first verify that the link has been established. There are several ways you can do this.

## On the ACM

You can check the status of the PMS link on the ACM by issuing the following command:

```
status pms-link
```

This will display the current status of the PMS link, as shown below:



If the link is connected and working properly, both *Physical Link State* and *Protocol State* should report **up** (as they do in the figure above).

If either or both settings report **down** and you have verified that the DV2000 believes it did establish the connection, you can issue the following command to review possible error messages:

```
list pms-down
```

Discussion of the often-cryptic Avaya error messages is beyond the scope of this document. You may find some help in interpreting these messages by consulting the *GuestWorks and DEFINITY Enterprise Communications Server Release 9 Technician Handbook for Hospitality Installations* (document number 555-231-743) or a similar document. The list pms-down error messages are documented in Appendix C of that document.

## On the DV2000

To check if the DV2000 thinks the link is up and running, you need to run the Trace Display application and review the ACMSRVR (ACM server) log file. You can access that program by clicking on the Windows Start button and then selecting *All Programs -> DuVoice -> Support -> TraceDisplay*.

Select **File | Open** from the main menu, navigate to the `C:\DUVOICE\TraceLogs` folder and select the log file `ACMSRVR.LTT` to view the most-recent log data. The figure below shows a typical ACMSRVR log file:

LOG	PID	TID	Date-Time	Filter	Data
A...	3...	5...	2011/0...	STATUS	Built on Feb 1 2011
A...	3...	5...	2011/0...	STATUS	Sent--: [ <02>q/STSFF <03><09>]
A...	3...	5...	2011/0...	STATUS	--Recv: [ <06>].
A...	3...	5...	2011/0...	STATUS	--Recv: [ <02>q/STS0F <03><7f>]
A...	3...	5...	2011/0...	STATUS	Sent--: [ <06>]
A...	3...	5...	2011/0...	STATUS	Status 0; OK.
A...	3...	5...	2011/0...	STATUS	Sent--: [ <02>q?STSFF <03><19>]
A...	3...	5...	2011/0...	STATUS	--Recv: [ <06>].
A...	3...	5...	2011/0...	STATUS	--Recv: [ <02>q?STS0F <03><o>]
A...	3...	5...	2011/0...	STATUS	Sent--: [ <06>]
A...	3...	5...	2011/0...	STATUS	Status 0; OK.

The first line displayed in the figure states `Built on Feb 1 2011` in the *Data* column; this line indicates when the ACMSRVR application was started by the DV2000. It the ACMSRVR application that establishes the link to the ACM and handles all communication with the ACM.

The next two lines shows that the DV2000 sent a *Status Inquiry* packet to the ACM and received an acknowledgment back from the ACM. The two lines after that show the ACM sent a *Status Inquiry* response packet to the DV2000 and the DV2000 responded back with an ACK. This is normal communication activity between the two systems and shows that the link is up and working correctly.

If no activity is logged following the `Built on..` line, or if there are any error messages logged, that may indicate that there is a problem with the link.

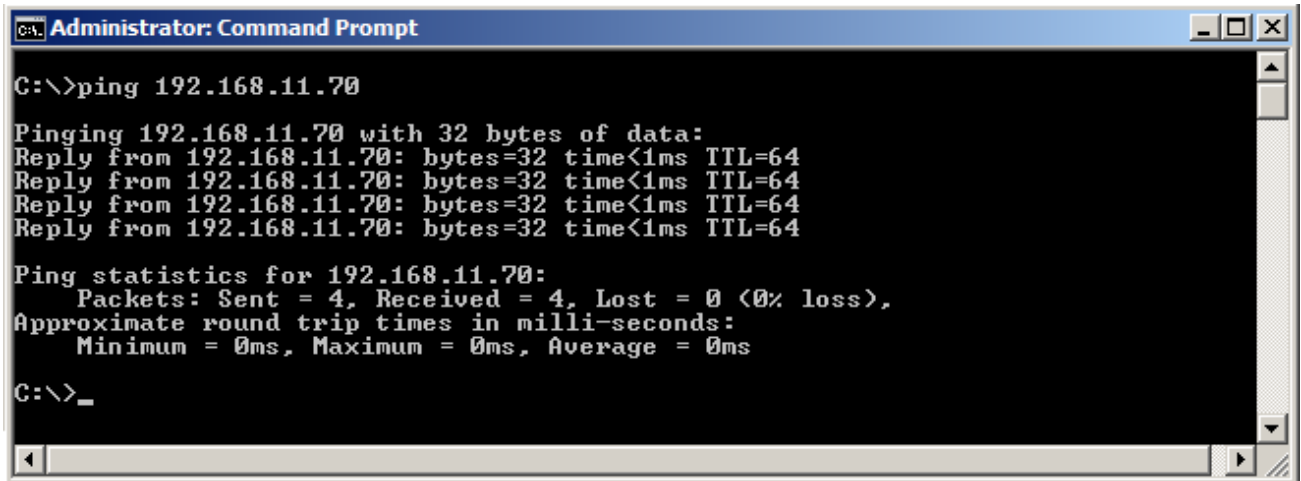
## Using Ping

If either or both systems appear to indicate a problem with the link, one simple method of determining if the ACM server is even "visible" to the DV2000 is to ping the ACM from the DV2000. You can do this from a command window on the Dv2000 system. To open a command window, click the Windows Start button and then select *All Programs -> Accessories -> Command Prompt*.

In the Command window, type the ping command followed by the IP address assigned to the ACM. The following is only an example; the IP address of your ACM will likely be different:

```
ping 192.168.11.70
```

If the ACM is on the same LAN as the DV2000 and can be pinged, it should display data similar to that shown in the figure below:



```
C:\>ping 192.168.11.70

Pinging 192.168.11.70 with 32 bytes of data:
Reply from 192.168.11.70: bytes=32 time<1ms TTL=64
Reply from 192.168.11.70: bytes=32 time<1ms TTL=64
Reply from 192.168.11.70: bytes=32 time<1ms TTL=64
Reply from 192.168.11.70: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.11.70:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

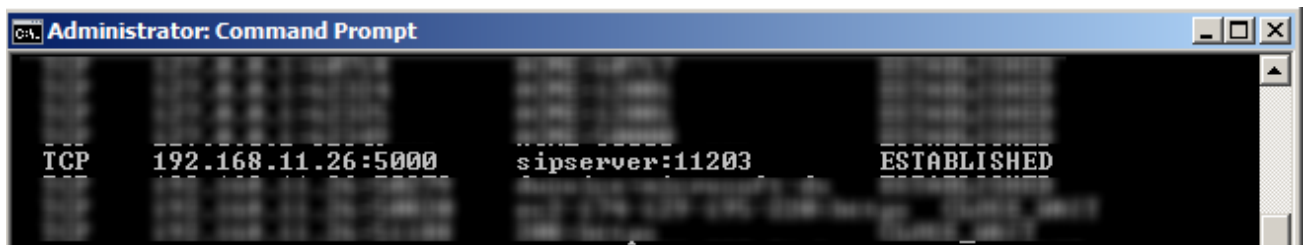
C:\>_
```

If the ping command returns an error it may mean the ACM is not on the same LAN as the DV2000 and therefore the link cannot be established. However, it is also possible that ping is being blocked, so an unsuccessful ping may or may not actually indicate an error.

## Using Netstat

Another command line tool that can be used to verify the link is actually connected is *netstat*. To run this command, open a command window by clicking on the Window Start button and selecting *All Programs -> Accessories -> Command prompt*. Then type in the command `netstat` and press **Enter**.

In the resulting output, look for a line that includes the DV2000's IP address and the port number you assigned to the DV2000-ACM PMS link. The figure below shows an example using the default port number 5000:



```
Administrator: Command Prompt

TCP        192.168.11.26:5000    sipserver:11203      ESTABLISHED
```

In this case, you can see that the connection is Established. If you cannot find an entry for your IP address and port number combination, then the link is not active.

## Testing the Protocol

Once the link is successfully established and communicating normally, you can run some tests on the various functions provided by the ACM PMS protocol and supported by the DV2000.

## Testing Check In and Check Out

To test check in and check out functionality, you can either use your PMS or InnDesk. One advantage to using InnDesk to perform the tests is then you are only testing the DV2000-ACM link and not the PMS-DV2000 link as well.

### Check In

To test a check in, open InnDesk and send a check-in for a valid room extension. Check in can include the guest name and language selection as well. To verify that the ACM processed the check in, use the Avaya Site Administration application; type in the following command (replacing <extension> with the actual station number):

```
status station <extension>
```

Click the **Enter** button or press **F3**. A dialog similar to the following will be displayed:

1	2	3	4	5	6	7
<b>GENERAL STATUS</b>						
Administered Type: 4621			Service State: out-of-service			
Connected Type: N/A			TCP Signal Status: not connected			
<b>Extension: 2301</b>			Parameter Download: pending			
Port: S00000			SAC Activated? no			
Call Parked? no			one-X Server Status: N/A			
Ring Cut Off Act? no			Off-PBX Service State: N/A			
Active Coverage Option: 1			Message Waiting:			
EC500 Status: N/A			Connected Ports:			
Limit Incoming Calls? no			User Cntrl Restr: none			
User Cntrl Restr: none			Group Cntrl Restr: none			
			<b>HOSPITALITY STATUS</b>			
			Awaken at:			
			User DND: not activated			
			Group DND: not activated			
			<b>Room Status: occupied</b>			

In this example, the extension is 2301, the user controlled restriction level is **none** (which equates to the value 0 as documented in the Configure Hospitality Phone Control Settings section, above) and the room status is **occupied**.

If you included a name as part of the check-in, you will need to run a different command to view the name change. First, click **Cancel** or press **Esc** to exit the status screen, then enter the following command (again, replace <extension> with the actual extension number):

```
list station <extension>
```

This will display a table, shown below, that includes the name currently associated with the extension:

Ext.	Type	Port	Name	Data Ext.	Cover 1	Cover 2	COS	COR	T
2301	4621	S00000	Smith, Jason		1		1	2	

## Check Out

To test a check out from InnDesk, select Guest Services, enter the room (mailbox) number in the box provided and click Enter. Then select Check Out from the options provided and click OK to confirm. Now go to the Avaya Site Administrator program and enter the following command (replacing <extension> with the actual station number):

```
status station <extension>
```

Click the **Enter** button or press **F3**. A dialog similar to the following will be displayed:

1	2	3	4	5	6	7
<b>GENERAL STATUS</b>						
Administered Type: 4621			Service State: out-of-service			
Connected Type: N/A			TCP Signal Status: not connected			
Extension: 2301			Parameter Download: pending			
Port: S00000			SAC Activated? no			
Call Parked? no			one-X Server Status: N/A			
Ring Cut Off Act? no			Off-PBX Service State: N/A			
Active Coverage Option: 1			Message Waiting:			
EC500 Status: N/A			Connected Ports:			
Limit Incoming Calls? no			User Cntrl Restr: outward			
Group Cntrl Restr: none			HOSPITALITY STATUS			
			Awaken at:			
			User DND: not activated			
			Group DND: not activated			
			Room Status: vacant			

The user controlled restriction has been set to **outward** (which equates to restriction level 1 as documented in the Configure Hospitality Phone Control Settings section, above) and the room status is now **unoccupied**.

To verify that the name has been removed, you will need to run a different command. First, click **Cancel** or press **Esc** to exit the status screen, then enter the following command (again, replace <extension> with the actual extension number):

```
list station <extension>
```

This will display a table, shown below, that includes the name currently associated with the extension:

Ext.	Type	Port	Name	Data Ext.	Cover 1	Cover 2	COS	COR	T
2301	4621	S00000			1		1	2	

Since the check out was successful, the name has been cleared.

## Troubleshooting

If you have verified that the link is up and functioning properly but one of the commands (such as Check In or Check Out) appear to be failing, you may be able to glean some idea of why the ACM rejected the command by viewing the "PMS-down" log.

You can do so from the Avaya Site Administrator application by issuing the following command to review possible error messages:

```
list pms-down
```

Discussion of the often-cryptic Avaya error messages is beyond the scope of this document. You may find some help in interpreting these messages by consulting the *GuestWorks and DEFINITY Enterprise Communications Server Release 9 Technician Handbook for Hospitality Installations* (document number 555-231-743) or a similar document. The list pms-down error messages are documented in Appendix C of that document.

## Conclusion

- If the DV2000 IP address is not on the same LAN as the ACM a connection cannot be made.
- Use Ping from the DV2000 PC to verify the ACM's IP address is visible to the DV2000.
- Use the NETSTAT command from DuVoice PC to see if the link is connected.
- Use the Status command in ACM to check current link status
- Check the Firewall on the DV2000 (disable if necessary), and the network's firewall, to verify that the TCP port you assigned to link (on both the ACM and the DV2000) is not being blocked.

Contact DuVoice Technical support at 425-250-2393 or email [support@duvocie.com](mailto:support@duvocie.com) for more assistance. Note: DuVoice normal support hours 8AM-5PM Pacific time Monday to Friday