



Unified ICM Software Configuration

In order to properly set up and maintain the Unified ICM database, you need to understand the relationships between the Avaya database objects and the Unified ICM database objects. Some Unified ICM objects (for example, Unified ICM Services) do not correspond directly to a specific object on the Avaya. Other Unified ICM objects, such as trunks, correspond directly to objects on the ECS/MultiVantage/Avaya. By understanding the relationships between the database objects of the Avaya and Unified ICM systems, it will be easier to keep the Avaya ECS/MultiVantage, CMS, and the Unified ICM databases synchronized (that is, up-to-date with each other). This chapter describes how objects map between the Avaya and Unified ICM software. It also provides Avaya-specific information that may assist you in configuring the PG through the Configuration Manager tools. For detailed information on the Configuration Manager tool user interface, see the *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise* available at:

<http://www.cisco.com/c/en/us/support/customer-collaboration/unified-intelligent-contact-management-enterprise/products-installation-and-configuration-guides-list.html>

- Peripheral Configuration, on page 2
- Peripheral Targets, on page 6
- Peripheral Monitor Table, on page 7
- PIM Configuration, on page 8
- Connection management with AES using TSAPI Interface, on page 11
- **Installing TSAPI Client** , on page 12
- Service Observer , on page 12
- Trunk Groups, on page 12
- Trunks, on page 13
- Services, on page 13
- Skill Groups, on page 14
- Service-to-Skill Group Mappings, on page 17
- Agents, on page 17
- Skill Group Members, on page 20
- Translation Routes, on page 20
- Routes, on page 20
- Routing Client, on page 20
- Unified ICM Configuration for “CMS-less” PGs, on page 20
- Maintaining Your Configuration, on page 21
- Registry Keys, on page 21

Peripheral Configuration

In **Unified ICM** terms, the **Avaya** corresponds to a peripheral. Unified **ICM** software treats all contact center devices (for example, **ACDs**, **PBXs**, **VRU** systems) as peripherals.

No special peripheral configuration parameters are required for **Unified ICM** software. However, there are certain items within the **Unified ICM** configuration that you may want to check.

Peripheral Skill Group Mask

The Peripheral (default) **Skill Group Mask**, which is available from the **PG Explorer** tool, are checked and set appropriately. The **Skill Group Mask** is used when configuring all skill groups for the peripheral.

If your peripheral is an **EAS** type, ensure that all check boxes are appropriately checked/unchecked. These check boxes identify the sub-groups or skill levels created for each skill group.

The default setting is that **Skill Level 1**(primary) and **Skill Level 2** (secondary) are checked, all other boxes (by default) are unchecked. The existence of the sub-skill groups can affect agent counts and call reporting. The **Peripheral Skill Group Mask** are overridden on a skill group by skill group basis as required.

Peripheral Call Control Variable Map

The **Call Control Variable Map** field, which is available on the **PG Explorer** tool, controls the mapping of route request elements to **Peripheral Variables**.

The **Call Control Variable Map** field can be used to set up the specific peripheral variables. Although these variables are reserved for a **CTI** application, the **PG** can use them as well.

Following are the ways to control variable usage by the **CallControlVariableMap**:

- **Direct the PIM:** The **PIM** is directed on which call variables can be accessed. For example, the following setting allows the **PIM** to set call variable 1 and call variables 5 through 10 while preserving the existing values of call variables 2 through 4 (that is, the **PIM** does not set call variables 2 through 4).



Note This argument is from the perspective of the **PIM**.

```
/PIM=yynnyyyyyy
```

- **Direct the CTI portion of the PG:** The **CTI** portion of the **PG** can be directed to allow the **CTI Client** to override any **PIM Call Variable** setting. For example, the following setting allows a **CTI Client** to set call variable 1 and call variables 5 through 10. These call variables are set, while preserving the peripheral-determined values of call variables 2 through 4.

```
/CTI = yynnyyyyyy
```

See also: For details on **Route Request** Elements, see Chapter 4, Post Routing. For more details on Unified ICM CTI capabilities and interaction with the PG, see the *ICM Software Enterprise CTI Interface Specification*.

Related Topics

[Post-routing](#)

Peripheral Configuration Parameters

Several default settings are entered in the **Configuration Parameters** field of the **PG Explorer tool**. This includes default work-mode, default login skill level, reserved agent preference levels, and station monitoring of logged-in agents.

- 1. Default Work-Mode** The default work-mode used by the **PIM**, while setting an agent to the **READY** state through a **CTI** application. This is configured by the **Configuration Parameters** field. The keyword/defworkmode, followed by manual or auto, sets the default work-mode to the **Avaya** which is equivalent of **Manual-In** and **AUTO-IN** respectively. The following example sets the default work-mode to **AUTO-IN**:

```
/defworkmode auto
```

This default work-mode is used by the **PIM**. This happens, in case where a **CTI** application does not provide a proper work-mode while setting the agent to the **READY** state. If unspecified, the **PIM** default is **MANUAL-IN**.

- 2. Default Login Skill Level:** The default login skill level (that is, priority or skill level) used by the **PIM**. This is configured by the **Configuration Parameters** field. The default login skill is used when an agent logs in and no agent skill group member are found for that agent in **Unified ICM Configuration**. The keyword/ Default Work-Modedefskilllevel followed by a numeric skill level sets the default skill level. The following example sets the default login skill level to 3:

```
/defskilllevel 3
```

If unspecified, the **PIM** default is 16.

- 3. Reserved Agent Preference Levels** (in ICM software, Release 4.0 and greater) are configured by the **Configuration Parameters** field. The reserved agent 1 and agent 2 preference levels (represented as preference level 51 and 52, respectively, in CMS) are mapped again to a valid preference level. The **PIM** defaults the values to the highest valid preference level. The keywords / r1pref and / r2pref are used to re-map reserve preference level 1 and 2 respectively. The following example causes the PG to re-map reserve agent 1 and reserve agent 2 preference levels to preference level 15 and 16, respectively

```
/r1pref 15 /r2pref 16
```

Setting a preference value of zero (0) causes the **PIM** to ignore that reserve agent skill login and preference level. This means that the agents are not going to be considered to have logged in to that reserved skill. No metrics are collected for that agent for that skill.

- 4. Station Monitoring of Logged-In Agents**

Station monitoring of logged-in agents are automatically configured by the **Configuration Parameters** field. The **keyword / monitoragent** followed by a **y** or **n** causes the PG to automatically monitor or not monitor a logged-in agent. The following example causes the **PG** to automatically monitor a logged-in agent:

```
/monitoragent y
```

At the time, of an agent login, with a setting of **y**, the **PG** automatically monitors that agent's station. This happens, even if that station is not in the **Peripheral Monitor** list. If station monitoring is enabled, the PG defaults to automatically monitoring logged-in agents. If station monitoring is disabled, the PG does not monitor any agent stations.



- Note**
- **/monitoragent** is set to **y** in **PIM** by default. If you do not want to monitor specific extensions, then it is necessary for you monitor all the logged agents, set **/monitoragent** to **y** (use **/monitoragent y**). Configuring the extensions in the Peripheral Monitor Table of the PG Explorer is not needed. In such configurations, **PIM** monitors only those extensions, where agents are logged in.
 - If you are using **CMS** with Unified **ICM** and have over 1000 agents, disable the station monitoring of logged-in agents. Monitoring agent stations (That is providing visibility to all station activity) results in increased message traffic to the A, increased switch CPU load, and increased network traffic between the PG and Central Controller.

5. **Use Encoded Trunk Information over ANI in Calling Field** with a setting of **y**, the PIM reports events in the calling field populated with encoded trunk information rather than **ANI**. The default mode is to populate the calling field with **ANI**. This argument defaults to **n**. If the argument is not specified or is specified as **/UseTrunkOverANIInCallingField**.

An example of one event may be:

```
19:31:20 pg1A-pim1 Trace: CSTA DELIVERED,
PrivData=[UU=None Consult[CID 603 Dev 6505 DevType 0] II 0
Alert[Handle -1 Type LT_UNKNOWN] ANI 6505
dnis_chars [] UCID 0x0
TG 7 Tk 5 Mult 1]
LoginDigits [] CallPrompt []
CallID      = 604  DeviceID = 6505  DeviceType = Static
Alerting    = 3501
Calling     = 6505
Called      = 3501
Redirection = 6505
LocalState  = INITIATE
Cause       = EC_NEW_CALL
```

If the argument is specified as **/UseTrunkOverANIInCallingField y** that same event may appear as:

```
19:31:20 pg1A-pim1 Trace: CSTA DELIVERED,
PrivData=[UU=None Consult[CID 603 Dev 6505 DevType 0] II 0
Alert[Handle -1 Type LT_UNKNOWN] ANI 6505
dnis_chars [] UCID 0x0
TG 7 Tk 5 Mult 1]
LoginDigits [] CallPrompt []
CallID      = 604  DeviceID = 6505  DeviceType = Static
Alerting    = 3501
Calling     = 229381  <= decimal equivalent of encoded trunk Called      = 3501
Redirection = 6505
LocalState  = INITIATE
Cause       = EC_NEW_CALL
```



- Note** The scheme for trunk information encoding is such that the upper 17 bits represent the Trunk Group and the lower 15 bits represent the Trunk. From the above example: For a Trunk Group value of 7 and a trunk value of 5, the binary representation for the encoded value is 0000000000000011100000000000101. The decimal equivalent is 229381.

```
/UseTrunkOverANIInCallingField y
```

6. Use Encoded Trunk Information over ANI in Calling Field for Outbound Calls

To support the selecting of trunk data or ANI in calling device field for outbound calls, use the configuration parameter: **/UseTrunkOverANIInCallingFieldForOutboundCalls**

The flag-usage is as follows:

- a. Set the configuration parameter to **y**, if the trunk information is required in the calling device field for outbound calls.

```
/UseTrunkOverANIInCallingFieldForOutboundCalls y
```

- b. Set the configuration parameter to **n**, if the trunk information is not required in the calling device field for outbound calls.

```
/UseTrunkOverANIInCallingFieldForOutboundCalls n
```



- Note**
- When the value of this flag is **n**, **ANI** appears in the calling device field. Also, the default value of this flag is **n**.
 - This flag controls the value of calling device field in **CSTA DELIVERED** and **CSTA ESTABLISHED** messages for outbound calls.
 - This flag is available from Releases ICM 6.0(0) SR9, and ICM 7.1(3) onwards.



- Note** The **UseTrunkOverANIInCallingField** and **UseTrunkOverANIInCallingFieldForOutboundCalls** are not applicable to **TAESPIM**.

7. Display the Caller Entered Digits (CEDs) on the Agent Desktop

To ensure that the **CEDs** are populated on the agent desktop, set the following parameters in the PG Explorer. In the **Advanced tab**, ensure that the **Agent auto-configuration** check box is checked.

8. In the **Agent Distribution** tab, ensure that the **Enable agent reporting** check box is checked.



- Note** If you do not select them together, the **CEDs** is not going to get populated on the agent desktop. These settings are applied only to the **Avaya PG** with the **CMS** mode enabled.

Peripheral Targets

A Unified ICM Peripheral Target is equivalent to the combination of **DNIS** (VDN extension or Hunt Group Extension) and the trunk groups through which incoming calls arrive. **VDNs** are equivalent to the **DNIS** (for example, **VDN 1100** would be **DNIS 1100**).

A Peripheral Target can be either of the following:

- A Network Target, identified by a Trunk Group and **DNIS** (VDN) that terminates on the **Avaya**. A Network Target is a target that Unified ICM software identifies as a termination for calls routed through the network. These trunk group-DNIS pairs are typically associated with labels provisioned by a long-distance carrier.
- An Internal Target, identified by the **DNIS** (VDN) alone. An Internal Target is a VDN or Hunt Group extension used as a destination for internal call transfers, tie lines, and so on.

All Peripheral Targets, both internal (that is transfer points) and network, requires to be configured as Peripheral Targets in the Unified **ICM** database. This is done by using the Configure ICM tool. It is not necessary to enter every **TrunkGroup/VDN** in combination in the Unified ICM database unless you require them for call routing. In other words, a **VDN** requires to be entered only once in the Unified ICM database as a Peripheral Target. This is done for the **PG** to monitor the calls on that **VDN**.

You can configure Peripheral Targets by using the Peripheral Target Configuration window within the Configure ICM tool.

Configuring VDN and Hunt Group Extensions as Peripheral Targets

All **VDN** and **Hunt Group** extensions that are in any way connected with the handling of an incoming call must be configured in the Unified **ICM** database as **Peripheral Targets**. This ensures complete call monitoring. The **PG** monitors only those **VDNs** and, optionally, Hunt Groups that are configured as **Peripheral Targets**.

The **Trunk Group** (which are used internally), does not access **VDNs** or **Hunt Group Extensions** directly. This requires to use the default **Trunk Group 9999**. (See Trunk Groups later in this chapter.)



Note The Avaya PG (ESCPIM) supports extensions up to ten digits. The agent can log in to a Softphone that has an extension up to ten digits. This ten-digit support applies to Agent Login IDs too.

The Hunt Groups and VDNs support up to seven digits only. In order to use a seven digits, or a ten-digit, the config PIM registry, **EnableTenDigitExtension** is set to 1 in following path:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems,
Inc.\ICM\<cus01>\<PGXX>\PG\CurrentVersion\PIMS\pim1\ATData\Config\
```

If the registry **EnableTenDigitExtension** is set to 0, then it limits support up to five digits for extension, Agent Login IDs, Hunt Groups, and VDNs.



Note By default, Avaya PG (TAESPIM) supports extensions of up to ten digits and this does not require registry configuration. The Agent Login IDs support up to ten digits.

Related Topics

[Trunk Groups](#), on page 12

Peripheral Monitor Table

Unified ICM Peripheral Monitor table is used to set up stations for station monitoring and VDNs that have Timed ACW values. A Peripheral Monitor table **VDN** entry is used only to indicate any **Timed ACW** value as configured on the switch. This Peripheral Monitor VDN entry **does not** replace a Peripheral Target for **VDN** monitoring.



Note VDNs must also be configured as Peripheral Targets in order to be monitored for reporting.

You can set up the Peripheral Monitor Table by choosing **Peripherals > Peripheral Monitor** within Configure ICM to display the Peripheral Monitor table.

Click the **Insert** button to add records using the Peripheral Monitor Configuration window.

Monitoring Stations

The **Peripheral Monitor** table is used to specify which station, or range of stations, should be monitored by the PG. Multiple peripheral monitor entries are allowed. Set the **Peripheral Monitor Type** to Station. When specifying a single station (e.g., 1100), use the Extension field. When specifying a range of stations (e.g., 1100-1200), use the Param String field.

VDN Timed ACW Settings

VDNs that have a Timed ACW value on the Avaya is added as a **Peripheral Monitor** table entry with a Type of VDN. The **Peripheral Monitor Param** field indicates the **Timed ACW** value.

For VDNs that **do not** have the **VDN** override set, specify the Timed ACW value in the Peripheral Monitor table parameter string using the following format:

`acw=N`



-
- Note**
1. The acw keyword must be in lower-case. Replace the **N** with the number of Timed ACW seconds. For example, a **VDN** with a Timed **ACW** of **30** seconds that does not have **VDN** override set would specify a Timed **ACW** value in the Peripheral Monitor table as:

```
acw=30
```

For **VDNs** that do have **VDN** override set, specify the Timed **ACW** value in the Peripheral Monitor table parameter string using the following format:

```
ACW=NNNN
```
 2. The **ACW** keyword must be in upper-case. Replace **N** with the number of Timed **ACW** seconds. For example, a **VDN** with a Timed **ACW** of **180** seconds which does not have **VDN** override set specifies a **Timed ACW** value in the **Peripheral Monitor** table.
 3. Only those **VDNs** that are monitored and for which the **Avaya** generates call events on their behalf, are considered as being in the **call path** by the **PG** when determining the correct **Timed ACW** value. In other words, if the **PG** is not notified by the switch that the call has passed through a **VDN**, the **PG** cannot consider that **VDN** when determining the **Timed ACW** value. The **PG** endeavors to use the same rule set as documented for the switch in determining the Timed **ACW** value to use (including **VDN** override).
-

Configuring the Return Destination VDN on Unified ICM

The **Return Destination** feature is configured in the **PG Explorer** Tool for a particular **VDN** for which the Return Destination is enabled on Avaya Switch.

In **PG Explorer > Peripheral Monitor** tab, set the Parameter string for the return destination **VDN** as **returndestination**.

To set up Return Destination **VDN** on Avaya Switch, see the section Configuring the Return Destination on Unified ICM

See the section ACD Notes and Restrictions for known caveats for Return Destination **VDN**.

Related Topics

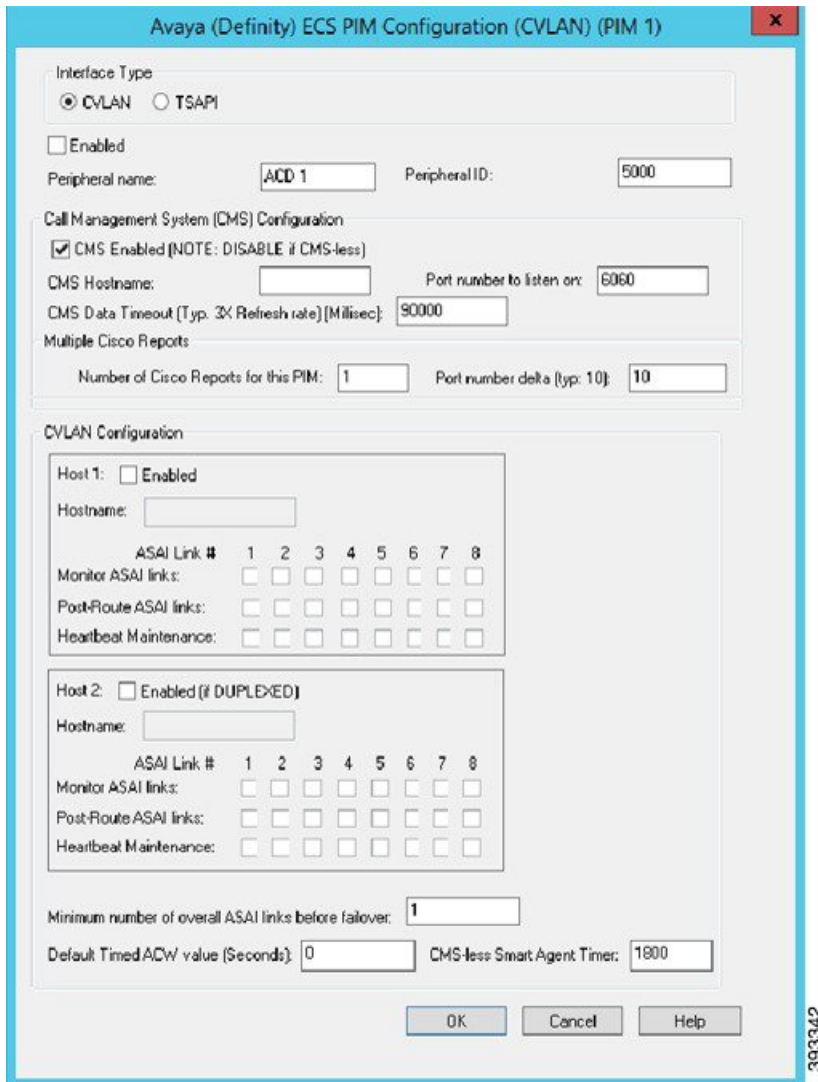
[ACD Notes and Restrictions](#)

[Configuring Return Destination **VDN** on Avaya Switch](#)

PIM Configuration

The following figure shows **PIM Configuration** UI for **CVLAN Interface**.

Figure 1: PIM Configuration UI for CVLAN interface



Similarly, the following figure shows **PIM Configuration UI for TSAPI Interface**. The following points describe the **Avaya ECS PIM Configuration Setup** window:

Figure 2: PIM Configuration UI for TSAPI interface



Note Before starting the PG service with TSAPI interface, **TSAPI Client 7.0** is required. Please refer Installing TSAPI Client section for the client installation procedure.

1. Select the **Interface Type**. This selection of the interface type, determines the interface that the **PIM** uses to communicate with the **Application Enablement Services (AES)**.
2. Check the **Enabled** option to put the **PIM** into service. This option allows the **PIM** to communicate with the peripheral when the Peripheral Gateway is running.
3. Check the **Enabled** option to put the **PIM** into service. This option allows the **PIM** to communicate with the peripheral when the Peripheral Gateway is running.
4. In **Configuration Manager** (use the **PG Explorer** tool to view the **Peripheral ID**), each **Configuration dialog box** contains an **Enabled** option, a **Peripheral name**, and a **Peripheral ID** field. From the

Peripheral record, enter the name of the peripheral in the **Peripheral name** field. Similarly, in the **Peripheral ID** field, enter the appropriate value.

5. If you want to use **CMS**, check the **CMS Enabled** checkbox. Fill in the information about the **CMS** connection in the Call Management System (CMS) Configuration section. The **CMS Data Timeout** is in milliseconds. For the **Interface Type**, select either **CVLAN** or **TSAPI**.
 - If you select interface type as **CVLAN** and complete the steps that are listed in the following:
 - a. Use the **CVLAN Configuration** fields to describe the **AES** connections for **PG** and its duplexed pair (if any)
 - b. In the Monitor **ASAI** links field, specify which **ASAI** Links in the **AES** system the **PG** uses for monitoring calls, stations, and so on.
 1. In the Post-Route **ASAI** links field, indicate which **ASAI** links in the **AES** system the **PG** uses for **ICM Post-Routingpostroute_def**.
 2. In the Heartbeat Maintenance field, specify which **ASAI** Links in the **AES** system the Unified **ICM** uses for heartbeat maintenance.
 - c. In the Minimum number of overall **ASAI** links before **Failover** field, enter the minimum number of **ASAI** links. This is required for the expected call load. If the **PG** is duplexed and the number of links available to the **PG** reduces lower than this value, the **Unified ICM** attempts to switch over to the other **PG**.
 - Similarly, if you select interface type as **TSAPI**, you can follow the steps that are listed in the following:
 - a. Use the **TSAPI Configuration** fields to describe the **AES** connections for the **PG** and its duplexed pair (if any).
 - b. In the **ServerID** field, specify the **TLink** that is configured in the **AES** Server.
 - c. In the **LoginID** field, specify the **CTI** username that is configured in the **AES** Server.
 - d. In the Password field, specify the **CTI** password that is configured in the **AES** Server.
6. In the Default Timed **ACW** value (Seconds) field specify the default time that the agents are allocated for after-call-work (ACW). A zero in this field indicates that the **Unified ICM** obtains this value from the Peripheral Monitor table. The values you have entered in this field are applicable to the monitored agents.

Related Topics

[Installing TSAPI Client](#) , on page 12

Connection management with AES using TSAPI Interface

At any point, AVAYA **TAESPIM** connects to one of the **AES server**. This **AES server** is configured in **PIM** configuration window.

In case if any failure occurs in the connection **PIM** tries to connect to another host. All the monitoring sessions are started from the beginning against the new **AES server**.

Installing TSAPI Client

Before you install the TSAPI client on your Avaya PG machine, you must download it from the [Avaya Support](#) website or from the [Avaya DevConnect](#) website.



Note Download the 32 Bit version of TSAPI client for Windows that must be installed on the Avaya PG machine.

The following steps help you with the installation of **TSAPI Client**:

1. Run **setup.exe** from the Installation folder and launch the **TSAPI Client** installer wizard.
2. Click **Next**. On **License Agreement** screen, select the appropriate radio button to accept the terms and license agreement.
3. Click **Next**.
4. To install the **TSAPI Client**, choose the default destination folder and click **Next**. In case if you want to select another folder, browse to the applicable folder.
5. Enter the **Hostname** or **IP Address** of the **AES** server. Click **Add to List**. This stores all AES server details in **TSLIB.ini** file of the client installation folder.
6. Click **Next**.
7. A warning message appears. This prompts you to replace the existing DLL files with aes-libeay32.dll and aes-ssleay32.dll, which is recommended. Select **No** to continue without replacing the files in icm\bin folder.
8. Click **Finish** to complete the installation process.



Note You can change the **AES** server details in the **TSLIB.ini** file, which is located in the client installation folder. This enables you to change the server details without running the setup again.

Service Observer

The Service Observer feature allows a supervisor to silently monitor the conversation between an agent and a customer by using various monitor options available from the ACD. The supervisor uses the configured features' codes on the switch to perform service observing.

The Termination Call Detail (TCD) record for an observed call has a call disposition of Conferenced (30).

Trunk Groups

An Avaya Trunk Group is equivalent to a Unified ICM Trunk Group. The Avaya Trunk Group Number (For example, trunk group 5) is Unified ICM Trunk Group Peripheral Number. The Trunk Group Access Code

(TAC) is Unified ICM Trunk Group Extension (For example, 500). TrunkGroupTimer is the value in the Registry that specifies the interval (in seconds) in which the PIM generates trunk group value requests. In other words, the TrunkGroupTimer specifies the timer period at which the PIM issues a Trunk Group query for each configured ICR trunk group. The default value for TrunkGroupTimer in the Registry is set to 10 seconds.

The PG uses the Trunk Group Extension to value query the Avaya and monitor Trunk Group trunk utilization. The PG also uses the Trunk Group Extension to properly identify an incoming call on translation route applications. The Trunk Group Extension is set in the Trunk Group Configuration window of Configure ICM.

For example, Trunk Group 11 with Trunk Access Code 111 would be entered in the Unified ICM database as Trunk Group 11 with Trunk Group Extension 111.

Create a default trunk group 9999 for use in those instances where a physical Trunk Group does not exist. For example, Hunt Groups or VDNs that are internal transfer points for agents, and therefore not accessible via an external trunk group, uses the default trunk group 9999 to allow the creation of the Peripheral Target. The default Trunk Group extension (that is, TAC) can either be left blank or specify 9999.

The NT Registry is be configured to allow the PG to "Map Peripheral Targets without Trunk Group."



Note During a translation route, you need not set up the Network Trunk Group (NTG) if Unified ICM trunk reports are not required. A dummy NTG configuration, with a dummy peripheral number, can be configured and associated with the configured translation routes.

Trunks

Individual trunks may or may not be monitored on the Avaya.

No special configuration information is required on an individual trunk basis. However, you must specify the number of trunks in the **Trunk Group** in the **Trunk Group** configuration Trunk Count field. Because the switch provides only the number of trunks-in-use and the trunks-idle, this count allows the **Avaya PIM** to determine the number of out-of-service trunks.

Services

A Unified **ICM Service** is the combination of call type (known by the VDN) and call treatment (that is, vector). There is no direct correlation of **Unified ICM Service** to a specific **Avaya** object. However, a service does appropriate with what users typically identify **Call treatment** on the **Avaya**.

The **Service Peripheral Number** is equivalent to the **VDN** extension number. The **Peripheral Service Level** is equivalent to the **VDN** service level.



Note The Avaya **PIM** does not support the updating of **Peripheral Service Level**.

Using the **Service Explorer** tool, set the **Peripheral Service Level** to **Computed By Call Center**. The **Unified ICM Peripheral Service Peripheral Service Level** corresponds to the **VDN Service Level**.

Skill Groups

The **Avaya-to-Unified ICM Skill Group** mapping is as follows:

Table 1: Avaya-to-Unified ICM Skill Group Mapping

Unified ICM Software	Avaya
Skill Group	Skill Group
Skill Group Peripheral Number	Skill Group Number
Skill Group Extension	Skill Group Extension
Subgroups	Skill Group and Skill Levels TPF FPT



Note Unified **ICM Skill Group Peripheral Number** is the **Avaya Skill Group Number**. The Unified ICM Skill Group Extension is the **Avaya Skill Group Extension**. For example, if the **Spanish skill group** has a group number of 11 and an extension of 1100, then the **Unified ICM Skill Group Peripheral Number** is 11 and the **Skill Group Extension** is 1100.



Important The Unified ICM Skill Group **Peripheral Number** and **Skill Group Extension** are important and must be kept synchronized (that is, up-to-date) with the Avaya skill group configuration. Failure to keep the skill group information synchronized between the Avaya and the Unified **ICM** database may result in incomplete (or worst case, inaccurate) call and agent statistics.

Skill Group Subgroups

Sometimes, while created, a single Unified ICM skill group causes more than one skill group to be created in the **Unified ICM** database. These other skill groups are sub-skill groups, or subgroups, for the created **base** (priority 0) skill group. A subgroup has a unique priority and is associated with the base skill group.



Note For every **base** skill group created, at least one sub-group must be created under it.



Important subgroups are created.

The **PGs** require to be cycled every time new subgroup are created.

The creation of these subgroups is determined on which subgroup mask is used at the time of the base skill group creation. The subgroup mask can have one of two settings: Peripheral Default or Specified. These settings are specified in the Skill Group Explorer tool.

If the subgroup mask is **Peripheral Default**, then the **Peripheral's Skill Group Mask** is used to determine which subgroups are created; otherwise, the Sub Group Mask for the Skill Group is used.

A subgroup is created for each checked box in the Sub Group Mask. The subgroups are used by the PG to properly log in the agent to the appropriate subgroup based on the agent's skill group skill level. For example, in an EAS type switch configuration, agents may be logged into a skill group with a PRIMARY or SECONDARY skill level. In order to properly account for agent counts and roll up call statistics properly, the subgroup for the agent's skill group requires to be configured in the Unified **ICM** database.



Note In order for AutoLoginBase to work correctly and provide consistent LAA stats for agents in all priorities, at least one agent must be logged in to the base skill group.

For CMS Configurations:

The Avaya **Hunt Group** configuration screen for each split **must** have the Measured Field set to either **both** or "external" in order for the CMS to receive Hunt Group (split) data. Agent configurations on an Avaya **EAS** switch can use any of the valid skill-types (1-16) if the Cisco CMS report that is installed and running is an **EAS** report. Likewise, the agent configurations on an Avaya EAS are limited to 1-2 skill-types. If you configure agents with a skill type greater than 2 for a Non-EAS or EAS CMS report, the PG is not properly activated.



Note When working with ICM Version 4.5(x) and later, while activating the **ACD PIM** if you get an error message that contains the term **C_NOENT**, do the following:

- Add the name and IP address of the **ACD PIM** to the host file.
- Restart the PG ICM Services.

For CMS-less Configurations:

The subgroups are used to associate an agent with the correct skill group **and** skill level. For example, if an agent is configured on the ACD switch to be logged into skill 1 priority 3, then you would configure that agent in the Unified ICM database to be a skill group member of skill group 1 subgroup 3.

- *See also:* See the section CMS Cisco Real-Time Report for more information on CMS-related skill group issues related to configuration and CMS report revision.

Related Topics

[CMS Cisco Real-Time Report](#)

Using Skill Group Priorities without Configuring Sub-Skill Groups

In **Unified ICM**, sub-skill groups are created when configuring the skill group priority. Each sub-skill group creates a target ID in the Unified ICM database. This target ID is used by all **Unified ICM** processes during the real-time messaging. It is essential for PG to send constant real-time messages and reports to the Central Controller for each of the configured skill groups. The PG requires to save the reports on the disk so that they are available to the Central Controller at any time. These operations are demanding sometimes, when many Unified ICM skill groups are configured together.

If the number of ACD skill groups and skill group priorities is large, do not use sub-skill groups. This causes increased data flow between the PG and the **Central Controller**. When the sub-skill group is not configured, the PG reports the skill group peripheral number only. This is defined in the ACD to the **Central Controller** without the skill group priority. In this case, **Unified ICM** reports contain only the skill group defined by the ACD peripheral number.



Note This feature is applicable from ICM 6.0 SR7 and 7.1(2) with Avaya PG.

1. Peripheral Configuration:

To avoid the base and sub-skill groups from being created, you must not have a skill group mask selected.

2. Skill Group Configuration: When configuring the skill group, do not select a skill group mask. The peripheral number is required to match the ACD skill group number without the skill group priority.

3. Impact on Unified ICM Reports:

Table 2: Impact on Unified ICM Reports

Report Type	Impact
Agent Skill Group Half Hour	When you do not set up a skill group priority in Unified ICM , the Agent Skill Group Half Hour report adds all the statistics of the ACD priorities to a single skill group. If you set up the ACD priority in Unified ICM, the reports display the statistics for each priority.
Skill Group Half Hour	The reports display all the configured Unified ICM skill groups. This happens while using ACD priority, the Unified ICM reports display a skill group for each of the priorities configured (called Unified ICM sub-skill group) and one base skill group. When you use a skill group with no priority configured, the reports display one Unified ICM skill group configured for each ACD skill group.
Termination Call Detail	The Termination Call Detail for calls for the ACD skill groups with priority configured, contain the Unified ICM skill group. This is defined by the ACD peripheral number (base skill group).

4. Migrating from Sub-skill Groups to Skill Groups with no ACD Priority Configured:

To migrate from sub-skill groups to skill groups with no ACD priority configured, remove Unified ICM sub-skill groups. To do this, complete the following steps:

- a. Remove all references to sub-skill groups in the router scripts and agent skill group membership.
- b. In the **Subgroup Mask** tab, in the **Skill Group Configuration** area, uncheck the Override peripheral default mask check box.
- c. In the Skill Group Mask tab, in the **Peripheral Explorer** configuration area, uncheck all the check boxes.
- d. Restart the **PGs** to reflect the change in the peripheral configuration.

5. Impact on WebView Reporting:

After the sub-skill group migration, the base skill group reporting continues to work the same way and there is no impact on historical reporting.

After the migration is complete, the sub-skill groups are not permanently deleted from the database and are available for historical reporting until they are permanently deleted. The sub-skill group records before the migration process was completed are available for historical reporting.

Available Hold Off Delay

The **Available Hold Off Delay** configuration parameter in the **Skill Group Explorer Tool** are set to the **Timed ACW** value on the **ACD** for this skill group.

Service-to-Skill Group Mappings

Since **VDNs** typically correspond to Unified **ICM** Services, the service-to-skill group mapping is equivalent to the skill groups used by the vector for the **VDN**. In order to ensure accurate call and agent reporting, be sure to include **all skill groups** used by the **VDN** in the service-to-skill group mapping for that **VDN**.

Service-to-skill group mappings are made in the Service Member window of **Configure ICM**.

Agents

The **ACD-to-Unified ICM Agent** mapping is given as follows:

Table 3: ACD-to-Unified ICM Agent Mapping

Unified ICM Software	ACD
Agent	Agent
Agent Peripheral Number	Agent ID
Agent Extension	Agent's Physical Extension



Important The **PG** configures the agents dynamically. This is applicable for the **PGs** that are using **CMS**. The **Configure ICM** tool do not add them individually. For **CMS-less PG** installations, agents require to be configured by the **Configure ICM** tool. Further, agent skill group member assignments are required to be completed to match the switch configuration.

The **Agent Peripheral Number** is equivalent to the **ACD Agent ID**. The following considerations for **CMS** and non-**CMS** environments:

- For **CMS** configurations, agent configuration data is not required in the Unified ICM database.
- For **CMS-less** configurations, the agents must be configured in the **Unified ICM** database. This is done through the **Agent Configuration** window of **Configure ICM**.



Note In Unified ICM, issues with reporting and routing arises if the agent is not logged in a station before making and receiving calls.

Agent States

The Table 7: Agent State Definitions lists Avaya agent states and their definitions. Some agent states have an optional call direction, [IN/OUT], in case a call comes in or is initiated while in that state.

The Table 8: Unified ICM-Avaya Agent State Derivation shows how Unified ICM agent states are derived from the Avaya states.

Table 4: Agent State Definitions

Avaya Agent State	Definition
ACD IN/OUT	Agent is on an incoming/outgoing ACD call
DACD	Agent is on a direct agent ACD call.
ACW [IN/OUT]	Agent is bookkeeping, doing data entry, or is at any other work related to the previous call, and is not available to receive another ACD call. Includes times an agent is on incoming and outgoing calls during ACW. If on a call, IN/OUT specifies the call direction.
DACW	Agent is in the ACW state for a direct agent ACD call.

AUX [IN/OUT]	Agent is doing non-ACD work, on break, or in a meeting. Agents initially log in AUX mode until they AUTO-IN or MANUAL-IN. Includes times an agent is on incoming and outgoing calls during AUX. Agent is not available to receive an ACD call. If on a call, IN/OUT specifies the call direction.
AVAIL	Agent is available to receive calls.
RINGING	Call is ringing at the agent's extension.
OTHER	Agent is doing other work. For example, there can be many such scenarios where: <ul style="list-style-type: none"> • The call is on hold • The agent is dialing to call • Access a feature • The agent is handling a personal call • DACD is ringing with no answer
UNKNOWN	Agent is in an unknown state (for example, when CMS link to G3 switch is not operational).

Table 5: Unified ICM-Avaya Agent State Derivation

Unified ICM Agent State	Derivation from Avaya Agent States
Logged_On	Logged_In
Logged_Off	Logged_Out
Ready	All states other than AUX and UNKNOWN
Available	AVAIL
WrapUp	ACW, DACW
TalkingIn	ACD-IN, DACD
TalkingOut	ACD-OUT (not in AUX)
TalkingOther	AUX IN/OUT, ACW IN/OUT
Other	OTHER

Note: Support for **AUX** reason code change in Not Ready state is available from ICM 8.5(3) onwards.

Skill Group Members

For CMS-less configurations, the agent skill levels for their logged-in skill groups can only be determined via Unified ICM configuration. That is, Avaya does not yet provide skill level information over the CTI link for agent logins. Therefore, you must preconfigure and associate the agent with the correct subgroup in order to properly identify the agent's skill level.

Translation Routes

Translation routes are supported on the Avaya PG. Translation routes can be used to pass caller information to the Avaya (for example, ANI or Network CED

No special Unified ICM configuration is required for the Avaya.

Routes

A Unified ICM Route is one or more Unified **ICM Peripheral Targets**. A Unified **ICM Peripheral Targets** is a Network Target identified by a trunk group and **DNIS** that terminate on the Avaya. A Peripheral Target is equivalent to the combination of **DNIS** (**VDN** extension or **Hunt Group** extension) and the trunk groups through which the incoming calls arrive.

No special Unified ICM configuration is required for the Avaya.

Routing Client

The Routing Client Configuration Parameters field requires to be null-terminated. The field delimiter, -DEFROUTE, are specified.

Order and case are not significant. However, all fields are separated by spaces. The following example shows a default Post-Route (Avaya Extension) to be used if the PG does not get a route response from the Router, for a reason:

```
DEFROUTE 3214
```

If a default route is not configured, the PG gives a negative acknowledgement (NAK) to the Avaya causing vector processing to proceed. The NAK may be the desirable action, depending on how the Avaya vectors are written.

Unified ICM Configuration for “CMS-less” PGs

In a PG configuration that does not use **CMS**, some additional configuration is necessary in Unified ICM software. Each of the following changes can be made by using the Configuration Manager's **PG Explorer tool**.

- You must set up **all agents** in the Unified **ICM** database.

- You must map agents to skill groups in the Unified **ICM** database. The agent-to-skill group mapping must match the **Avaya** configuration. In addition, the subgroup must correctly map to the agent's priority.
- You must set up monitored instruments in the **Peripheral Monitor** table of the Unified **ICM** database. Agent stations are monitored.
- You must set up Peripheral Targets in the Unified ICM database for all VDNs through which monitored calls flow.

Maintaining Your Configuration

It is preferred that changes made to your configuration are accomplished on the **Avaya/CMS** and in the **Unified ICM** database consecutively. This ensures that the PG gets the configuration updates on the Avaya/CMS systems.

It is imperative that the **Avaya**, **CMS**, and the **Unified ICM** database configurations are kept synchronized (that is, up-to-date with each other). Inaccurate or incomplete data results in inaccurate agent or call data.

Registry Keys

This section provides the usual values for the **ESCPIM** dynamic registry keys and PIM config registry keys.

The usual values for the **ESCPIM** dynamic registry keys are:

- *BriCheckMeters* = 0 (for CMS), 1 (for CMS-less)

This value indicates whether the PIM regulate the **ASAI/CTI** message rates or not. "1" indicates that it enables message metering (that is, throttle outgoing messages).



Note The dynamic registry field **BriMaxOutstandingMessages** is used along with **BriCheckMeters** registry field to indicate the number of outstanding ASAI/CTI messages (that is, messages waiting for a response from the **CVLAN** Server). After the PIM has reached the maximum number of outstanding messages, it does not send messages until one pending **ASAI/CTI** message has been received.



Note During the startup of the PIM process, the PIM sends the **ASAI/CTI** messages at a faster rate until the limit controlled by the **BriMaxOutstandingMessages** field. The high priority outgoing messages take precedence over the normal priority outgoing messages.



Note The PIM also uses message metering to ensure that it does not exceed the maximum number of active associations per CTI link (see the config registry field, **MaxActiveAssocPerASAILink**).

- *BriMaxOutstandingMsgs* = 100
- *SmartAgentStateTimer* = 1800 (for CMS), 10 (for CMS-less)
- *BriCheckMessageRates* = 0 (for CMS), 1 (for CMS-less)

This value indicated whether the PIM measures the ASAI/ CTI message rates or not. "1" indicates that the ASAI/ CTI message rates are measured.

The usual values for the PIM config registry keys are:

- *MaxActiveAssocPerASAILink* key are set, depending on the version of *CVLAN server*. (The *MaxActiveAssocPerASAILink* refers to the maximum active association per CTI link)

CVLAN server	MaxActiveAssocPerASAILink
6.1.0	2048
8.2.1	4096
9.1	8192
AES Server	12000



Note It is not required to cycle (restart) the PG, for the changed dynamic registry values to be effective; however, for the changed config registries to be effective, you need to cycle the PG.
