



Understanding Cisco Customer Response Applications Historical Reporting

Cisco IPCC Express, Cisco IP IVR, and Cisco QM, Version 3.1

Corporate Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

Text Part Number: OL-4843-01



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Preface

Overview

Understanding Cisco Customer Response Applications Historical Reporting describes how the queries are designed for the CRA historical reports and how database records are written for various call scenarios. This manual also provides answers to a variety of frequently asked questions. The information in this manual is designed to help you best understand the Cisco CRA historical reports and to assist you if you want to create your own custom reports.

Audience

This guide is intended for readers who are familiar with database design, operation, and terminology.

Organization

This manual is organized as follows:

Chapter 1, “Overview of Historical Reports”	Lists the basic historical reports and the 109 report types that you can create
Chapter 2, “Historical Reports Query Designs”	Explains how the information in each field in each Cisco CRA historical report is obtained or calculated and explains how the filter parameters for a report obtain data
Chapter 3, “Writing Database Records”	Explains how database records are written for sample call flows
Chapter 4, “Frequently Asked Questions”	Provides answers to frequently asked questions about historical reports and the data in reports

Related Documentation

For more information, refer to the following documents, which are available at this URL:

http://www.cisco.com/univercd/cc/td/doc/product/voice/sw_ap_to/apps_3_1/index.htm

- *Cisco Customer Response Applications Historical Reports User Guide*
- *Cisco Customer Response Applications Database Schema*
- *Creating Custom Reports for Cisco Customer Response Applications*

Obtaining Documentation

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Cisco.com

You can access the most current Cisco documentation on the World Wide Web at this URL:

<http://www.cisco.com/univercd/home/home.htm>

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<http://www.cisco.com>

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http://www.cisco.com/public/countries_languages.shtml

Documentation CD-ROM

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Registered Cisco.com users can order a single Documentation CD-ROM (product number DOC-CONDOCCD=) through the Cisco Ordering tool:

http://www.cisco.com/en/US/partner/ordering/ordering_place_order_ordering_tool_launch.html

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Cisco TAC Website

The Cisco TAC website (<http://www.cisco.com/tac>) provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The Cisco TAC website is available 24 hours a day, 365 days a year.

Accessing all the tools on the Cisco TAC website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a login ID or password, register at this URL:

<http://tools.cisco.com/RPF/register/register.do>

Opening a TAC Case

Using the online TAC Case Open Tool (<http://www.cisco.com/tac/caseopen>) is the fastest way to open P3 and P4 cases. (P3 and P4 cases are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Case Open Tool automatically recommends resources for an immediate solution. If your issue is not resolved using the recommended resources, your case will be assigned to a Cisco TAC engineer.

For P1 or P2 cases (P1 and P2 cases are those in which your production network is down or severely degraded) or if you do not have Internet access, contact Cisco TAC by telephone. Cisco TAC engineers are assigned immediately to P1 and P2 cases to help keep your business operations running smoothly.

To open a case by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete listing of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

TAC Case Priority Definitions

To ensure that all cases are reported in a standard format, Cisco has established case priority definitions.

Priority 1 (P1)—Your network is “down” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Priority 2 (P2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Priority 3 (P3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Priority 4 (P4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The Cisco Product Catalog describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the Cisco Product Catalog at this URL:

http://www.cisco.com/en/US/products/products_catalog_links_launch.html

- Cisco Press publishes a wide range of general networking, training and certification titles. Both new and experienced user will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press online at this URL:

<http://www.ciscopress.com>

- Packet magazine is the Cisco quarterly publication that provides the latest networking trends, technology breakthroughs, and Cisco products and solutions to help industry professionals get the most from their networking

investment. Included are networking deployment and troubleshooting tips, configuration examples, customer case studies, tutorials and training, certification information, and links to numerous in-depth online resources. You can access Packet magazine at this URL:

<http://www.cisco.com/packet>

- iQ Magazine is the Cisco bimonthly publication that delivers the latest information about Internet business strategies for executives. You can access iQ Magazine at this URL:

<http://www.cisco.com/go/iqmagazine>

- Internet Protocol Journal is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

http://www.cisco.com/en/US/about/ac123/ac147/about_cisco_the_internet_protocol_journal.html

- Training—Cisco offers world-class networking training. Current offerings in network training are listed at this URL:

<http://www.cisco.com/en/US/learning/index.html>



Overview of Historical Reports

The Cisco Customer Response Applications (CRA) Historical Reports system provides you with complete and comprehensive information about the call activities of your Cisco CRA system.

Historical reports are designed with the flexibility to let you obtain the specific information that you need. Using filters provided with most of the basic historical reports, you can create up to 55 reports that contain relevant and detailed information. By adding charts, you can create up to 109 separate reports.

[Table 1-1](#) shows the various report types that you can create from the basic reports. It also shows the charts that you can include, which further expand the reporting capabilities of the system. For information about creating these historical reports, refer to *Cisco CRA Historical Reports User Guide*.

Table 1-1 Cisco CRA Historical Reports

Basic Report	Report Types	Charts
Abandoned Call Detail Activity Report	<ul style="list-style-type: none">Abandoned Call Detail Activity Report	<ul style="list-style-type: none">Calls Abandoned Each Day by Final Call Priority
Agent Detail Report	<ul style="list-style-type: none">Agent ReportResource Group ReportSkill Report	<ul style="list-style-type: none">Total Talk Time, Hold Time, Work Time by Agent

Table 1-1 Cisco CRA Historical Reports (continued)

Basic Report	Report Types	Charts
Agent Login Logout Activity Report	<ul style="list-style-type: none"> • Agent Report • Resource Group Report • Skill Report 	<ul style="list-style-type: none"> • Total Logged-in Time for Each Agent
Agent State Summary Report (by Agent)	<ul style="list-style-type: none"> • Agent Report • Agent Half-Hourly Report • Agent Hourly Report • Resource Group Report • Resource Group Half-Hourly Report • Resource Group Hourly Report • Skill Report • Skill Half-Hourly Report • Skill Hourly Report 	<ul style="list-style-type: none"> • Time Spent in Agent State by Agent
Agent State Summary Report (by Interval)	<ul style="list-style-type: none"> • Agent Report • Agent Half-Hourly Report • Agent Hourly Report • Resource Group Report • Resource Group Half-Hourly Report • Resource Group Hourly Report • Skill Report • Skill Half-Hourly Report • Skill Hourly Report 	<ul style="list-style-type: none"> • Time Spent in Agent State by Interval

Table 1-1 Cisco CRA Historical Reports (continued)

Basic Report	Report Types	Charts
Agent Summary Report	<ul style="list-style-type: none"> • Agent Report • Resource Group Report • Skill Report • Top N Agents Ranked by Call Handle Ratio Report • Bottom N Agents Ranked by Call Handle Ratio Report • Top N Agents Ranked by Average Hold Time Report • Bottom N Agents Ranked by Average Hold Time Report • Top N Agents Ranked by Average Talk Time Report • Bottom N Agents Ranked by Average Talk Time Report • Top N Agents Ranked by Average Work Time Report • Bottom N Agents Ranked by Average Work Time Report • Top N Agents Ranked by Average Handle Time Report • Bottom N Agents Ranked by Average Handle Time Report 	<ul style="list-style-type: none"> • Call Handle Ratio by Agent • Total Calls Handled by Agent • Average Talk Time, Hold Time, Work Time by Agent
Call Custom Variables Report	<ul style="list-style-type: none"> • Call Custom Variables Report 	—
Called Number Summary Activity Report	<ul style="list-style-type: none"> • Called Number Summary Activity Report 	<ul style="list-style-type: none"> • Total Calls by Called Number • Average Call Duration by Called Number

Table 1-1 Cisco CRA Historical Reports (continued)

Basic Report	Report Types	Charts
Contact Service Queue Activity Report	<ul style="list-style-type: none"> Contact Service Queue Activity Report 	<ul style="list-style-type: none"> Calls Handled and Calls Abandoned by Contact Service Queue Total Calls by Call Priority and Contact Service Queue
Contact Service Queue Activity Report (by CSQ) Report	<ul style="list-style-type: none"> Contact Service Queue Activity Report (by CSQ) Report Half-Hourly Report Hourly Report 	<ul style="list-style-type: none"> Calls Handled, Abandoned and Dequeued by CSQ Total Calls that Met Service Level by CSQ
Contact Service Queue Activity Report (by Interval) Report	<ul style="list-style-type: none"> Contact Service Queue Activity Report (by Interval) Report Half-Hourly Report Hourly Report 	<ul style="list-style-type: none"> Calls Handled, Abandoned and Dequeued by Interval Total Calls that Met Service Level by Interval
Contact Service Queue Service Level Report	<ul style="list-style-type: none"> Contact Service Queue Service Level Report (time interval t is user configurable) 	<ul style="list-style-type: none"> Percentage of Calls that Met Service Level
Detailed Call by Call CCDR Report	<ul style="list-style-type: none"> Detailed Call by Call CCDR Report 	<ul style="list-style-type: none"> Number of Calls by Contact Disposition Number of Calls by Originator Type

Table 1-1 Cisco CRA Historical Reports (continued)

Basic Report	Report Types	Charts
IVR Application Performance Analysis Report	<ul style="list-style-type: none"> • IVR Application Performance Analysis Report 	<ul style="list-style-type: none"> • Total Incoming Calls by Application • Calls Handled vs. Calls Abandoned by Application • Average Call Duration by Application
IVR Traffic Analysis Report	<ul style="list-style-type: none"> • IVR Traffic Analysis Report (Daily) 	<ul style="list-style-type: none"> • Total Incoming Calls by Date • Peak Calls by Date • Average Call Duration by Date
Priority Summary Activity Report	<ul style="list-style-type: none"> • Priority Summary Activity Report 	<ul style="list-style-type: none"> • Total Calls by Call Priority
Skill Routing Activity Report	<ul style="list-style-type: none"> • All Skill Groups Report • Selected Skill(s) Logic AND Report • Selected Skill(s) Logic OR Report 	<ul style="list-style-type: none"> • Calls Handled and Calls Abandoned by Skill Groups • Total Calls by Call Priority and Skill Group



Historical Reports Query Designs

This chapter explains how the information in each field in the Cisco CRA historical reports is obtained or calculated. It also describes how the filter parameters for a report obtain data.

This chapter includes the following topics:

- [Conventions Used in this Chapter](#)
- [Abandoned Call Detail Activity Report, page 2-3](#)
- [Agent Detail Report, page 2-5](#)
- [Agent Login Logout Activity Report, page 2-8](#)
- [Agent State Summary Report \(by Agent\) and Agent State Summary Report \(by Interval\), page 2-10](#)
- [Agent Summary Report, page 2-18](#)
- [Call Custom Variables Report, page 2-25](#)
- [Called Number Summary Activity Report, page 2-26](#)
- [Contact Service Queue Activity Report, page 2-27](#)
- [Contact Service Queue Activity Report \(by CSQ\) and Contact Service Queue Activity Report \(by Interval\), page 2-30](#)
- [Contact Service Queue Service Level Report, page 2-34](#)
- [Detailed Call by Call CDR Report, page 2-38](#)
- [IVR Application Performance Analysis Report, page 2-40](#)
- [IVR Traffic Analysis Report, page 2-41](#)

- [Priority Summary Activity Report, page 2-43](#)
- [Skill Routing Activity Report, page 2-44](#)

Conventions Used in this Chapter

The following conventions are used in this chapter.

- Database table names—Explanations of report fields in this chapter refer to various Cisco CRA database tables. In some cases, these explanations use abbreviations for database table names. [Table 2-1](#) lists the database tables that this chapter refers to and shows the abbreviations that are used.

For detailed information about the Cisco CRA database tables, refer to *Cisco Customer Response Applications Database Schema*.

Table 2-1 Cisco CRA Database Tables

Database Table Name	Abbreviation Used in this Chapter
AgentConnectionDetail	ACD
AgentStateDetail	ASD
ContactCallDetail	CCD
ContactRoutingDetail	CRD
ContactServiceQueue	CSQU
Resource	—
ResourceGroup	RG
ResourceSkillMapping	RSM
Skill	—
SkillGroup	SG

- Database table fields—Explanations in this chapter specify fields in the Cisco CRA database tables as follows:
table.field
where *table* is the name or abbreviation of the database table (see [Table 2-1](#)) and *field* is the name of the field. For example,
 - CSQU.skillGroupID means the skillGroupID field in the ContactServiceQueue table
 - Resource.resourceID means the resourceID field in the Resource table
- Report field names—In an explanation of a report field, a report field name in **bold type** indicates that field in the same report.

Abandoned Call Detail Activity Report

The Abandoned Call Detail Activity Report contains one row per abandoned call. An abandoned call is a call for which CCD.contactDisposition is set to 1 (abandoned).

[Table 2-2](#) shows how the information in the Abandoned Call Detail Activity Report is obtained or calculated.

For information about the database table names and field names that are shown in this section, see the [“Conventions Used in this Chapter”](#) section on page 2-2.

Table 2-2 Abandoned Call Detail Activity Report Query Design

Field	Explanation
Call Start Time	Obtained from CCD.startDateTime.
Called Number	Obtained from CCD.calledNumber.
Call ANI	Obtained from CCD.originatorDN for ICD and for non-ICD calls. If a non-ICD call is an internal call between agents, CCD.originatorDN is set to the ICD extension of the originating agent as follows: Join CCD.originatorID with Resource.resourceID to obtain the value in Resource.extension.

Table 2-2 Abandoned Call Detail Activity Report Query Design (continued)

Field	Explanation
Initial Call Priority	<p>Join CCD and CRD on sessionID and sessionSeqNum to include only records with CCD.contactDisposition set to 1 (abandoned). Obtain the value in CRD.origPriority.</p> <p>Note A call may be abandoned without being assigned a call priority. In this case, CRD.origPriority will be blank and this Initial Call Priority field will be blank.</p>
Call Routed CSQ	<p>Join CCD and CRD on sessionID and sessionSeqNum to include only records with CCD.contactDisposition set to 1 (abandoned). When a call is presented to a CSQ, the record ID of the CSQ is stored in CRD.csd1, CRD.csd2, or CRD.csd3, depending on whether the call is presented to multiple CSQs and the order in which it is presented. Join CRD.csd1 (or CRD.csd2, or CRD.csd3) with CSQU.recordID to obtain the name of the CSQ to which the call was routed, which is stored in CSQU.csqName.</p> <p>Note A call may be abandoned without being presented to any CSQ. In this case, this Call Routed CSQ field will be blank.</p>
Agent Name	<p>Join CCD and ACD on sessionID and sessionSeqNum to include only calls with CCD.contactDisposition set to 1 (abandoned). Join ACD and Resource on resourceID to obtain the name of the agent who was presented with the call, which is stored in Resource.resourceName.</p> <p>Note A call may be abandoned without being presented to any agent. In this case, this Agent Name field will be blank.</p>
Call Skills	<p>This field shows the list of skills that belong to the CSQ shown in Call Routed CSQ.</p> <p>Join CRD.csd1 (or CRD.csd2 or CRD.csd3) with CSQU.recordID to obtain CSQU.skillGroupID. Join CSQU.skillGroupID with SG.skillGroupID to obtain SG.skillID. Join SG.skillID with Skill.skillID to obtain the list of call skills, which is stored in Skill.skillName.</p> <p>Note This Call Skills field will be blank for a call that is abandoned without being presented to a CSQ and for a call that is abandoned after it is presented a resource-based CSQ.</p>

Table 2-2 Abandoned Call Detail Activity Report Query Design (continued)

Field	Explanation
Final Call Priority	Join CCD and CRD on sessionID and sessionSeqNum to include only records with CCD.contactDisposition set to 1 (abandoned). Obtain the value in CRD.finalPriority. Note A call may be abandoned without being assigned a call priority. In this case, CRD.finalPriority will be blank and this Final Call Priority field will be blank.
Call Abandon Time	Obtained from CCD.endDateTime.

Agent Detail Report

The Agent Detail Report contains detailed information for calls received and calls made by an agent. The report contains one row per call and includes ICD and non-ICD calls.

For ICD calls, the ACD table records all the calls handled by an agent.

For non-ICD calls, the CCD table records all the calls made by or received by an agent. If an agent makes a non-ICD call, the agent's resource ID appears in CCD.originatorID. If the agent receives a non-ICD call, the agent's resource ID appears in CCD.destinationID.

[Table 2-3](#) shows how the information in the Agent Detail Report is obtained or calculated.

[Table 2-4](#) explains how the Agent Detail Report filter parameters obtain data.

For information about the database table names and field names that are shown in this section, see the [“Conventions Used in this Chapter”](#) section on page 2-2.

Table 2-3 Agent Detail Report Query Design

Field	Explanation
Agent Name	Join Resource.resourceID with ACD.resourceID to obtain the value stored in Resource.resourceName.
Extension	Join Resource.resourceID with ACD.resourceID to obtain the value stored in Resource.extension.

Table 2-3 Agent Detail Report Query Design (continued)

Field	Explanation
Call Start Time	Obtained from CCD.startDateTime.
Call End Time	Obtained from CCD.endDateTime.
Duration	Calculated as follows: CCD.endDateTime – CCD.startDateTime
Called Number	Obtained from CCD.calledNumber (for ICD and for non-ICD calls).
Call ANI	Obtained from CCD.originatorDN (for ICD and for non-ICD calls). If a non-ICD call is an internal call between agents, CCD.originatorDN is set to the ICD extension of the originating agent as follows: Join CCD.originatorID with Resource.resourceID to obtain the value in Resource.extension.
Call Routed CSQ	For ICD calls, the record ID of the CSQ that handled the call is stored in CRD.primaryCSD. Join CRD.primaryCSD with CSQU.recordID to obtain the name of the CSQ, which is stored in CSQU.csqName. Blank for non-ICD calls.
First 3 CSQs	For ICD calls, the record IDs of the first three CSQs for which the call was queued are stored in CRD.CSD1, CRD.CSD2 and CRD.CSD3. Join CRD.CSD1 with CSQU.recordID to obtain the name of the first CSQ for which the call was queued, which is stored in CSQU.csqName. Join CRD.CSD2 with CSQU.recordID to obtain the name of the second CSQ for which the call was queued, which is stored in CSQU.csqName. Join CRD.CSD3 with CSQU.recordID to obtain the name of the third CSQ for which the call was queued, which is stored in CSQU.csqName. Blank for non-ICD calls.
Call Skills	For ICD calls, join CRD.primaryCSD with CSQU.recordID to obtain CSQU.skillGroupID. Join CSQU.skillGroupID with SG.skillGroupID to obtain SG.skillID. Join SG.skillID with Skill.skillID to obtain the list of skill names, which is stored in Skill.skillName. Blank for non-ICD calls and for calls that queue only to resource-based CSQs.

Table 2-3 Agent Detail Report Query Design (continued)

Field	Explanation
Talk Time	<p>For ICD calls, obtained from ACD.talkTime.</p> <p>For handled non-ICD calls (CCD.contactDisposition is 2), calculated as CCD.endDateTime – CCD.startDateTime.</p> <p>For abandoned non-ICD calls and for all abandoned agent-initiated calls (CCD.contactDisposition is 1 in both cases), this value is zero.</p>
Hold Time	<p>For ICD calls, obtained from ACD.holdTime.</p> <p>Blank for non-ICD calls.</p>
Work Time	<p>For ICD calls, obtained from ACD.workTime.</p> <p>Blank for non-ICD calls.</p>

Table 2-4 Agent Detail Report Filter Parameters

Filter Parameter	Explanation
All defined agents (default, no filter parameter)	<p>To report on all agents, obtain the list of resource IDs as follows:</p> <p>Search the Resource table for records with resourceType set to 1 (agent). Resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call-related data.</p>
Resource Group Names	<p>To report on a specific resource group or groups, obtain the list of resource IDs as follows:</p> <p>Obtain the list of resource group name(s) from the user selection for this parameter. Find the corresponding RG.resourceGroupID(s). Join RG.resourceGroupID with Resource.resourceGroupID to determine agents who belong to the selected resource group(s). The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>

Table 2-4 Agent Detail Report Filter Parameters (continued)

Filter Parameter	Explanation
Agent Names	<p>To report on a specific agent or agents, obtain the list of resource IDs as follows:</p> <p>Obtain the list of agent names from the user selection for this parameter. Find the corresponding Resource.resourceID(s).</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>
Skill Names	<p>To report on agents who possess a specific skill or skills, obtain the list of resource IDs as follows:</p> <p>Obtain the list of skill names from the user selection for this parameter. Find the corresponding Skill.skillID(s). Join Skill.skillID with RSM.skillID and join RSM.resourceSkillMapID with Resource.resourceSkillMapID to find the agents who possess the selected skill(s). The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>

Agent Login Logout Activity Report

The Agent Login Logout Activity Report contains detailed information about the login and logout activities of agents. The login and logout information is stored in the ASD table.

[Table 2-5](#) shows how the information in the Agent Login Logout Activity Report is obtained or calculated.

[Table 2-6](#) explains how the Agent Login Logout Activity Report filter parameters obtain data.

For information about the database table names and field names that are shown in this section, see the [“Conventions Used in this Chapter”](#) section on page 2-2.

Table 2-5 Agent Login Logout Activity Report Query Design

Field	Explanation
Agent Name	Join ASD.agentID with Resource.resourceID to obtain the agent name, which is stored in Resource.resourceName.
Login Time	Obtained from ASD.eventDateTime where eventType is set to 1 (log in).
Logout Time	Obtained from ASD.eventDateTime where eventType is set to 7 (log out).
Logged-In Duration	Calculated as (Logout Time – Login Time).

Table 2-6 Agent Login Logout Activity Report Filter Parameters

Filter Parameter	Explanation
All Agents (default, no filter parameter)	<p>To report on all agents, obtain the list of resource IDs as follows:</p> <p>Search the Resource table for records with resourceType set to 1 (agent). Resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ASD.resourceID to obtain other call related data.</p>
Resource Group Names	<p>To report on a specific resource group or groups, obtain the list of resource IDs as follows:</p> <p>Obtain the list of resource group name(s) from the user selection for this parameter. Find the corresponding RG.resourceGroupID(s). Join RG.resourceGroupID with Resource.resourceGroupID to find agents belonging to the selected resource group(s). The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ASD.resourceID to obtain other call related data.</p>

Table 2-6 Agent Login Logout Activity Report Filter Parameters (continued)

Filter Parameter	Explanation
Agent Names	<p>To report on a specific agent or agents, obtain the list of resource IDs as follows:</p> <p>Obtain the list of agent names from the user selection for this parameter. Find the corresponding Resource.resourceID(s).</p> <p>Join Resource.resourceID with ASD.resourceID to obtain other call related data.</p>
Skill Names	<p>To report on agents who possess a specific skill or skills, obtain the list of resource IDs as follows:</p> <p>Obtain the list of skill names from the user selection for this parameter. Find the corresponding Skill.skillID(s). Join Skill.skillID with RSM.skillID, RSM.resourceSkillMapID with Resource.resourceSkillMapID to find the agents who possess the selected skill(s). The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ASD.resourceID to obtain other call related data.</p>

Agent State Summary Report (by Agent) and Agent State Summary Report (by Interval)

The Agent State Summary Report (by Agent) and the Agent State Summary Report (by Interval) show the length and percentage of time that each agent spent in each of the following agent states: Not Ready, Ready, Reserved, Talk and Work. These reports also show the total length of time that each agent was logged in.

In the Agent State Summary Report (by Agent), information presented is sorted first by agent, then by interval.

In the Agent State Summary Report (by Interval), information presented is sorted first by interval, then by agent.

Table 2-7 shows how the information in the Agent State Summary Reports is obtained or calculated.

Table 2-8 explains how the Agent State Summary Reports filter parameters obtain data.

For information about the database table names and field names that are shown in this section, see the “Conventions Used in this Chapter” section on page 2-2.

Table 2-7 Agent State Summary Reports Query Design

Field	Explanation
Agent Name	Join ASD.agentID with Resource.resourceID to obtain the agent name, which is stored in Resource.resourceName.
Extension	Join ASD.agentID with Resource.resourceID to obtain the agent extension, which is stored in Resource.extension.
Interval Start Time	Beginning of an interval. End-users can divide the report period into 30- or 60-minute intervals. (The default interval length is the entire report period.)
Interval End Time	End of an interval. End-users can divide the report period into 30- or 60-minute intervals. (The default interval length is the entire report period.)
Total Logged-in Time	<p>Login time is stored in ASD.eventDateTime with eventType set to 1 (log in). Logout time is stored in ASD.eventDateTime with eventType set to 7 (log out). The calculation of the logged-in time for a single session depends on the agent activity, as follows:</p> <ul style="list-style-type: none"> An agent logs in and logs out during the interval: Total Logged-in Time = logout time – login time An agent logs in before the interval and logs out after the interval: Total Logged-in Time = Interval End Time – Interval Start Time An agent logs in before the interval and logs out during the interval: Total Logged-in Time = logout time – Interval Start Time An agent logs in during the interval and logs out after the interval: Total Logged-in Time = Interval End Time – login time <p>If an agent has multiple login sessions during the interval, this field displays the sum of the time spent in each login session.</p>

Table 2-7 Agent State Summary Reports Query Design

Field	Explanation
Not Ready Time	<p>Total time that an agent spent in Not Ready state during the interval, and the percentage of total logged-in time that an agent spent in Not Ready State.</p> <p>The time that an agent goes to Not Ready state is stored in ASD.eventDateTime with eventType set to 2. The time spent in Not Ready state depends on the agent activity, as follows:</p> <ul style="list-style-type: none"> An agent goes in to and out of Not Ready state during the interval: $\text{Total Not Ready Time} = \text{time out of Not Ready state} - \text{time in to Not Ready State}$ An agent goes in to Not Ready state before the interval and goes out of Not Ready state after the interval: $\text{Total Not Ready Time} = \text{Interval End Time} - \text{Interval Start Time}$ An agent goes in to Not Ready state before the interval and goes out of Not Ready state during the interval: $\text{Total Not Ready Time} = \text{time out of Not Ready state} - \text{Interval Start Time}$ An agent goes in to Not Ready state during the interval and goes out of Not Ready state after the interval: $\text{Total Not Ready Time} = \text{Interval End Time} - \text{time in to Not Ready State}$ <p>If an agent goes to Not Ready state multiple times during the interval, this field displays the sum of the time spent in each Not Ready state.</p> <p>The percentage is calculated as: $(\text{Not Ready Time} / \text{Total Logged-in Time}) * 100\%$ </p>

Table 2-7 Agent State Summary Reports Query Design

Field	Explanation
Ready Time	<p>Total time that an agent spent in Ready state during the interval, and the percentage of total logged-in time that an agent spent in Ready state.</p> <p>The time that an agent goes to the Ready state is stored in ASD.eventDateTime with eventType set to 3. The time spent in Ready state depends on the agent activity, as follows:</p> <ul style="list-style-type: none"> • An agent goes in to and out of Ready state during the interval: Total Ready Time = time out of Ready state – time in to Ready State • An agent goes in to Ready state before the interval and goes out of Ready state after the interval: Total Ready Time = Interval End Time – Interval Start Time • An agent goes in to Ready state before the interval and goes out of Ready state during the interval: Total Ready Time = time out of Ready state – Interval Start Time • An agent goes in to Ready state during the interval and goes out of Ready state after the interval: Total Ready Time = Interval End Time – time in to Ready State <p>If an agent goes to Ready state multiple times during the interval, this field displays the sum of the time spent in each Ready state.</p> <p>The percentage is calculated as: $(\text{Ready Time} / \text{Total Logged-in Time}) * 100\%$ </p>

Table 2-7 Agent State Summary Reports Query Design

Field	Explanation
Reserved Time	<p>Total time an agent spent in the Reserved state during the interval, and the percentage total logged-in time that an agent spent in Reserved state.</p> <p>The time that an agent goes to the Reserved state is stored in ASD.eventDateTime with eventType set to 4. The time spent in Reserved state depends on the agent activity, as follows:</p> <ul style="list-style-type: none"> • An agent goes in to and out of Reserved state during the interval: Total Reserved Time = time out of Reserved state – time in to Reserved State • An agent goes in to Reserved state before the interval and goes out of Reserved state after the interval: Total Reserved Time = Interval End Time – Interval Start Time • An agent goes in to Reserved state before the interval and goes out of Reserved state during the interval: Total Reserved Time = time out of Reserved state – Interval Start Time • An agent goes in to Reserved state during the interval and goes out of Reserved state after the interval: Total Reserved Time = Interval End Time – time in to Reserved State <p>If an agent goes to the Reserved state multiple times during the interval, this field displays the sum of the time spent in each Reserved state.</p> <p>The percentage is calculated as: $(\text{Reserved Time} / \text{Total Logged-in Time}) * 100\%$ </p>

Table 2-7 Agent State Summary Reports Query Design

Field	Explanation
Talk Time	<p>Total time an agent spent in the Talk state during the interval, and the percentage of total logged-in time that an agent spent in Talk state.</p> <p>The time that an agent goes to the Talk state is stored in ASD.eventDateTime with eventType set to 5. The time spent in Talk state depends on the agent activity, as follows:</p> <ul style="list-style-type: none"> • An agent goes in to and out of Talk state during the interval: Total Talk Time = time out of Talk state – time in to Talk State • An agent goes in to Talk state before the interval and goes out of Talk state after the interval: Total Talk Time = Interval End Time – Interval Start Time • An agent goes in to Talk state before the interval and goes out of Talk state during the interval: Total Talk Time = time out of Talk state – Interval Start Time • An agent goes in to Talk state during the interval and goes out of Talk state after the interval: Total Talk Time = Interval End Time – time in to Talk State <p>If an agent goes to the Talk state multiple times during the interval, this field displays the sum of the time spent in each Talk state.</p> <p>The percentage is calculated as: $(\text{Talk Time} / \text{Total Logged-in Time}) * 100\%$ </p>

Table 2-7 Agent State Summary Reports Query Design

Field	Explanation
Work Time	<p>Total time an agent spent in the Work state during the interval, and the percentage of total logged-in time that an agent spent in Work state.</p> <p>The time that an agent goes to the Work state is stored in ASD.eventDateTime with eventType set to 6. The time spent in Work state depends on the agent activity, as follows:</p> <ul style="list-style-type: none"> • An agent goes in to and out of Work state during the interval: Total Work Time = time out of Work state – time in to Work State • An agent goes in to Work state before the interval and goes out of Work state after the interval: Total Work Time = Interval End Time – Interval Start Time • An agent goes in to Work state before the interval and goes out of Work state during the interval: Total Work Time = time out of Work state – Interval Start Time • An agent goes in to Work state during the interval and goes out of Work state after the interval: Total Work Time = Interval End Time – time in to Work State <p>If an agent goes to the Work state multiple times during the interval, this field displays the sum of the time spent in each Work state.</p> <p>The percentage is calculated as: (Work Time / Total Logged-in Time) * 100%</p>

Table 2-8 Agent State Summary Reports Filter Parameters

Filter Parameter	Explanation
All Agents (default, no filter parameter)	<p>To report on all agents, obtain the list of resource IDs as follows:</p> <p>Search the Resource table for records with resourceType set to 1 (agent). Resource ID is stored in the Resource.resourceID field.</p> <p>Join Resource.resourceID with ASD.resourceID to obtain other call related data.</p>
Interval Length	Options are entire report period (default), 30 minutes, 60 minutes.
Resource Group Names	<p>To report on a specific resource group or groups, obtain the list of resource IDs as follows:</p> <p>Obtain the list of resource group name(s) from the user selection for this parameter. Find the corresponding RG.resourceGroupID(s). Join RG.resourceGroupID with Resource.resourceGroupID to find agents belonging to the selected resource group(s). The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ASD.resourceID to obtain other call related data.</p>
Agent Names	<p>To report on a specific agent or agents, obtain the list of resource IDs as follows:</p> <p>Obtain the list of agent names from the user selection for this parameter. Find the corresponding Resource.resourceID(s).</p> <p>Join Resource.resourceID with ASD.resourceID to obtain other call related data.</p>
Skill Names	<p>To report on agents who possess a specific skill or skills, obtain the list of resource IDs as follows:</p> <p>Obtain the list of skill names from the user selection for this parameter. Find the corresponding Skill.skillID(s). Join Skill.skillID with RSM.skillID and join RSM.resourceSkillMapID with Resource.resourceSkillMapID to find the agents who possess the selected skill(s). The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ASD.resourceID to obtain other call related data.</p>

Agent Summary Report

The Agent Summary Report contains one row per agent. Each row contains a summary of the activities of an agent.

The ACD table contains information of the agents who handled ICD calls. This table provides the basic data for the Agent Summary Report.

[Table 2-9](#) shows how the information in the Agent Summary Report is obtained or calculated.

[Table 2-10](#) explains how the Agent Summary Report filter parameters obtain data.

For information about the database table names and field names that are shown in this section, see the [“Conventions Used in this Chapter”](#) section on page 2-2.

Table 2-9 Agent Summary Report Query Design

Field	Explanation
Agent Name	Join Resource.resourceID with ACD.resourceID to obtain the value stored in Resource.resourceName.
Extension	Join Resource.resourceID with ACD.resourceID to obtain the value stored in Resource.extension.

Table 2-9 Agent Summary Report Query Design

Field	Explanation
Avg Logged-In Time	<p>The ASD provides the times that each agent logs in and logs out. The length of time between log in and log out is the agent logged-in time. Login time is stored in ASD.eventDateTime with eventType set to 1 (log in). Logout time is stored in ASD.eventDateTime with eventType set to 7 (log out).</p> <p>The calculation of the average logged-in time depends on the agent activity, as follows. In these calculations, t1 is the report start time and t2 is the report end time.</p> <ul style="list-style-type: none"> • An agent logs in before t1 and logs out between t1 and t2: Logged-in duration = logout time – t1 • An agent logs in between t1 and t2 and logs out after t2: Logged-in duration = t2 – login time • An agent logs in between t1 and t2 and logs out between t1 and t2: Logged-in duration = logout time – login time • An agent logs in before t1 and logs out after t2: Logged-in duration = t2 – t1 <p>The average logged-in time for an agent is calculated as follows: Calculate the total logged-in time for an agent during the report period and divide by the number of logged-in sessions.</p>
Calls Handled	<p>Join ACD and CCD on sessionID and sessionSeqNum. For each agent, count the number of unique CCD.sessionID that meet the following criteria:</p> <ul style="list-style-type: none"> • CCD.startDateTime is in the report period • CCD.contactDisposition is 2 (handled) • ACD.talkTime is greater than zero
Calls Presented	<p>Join ACD and CCD on sessionID and sessionSeqNum. For each agent, count the number of unique CCD.sessionID with CCD.startDateTime falling within the report period.</p>
Handle Ratio	Call Handled divided by Calls Presented .

Table 2-9 Agent Summary Report Query Design

Field	Explanation
Handle Time—Avg	<p>Each call handled by an agent has an ACD record. The handle time of a call is calculated as follows:</p> $\text{ACD.talkTime} + \text{ACD.holdTime} + \text{ACD.workTime}$ <p>The average handle time is the sum of the handle times of all the calls handled by the agent within the report period divided by the number of calls handled within the report period.</p>
Handle Time—Max	<p>Each call handled by an agent has an ACD record. The handle time of a call is calculated as follows</p> $\text{ACD.talkTime} + \text{ACD.holdTime} + \text{ACD.workTime}$ <p>The maximum handle time for an agent is the longest handle time of all calls handled by the agent within the report period.</p>
Talk Time—Avg	<p>Talk time of a call is obtained from ACD.talkTime.</p> <p>The average talk time for an agent is the sum of talk times of all calls handled by the agent within the report period divided by the number of calls handled within the report period.</p>
Talk Time—Max	<p>Talk time of a call is obtained from ACD.talkTime.</p> <p>Maximum talk time for an agent is the longest talk time of all the calls handled by the agent within the report period.</p>
Hold Time—Avg	<p>Hold time of a call is obtained from ACD.holdTime.</p> <p>Average hold time for an agent is the sum of the hold times of all calls handled by the agent within the report period divided by the number of calls handled calls within the report period.</p>
Hold Time—Max	<p>Hold time of a call is obtained from ACD.holdTime.</p> <p>The maximum hold time for an agent is the longest hold time of all calls handled by the agent within the report period.</p>
Work Time—Avg	<p>Work time of a call is obtained from ACD.workTime.</p> <p>The average work time for an agent is the sum of work times of all calls handled by the agent within the report period divided by the number of calls handled within the report period.</p>

Table 2-9 Agent Summary Report Query Design

Field	Explanation
Work Time—Max	<p>Work time of a call is obtained from ACD.workTime.</p> <p>The maximum work time for an agent is the longest work time of all the calls handled by the agent within the report period.</p>
Idle Time—Avg	<p>The ASD records the date and time that an agent goes to a specific state. Idle time is the time spent in the Not Ready state (2). While in the Not Ready state (2), an agent can go to Ready state (3), Reserved state (4), or Logout state (7).</p> <p>An idle session begins when an agent goes to Not Ready state and ends when the agent goes to the next state (Ready, Reserved, or Logout). The length of time that the agent spends in Not Ready State is the duration of an idle session.</p> <p>The average idle time for an agent is the sum of the durations of all of an agent's idle sessions within the report period divided by the number of idle sessions within the report period.</p>
Idle Time—Max	<p>The ASD records the date and time that an agent goes to a specific state. Idle time is the time spent in the Not Ready state (2). While in the Not Ready state (2), an agent can go to Ready state (3), Reserved state (4), or Logout state (7).</p> <p>An idle session begins when an agent goes to Not Ready state and ends when the agent goes to the next state (Ready, Reserved, or Logout). The length of time that the agent spends in Not Ready State is the duration of an idle session.</p> <p>The maximum idle time for an agent is the longest duration of the idle sessions within the report period.</p>

Table 2-10 Agent Summary Report Filter Parameters

Filter Parameter	Explanation
All agents (default, no filtering parameters)	<p>To report on all agents, obtain the list of resource IDs as follows:</p> <p>Search the Resource table for records with resourceType set to 1 (agent). Resource ID is stored in the resourceID field.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>
Resource Group Names	<p>To report on a specific resource group or groups, obtain the list of resource IDs as follows:</p> <p>Obtain the list of resource group name(s) from the user selection for this parameter. Find the corresponding RG.resourceGroupID(s). Join RG.resourceGroupID with Resource.resourceGroupID to find agents belonging to the selected resource group(s). The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>
Agent Names	<p>To report on a specific agent or agents, obtain the list of resource IDs as follows:</p> <p>Obtain the list of agent names from the user selection for this parameter. Find the corresponding Resource.resourceID(s).</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>
Skill Names	<p>To report on agents who possess a specific skill or skills, obtain the list of resource IDs as follows:</p> <p>Obtain the list of skill names from the user selection for this parameter. Find the corresponding Skill.skillID(s). Join Skill.skillID with RSM.skillID and join RSM.resourceSkillMapID with Resource.resourceSkillMapID to find the agents who possess the selected skill(s). The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>

Table 2-10 Agent Summary Report Filter Parameters (continued)

Filter Parameter	Explanation
Top N Calls Handled/Presented Ratio	<p>To report on <i>N</i> agents who rank highest in the calls handled/presented ratio, obtain the list of resource IDs as follows:</p> <p>Rank the agents by the calls handled/presented ratio in descending order. In case of a tie, order the agents alphabetically by Resource.resourceLoginID. Select the top <i>N</i> agents. The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>
Bottom N Calls Handled/Presented Ratio	<p>To report on <i>N</i> agents who rank lowest in the calls handled/presented ratio, obtain the list of resource IDs as follows:</p> <p>Rank the agents by the calls handled/presented ratio in descending order. In case of a tie, order the agents alphabetically by Resource.resourceLoginID. Select the bottom <i>N</i> agents. The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>
Top N Avg Hold Time	<p>To report on <i>N</i> agents who rank highest in average hold time, obtain the list of resource IDs as follows:</p> <p>Rank the agents by average hold time in descending order. In case of a tie, order the agents alphabetically by Resource.resourceLoginID. Select the top <i>N</i> agents. The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>
Bottom N Avg Hold Time	<p>To report on <i>N</i> agents who rank lowest in average hold time, obtain the list of resource IDs as follows:</p> <p>Rank the agents by average hold time in descending order. In case of a tie, order the agents alphabetically by Resource.resourceLoginID. Select the bottom <i>N</i> agents. The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>

Table 2-10 Agent Summary Report Filter Parameters (continued)

Filter Parameter	Explanation
Top N Avg Talk Time	<p>To report on <i>N</i> agents who rank highest in average talk time, obtain the list of resource IDs as follows:</p> <p>Rank the agents by average talk time in descending order. In case of a tie, order the agents alphabetically by Resource.resourceLoginID. Select the top <i>N</i> agents. The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>
Bottom N Avg Talk Time	<p>To report on <i>N</i> agents who rank lowest in average talk time, obtain the list of resource IDs as follows:</p> <p>Rank the agents by average talk time in descending order. In case of a tie, order the agents alphabetically by Resource.resourceLoginID. Select the bottom <i>N</i> agents. The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>
Top N Avg Work Time	<p>To report on <i>N</i> agents who rank highest in average work time, obtain the list of resource IDs as follows:</p> <p>Rank the agents by average work time in descending order. In case of a tie, order the agents alphabetically by Resource.resourceLoginID. Select the top <i>N</i> agents. The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>
Bottom N Avg Work Time	<p>To report on <i>N</i> agents who rank lowest in average work time, obtain the list of resource IDs as follows:</p> <p>Rank the agents by average work time in descending order. In case of a tie, order the agents alphabetically by Resource.resourceLoginID. Select the bottom <i>N</i> agents. The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>

Table 2-10 Agent Summary Report Filter Parameters (continued)

Filter Parameter	Explanation
Top N Avg Handle Time	<p>To report on <i>N</i> agents who rank highest in average handle time, obtain the list of resource IDs as follows:</p> <p>Rank the agents by average handle time in descending order. In case of a tie, order the agents alphabetically by Resource.resourceLoginID. Select the top <i>N</i> agents. The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>
Bottom N Avg Handle Time	<p>To report on <i>N</i> agents who rank lowest in average handle time, obtain the list of resource IDs as follows:</p> <p>Rank the agents by average handle time in descending order. In case of a tie, order the agents alphabetically by Resource.resourceLoginID. Select the bottom <i>N</i> agents. The value of resource ID is stored in Resource.resourceID.</p> <p>Join Resource.resourceID with ACD.resourceID to obtain other call related data.</p>

Call Custom Variables Report

The Call Custom Variables Report shows information about custom variables that are set by the Set Session Info step in the workflow that the Cisco ICD or IVR application associated with a call invoked. This information comes from the CCD table.

[Table 2-11](#) shows how the information in the Call Custom Variables Report is obtained or calculated.

For information about the database table names and field names that are shown in this section, see the [“Conventions Used in this Chapter”](#) section on page 2-2.

Table 2-11 Call Custom Variables Report Query Design

Field	Explanation
Session ID	Obtained from CCD.sessionID.
Sequence No.	Obtained from CCD.sessionSeqNum.

Table 2-11 Call Custom Variables Report Query Design (continued)

Field	Explanation
Start Time	Obtained from CCD.startDateTime.
End Time	Obtained from CCD.endDateTime.
Contact Disposition	Obtained from CCD.contactDisposition.
Agent Name	Join CCD and ACD on sessionID and sessionSeqNum to obtain the resource ID of the agent who handled the call, which is stored in ACD.resourceID. Join ACD.resourceID with Resource.resourceID to obtain the agent name, which is stored in Resource.resourceName. Blank for a call that was not handled by an agent and for a call to an IVR application.
Application Name	Obtained from CCD.applicationName.
Custom Variable 1	Obtained from CCD.customVariable1.
Custom Variable 2	Obtained from CCD.customVariable2.
Custom Variable 3	Obtained from CCD.customVariable3.
Custom Variable 4	Obtained from CCD.customVariable4.
Custom Variable 5	Obtained from CCD.customVariable5.

Called Number Summary Activity Report

The Called Number Summary Activity Report contains one row per called number. The called number is stored in CCD.origCalledNumber.

Outgoing calls are not included in this report.

[Table 2-12](#) shows how the information in the Called Number Summary Activity Report is obtained or calculated.

For information about the database table names and field names that are shown in this section, see the [“Conventions Used in this Chapter”](#) section on page 2-2.

Table 2-12 Called Number Summary Activity Report Query Design

Field	Explanation
Called Number	Obtained from CCD.origCalledNumber.
Call Type	Obtained from CCD.destinationType. The value 1 (agent) indicates a non-ICD call. The value 2 (device) indicates an ICD call. The value 3 (unknown) indicates an outgoing call or a call to an IVR application and is not reported.
Total Calls	For each unique CCD.origCalledNumber, count the number of CCDRs with a unique sessionID and sequence number.
Avg Calls	<p>Total calls divided by the number of days in the report period.</p> <p>The number of days in the report period is calculated as follows. This information is displayed in units of days, rounded up to the next integer.</p> $\text{report end time} - \text{report start time}$ <p>For example, if the report start time and the report end time are on the same day, the number of days is 1.</p>
Avg Call Duration	Duration of a call is obtained from CCD.connectTime. Average call duration of a called number is calculated by the sum of CCD.connectTime of all calls for that called number, divided by the number of calls to that number.

Contact Service Queue Activity Report

The Contact Service Queue Activity Report shows one line for each contact service queue (CSQ) that is configured in the Cisco CRA. A CSQ can be configured based on resource group or based on resource skill.

[Table 2-13](#) shows how the information in the Contact Service Queue Activity Report is obtained or calculated.

[Table 2-14](#) explains how the Contact Service Queue Activity Report filter parameter obtains data.

For information about the database table names and field names that are shown in this section, see the [“Conventions Used in this Chapter”](#) section on page 2-2.

Table 2-13 Contact Service Queue Activity Report Query Design

Field	Explanation
CSQ Name	Obtained from CSQU.csqName.
Call Skills	Join CRD.primaryCSD with CSQU.recordID to obtain CSQU.skillGroupID. Join CSQU.skillGroupID with SG.skillGroupID to obtain SG.skillID. Join SG.skillID with Skill.skillID to obtain the list of skill names, which is stored in Skill.skillName.
Calls Presented	<p>If a call is presented to one CSQ, the record ID of the CSQ is stored in CRD.csd1. If a call is presented to two CSQs, the record IDs of the CSQs are stored in CRD.csd1 and in CRD.csd2. If a call is presented to three CSQs, the record IDs of the CSQs are stored in CRD.csd1, in CRD.csd2, and in CRD.csd3.</p> <p>To calculate the number of calls presented to each CSQ, count the number of CRD records with unique sessionIDs that contain the record ID of the CSQ in csd1, csd2, or csd3.</p>
Wait Time—Avg	Wait time of a call is obtained from CRD.queueTime. Average wait time for a CSQ is the sum of CRD.queueTime for all calls presented divided by the number of calls presented.
Wait Time—Max	Wait time of a call is obtained from CRD.queueTime. Maximum wait time of a CSQ is the longest CRD.queueTime for all the calls presented in the report period.
Calls Handled	To calculate calls handled by each CSQ, count the number of CRD records with unique sessionID that contain the record ID of the CSQ in the primaryCSD field. In addition, join CRD and ACD on sessionID and sessionSeqNum to only include calls with non-zero ACD.talkTime. Then join CRD and CCD on sessionID and sessionSeqNum to only include calls with CCD.contactDisposition set to 2 (handled).
Handle Time—Avg	<p>Handle time of a single call is calculated as (ACD.talkTime + ACD.holdTime + ACD.workTime).</p> <p>Average handle time for a CSQ is the sum of handle times of all the calls handled by the CSQ divided by the number of calls handled.</p>
Handle Time—Max	<p>Handle time of a single call is calculated as (ACD.talkTime + ACD.holdTime + ACD.workTime).</p> <p>Maximum handle time for a CSQ is the longest handle time of all calls handled in the report period.</p>

Table 2-13 Contact Service Queue Activity Report Query Design (continued)

Field	Explanation
Calls Abandoned— Total	<p>When a call is queued for a CSQ and then abandoned, CRD.csd1 (or CRD.csd2, or CRD.csd3, depending on the order in which the call was queued) stores the record ID of the CSQ. In addition, CRD.primaryCSD is –1.</p> <p>To calculate the total number of calls abandoned from a CSQ, count the number of CRD records with a unique sessionID that contain the record ID of the CSQ in csd1, csd2, or csd3. Only include the CRD records with primaryCSD set to –1. In addition, join CRD with CCD on sessionID and sessionSeqNum to only include the records with CCD.contactDisposition set to 1 (abandoned).</p>
Calls Abandoned— Avg	<p>Total number of calls abandoned divided by the number of days in the report period.</p> <p>The number of days is calculated as follows. This information is displayed in units of days, rounded up to the next integer.</p> $\text{report end time} - \text{report start time}$ <p>For example, if the report start time and the report end time are on the same day, the number of days is 1.</p>
Calls Abandoned— Max	For each CSQ, calculate the total number of calls abandoned on each day in the report period. Maximum calls abandoned is the largest of these numbers.
Calls Abandoned— AW	<p>For an abandoned call, CRD.primaryCSD is set to –1 and CCD.contactDisposition is set to 1. Join CRD and CCD on sessionID and sessionSeqNum to find CRD records that meet these criteria.</p> <p>Average wait time for calls abandoned is the sum of queueTime for these CRD records divided by the total number of calls abandoned.</p>
Total Number of Calls by Priority (Pri. 1 through Pri. 10)	<p>Call priority is stored in CRD.finalPriority. When a call is presented to a CSQ, the record ID of the CSQ is stored in CRD.csd1, or CRD.csd2, or CRD.csd3, depending on whether the call is presented to multiple CSQs and the order in which it is queued.</p> <p>For each CSQ and each call priority, count the number of CRD records.</p>
Average Number of Calls by Priority (Pri. 1 through Pri. 10)	Total number of calls by priority divided by the number of days in the report period, rounded up to the next integer. For example, if the report start time and the report end time are on the same day, the number of days is 1.

Table 2-14 Contact Service Queue Activity Report Filter Parameter

Filter Parameter	Explanation
Contact Service Queue	To report on a specific CSQ or CSQs, obtain the list of the CSQ names from the user selection for this parameter. Find the corresponding CSQU.recordID(s). Query the CRD table to only include the selected CSQ(s).

Contact Service Queue Activity Report (by CSQ) and Contact Service Queue Activity Report (by Interval)

The Contact Service Queue Activity Report (by CSQ) and the Contact Service Queue Activity Report (by Interval) show information about service levels, and about the number and percentage of calls presented, handled, abandoned, and dequeued.

In the Contact Service Queue Activity Report (by CSQ), information presented is sorted first by CSQ, then by interval.

In the Contact Service Queue Activity Report (by Interval), information presented is sorted first by interval, then by CSQ.

[Table 2-15](#) shows how the information in the Contact Service Queue Activity Reports is obtained or calculated.

[Table 2-16](#) explains how the Contact Service Queue Activity Reports filter parameters obtain data.

For information about the database table names and field names that are shown in this section, see the [“Conventions Used in this Chapter”](#) section on page 2-2.

Table 2-15 Contact Service Queue Activity Reports Query Design

Field	Explanation
CSQ Name	Obtained from CSQU.csqName.
Call Skills	Join CRD.primaryCSD with CSQU.recordID to obtain CSQU.skillGroupID. Join CSQU.skillGroupID with SG.skillGroupID to obtain SG.skillIID. Join SG.skillIID with Skill.skillIID to obtain the list of skill names, which is stored in Skill.skillName.

Table 2-15 Contact Service Queue Activity Reports Query Design (continued)

Field	Explanation
Interval Start Time	Beginning of an interval. End-users can divide the report period into 30- or 60-minute intervals. (The default interval length is the entire report period.)
Interval End Time	End of an interval. End-users can divide the report period into 30- or 60-minute intervals. (The default interval length is the entire report period.)
Service Level (sec)	Obtained from CSQU.serviceLevel.
Calls Hand < SL	To calculate number of calls handled within service level, join CRD and CCD on sessionID and sessionSeqNum to include records with CCD.contactDisposition set to 2 (handled), join CRD and ACD on sessionID and sessionSeqNum to include records with non-zero ACD.talkTime, and count the number of CRD records with unique sessionID and with the metServiceLevel field set to 1.
Calls Aband < SL	To calculate number of calls handled within the service level, join CRD and CCD on sessionID and sessionSeqNum to include records with CCD.contactDisposition set to 1 (abandoned), and count the number of CRD records with unique sessionIDs and with the metServiceLevel field set to 1.
Percentage of Service Level Met—Only Handled	Considers calls handled only, regardless of whether they were handled within the service level. This value does not consider calls abandoned. This value is calculated as follows: $(\text{number of calls handled within service level} / \text{number of calls handled}) * 100\%$
Percentage of Service Level Met—Without Abandon	Does not include information for calls that were abandoned within the service level. This value is calculated as follows: $(\text{number of calls handled within service level} / (\text{number of calls presented} - \text{number of calls abandoned within service level})) * 100\%.$
Percentage of Service Level Met—Positive Abandon	Considers calls abandoned within the service level as meeting the service level. This value is calculated as follows: $((\text{number of calls handled within service level} + \text{number of calls abandoned within service level}) / \text{number of calls presented}) * 100\%$

Table 2-15 Contact Service Queue Activity Reports Query Design (continued)

Field	Explanation
Percentage of Service Level Met—Negative Abandon	<p>Considers calls abandoned within the service level as not meeting the service level.</p> <p>This value is calculated as follows:</p> $(\text{number of calls handled within service level} / \text{number of calls presented}) * 100\%$
Calls Presented	<p>If a call is presented to one CSQ, the record ID of the CSQ is stored in CRD.csd1. If a call is presented to two CSQs, the record IDs of the CSQs are stored in CRD.csd1 and in CRD.csd2. If a call is presented to three CSQs, the record IDs of the CSQs are stored in CRD.csd1, in CRD.csd2, and in CRD.csd3.</p> <p>To calculate the number of calls presented to each CSQ, count the number of CRD records with unique sessionIDs that contain the record ID of the CSQ in csd1, csd2, or csd3.</p>
Calls Handled	<p>Number of calls handled by an agent, and the percentage of calls presented that were handled by the agent.</p> <p>To calculate calls handled by each CSQ, count the number of CRD records with a unique sessionID that contains the record ID of the CSQ in the primaryCSD field. In addition, join CRD and ACD on sessionID and sessionSeqNum to only include calls with non-zero ACD.talkTime. Then join CRD and CCD on sessionID and sessionSeqNum to only include calls with CCD.contactDisposition set to 2 (handled).</p> <p>The percentage is calculated as follows:</p> $(\text{calls handled} / \text{calls presented}) * 100\%$

Table 2-15 Contact Service Queue Activity Reports Query Design (continued)

Field	Explanation
Calls Abandoned	<p>Number of calls abandoned, and the percentage of calls presented that were abandoned.</p> <p>When a call is queued for a CSQ and then abandoned, CRD.csd1 (or CRD.csd2, CRD.csd3, depending on the order in which the call was queued) stores the record ID of the CSQ and CRD.primaryCSD is -1.</p> <p>To calculate total number of calls abandoned from a CSQ, count the number of CRD records with a unique sessionID that contain the record ID of the CSQ in csd1, csd2, or csd3. Only include the CRD records with primaryCSD set to -1. In addition, join CRD with CCD on sessionID and sessionSeqNum to only include the records with CCD.contactDisposition set to 1 (abandoned).</p> <p>The percentage is calculated as follows: $(\text{calls abandoned} / \text{calls presented}) * 100\%$</p>
Calls Dequeued	<p>Number of calls dequeued, and the percentage of calls presented that were dequeued.</p> <p>The record ID of the CSQ that handled the call is stored in CRD.primaryCSD. The csd1, csd2 and csd3 fields of the CRD store the record IDs of the CSQs that the call was queued for. When the value in one of these fields is different than the value in crd.primaryCSD, the call is considered to be dequeued from the CSQ identified by csd1, csd2, or cds3.</p> <p>To calculate calls dequeued from each CSQ, join CRD and CCD on sessionID and sessionSeqNum to only include calls with CCD.contactDisposition set to 2 (handled), and count the number of CRD records with unique sessionID and with a value in csd1, csd2, or csd3 that is different than the value in primaryCSD.</p> <p>The percentage is calculated as follows: $(\text{calls dequeued} / \text{calls presented}) * 100\%$</p>

Table 2-16 Contact Service Queue Activity Reports Filter Parameters

Filter Parameter	Explanation
Interval Length	Options are entire report period (default), 30 minutes, 60 minutes.
CSQ Name	To report on a specific CSQ or CSQs, obtain the list of the CSQ names from the user selection for this parameter. Find the corresponding CSQU.recordID(s). Query the CRD table to only include the selected CSQs.

Contact Service Queue Service Level Report

The Contact Service Queue Service Level Report provides information about the service level provided to calls that are handled by each contact service queue (CSQ). It contains one row per CSQ.

[Table 2-17](#) shows how the information in the Contact Service Queue Service Level Report is obtained or calculated.

[Table 2-18](#) explains how the Contact Service Queue Service Level Report filter parameters obtain data.

For information about the database table names and field names that are shown in this section, see the [“Conventions Used in this Chapter”](#) section on page 2-2.

Table 2-17 Contact Service Queue Service Level Report Query Design

Field	Explanation
Contact Service Queue Name	Obtained from CSQU.csqName.
Call Skills	Join CRD.primaryCSD with CSQU.recordID to obtain CSQU.skillGroupID. Join CSQU.skillGroupID with SG.skillGroupID to obtain SG.skillIID. Join SG.skillIID with Skill.skillIID to obtain the list of skill names, which is stored in Skill.skillName.
Calls Handled	To calculate calls handled by each CSQ, join CRD and ACD on sessionID and sessionSeqNum to include records with non-zero ACD.talkTime, join CRD and CCD on sessionID and sessionSeqNum to include records with CCD.contactDisposition set to 2 (handled), and count the number of CRD records with unique sessionIDs that contain the record ID of the CSQ in the primaryCSD field.

Table 2-17 Contact Service Queue Service Level Report Query Design (continued)

Field	Explanation
Avg Wait	Wait time of a call is obtained from CRD.queueTime. Average wait time of a CSQ is calculated as the sum of CRD.queueTime for all calls handled divided by the number of calls handled.
Max Wait	Wait time of a call is obtained from CRD.queueTime. Maximum wait time of a CSQ is the longest queueTime for all the calls handled in the report period.
Avg Speed to Answer	Calculated as the sum of ACD.ringTime for all calls handled by the CSQ divided by the number of calls handled.
Service Level	Obtained from CSQU.serviceLevel.
Met Service Level	<p>Number of calls that were handled within service level, and the percentage of total calls handled that were handled within service level.</p> <p>To calculate the number of calls handled within service level, join CRD and CCD on sessionID and sessionSeqNum to include records with CCD.contactDisposition set to 2 (handled), join CRD and ACD on sessionID and sessionSeqNum to include records with non-zero ACD.talkTime, and count the number of CRD records with unique sessionID and with the metServiceLevel field set to 1.</p> <p>The percentage is calculated as follows:</p> <p>(calls handled within service level / Calls Handled) * 100%</p>

Table 2-17 Contact Service Queue Service Level Report Query Design (continued)

Field	Explanation
Pri. 1 through Pri. 10	<p>Number of calls that were handled within the service level in each call priority, and the percentage of total calls handled in each call priority that were handled within service level.</p> <p>Call priority is stored in CRD.finalPriority.</p> <p>To calculate the number of calls handled within service level in a particular call priority, join CRD and CCD on sessionID and sessionSeqNum to include records with CCD.contactDisposition set to 2 (handled), join CRD and ACD on sessionID and sessionSeqNum to include records with non-zero ACD.talkTime. Then count the number of CRD records with unique sessionID, with the metServiceLevel field set to 1, and with the value in the finalPriority field matching the call priority.</p> <p>Total calls handled in a particular call priority (whether or not handled within the service level) is calculated the same as calls handled within service level for a call priority, except that CRD.metServiceLevel can be 0 or 1.</p> <p>The percentage is calculated as follows:</p> <p>(calls handled within service level in the call priority / total calls handled in that call priority) * 100%</p>
<=n sec	<p>Number of calls handled within <i>n</i> seconds queue time, and the percentage of total calls handled that were handled within <i>n</i> seconds of queue time. (By default, <i>n</i> = 15 seconds, but users can change this value.)</p> <p>To calculate the number of calls handled within <i>n</i> seconds queue time, join CRD and CCD on sessionID and sessionSeqNum to include records with CCD.contactDisposition set to 2 (handled), join CRD and ACD on sessionID and sessionSeqNum to include records with non-zero ACD.talkTime, and count the number of CRD records with unique sessionIDs and with the value in the queueTime field less than or equal to <i>n</i> seconds.</p> <p>The percentage is calculated as follows:</p> <p>(calls handled within <i>n</i> seconds queue time / Call Handled) * 100%</p>

Table 2-17 Contact Service Queue Service Level Report Query Design (continued)

Field	Explanation
$(n + 1)$ through $(2n)$ sec	<p>Number of calls handled with queue time between n and $2n$ seconds, and the percentage of total calls handled that were handled between n and $2n$ seconds of queue time. (By default, $n = 15$ seconds, but users can change this value.)</p> <p>To calculate the number of calls handled with queue time between n and $2n$ seconds, join CRD and CCD on sessionID and sessionSeqNum to include records with CCD.contactDisposition set to 2 (handled), join CRD and ACD on sessionID and sessionSeqNum to include records with non-zero ACD.talkTime, and count the number of CRD records with unique sessionIDs, and with the value in the queueTime field greater than n seconds and less than or equal to $2n$ seconds.</p> <p>The percentage is calculated as follows:</p> <p>(calls handled between $n + 1$ and $2n$ seconds / Calls Handled) * 100%</p>
$(2n + 1)$ through $(3n)$ sec	<p>Number of calls handled with queue time between $2n$ and $3n$ seconds, and the percentage of total calls handled that were handled between $2n$ and $3n$ seconds of queue time. (By default, $n = 15$ seconds, but users can change this value.)</p> <p>To calculate the number of calls handled within queue time between $2n$ and $3n$ seconds, join CRD and CCD on sessionID and sessionSeqNum to include records with CCD.contactDisposition set to 2 (handled), join CRD and ACD on sessionID and sessionSeqNum to include records with non-zero ACD.talkTime, and count the number of CRD records with unique sessionIDs and with the value in the queueTime field greater than $2n$ seconds and less than or equal to $3n$ seconds.</p> <p>The percentage is calculated as follows:</p> <p>(calls handled with queue time between $(2n+1)$ and $3n$ seconds / Calls Handled) * 100%</p>

Table 2-17 Contact Service Queue Service Level Report Query Design (continued)

Field	Explanation
>3n sec	<p>Number of calls handled with queue time greater than 3n seconds, and percentage of total calls handled that were handled after 3n seconds of queue time. (By default, n = 15 seconds, but users can change this value.)</p> <p>To calculate number of calls handled with queue time greater than 3n seconds, join CRD and CCD on sessionID and sessionSeqNum to include records with CCD.contactDisposition set to 2 (handled), join CRD and ACD on sessionID and sessionSeqNum to include records with non-zero ACD.talkTime, and count the number of CRD records with unique sessionIDs and with the value in the queueTime field greater than 3n seconds.</p> <p>The percentage is calculated as follows:</p> <p>(calls handled with queue time greater than 3n seconds / Calls Handled) * 100%</p>

Table 2-18 Contact Service Queue Service Level Report Filter Parameters

Filter Parameter	Explanation
Contact Service Queue Names	To report on a specific CSQ or CSQs, obtain the list of CSQ names from the user selection for this parameter. Find the corresponding CSQU.recordID(s). Query the CRD table to only include the selected CSQs.
Time Interval for Service Level Metric	Value used for n in the four time interval fields in the Contact Service Queue Service Level Report. The default value is 15 seconds.

Detailed Call by Call CDR Report

The Detailed Call by Call CDR Report shows most of the information that is contained in the CCD table. This report also includes information from the CRD and the ACD tables. The report contains one row per call leg (a call transfer or redirect initiates a new call leg).

Table 2-19 shows how the information in the Detailed Call by Call CDR Report is obtained or calculated.

For information about the database table names and field names that are shown in this section, see the [“Conventions Used in this Chapter”](#) section on page 2-2.

Table 2-19 Detailed Call by Call CCDR Report Query Design

Field	Explanation
Session ID	Obtained from CCD.sessionID.
Sequence No.	Obtained from CCD.sessionSeqNum.
Start Time	Obtained from CCD.startDateTime.
End Time	Obtained from CCD.endDateTime.
Contact Type	Obtained from CCD.contactType.
Contact Disposition	Obtained from CCD.contactDisposition.
Originator Type	Obtained from CCD.originatorType.
Originator ID	Obtained from CCD.originatorID. If originator type is 1 (agent), CCD.originatorID is a resource ID. Join CCD.originatorID with Resource.resourceID to display the agent login ID, which is stored in Resource.resourceLoginID.
Originator DN ¹	If CCD.originatorType is Device (2) or Unknown (3), obtained from CCD.originatorDN. If CCD.originatorType is Agent (1), join CCD.OriginatorID with Resource.resourceID and obtain Resource.extension.
Destination Type	Obtained from CCD.destinationType.
Destination ID	Obtained from CCD.destinationID. If destination type is 1 (agent), CCD.destinationID is a resource ID. Join CCD.destinationID with Resource.resourceID to display the agent login ID, which is stored in Resource.resourceLoginID.
Destination DN	If CCD.destinationType is Device (2) or Unknown (3), obtained from CCD.destinationDN. If CCD.destinationType is Agent (1), join CCD.destinationID with Resource.resourceID and obtain Resource.extension.
Called Number	Obtained from CCD.calledNumber.
Original Called No.	Obtained from CCD.origCalledNumber.
Application Name	Obtained from CCD.applicationName.

Table 2-19 Detailed Call by Call CCDR Report Query Design (continued)

Field	Explanation
Queue Time	Join CCD and CRD on sessionID and sessionSeqNum to obtain the value in CRD.queueTime. Blank for non-ICD calls.
Talk Time	For ICD calls, join CCD and ACD on sessionID and sessionSeqNum to obtain the value in ACD.talkTime. For non-ICD calls, there is no ACD record. Talk time of handled non-ICD calls (where CCD.contactDisposition set to 2) is calculated as (CCD.endDateTime – CCD.startDateTime). For abandoned non-ICD calls (where CCD.contactDisposition set to 1), talk time is zero.
Hold Time	For ICD calls, join CCD and ACD on sessionID and sessionSeqNum to obtain the value in ACD.holdTime. Blank for non-ICD calls.
Work Time	For ICD calls, join CCD and ACD on sessionID and sessionSeqNum to obtain the value in ACD.workTime. Blank for non-ICD calls.

1. DN = directory number

IVR Application Performance Analysis Report

The IVR Application Performance Analysis Report shows information about calls received by each Cisco ICD or IVR application. It contains one row per call application. The information is stored in the CCD table.

[Table 2-20](#) shows how the information in the IVR Application Performance Analysis Report is obtained or calculated.

For information about the database table names and field names that are shown in this section, see the [“Conventions Used in this Chapter”](#) section on page 2-2.

Table 2-20 IVR Application Performance Analysis Report Query Design

Field	Explanation
Application ID	Obtained from CCD.applicationID.
Application Name	Obtained from CCD.applicationName.
Total Incoming Calls	For each application, count the number of CCD records with unique sessionIDs and with the contactType field set to 1 (incoming).
Calls Handled	For each application, count the number of CCD records with unique sessionIDs and with the contactType field set to 1 (incoming) and contactDisposition set to 2 (handled).
Calls Abandoned	For each application, count the number of CCD records with unique sessionIDs and with the contactType field set to 1 (incoming) and contactDisposition set to 1 (abandoned).
Abandon Rate	Calculated as follows: Calls Abandoned / number of hours within the report period
Avg Call Duration	Call duration is stored in CCD.connectTime. Average call duration of an application is calculated as the sum of CCD.connectTime for all calls in that application, divided by the number of calls.

IVR Traffic Analysis Report

The IVR Traffic Analysis Report shows information about incoming calls to the Cisco CRA system. It contains one row per day.

[Table 2-21](#) shows how the information in the IVR Traffic Analysis Report is obtained or calculated.

For information about the database table names and field names that are shown in this section, see the [“Conventions Used in this Chapter”](#) section on page 2-2.

Table 2-21 IVR Traffic Analysis Report Query Design

Field	Explanation
Date	Date of each day in the report period.
Total Incoming Calls	For each day, count the number of CCD records with unique sessionID with the contactType field set to 1 (incoming).
Avg Calls	Calculated as total incoming calls divided by the number of hours in the day. The first day or the last day of the report period may be a partial day, depending on the start time and the end time selected by the user. Any other day within the report period has 24 hours.
Peak Calls	Divide each day into one-hour intervals. The number of incoming calls within each interval is determined by counting the number of CCD records with unique sessionIDs in the interval. The peak hour is the interval with the largest number of incoming calls. This field displays the number of calls in the peak hour.
Peak Hour Start	Divide each day into one-hour intervals. The number of incoming calls within each interval is determined by counting the number of CCD records with unique sessionIDs in the interval. The peak hour is the interval with the largest number of incoming calls. This field displays the start time of the peak hour.
Peak Hour End	Divide each day into one-hour intervals. The number of incoming calls within each interval is determined by counting the number of CCD records with unique sessionIDs in the interval. The peak hour is the interval with the largest number of incoming calls. This field displays the end time of the peak hour.
Avg Call Duration	A call may have multiple call legs. The call duration for a call is calculated as sum of CCD.connectTime for all the call legs. Average call duration for a day is calculated as the sum of call durations for all incoming calls on that day divided by the number of incoming calls on that day.
Min Call Duration	A call may have multiple call legs. The call duration for a call is calculated as sum of CCD.connectTime for all the call legs. Minimum call duration for a day is the shortest call duration of all incoming calls for that day.
Max Call Duration	A call may have multiple call legs. The call duration for a call is calculated as sum of CCD.connectTime for all the call legs. Maximum call duration for a day is the longest call duration of all incoming calls for that day.

Priority Summary Activity Report

The Priority Summary Activity Report contains one row per call priority.

[Table 2-22](#) shows how the information in the Priority Summary Activity Report is obtained or calculated.

[Table 2-23](#) explains how the Priority Summary Activity Report filter parameter obtains data.

For information about the database table names and field names that are shown in this section, see the [“Conventions Used in this Chapter”](#) section on page 2-2.

Table 2-22 *Priority Summary Activity Report Query Design*

Field	Explanation
Call Priority	Obtained from CRD.finalPriority. It is a value from 1 through 10.
Total Calls	For each call priority, count the number of CRD records with unique sessionID.
Avg Calls	Total calls divided by the number of days in the report period. The number of days is calculated as follows. This information is displayed in units of days, rounded up to the next integer. $\frac{\text{report end time} - \text{report start time}}{\text{number of days}}$ For example, if the report start time and the report end time are on the same day, the number of days is 1.
Total Number of Calls with Different Original and Final Priorities	Original call priority is stored in CRD.origPriority and final call priority in CRD.finalPriority. Count the number of CRD records with CRD.finalPriority different than CRD.origPriority in the report period.
Average Number of Calls (Per Day) with Different Original and Final Priorities	Total number of calls with different original and final call priorities divided by the number of days in the report period. The number of days is calculated as follows. This information is displayed in units of days, rounded up to the next integer. $\frac{\text{report end time} - \text{report start time}}{\text{number of days}}$ For example, if the report start time and the report end time are on the same day, the number of days is 1.

Table 2-22 Priority Summary Activity Report Query Design (continued)

Field	Explanation
Maximum Difference Between Original and Final Priorities Experienced by All Calls	Original call priority is stored in CRD.origPriority and final call priority in CRD.finalPriority. For a single call, the difference between original and final priorities is calculated as the absolute value of (CRD.finalPriority – CRD.origPriority) This field shows the largest number of all calls in the report period.
Average Difference (Per Call) Between Original and Final Priorities Experienced by All Calls	Original call priority is stored in CRD.origPriority and final call priority in CRD.finalPriority. For a single call, the difference between original and final priorities is calculated as the absolute value of (CRD.finalPriority – CRD.origPriority). This field is calculated as sum of the difference (absolute value) for all calls in the report period, divided by the number of calls.

Table 2-23 Priority Summary Activity Report Filter Parameter

Filter Parameter	Explanation
Call Priority Levels	To report on a specific call priority or priorities, obtain the list of call priorities from the user selection for this parameter. Query the CRD table to only include the selected call priority or priorities.

Skill Routing Activity Report

The Skill Routing Activity Report contains one row for each skill group. A skill group is a contact service queue (CSQ) that is configured based on resource skills instead of resource groups.

Table 2-24 shows how the information in the Skill Routing Activity Report is obtained or calculated.

Table 2-25 explains how the Skill Routing Activity Report filter parameter obtains data.

For information about the database table names and field names that are shown in this section, see the “Conventions Used in this Chapter” section on page 2-2.

Table 2-24 Skill Routing Activity Report Query Design

Field	Explanation
Skill Group	Join CRD.primaryCSD with CSQU.recordID. The name of the skill group is stored in CSQU.csqName.
Call Skills	Join CRD.primaryCSD with CSQU.recordID to obtain CSQU.skillGroupID. Join CSQU.skillGroupID with SG.skillGroupID to obtain SG.skillID. Join SG.skillID with Skill.skillID to obtain the list of skill names, which is stored in Skill.skillName.
Calls Presented	<p>If a call is presented to one CSQ, the record ID of the CSQ is stored in CRD.csd1. If a call is presented to two CSQs, the record IDs of the CSQs are stored in CRD.csd1 and in CRD.csd2. If a call is presented to three CSQs, the record IDs of the CSQs are stored in CRD.csd1, in CRD.csd2, and in CRD.csd3.</p> <p>To calculate the number of calls presented to each CSQ, count the number of CRD records with unique sessionIDs that contain the record ID of the CSQ in csd1, csd2, or csd3.</p>
Wait Time—Avg	Wait time of a call is obtained from CRD.queueTime. Average wait time for a CSQ is calculated as the sum of CRD.queueTime for all calls presented divided by the number of calls presented.
Wait Time—Max	Wait time of a call is obtained from CRD.queueTime. Maximum wait time for a CSQ is the longest queueTime for all the calls presented in the report period.
Calls Handled	To calculate calls handled by each CSQ, count the number of CRD records with unique sessionIDs that contain the record ID of the CSQ in the primaryCSD field. In addition, join CRD and ACD on sessionID and sessionSeqNum to only include calls with non-zero ACD.talkTime. Then join CRD and CCD on sessionID and sessionSeqNum to only include calls with CCD.contactDisposition set to 2 (handled).
Handle Time—Avg	<p>Handle time for a single call is calculated as follows:</p> $\text{ACD.talkTime} + \text{ACD.holdTime} + \text{ACD.workTime}$ <p>Average handle time for a CSQ is calculated as the sum of handle time of all calls handled by the CSQ divided by the number of calls handled.</p>

Table 2-24 Skill Routing Activity Report Query Design (continued)

Field	Explanation
Handle Time—Max	<p>Handle time of a single call is calculated follows:</p> $\text{ACD.talkTime} + \text{ACD.holdTime} + \text{ACD.workTime}$ <p>Maximum handle time for a CSQ is the longest handle time of all calls handled in the report period.</p>
Calls Abandoned—Total	<p>When a call is queued for a CSQ and is then abandoned, CRD.csd1 (or CRD.csd2, CRD.csd3, depending on the order in which the call is queued) stores the record ID of the CSQ and CRD.primaryCSD is -1.</p> <p>To calculate total number of calls abandoned from a CSQ, count the number of CRD records with a unique sessionID and sessionSeqNum that contain the record ID of the CSQ in csd1, csd2, or csd3. Only include the CRD records with primaryCSD set to -1. In addition, join CRD with CCD on sessionID and sessionSeqNum to only include the records with CCD.contactDisposition set to 1 (abandoned).</p>
Calls Abandoned—Avg	<p>Total number of calls abandoned divided by the number of days in the report period.</p> <p>The number of days is calculated as follows. This information is displayed in units of days, rounded up to the next integer.</p> $\text{report end time} - \text{report start time}$ <p>For example, if the report start time and the report end time are on the same day, the number of days is 1.</p>
Calls Abandoned—Max	For each CSQ, calculate the total number of calls abandoned on each day of the report period. Maximum calls abandoned is the largest number.
Calls Abandoned—AW	An abandoned call has CRD.primaryCSD set to -1 and CCD.contactDisposition set to 1 (abandoned). Join CRD and CCD on sessionID and sessionSeqNum to find CRD records which meet these criteria. The average wait time for calls abandoned is calculated as the sum of queueTime for these CRD records divided by the total number of calls abandoned.

Table 2-24 Skill Routing Activity Report Query Design (continued)

Field	Explanation
Total Number of Calls by Priority (Pri. 1 through Pri. 10)	<p>Call priority is stored in CRD.finalPriority. When a call is presented to CSQs, the record ID of the CSQ is stored in CRD.csd1, CRD.csd2, or CRD.csd3, depending on whether the call is presented to multiple CSQs and the order in which it is queued.</p> <p>For each CSQ and each call priority, count the number of CRD records with unique sessionIDs.</p>
Average Number of Calls by Priority (Pri. 1 through Pri. 10)	<p>Total number of calls by priority divided by the number of days in the report period.</p> <p>The number of days is calculated as follows. This information is displayed in units of days, rounded up to the next integer.</p> <p>report end time – report start time</p> <p>For example, if the report start time and the report end time are on the same day, the number of days is 1.</p>

Table 2-25 Skill Routing Activity Report Filter Parameter

Filter Parameter	Explanation
Skill name(s)	<p>To report on CSQs with a specific skill or skills, obtain the skill name(s) from the user selection for this parameter. Find the corresponding Skill.skillID(s). Join Skill and SG on skillID to obtain SG.skillGroupID. Join SG and CSQ on skillGroupID to obtain the record IDs of the CSQs that have the specified skills. The record ID is stored in CSQU.recordID.</p> <p>An end-user can select AND or OR for the skill names. Selecting AND reports on CSQs that are configured with all of the skills selected. Selecting OR reports on CSQs that are configured with any of the skills selected.</p>



Writing Database Records

This chapter explains how call-related detail records and agent state change records are generated for various call flows and scenarios.

The explanations throughout this chapter use the following abbreviations for database records:

- ACDR—AgentConnectionDetail record in the AgentConnectionDetail table
- ASDR—AgentStateDetail record in the AgentStateDetail table
- CCDD—ContactCallDetail record in the ContactCallDetail table
- CRDR—ContactRoutingDetail record in the ContactRoutingDetail table

This chapter includes the following topics:

- [Flow of Call-Related Detail Records, page 3-1](#)
- [Call Scenarios, page 3-2](#)

Flow of Call-Related Detail Records

[Table 3-1](#) provides an example of the general flow of detail records for incoming ICD calls. This example assumes that the contact service queue (CSQ) is configured for auto-work and that the agent is configured for auto-available.

Table 3-1 General Flow of Detail Records for Incoming ICD Calls

System Activity	Detail Record Activity
Call reaches CTI Port	Allocate Session Begin CCDR in memory
Call executes first Select Resource step	Begin CRDR in memory
System selects agent and rings phone	Begin ACDR in memory, write ASDR for state change to Reserved
Agent answers	Write ASDR (Talking)
Call disconnects	Write CCDR, CRDR, ASDR (Work)
Agent leaves Work state	Write ACDR, ASDR (Ready)

If the agent does not enter Work state after the call, the system writes the ACDR and the ASDR (Ready) when the call disconnects. If the agent is not configured for auto-available, the ASDR pertains to Not Ready state.

Call Scenarios

The following sections describe various call scenarios. Each example assumes that auto-work is disabled for incoming ICD calls and that all agents have auto-available enabled.

- [Basic ICD Call Scenario, page 3-3](#)
- [Transfer to Route Point Scenario, page 3-3](#)
- [Conference to Agent Scenario, page 3-4](#)
- [Workflow Redirect to Route Point Scenario, page 3-5](#)
- [ICD Call Unanswered Scenario, page 3-5](#)
- [Agent to Agent Non-ICD Call Scenario, page 3-6](#)
- [Agent to Agent Non-ICD Call Transfer Scenario, page 3-7](#)
- [Agent to Agent Non-ICD Call Conference Scenario, page 3-8](#)
- [ICD Call Blind Transfer Scenario, page 3-9](#)

- [Agent Places Consult Call then Resumes Call Scenario, page 3-10](#)
- [Agent Consults Agent then Resumes Call Scenario, page 3-11](#)

Basic ICD Call Scenario

In the Basic ICD Call scenario, a call reaches a CRA route point, executes a script, and queues for one or more CSQs. The system allocates agent A for the call, rings agent A's phone, and agent A answers the call.

[Table 3-2](#) shows the call-related detail records that are generated by this scenario. [Table 3-3](#) shows the agent state change records that are generated by this scenario.

Table 3-2 Basic ICD Call—Call-Related Detail Records

Record	Session ID	Session Sequence Number	Remarks
CCDR1	100	0	—
CRDR1	100	0	Queue information from first script
ACDR1	100	0	Agent A and original call

Table 3-3 Basic ICD Call—Agent State Change Records

Record	Reason	Remarks
ASDR1	4 (Reserved)	Agent A selected for call
ASDR2	5 (Talking)	Agent A answers call
ASDR3	3 (Ready)	Call ends

Transfer to Route Point Scenario

After the basic ICD scenario (see the [“Basic ICD Call Scenario” section on page 3-3](#)), agent A transfers the call to a CRA route point. The call executes a script, queues for one or more CSQs, and connects to agent B. The server begins

a new session and CCDR as soon as agent A starts the consult call. The server writes the CCDR for the consult call when agent A completes the transfer or when agent A or the script terminates that call.

Table 3-4 shows the call-related detail records that are generated by this scenario.

Table 3-4 Transfer to Route Point—Call-Related Detail Records

Record	Session ID	Session Sequence Number	Remarks
CCDR1	100	0	—
CRDR1	100	0	Queue information from first script
ACDR1	100	0	Agent A and original call
CCDR2	101	0	Consult call from agent A to route point
CCDR3	100	1	Second leg of original call to new route point
CRDR3	100	1	Queue info from second script
ACDR3	100	1	Agent B and original call

Conference to Agent Scenario

After the basic ICD scenario (see the “[Basic ICD Call Scenario](#)” section on [page 3-3](#)), agent A calls another logged-in agent, agent B, and conferences agent B into the original call. The server begins a new session and CCDR as soon as agent A starts the consult call. The server writes the CCDR for the consult call when agent A completes the conference or when agent A or agent B terminates the consult call.



Note

The server does not create a new CCDR or CRDR after the conference is completed.

Table 3-5 shows the call-related detail records that are generated by this scenario. An asterisk (*) indicates a record that has the same name as another record but that is for a different agent.

Table 3-5 Conference to Agent—Call-Related Detail Records

Record	Session ID	Session Sequence Number	Remarks
CCDR1	100	0	—
CRDR1	100	0	—
ACDR1	100	0	Agent A and original call
CCDR2	101	0	Consult call from agent A to agent B
ACDR1*	100	0	Agent B and original call

Workflow Redirect to Route Point Scenario

In the Workflow Redirect to Route Point scenario, an incoming call reaches a CRA route point. That workflow for that route point redirects the call to a second route point.

[Table 3-6](#) shows the call-related detail records that are generated by this scenario.

Table 3-6 Workflow Redirect to Route Point—Call-Related Detail Records

Record	Session ID	Session Sequence Number	Remarks
CCDR1	100	0	Caller to first route point
CCDR2	100	1	Caller to second route point

ICD Call Unanswered Scenario

In the ICD Call Unanswered scenario, a call reaches a CRA route point, executes a script, and queues for one or more CSQs. The system allocates agent A for the call, rings agent A's phone, but agent A does not answer the call within the timeout specified in the Select Resource or Connect step. Then the call goes into queue and is presented to agent B, who answers the call.

Table 3-7 shows the call-related detail records that are generated by this scenario. An asterisk (*) indicates a record that has the same name as another record but that is for a different agent.

Table 3-8 shows the agent state change records that are generated by this scenario.

Table 3-7 ICD Call Unanswered Scenario—Call-Related Detail Records

Record	Session ID	Session Sequence Number	Remarks
CCDR1	100	0	—
CRDR1	100	0	—
ACDR1	100	0	Agent A, ring time > 0 and talk time = 0
ACDR1*	100	0	Agent B, talk time > 0

Table 3-8 ICD Call Unanswered Scenario—Agent State Change Records

Record	Agent	Reason	Remarks
ASDR1	A	4 (Reserved)	Agent A selected for call
ASDR2	A	2 (Not Ready)	Server retrieves call from agent's phone
ASDR3	B	4 (Reserved)	Agent B selected for call
ASDR4	B	5 (Talking)	Agent B answers call

Agent to Agent Non-ICD Call Scenario

In the Agent to Agent Non-ICD Call scenario, agent A goes offhook and calls agent B. Agent B answers, the two agents talk for a while, then agent B hangs up.

Table 3-9 shows the call-related detail records that are generated by this scenario.

Table 3-10 shows the agent state change records that are generated by this scenario.

Table 3-9 Agent to Agent Non ICD Call—Call-Related Detail Records

Record	Session ID	Session Sequence Number	Remarks
CCDR1	100	0	Agent A to agent B

Table 3-10 Agent to Agent Non ICD Call—Agent State Change Records

Record	Agent	Reason	Remarks
ASDR1	A	2 (Not Ready)	Agent A goes offhook
ASDR2	B	2 (Not Ready)	Call rings at agent B's phone
ASDR3	B	3 (Ready)	Agent B goes onhook
ASDR4	A	3 (Ready)	—

Agent to Agent Non-ICD Call Transfer Scenario

In the Agent to Agent Non-ICD Call Transfer scenario, Agent A receives a non-ICD call from an unknown party. Agent A places a consult call to agent B, agent B answers the call, and agent A completes the transfer. Agent B then hangs up.

[Table 3-11](#) shows the call-related detail records that are generated by this scenario. [Table 3-12](#) shows the agent state change records that are generated by this scenario.

Table 3-11 Agent to Agent Non ICD Call Transfer—Call-Related Detail Records

Record	Session ID	Session Sequence Number	Remarks
CCDR1	100	0	Unknown party to agent A
CCDR2	101	0	Agent A to agent B
CCDR3	100	1	Unknown party to agent B

Table 3-12 Agent to Agent Non ICD Call Transfer—Agent State Change Records

Record	Agent	Reason	Remarks
ASDR1	A	2 (Not Ready)	First call rings at agent A's phone
ASDR2	B	2 (Not Ready)	Consult call rings at agent B's phone
ASDR3	A	3 (Ready)	Agent A completes transfer
ASDR4	B	3 (Ready)	Agent B hangs up

Agent to Agent Non-ICD Call Conference Scenario

In the Agent to Agent Non-ICD Call Conference scenario, agent A receives a non-ICD call from an unknown party. Agent A places a consult call to agent B, and agent B answers the call. Then agent A establishes a conference, and agent A, agent B, and the caller are now in conversation. Agent A hangs up. Then Agent B hangs up.

[Table 3-13](#) shows the call-related detail records that are generated by this scenario. [Table 3-14](#) shows the agent state change records that are generated by this scenario.

Table 3-13 Agent to Agent Non ICD Call Conference—Call-Related Detail Records

Record	Session ID	Session Sequence Number	Remarks
CCDR1	100	0	Unknown party to agent A
CCDR2	101	0	Agent A to agent B

Table 3-14 Agent to Agent Non ICD Call Conference—Agent State Change Records

Record	Agent	Reason	Remarks
ASDR1	A	2 (Not Ready)	First call rings at agent A's phone
ASDR2	B	2 (Not Ready)	Consult call rings at agent B's phone
ASDR3	A	3 (Ready)	Agent A hangs up
ASDR4	B	3 (Ready)	Agent B hangs up

ICD Call Blind Transfer Scenario

In the ICD Call Blind Transfer Scenario, agent A is connected and talking to an incoming ICD call. Agent A puts that call on hold and places a consultative transfer to agent B. Agent A completes the transfer and then agent B answers.

[Table 3-15](#) shows the call-related detail records that are generated by this scenario. [Table 3-16](#) shows the agent state change records that are generated by this scenario.

Table 3-15 ICD Call Blind Transfer—Call-Related Detail Records

Record	Session ID	Session Sequence Number	Remarks
CCDR1	100	0	Original call and agent A
CRDR1	100	0	—
ACDR1	100	0	Agent A
CCDR2	101	0	Agent A and agent B
CCDR3	100	1	Original call and agent B
ACDR2	100	1	Agent B

Table 3-16 ICD Call Blind Transfer—Agent State Change Records

Record	Agent	Reason	Remarks
ASDR1	A	4 (Reserved)	Agent A selected for original call
ASDR2	A	5 (Talking)	Agent A answers
ASDR3	B	4 (Reserved)	Agent A calls agent B, agent B's phone rings
ASDR4	A	3 (Ready)	Agent A completes the transfer
ASDR5	B	5 (Talking)	Agent B answers
ASDR6	B	3 (Ready)	Caller hangs up

Agent Places Consult Call then Resumes Call Scenario

In the Agent Places Consult Call then Resumes Call scenario, agent A is connected to an incoming ICD call. Agent A presses the **Transfer** button to initiate a consult call with agent B. Agent A receives a dial tone, drops the consult call, and resumes the incoming call.

[Table 3-17](#) shows the call-related detail records that are generated by this scenario. [Table 3-18](#) shows the agent state change records that are generated by this scenario.

Table 3-17 Agent Places Consult Call then Resumes Call—Call-Related Detail Records

Record	Session ID	Session Sequence Number	Remarks
CCDR1	100	0	Original call and agent A
CRDR1	100	0	—
ACDR1	100	0	Includes talk time both before and after the cancelled consult call
CCDR2	101	0	Agent A, no called party info

Table 3-18 Agent Places Consult Call then Resumes Call then Resumes Call—Agent State Change Records

Record	Agent	Reason	Remarks
ASDR1	A	4 (Reserved)	Agent A selected for original call
ASDR2	A	5 (Talking)	Agent A answers
ASDR3	A	3 (Ready)	Caller hangs up

Agent Consults Agent then Resumes Call Scenario

In the Agent Consults Agent then Resumes Call scenario, agent A is connected to an incoming ICD call. Agent A puts that call on hold and initiates a consultative transfer to agent B. Agent B answers, talks to A for some time, then hangs up without agent A completing the transfer. Agent A resumes the original call.

[Table 3-19](#) shows the call-related detail records that are generated by this scenario. [Table 3-20](#) shows the agent state change records that are generated by this scenario.

Table 3-19 Agent Consults Agent then Resumes Call—Call-Related Detail Records

Record	Session ID	Session Sequence Number	Remarks
CCDR1	100	0	Original call and agent A
CRDR1	100	0	—
ACDR1	100	0	Includes talk time both before and after the consult call
CCDR2	101	0	Agent A to agent B

Table 3-20 Agent Consults Agent then Resumes Call—Agent State Change Records

Record	Agent	Reason	Remarks
ASDR1	A	4 (Reserved)	Agent A selected for original call
ASDR2	A	5 (Talking)	Agent A answers
ASDR3	B	4 (Reserved)	Agent A calls agent B, agent B's phone rings
ASDR4	B	5 (Talking)	Agent B answers
ASDR5	B	3 (Ready)	Agent B disconnects from consult call
ASDR6	A	3 (Ready)	Caller disconnects original call



Frequently Asked Questions

This chapter contains frequently asked questions (FAQs) and answers to those questions.

The questions and answers throughout this chapter use the following abbreviations for database records:

- ACDR—AgentConnectionDetail record in the AgentConnectionDetail table
- ASDR—AgentStateDetail record in the AgentStateDetail table
- CCDR—ContactCallDetail record in the ContactCallDetail table
- CRDR—ContactRoutingDetail record in the ContactRoutingDetail table

The FAQs in this chapter are arranged in the following sections:

- [Abandoned Call Detail Activity Report, page 4-2](#)
- [Agent Detail Report, page 4-2](#)
- [Agent Login Logout Activity Report, page 4-3](#)
- [Agent Summary Report, page 4-3](#)
- [Call Custom Variables Report, page 4-4](#)
- [Common Skill Contact Service Queue Activity Report, page 4-4](#)
- [Contact Service Queue Activity Report, page 4-5](#)
- [Contact Service Queue Activity Report \(by CSQ\), page 4-6](#)
- [Contact Service Queue Service Level Report, page 4-8](#)
- [Detailed Call by Call CCDR Report, page 4-8](#)
- [IVR Application Performance Analysis Report, page 4-9](#)

- [IVR Traffic Analysis Report, page 4-9](#)
- [Skill Routing Activity Report, page 4-10](#)
- [Data Reconciliation Among Reports, page 4-10](#)
- [Availability of Reporting Data, page 4-13](#)
- [General, page 4-17](#)

Abandoned Call Detail Activity Report

Q. How can multiple abandoned call legs that belong to the same call be correlated?

A. Match the call start time on the Abandoned Call Detail Activity Report with the call start time in the Detailed Call by Call CDR Report. Then, look at the session ID and session sequence number on the Detailed Call by Call CDR Report. Different call legs that belong to the same call have the same session ID but different session sequence numbers.

Q. Why does the Initial Call Priority field or the Final Call Priority field show n/a for a call?

A. The call was abandoned before it was assigned a priority.

Q. What does it mean with an Agent Name field is blank?

A. The call was abandoned before it was routed to an agent.

Q. What does it mean with an Agent Name field contains a value?

A. The call was routed to an agent, the agent did not answer, and the caller hung up.

Agent Detail Report

Q. Why are the Hold Time and the Work Time fields blank for a call?

A. The call was not an ICD call. (Non-ICD calls include agent-to-agent calls and external calls made by an agent.) The CRA database does not record hold time and work time for non-ICD calls.

Q. Why does the value in the Duration field not equal talk time + hold time + work time?

A. The value in the duration field is calculated as follows:

call end time – call start time

The call start time is when the call rings into the system, not when it is queued or routed to an agent, or when an agent answers the call. The call end time is when the agent or the caller terminates the call. Therefore, the call duration is equal to queue time + ring time + talk time + hold time.

Q. How can non-ICD calls be identified?

A. The Hold Time and the Work Time fields are blank in the Agent Detail Report.

Agent Login Logout Activity Report

Q. Why does a less-than sign (<) precede the value in the Login Time field or a greater-than sign (>) precede the value in the Logout Time field?

A. A less-than sign (<) indicates that the agent logged in before the report start time. A greater-than sign (>) indicates that the agent logged out after the report end time.

For example, assume that the report start time was 8 a.m. (0800) and the report end time was 6:00 p.m. (1800). If the agent logged in at 7:45 a.m. (0745), the Login Time field will show < 8am (or < 0800). If the agent logged out at 6:30 p.m. (1830), the Logout Time field will show > 6pm (or > 1800).

Agent Summary Report

Q. How is the value in the Average Logged-In Time field calculated?

A. This value is calculated as the total logged-in time divided by the number of login sessions.

For example, assume that an agent logs in at 8:00 a.m. (0800), then logs out at 8:30 a.m. (0830), then logs in again at 9:15 a.m. (0915), and then logs out at 10:00 a.m. (1000). In this case, there are two login sessions. The first session lasts 30 minutes and the second session lasts 45 minutes. The average logged-in time is $(30+45)/2 = 37.5$ minutes.

Q. How is Handle Time calculated?

A. Handle time = Talk time + Hold time + Work time.

Q. How is the value in the Idle Time—Avg field calculated?

A. This value is calculated as the total idle time divided by the number of idle sessions.

For example, assume that an agent goes to Not Ready state at 10:00 a.m. (1000), then goes to Ready state at 10:15 a.m. (1015), then goes to Not Ready state at 11:00 a.m. (1100), and then goes to Ready state at 11:05 a.m. (1105). In this case, there are two idle sessions. The first session lasts 15 minutes and the second session lasts 5 minutes. The average idle time is $(15+5)/2 = 10$ minutes.

Call Custom Variables Report

Q. What are the values in the Custom Variable 1 through the Custom Variable 5 fields?

A. These fields show the meanings of the custom variables that are specified in a workflow.

For example, a workflow may designate variable1 as the menu option that the caller chooses and designate variable2 as the account number that the caller enters. In this case Custom Variable 1 would show the option value (such as 2) that the caller entered, and Custom Variable 2 would show the account number that was entered.

Common Skill Contact Service Queue Activity Report

Q. This report is similar to other CSQ reports—why is it useful?

A. This report provides additional information for multiple CSQs that are configured with the same call skill but with different competence levels. An incoming call may be queued for the CSQ with the lowest competence level. If no agent is available for a certain period, the call will be queued for the next higher competence level. The summary line in the report displays the summarized statistics for the group of CSQs configured with common skills. A group of CSQs that is configured in this manner is called a logical contact service queue.

Contact Service Queue Activity Report

Q. How are average wait time (in the Wait Time—Avg field) and maximum wait time (in the Wait Time—Max field) calculated?

A. The average wait time for a CSQ is calculated as the sum of the queue times for all the calls presented divided by the number of calls presented. The maximum wait time for a CSQ is the longest queue time for a single call among the calls presented.

The queue time recorded in the CRDR for each CSQ is the total queue time, not the queue time for the specific CSQ. That is, queue time starts when the call is queued and ends when the call is handled. For example, assume that an incoming call is queued for CSQ1 for five minutes. Then it is queued for CSQ2 for another five minutes. Then it is handled by CSQ1. The queue time recorded for both CSQ1 and CSQ2 is 10 minutes.

Q. How are average calls abandoned (in the Calls Abandoned—Avg field) and maximum calls abandoned (in the Calls Abandoned—Max field) calculated?

A. Average calls abandoned for a CSQ is an average value per day. It is calculated as the total number of calls abandoned for the CSQ divided by the number of days in the report period. Maximum calls abandoned for a CSQ is calculated by determining the number of calls abandoned for each day in the report period and selecting the largest of these values.

Q. In the following scenario, is the call counted as abandoned or as handled: The system receives a call, queues it, and plays a prompt giving the caller the option to press 1 to leave a message. The caller presses 1 and leaves a message.

A. By default, the call is counted as abandoned instead of handled because it did not connect to an agent. However, if the workflow is designed to mark a call as handled after a caller leaves a message, the call will be counted as handled.

Q. If a workflow gives callers the option to transfer to a voice messaging system, is there a way to track the number of callers that make this transfer and leave a message?

A. You can design a workflow to store a caller's key input in one of the custom variables in the ContactCallDetail table. Then you can generate the Call Custom Variable Report and manually count the rows that contain the desired information. Or you can create a custom report to provide this information.

Q. Will calls presented always equal calls handled + calls abandoned?

A. No. Calls presented = calls handled + calls abandoned + calls dequeued. The calls dequeued fields in the Contact Service Queue Activity Report (by CSQ) and the Contact Service Queue Activity Report (by Interval) include dequeued calls.

Q. Can the Contact Service Queue Activity Report show hourly data? And can hourly reports be generated automatically for each hour of each day?

A. To show hourly data for each day, schedule daily reports for the CSQ Activity Report (by CSQ) or the CSQ Activity Report (by Interval). In the Detail tab, set the interval length to 60 minutes. This setting will provide one report each day, divided into 1-hour intervals.

Separate hourly reports are not available, but with the interval length set to 60 minutes, a daily report will display 24 intervals, one for each hour of the day.

Contact Service Queue Activity Report (by CSQ)

Q. Why does the same CSQ appear twice in this report (and on other CSQ reports)?

A. A CSQ has many attributes, including CSQ name, service level, resource selection criterion, and auto work. Some attributes, such as CSQ name and service level, are displayed in the report. Other attributes are not displayed in the report. However, changing any attribute of the CSQ causes a new line to show in the report. For example, if the service level is changed from 10 to 25, two lines of the same CSQ will show in the report. One line will show the old service level value and one line will show the new service level value. Similarly, if Auto Work is changed from 1 to 0, two lines of the same CSQ will also show in the report. Since the Auto Work setting does not appear in the report, the same CSQ will appear twice.

Q. How do the four Percentage of Service Level Met fields (Only Handled, Without Abandon, Positive Abandon, and Negative Abandon) differ?

A. A handled call is one that is answered by an agent or one that is marked as handled by a workflow. An abandoned call is one that disconnects before an agent answers. Handled and abandoned calls can be divided into these categories: handled within service level, handled after service level, abandoned within service level, and abandoned after service level.

The Percentage of Service Level Met—Only Handled field calculation considers handled calls only. It does not consider abandoned calls. This field shows the percentage of handled calls that were handled within the service level, and is calculated as follows:

$(\text{Number of calls handled within service level} / \text{Number of calls handled}) * 100\%$

The remaining fields differ in how they account for abandoned calls: not counted, meeting service level, or not meeting service level.

The Percentage of Service Level Met—Without Abandon field calculation does not include information for calls that were abandoned within the service level. This field shows the percentage of presented calls (calls routed to a CSQ), not counting abandoned calls, that were handled within the service level. This value is always less than or equal to the value in the Percentage of Service Level Met—Only Handled field, and is calculated as follows:

$(\text{Number of calls handled within service level} / (\text{Number of calls presented} - \text{Number of calls abandoned within service level})) * 100\%$

The Percentage of Service Level Met—Positive Abandon field calculation considers calls abandoned within the service level as meeting the service level. This field shows the percentage of presented calls that were handled or abandoned within the service level, and is calculated as follows:

$((\text{Number of calls handled within service level} + \text{Number of calls abandoned within service level}) / \text{Number of calls presented}) * 100\%$

The Percentage of Service Level Met—Negative Abandon field calculation considers calls abandoned within the service level as not meeting the service level. This file shows the percentage of presented calls that were handled within the service level. This value is less than or equal to the The Percentage of Service Level Met—Positive Abandon field, and is calculated as follows:

$(\text{Number of calls handled within service level} / \text{Number of calls presented}) * 100\%$

Q. How is an abandoned call counted if it was queued for multiple CSQs?

A. If a call is queued for multiple CSQs and is then abandoned, it is counted as abandoned from all the CSQs for which it is queued.

For example, assume that a call is queued for CSQ1 and CSQ2 and that the caller hangs up before being routed to an agent. In this case, an abandoned call is counted for CSQ1 and for CSQ2.

Q. How is a dequeued call counted if it was queued for multiple CSQs?

A. If a call is queued for multiple CSQs, and is handled by one of them, the call is counted as dequeued from each of the other CSQs.

For example, assume that an incoming call is queued for CSQ1, CSQ2, and CSQ3 and that it is handled by an agent from CSQ2. In this case, a dequeued call is counted for CSQ1 and for CSQ3.

Contact Service Queue Service Level Report

Q. What information do the last four columns show?

A. These columns show the numbers of calls that were handled within various units of a specific queue time interval. The default queue time interval is 15 seconds. Therefore, by default, these columns display the number of calls handled within 15 seconds of queue time, between 15 and 30 seconds of queue time, between 30 and 45 seconds of queue time, and after 45 seconds of queue time. You can change the default time interval using the Time Interval for Service Level Metric filter parameter.

Q. After the service level for a CSQ is changed, why does the CSQ appear in the report twice, once with the old service level and once with the new service level?

A. The CRA database maintains records of old and new service levels. When a new service level is configured, the old record is marked as inactive. The dateInactive field in the ContactServiceQueue table shows the date and time that the new service level was configured. If the value in the dateInactive field is in the report period, the report shows the active (new) and inactive (old) CSQs.

Detailed Call by Call CDR Report

Q. What are a session ID and a session sequence number?

A. A session ID is a unique identification number that the system assigns to a call. This number remains the same for the entire call. The system also assigns a sequence number to each leg of a call. Sequence numbers start at 0 and increment by 1 each time the call is transferred or redirected.

Q. Can a call be marked as handled if it is never queued for a CSQ?

A. Yes. You can design a workflow to mark such a call as handled.

Q. Why are the Hold Time and the Work Time fields blank?

A. The call was not an ICD call. (Non-ICD calls include agent-to-agent calls and external calls made by an agent.) The CRA database does not record hold time and work time for non-ICD calls.

IVR Application Performance Analysis Report

Q. What does it mean when the Application ID field contains -1 and the Application Name field is empty?

A. The call was rejected. (One reason that a call may be rejected is that there are no available CTI ports.)

Q. Why is the value in the Total Incoming Calls field lower than the total number of calls on the Detailed Call by Call CDR Report for the same report period?

A. The IVR Application Performance Analysis Report counts incoming calls only. The Detailed Call by Call CDR Report counts incoming calls, outgoing calls (for example, outbound calls made by agents), and internal calls (for example, agent-to-agent consult calls).

Q. Why does the IVR Application Performance Analysis report show more abandoned calls than the Contact Service Queue Activity Report for the same report period?

A. The Contact Service Queue Activity Report includes only abandoned ICD calls. (This report counts an ICD call as abandoned if the caller hangs up while queued for a CSQ or CSQs). The IVR Application Performance Analysis Report includes abandoned ICD calls and abandoned IVR calls. (This report counts a call as abandoned if the call ends before it is answered by an agent or before it is marked as handled by a workflow.)

IVR Traffic Analysis Report

Q. Why is the value in the Total Incoming Calls field in this report different than the value in the Total Incoming Calls field in the IVR Application Performance Analysis Report?

A. An incoming call can have multiple call legs. The IVR Traffic Analysis report counts a call with multiple legs as a single call. However, each call leg may invoke a different application, so the IVR Application Performance Analysis Report counts each call leg as a call.

For example, assume that a call comes into an Auto Attendant and that the caller selects a menu option for Musician Demonstration. The call will have 2 call legs:

Session ID = 1, sequence number = 0, application = “auto attendant”

Session ID = 1, sequence number = 1, application = “musician demonstration”

This call is counted once for IVR Traffic Analysis Report. It is counted twice for IVR Application Report: once for the “auto attendant” application and once for the “musician demonstration” application.

Skill Routing Activity Report

Q. How does this report differ from the other CSQ reports?

A. The information in this report is a subset of the information in the Contact Service Queue Activity Report. A CSQ can be configured based on resource skill or on resource group. The Skill Routing Activity Report report shows only CSQs that are configured based on resource skill. The other CSQ reports shows CSQs that are configured based on either resource skill or resource group.

Data Reconciliation Among Reports

Q. Why does the Abandoned Call Detail Activity Report show more abandoned calls than the CSQ reports?

A. The CSQ reports show calls that are abandoned after they are queued for a CSQ. The Abandoned Call Detail Activity Report shows those calls and calls that are abandoned before they are queued for a CSQ.

Q. Why does the Detailed Call by Call CCDR Report show more handled calls than the CSQ reports?

A. The CSQ reports show calls that are handled by agents after the calls are queued for a CSQ. The Detailed Call by Call CCDR Report shows those calls and calls that are marked as handled by a workflow script before they are queued for a CSQ.

Q. Why does the IVR Application Performance Analysis Report show more calls presented, handled, and abandoned than the CSQ Reports?

A. There are two reasons:

- One incoming call can invoke multiple applications because each leg of the call can invoke a different application. The call is counted once for each application.
- Calls that are hung up before being queued for any CSQ may be marked as handled or abandoned (depending on the workflow and on when they hung up). Such calls do not have CRDRs or ACDRs and will not be counted on CSQ reports or Agent reports. (These calls will be counted in the IVR Application Performance Analysis Report because the calls entered an application.)

Q. Why does the Agent Summary Report show more calls handled than the CSQ reports?

A. Conference calls to agents will result in one CRDR having multiple ACDRs. The Agent Summary Report counts the number of ACDRs and the CSQ report count the number of CRDRs.

Q. How can conference calls be identified?

A. To identify conference calls, search for ACDRs with the same session ID and sequence number, with different agent IDs, and with talk time greater than 0.

Q. How can calls that were presented to an agent but were not answered be identified?

A. To identify such calls, search for ACDRs with talk time equal to zero.

Q. Why is the total number of calls in the Calls Handled field in the Contact Service Queue Service Level Report lower than the number in the Calls Handled Field in the Agent Summary Report?

A. The CSQ reports, including the Contact Service Queue Service Level Report, report, show activity at the CSQ level. The agent reports, including the Agent Summary Report, shows activity at the agent level.

For handled calls, the Agent Summary Report counts the ACDRs with non-zero talk times (to exclude unanswered calls), and the Contact Service Queue Service Level Report counts CRDRs with primaryCSQ not equal to -1.

The number of such ACDRs may be larger than the number of such CRDRs for any of the following reasons:

- If you choose all agents for the Agent Summary Report but choose only one CSQ for the Contact Service Queue Service Level Report report, the Agent Summary Report will report more handled calls.
- There may be conference calls that involve multiple agents. In these cases, one CRDR will have multiple associated ACDRs. An associated ACDR has the same sessionID and sessionSeqNum as the CRDR.
- Agent to agent transfers will result in more ACDRs than CRDRs. If agent A picks up a call from CSQ1, one CRDR and one ACDR are created. When agent A transfers the call to agent B, another ACDR is created, but no CRDR is created.

Q. Why do the Agent Summary Report, Contact Service Queue Activity Report, and IVR Application Performance Analysis Report show different values for calls presented?

A. The IVR Application Performance Analysis Report shows the highest number of calls presented for the following reasons:

- One incoming call can invoke multiple applications because each leg of the call can invoke a different application. The same call is counted once for each application.
- Some calls were terminated before they were queued. Such calls do not have CRDRs (because they were not queued) and are not counted on the Contact Service Queue Activity Report. These calls also do not have ACDRs and are not counted on the Agent Summary Report.

The Agent Summary Report shows more calls presented than the Contact Service Queue Activity Report for either of the following reasons:

- The same call was queued to a certain CSQ but presented to multiple agents within the CSQ (because an agent did not answer). Such calls are counted once for the Contact Service Queue Activity Report but counted once for each agent involved for the Agent Summary Report.
- There were conference calls which involved multiple agents.

Q. Why is the number of abandoned calls in the Abandoned Call Detail Activity Report higher than the number of abandoned calls in the Contact Service Queue Activity Report?

A. Some calls shown in the Abandoned Call Detail Activity Report were abandoned before they were routed to a CSQ (these calls have a blank Call Routed CSQ field), so they are not counted for any CSQ. The Contact Service Queue Activity Report shows calls that were abandoned while they were queued for a CSQ.

Availability of Reporting Data

Q. Is there a report that shows calls per hour per CSQ? For example:

7:00 a.m. to 8:00 a.m., 25 calls

8:00 a.m. to 9:00 a.m., 35 calls

9:00 a.m. to 10:00 a.m., 34 calls

A. The Contact Service Queue Activity Report (by Interval) shows this information. To generate this report for one-hour intervals, set its Interval Length filter parameter to **Sixty (60) minute intervals**.

Q. Is there a way to determine telephone numbers of calling parties?

A. The Call ANI fields on the Abandoned Call Detail Activity Report and the Agent Detail Report show this information.

Q. How is this scenario reported: a call is in queue, then is routed to an available agent who does not answer the call, and then is redirected to another agent.

A. The Agent Detail Report will show two lines: one for the agent who did not answer the call (ring time is greater than 0; talk time, hold time, and work time are each zero), and one line for the agent who answered the call (talk time is greater than 0).

On the Agent Summary Report, the call appears as presented to the agent who did not answer the call, but not as handled by that agent. The call appears as presented to and handled by the agent who answered the call.

Q. Is there a way to determine the start time and the end time for a call with multiple legs?

A. The sessionID fields in the CRA database tables will contain the same value for a particular call. These fields let you identify all database records that relate to the call. The sessionSeqNum fields in the CRA database tables start at 0 and increment by 1 for each leg of a call. These fields let you identify the various legs of a call. (The way in which sessionID and sessionSeqNum values are written to the database depend on the call scenario. For more information and examples, see [Chapter 3, “Writing Database Records.”](#))

The start time of a call is stored in the startDateTime field of the CCDR where sessionSeqNum is equal to 0 and where the sessionID value identifies the call. The end time of that call is stored in the endDateTime field of the CCDR with the highest sessionSeqNum and the same sessionID value.

Q. Is there a way to report on menu choices?

A. You can create a custom report to show menu choices. To do so use the Set Session Info step in a workflow to store in custom variables digits entered by callers. The contents of such custom variables are stored in the customVariable fields in the CCDR. Use the information in the CCDR customVariable fields when you create custom reports.

Here is an example of how you could prepare a report to show information for a menu with three choices (1, 2, and 3):

1. For a workflow, define a variable of type session and name it this_session.
2. Place a Get Contact Info step at the beginning of the workflow.
3. Set the Session attribute to be variable this_session.
4. Define a Menu step that has 3 branches and place a Set Session Info step in each branch.
5. In the General tab of the Set Session Info step, enter this_session for the session.
6. In the branch for caller-choice 1, place an attribute in the Context tab for the first Custom Call Variable, _ccdrVar1. Assign a value of 1 to this attribute.
7. In the branch for caller-choice 2, place an attribute in the Context tab for the first Custom Call Variable, _ccdrVar2. Assign a value of 2 to this attribute.

8. In the branch for caller-choice 3, place an attribute in the Context tab for the first Custom Call Variable, `_ccdrVar3`. Assign a value of 3 to this attribute.
9. Create a custom report that will show the values of the `customVariable1`, `customVariable2`, and `customVariable3` fields in the CCDR.

If calls are to be transferred between workflows and multiple menu choices can be made for a single session, take care to preserve previously entered menu choices. For example, place a Get Session Info step at the beginning of the workflow. If the `_ccdrVar1` variable is null, there were no previous entries. If it is not null, when you add a new choice, determine a format for associating a menu choice to a sequence number. In this way, you will be able to prepare accurate reports.

Q. If a CRA system does not include a license for Cisco CRA Historical Reports, is data still written to the CRA databases?

A. Yes.

Q. Is there reporting on agent service level agreements (SLAs), such as Cisco Agent Desktop queue time threshold (caution, warning) and agent talk time SLA (caution, warning)?

A. No, but the CRA databases store such data. You can create a custom report to show this information.

Q. Is there a report that provides information about calls that were transferred by agents to another CSQ?

A. The Detailed Call by Call CCDR Report provides information about transferred calls. (The session ID remains the same for a transferred call but the session sequence number increments by 1.) This report also shows the agent who handled each call. The report does not show the CSQ to which the agent transferred the call. However, this data is stored in the CRA databases and you can create a custom report to show this information.

Q. After a record contains data, is stored in memory, and is ready to be written to the CRA database, when is it written to the database?

A. Call records (CCDR, CRDR) are written after each call is completed. Agent state records (ASDR) are written after agents change state. Agent connection records (ACDR) are written when an agent leaves Work state or after the call completes (if the agent does not go to Work state).

Q. Are there summary tables for daily data, which contain the data of a specific day? Are these tables used to create weekly data tables? Are weekly data tables used to create monthly data tables?

A. The system stores detailed data. It does not summarize detailed tables to create daily, weekly, or monthly tables.

Q. Is there a monthly report that shows statistics for service levels?

A. The Contact Service Queue Service Level Report shows information about service levels provided to calls handled.

For example, assume that service levels are configured in Cisco CRA Administration so that 90% of all calls must be picked up within 180 seconds and all calls must be picked up within 360 seconds. To generate a monthly report showing statistics for these service levels, follow these steps:

1. In the Cisco CRA Historical Report client system, schedule the Contact Service Queue Service Level Report to run monthly.
2. In the Cisco CRA Historical Report client system, set the Time Interval (sec) for Service Level Metric filter parameter for this report to 180.

The last four columns of the report show the number and the percentage of calls that were handled within various periods based on 180-second intervals.

Q. Can I create custom historical reports?

A. Yes. You will need Crystal Reports 8.5 (Professional or Developer Edition). (Crystal Reports is not included with Cisco CRA.) For more information about creating custom reports, refer to *Cisco Customer Response Applications Database Schema* and *Creating Custom Reports for Cisco Customer Response Applications* at this URL:

http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_programming_reference_guides_list.html



Note

Although you may be able to create custom reports by using other third-party reporting tools, Cisco recommends that you use Crystal Reports 8.5 (Professional or Developer Edition).

General

Q. How is the number of days calculated in historical reports?

A. The number of days is calculated by a SQL function that counts the number of calendar days in an integral number of days. Fractions of a day are counted as an entire day. For example, 10 a.m. (1000) on 5/15 to 10 a.m. (1000) on 5/16 is counted as two days. 12:00:00 a.m. (0000) on 5/15 to 11:59:59 p.m. (1159:59) on 5/15 is counted as one day. 12:00:00 a.m. (0000) on 5/15 to 12:00:00 a.m. (0000) on 5/16 is counted as two days.

Q. How can a report on reason codes be generated?

A. Reason Codes, when configured, are entered by agents when they explicitly transition to Logout state or to Not Ready state. In these cases, reason codes are stored in the ASDR. You can create a custom report to show information about reason codes.

Reason codes are not stored in the cases shown in the following table. In these cases, the reasonCode field in the ASDR will contain a value of -1.

Agent State in ASDR	Case
Logout	Agent closes the Cisco Agent Desktop without logging out
Logout	IP Phone Agent server or Cisco Agent Desktop crashes
Logout	Agent logs out when logged in to another computer or phone
Not Ready	Normal agent login
Not Ready	Agent receives a non-ICD call
Not Ready	Agent goes offhook to place a call
Not Ready	Agent fails to answer an ICD call within the specified timeout period
Not Ready or Logout	Agent's phone goes down
Not Ready or Logout	Supervisor changes the agent's state from the Cisco Supervisor Desktop

Q. What is the database used for Cisco CRA?

A. In a standalone system (where Cisco CRA and Cisco CallManager are installed on separate servers), the database is MSDE 1.0 (desktop version of SQL Server 7.0). In a co-resident system (where Cisco CRA and Cisco CallManager are installed on the same server), Cisco CRA uses the same database as Cisco CallManager, which is SQL Server 2000.



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