

Cisco ICM Software ACD Supplement for Siemens Hicom 300E

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Preface

Purpose

This document provides supplementary information to the System Manager Guide that is specific to the Siemens Hicom 300E ACD.

Audience

This document is intended for ICM Software system managers. The reader is assumed to understand system manager functions as described in the System Manager Guide. The reader is also assumed to have specific knowledge of the Siemens Hicom 300E ACD.

Organization

Chapter 1, “Overview”

Provides an overview of how the ICM Software connects to the Siemens Hicom 300E ACD.

Chapter 2, “Object Mapping”

Describes the object mapping between the ICM Software and the Siemens Hicom 300E ACD.

Chapter 3, “ACD Hardware and Software Requirements”

Describes the latest hardware and software requirements for the Siemens Hicom 300E ACD.

Chapter 4, “ACD Interface Requirements”

Describes the ACD Interface requirements for the Siemens Hicom 300E. This chapter also describes configuration setting for the CallBridge.

Chapter 5, “Third-Party Call Control”

Describes the considerations while using the third-party call control with the Siemens Hicom 300E ACD.

Chapter 6, “CTI Considerations”

Describes the CTI considerations for the Siemens Hicom 300E ACD.

Chapter 7, “Registry Settings”

Lists the important registry settings that need to be adjusted for a particular site.

Chapter 8, “Procmon Commands”

Describes some of the commands accessible through Procmon, for the Siemens Hicom 300E ACD.

Chapter 9, “Capture for Replay Setup”

Provides method to enable the PIM to capture the data stream.

Typographic Conventions

This manual uses the following conventions:

- Boldface type is used for emphasis; for example:
Real-time information **is not** stored in the central database.
- Italic type indicates one of the following:
 - A newly introduced term; for example:
A skill group is a collection of agents who share similar skills.
 - A generic syntax item that you must replace with a specific value; for example:
IF (condition, true-value, false-value)
 - A title of a publication; for example:
For more information see the *Database Schema Handbook for Cisco ICM/IPCC Enterprise & Hosted Editions*.
- Sans serif type with small caps is used to represent keys on your keyboard; for example:
Press the **SHIFT** key to select a range of items.
- An arrow (**▾**) indicates an item from a pull-down menu. For example, the Save command from the File menu is referenced as File **▾** Save.

Other Publications

For more information on Cisco ICM software, see the following documents:

- *ICM Administration Guide for Cisco ICM Enterprise Edition*
- *ICM Installation Guide for Cisco ICM Enterprise Edition*
- *ICM Configuration Guide for Cisco ICM Enterprise Edition*
- *ICM Scripting and Media Routing Guide for Cisco ICM/IPCC Enterprise & Hosted Editions*

For information on Cisco Network Applications Manager (NAM), see the following documents:

- *ICM Features and Configuration Guide for Cisco ICM Hosted Edition*
- *Multiple-NAM Setup and Configuration Guide for Cisco ICM Hosted Edition*

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, obtaining support, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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1. Overview

This chapter describes the options for connecting the Siemens Hicom 300E Peripheral Gateway to the Cisco ICM Software.

1.1. Configuration

Figure 1, shows an example of how the ICM PG connects to the Siemens Hicom 300E.

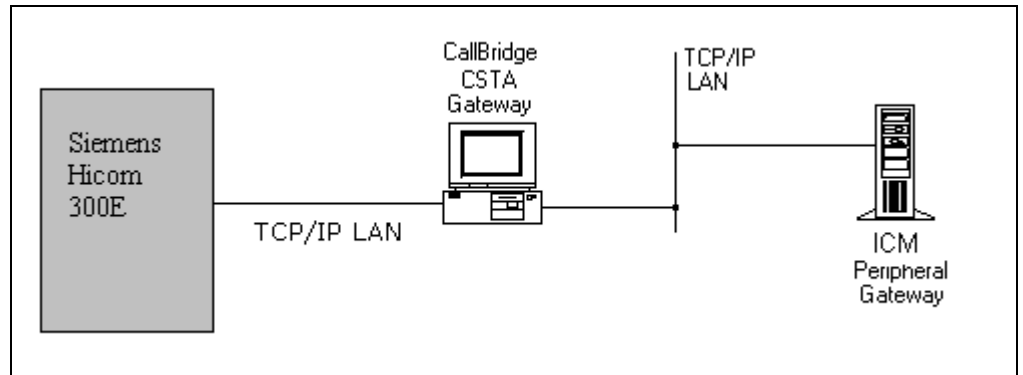


Figure 1: Hicom ACD-PG Configuration

Each Siemens Hicom 300E ACD is connected to the Peripheral Gateway (PG) using a TCP connection to the Siemens CSTA CallBridge for Workgroups platform. This connection provides access to all the desired call events from the Siemens Hicom 300E ACD. The PG uses this connection to issue monitor device requests to the ACD. All call events associated with the monitored devices are forwarded from the ACD to the PG by the CallBridge platform

2. Object Mapping

This section describes the object mapping between the ICM and the Siemens Hicom 300E ACD.

2.1. Peripheral

The ICM Peripheral corresponds to the Siemens Hicom 300E ACD.

2.1.1. Monitored Stations

The Hicom 300E PG requires a list of station extensions that are used to monitor events from the Hicom 300E. This list is configured in the ICM database by placing entries in the “Peripheral Monitor” table. In order to add a single station, the station extension number needs to be added in the Extension field of the peripheral monitor. The Parameter String field is used to add a range of stations. The format of the Parameter string consists of one station followed by a “-” and ends with the last station in the range. The PG assumes all stations in the range are to be monitored. Both single station and range of stations can be added to one Peripheral Monitor entry. The PeripheralMonitorType entry should be of the type Route Control Group (RCG) for the devices that are added to PeripheralMonitor. This allows the PIM to add the devices to its monitoring list and send the “Monitorstart” message during the PIM initialization.

During normal operation if the PG detects a station that is currently not monitored, the PG automatically attempts to add the station to the monitor list.

If you want to enter a device or range of devices in the Monitor table that you **do not** want to be monitored, you can suffix the line with “/disable or /nomonitor”. If you use this option, the PIM will not monitor the device.

Note: The PIM will dynamically try to monitor any device to which a call is diverted that is not currently monitored. If it is known that the calls will be diverted to a device that cannot be monitored, it is desirable to use the “/disable” option. If a monitor entry with the /disable or /nomonitor is not used and a call is diverted to a non-monitored device, the PIM will normally try to monitor the device at least one time.

2.1.2. Location Codes

If a particular agent phone is configured with a location code, then that location code should be prefixed to the station number in the monitor table. For example, if phone 5990 has a location code of 222, the entry should be 2225990 in the monitored device table. Also, instrument references through CTI should be of this ‘complete’ number. This is due to the way that the switch reports events. With a location code specified, the events will get reported with the location code pre-pended to the station number. This is imperative for proper PIM operation. If no location is used for a particular station, then just the station number should be added in the peripheral monitor table.

2.2. Peripheral Targets

On the Siemens Hicom 300E ACD, calls can be delivered to agents through a “Destination ACD Number.” This number is not the same as a DNIS number. A DNIS number is translated into a Siemens Hicom 300E destination ACD number before being delivered to an agent. The PG receives only destination ACD numbers from CallBridge. Since trunk information is not supplied by the CallBridge platform, a peripheral target for the Siemens Hicom 300E consists of the destination ACD number only.

The OPC call control variable “MapPeripheralTargetsWithoutTrunkGroup” is preset to one due to the lack of trunk information.

- **Trunk Group.** Refer [Trunk Groups](#) for more information.
- **DNIS.** The dialed number on the ACD which maps to the RCG representing a route. (This is the Destination ACD Number on the Siemens Hicom 300E.)
- **Route.** RCG on the Siemens Hicom 300E.

2.3. Trunk Groups

The CSTA CallBridge platform does not forward trunk group information to the Siemens Hicom 300E PG. For this reason trunk group configuration is not applicable to the Siemens Hicom 300E PG. In order to configure peripheral targets, however, a network trunk group has to be defined along with at least one trunk group. This trunk group should be used for each configured peripheral target.

2.4. Trunks

Individual trunks are not monitored by the Siemens Hicom 300E Peripheral gateway. As a result, trunk information is not required in the ICM configuration. The defaults supplied in the trunk group configuration should be used.

2.5. Services

An ICM Service is mapped to an RCG. The Service Peripheral Number is equivalent to the dialed number on the Siemens Hicom 300E, which maps to the RCG.

2.6. Skill Groups

An ICM Skill Group is equivalent to an ACD Group on the Siemens Hicom 300E. The Skill Group peripheral number is the ACD Group number on the Hicom 300E.

2.7. Agents

There is no need to configure agents in the ICM database. The Hicom 300E PG does not require agent configuration.

2.8. Agent to Skill Group Mapping

When the Hicom 300E PG starts, it checks for agent availability on each monitored station. For all logged in agents the PG retrieves the skill group of the agent. After startup, the PG keeps track of agent to skill group mappings by receiving agent logon and logout requests from the Hicom 300E.

Table 1 provides the mappings of agent states on the Hicom 300E and how they map to Cisco ICM agent states.

Table 1: ICM-ACD Agent State Mapping

Hicom 300E Agent Events	Cisco ICM Agent States
Agent Logged Off	AS_LOG_OUT
Agent Logged On	AS_LOG_IN
Agent Not Ready	AS_NOT_READY
Agent Ready	AS_AVAILABLE
Agent Work Not Ready	AS_WORK_READY
Agent Work Ready	AS_WORK_READY

The Hicom 300E does not send an event when an agent is talking. The PG sets the agent state to AS_TALKING when the agent is connected to a call.

2.9. Routes

An ICM Route loosely corresponds to the RCG on the Hicom 300E. For reporting purposes a route should be configured for each RCG that is a target of a configured ACD number.

2.10. Translation Routes

Translation Routes are supported on the Siemens PIM. However, in order to accomplish translation routing, it is imperative that the following guidelines are followed:

- The DNIS/DNIT mapping must ensure that each unique DNIS received from the switch results in a unique DNIS being used for the RCG/ART routing. This requires that each translation route target has its own RCG and ART, or that the switch be configured in a way that multiple DNIS's through the DNIT table go the same RCG/ART. The key point is that the switch must generate unique DNIS's (CalledDevice Field) in the RouteRequest message. The user must ensure that the switch is configured to accommodate this.
- ICM must receive a unique DNIS (Called Device) in the Route Request for each unique translation route target to function properly with translation routes.

2.11. Routing Client

The Hicom 300E PG supports post-routing requests from the Hicom 300E. No configuration parameters are required in the configuration string. In order to enable route requests to be sent to the PG routing must be enabled during the PG setup.

The label returned in response to a post route request can be any valid dial plan number known to the Hicom 300E. The dial plan numbers include ACD numbers and stations.

Global 'Route Trigger' should be disabled on the CallBridge. The PIM will send a global route trigger during startup. Please note that if global route trigger is enabled on the CallBridge (or its redundant counterpart) the route trigger(s) sent by the PIM will fail and the PIM will not start up.

Additionally, for routing to occur, the first step in the script on the Rolm must be a Delayed Ringback. After the Delayed Ringback step, the next steps should be the 'default routing' steps—should ICM for any reason (network problems, etc.) be unable to respond with a Route Select in the time frame.

2.12. Features not supported

Not Ready reason codes are not supported by Siemens PIM.

3. ACD Hardware and Software Requirements

For the latest hardware and software requirements for the Siemens Hicom 300 ACD, refer the *Cisco ICM Software Supported Switches (ACD)* document at Cisco.com.

4. ACD Interface Requirements

The Siemens Hicom 300E Peripheral Gateway requires an Ethernet connection to the CSTA CallBridge platform (Refer Figure 1).

4.1. CallBridge Configuration

On the CallBridge, the following configuration items should be checked:

ACSE Negotiation should be DISABLED.

Global Route Trigger should be DISABLED.

5. Third-Party Call Control

The following considerations apply to using third-party call control with the Hicom 300 ACD.

5.1. Optiset Phones

When using Optiset phones and third-party call control, the Optiset phone must be in headset mode.

5.2. Trunk Information

For some trunks, the HICOM switch will provide the trunk information in private data in the CSTA Delivered Alerting event. If it does, the PIM moves the trunk information to the 32-bit Calling Device ID field of the Delivered Alerting event. The trunk group and port can be obtained from the Calling Device ID field as follows:

$\text{Unique Trunk Value} = (\text{Trunk Group} \ll 17) (\text{Trunk Port})$

If the trunk information is present, the Calling Device Type in the Delivered Alerting event is “Trunk.” If the trunk information is not present, the Calling Device Type is “Device Identifier.”

6. CTI Considerations

This chapter describes the CTI considerations for Siemens Hicom 300E. Registry settings specific to the Siemens Hicom 300E, are listed in the next section.

6.1. Registry Settings

For Enterprise CTI, you need to make sure that the MaxPrivateCallsPerAgent registry setting is set to 0.

6.1.1. MaxPrivateCallsPerAgent Registry Setting

When using CTI with the Siemens PIM, confirm that the following CTI Server (CTI Gateway) registry key is set to 0.

```
HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\  
ICM\customer\CGna\CG\CurrentVersion\CTIServer\Dynamic\MaxPrivateCallsPerAgent
```

If this is NOT set to zero, undesirable behavior of PIM will be seen during the conference completion period.

7. Registry Settings

This section lists a few important registry settings that may need to be adjusted (in some instances).

7.1. Dynamic Settings

The following registry setting will reside in the Dynamic registry of the PIM. Please note that this does not necessarily make them 'dynamic' and that the PIM will need to be cycled in order for the changes to take effect.

The Dynamic keys reside in the following key:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\  
customerNode\PG\CurrentVersion\PIMS\pimn\ROLMData\Dynamic
```

7.1.1. TimerDivert (DWORD)

Defaulting to 5 (Seconds) if this doesn't exist (it most likely doesn't). This timer controls the amount of time the PIM waits after a DivertedEvent is received to consider the call diverted, to a non-monitored or off switch device. After this time is expired, the PIM deletes the call. This is to prevent the calls from being in the 'queued' state if they get diverted to a non-monitored device.

If a setting other than 5 seconds is desired, the registry should be changed/added and set. To disable this feature, just make the value higher than any possible call duration. (Suggested 0x7FFFFFFF).

8. Procmon Commands

The following section describes some of the commands accessible for the PIM through procmon for facilitating debugging when necessary in the field or lab.

8.1. pim_trace Commands

Table 2 documents the pim_trace bits available through pim_trace. The list (with no explanations) can also be retrieved through the procmon ltrace command.

Table 2: pim_trace Commands

Trace Bit	Meaning
CSTA_MONITOR_START_messages	Will trace all Monitor Start messages
CSTA_UNIVERSAL_FAILURE_message	Will trace all failure messages
CSTA_QUERY_DEVICE_messages	Will trace all query device messages
CSTA_SNAPSHOT_DEVICE_message	Will trace all snapshot device messages
CSTA_AGENT_EVENT_message	Will trace all agent events
CSTA_CALL_EVENT_message	Will trace all call event messages
CSTA_STATUS_EVENT_message	Will trace Status event (System Status) messages
CSTA_MAINTENANCE_EVENT_message	Will trace maintenance event messages
CSTA_THIRD_PARTY_message	Will trace CSTA third party messages
CSTA_ROUTING_message	Will trace routing (ROUTE_REQUEST, ROUTE_SELECT, etc) messages
CSTA_MONITOR_STOP_message	Will trace monitor stop messages
CSTA_QUERY_TIMER_message	Will trace query timer messages/events
CSTA_PRIVATE_DATA	Will trace the private data contents of messages
CSTA_ESCAPE	Will trace CSTA Escape messages
CSTA_rawdata	Will trace the raw data transmitted/received over the socket in hex.
Skill_Group_Translation	Will display skill group translation (When extension # is used) during events
locks	Will trace call, peripheral and agent locks
timer_agent	Will trace setting/execution of agent timers
timer_monitor	Will trace setting/execution of monitor timers
timer_query	Will trace setting/execution of the query timers
to_opc	Will Trace all CSTA messages that the PIM sends to OPC.

info	Will trace information messages.
monitor_id	Will trace the Monitor ID on events

8.2. Additional procmon Commands

Table 3 documents specific additional commands that the PIM supports. These are in addition to the standard PIMLIB procmon commands.

Table 3: Additional procmon Commands

Command	Use
acdmonitors, acdml	Will Display ACD Monitor List
setActiveSkillGroup, setGroup	Set Active Skill Group for an agent. Used for testing only.
tp_alternate_connection, alternate	Will perform a third party Alternate Call
tp_answer_call, answer	Will perform a third party Answer Call
tp_associate_data, as	Will perform a third party Associate Data
tp_clear_connection, clear	Will perform a third party Clear Connection
tp_conference_call, conference	Will perform a third party Conference Call
tp_consultation_call, consultation	Will perform a third party Consultation Call
tp_divert_call, divert	Will perform a third party Divert Connection
tp_hold_call, hold	Will perform a third party Hold Call
tp_make_call, make	Will perform a third party Make Call
tp_reconnect_connection, reconnect	Will perform a third party Reconnect Call
tp_retrieve_call, retrieve	Will perform a third party Retrieve Call
tp_sendDTMF_data, dtmf	Will perform a third party DTMF Data
tp_set_agent_state, set_state	Will perform a third party Set Agent State
tp_transfer_connection, transfer	Will perform a third party Transfer Connection
route_trigger	Will set CSTA routing on a device on/off

9. Capture for Replay Setup

Sometimes, for support reasons, it is desirable to enable the PIM to capture the data stream coming from the switch so it can be sent to technical support to be analyzed.

➤ **To enable the PIM to capture the data stream from the switch:**

1. Shut down the PIM.
2. Modify the Registry Key `CaptureMessages` in the dynamic key of the PIM registry to be non-zero. The dynamic key of the PIM is:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\  
customer\Node\PG\CurrentVersion\PIMS\pimn\ROLMDData\Dynamic
```

3. Run the PIM normally capturing any situations in question.
4. Shut down the PIM.
5. Take the capture files (.cap) from the following directory and copy them to a safe location.

```
\icm\customer\node\cstacap
```

Note: Ensure that this directory is empty before beginning the capture process.

6. Copy the following file back to that same directory:

```
\icm\customer\node\pimn_monitems.bak
```

These files will then be sent to the requesting party.

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