Avaya Call Management System

Forecast

User Guide

585-215-717
Issue 1.0
May 2002

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Notice

Every effort was made to ensure that the information in this document was complete and accurate at the time of printing. However, information is subject to change.

Preventing Toll Fraud

"Toll fraud" is the unauthorized use of your telecommunications system by an unauthorized party (for example, a person who is not a corporate employee, agent, subcontractor, or working on your company's behalf). Be aware that there may be a risk of toll fraud associated with your system and that, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

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http://www.avaya.com

Click on **Support**, then click on **Escalation Lists US and International**. This web site includes telephone numbers for escalation within the United States. For escalation telephone numbers outside the United States, click on **Global Escalation List**.

Providing Telecommunications Security

Telecommunications security (of voice, data, and/or video communications) is the prevention of any type of intrusion to (that is, either unauthorized or malicious access to or use of) your company's telecommunications equipment by some party.

Your company's "telecommunications equipment" includes both this Avaya product and any other voice/data/video equipment that could be accessed via this Avaya product (that is, "networked equipment").

An "outside party" is anyone who is not a corporate employee, agent, subcontractor, or working on your company's behalf. Whereas, a "malicious party" is anyone (including someone who may be otherwise authorized) who accesses your telecommunications equipment with either malicious or mischievous intent.

Such intrusions may be either to/through synchronous (time-multiplexed and/or circuit-based) or asynchronous (character-, message-, or packet-based) equipment or interfaces for reasons of:

- Utilization (of capabilities special to the accessed equipment)
- Theft (such as, of intellectual property, financial assets, or toll-facility access)
- Eavesdropping (privacy invasions to humans)
- Mischief (troubling, but apparently innocuous, tampering)
- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent)

Be aware that there may be a risk of unauthorized intrusions associated with your system and/or its networked equipment. Also realize that, if such an intrusion should occur, it could result in a variety of losses to your company (including but not limited to, human/data privacy, intellectual property, material assets, financial resources, labor costs, and/or legal costs).

Your Responsibility for Your Company's Telecommunications Security

The final responsibility for securing both this system and its networked equipment rests with you - an Avaya customer's system administrator, your telecommunications peers, and your managers. Base the fulfillment of your responsibility on acquired knowledge and resources from a variety of sources including but not limited to:

- Installation documents
- System administration documents
- Security documents
- Hardware-/software-based security tools
- Shared information between you and your peers
- Telecommunications security experts

To prevent intrusions to your telecommunications equipment, you and your peers should carefully program and configure:

- your Avaya-provided telecommunications systems and their interfaces
- your Avaya-provided software applications, as well as their underlying hardware/software platforms and interfaces
- any other equipment networked to your Avaya products.

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Avaya Support

Avaya provides a telephone number for you to use to report problems or to ask questions about your contact center. The support telephone number is 1-800-242-2121 in the United States and Canada. For additional support telephone numbers, see the Avaya web site:

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Click on **Support**, then click on **Escalation Lists US and International**. This web site includes telephone numbers for escalation within the United States. For escalation telephone numbers outside the United States, click on **Global Escalation List**.

Comments

To comment on this document, return the comment card at the end of the document.

Acknowledgment

This document was prepared by the CRM Development group of Avaya, Inc.

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Preface

Avaya Call Management System Forecast, 585-215-825, is written for Avaya Call Management System (CMS) administrators and split/skill supervisors who are responsible for administering and reporting forecast data.

This document is organized as follows:

- Chapter 1: What Is Forecasting? on page 13 describes the Forecast subsystem, purpose of forecasting, types of forecasting, guidelines, start-up tasks, and the best order for using the Forecasting subsystem and this document.
- Chapter 2: Forecast Administration on page 29 describes the start-up tasks you must do before you can get forecast reports.
- Chapter 3: Call Volume/Agents Forecast Reports on page 63 describes how a call volume/agent forecast predicts the number of calls a split/skill will receive (`Forecast calls carried`). Also, it describes how many agents will be required to handle those calls (`Number of agents required`). Most forecast reports are call volume or agent reports.
- Chapter 4: Requirement Forecast Reports on page 121 describes the Agent Positions Required and Trunks Required reports. These two reports can show you, given specific call handling objectives, how many calls your call center can handle.
- Chapter 5: Trunk Performance Report on page 131 describes how this report estimates, at the busiest intervals in a specified range of historical dates, what the usage rate and blocking percentages were for the selected trunk group(s). This report also shows how many trunks the trunk group(s) would have needed during the busiest intervals to meet predetermined objectives you have set for your call center.
- Chapter 6: How the Forecast System Generates Data on page 137 describes the algorithms that CMS uses to predict agent staffing and trunk capacity needs.

Conventions Used in This Document

The following conventions are used throughout this document:

Related document callouts	Include the book title, in italics, and the document number (if an Avaya publication).
`Courier` font	Designates a word or phrase quoted directly from the Avaya system. For example, see the `Report destination:` field.
	Also designates an *INFORMIX* [1] table name. For example, see the `csplit` table.
`Courier bold` font	Designates something you enter into the system. For example, enter an **`x`** next to `Printer`, `Terminal`, or `File`.
"Chapter Names"	Are always in quotes. For example, see Chapter 2, "Forecast Administration," for more information.
italic	Highlights references to file names and directories. For example, see */cms*.
Subsystem References	Are always initial capitalized. For example, set access permissions for CMS users from the User Permissions subsystem.
Window Titles	Are always capitalized.

1. INFORMIX is a registered trademark of Informix Software, Inc.

Useful Publications

You need to know where the documentation that was sent with the following is kept:

- Switch
- Terminals
- Printers
- *UNIX*[1] system of *Solaris*[2] system.

1 UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Corporation.
2 Solaris is a registered trademark of Sun Microsystems.

Chapter 1: What Is Forecasting?

Forecasting is the method used to estimate, calculate, or predict the staffing and capacity for specified time periods in the future. With forecasting, you can predict the following:

- Number of calls that you could receive during a specified time period
- Number of agents that you will need to handle a specified volume of calls (for example, you can vary the input parameters for agent occupancy, average speed of answer, average agent service time, and service level to predict different needs for your call center)
- Number of trunks that you will need
- Trunk performance.

For example, with forecasting you can look at your call volume for the last four Mondays to predict your call volume for the next Monday. Then, using your assigned objectives, you can show the number of agents and trunks that are required during each intrahour interval next Monday.

Note:

Before you begin using the Forecast subsystem or reading this document, see the Glossary on page 153 for the meaning of forecasting terms.

Purpose of Forecast Subsystem

Forecasting is a separately purchased feature of Avaya CMS. If you have not purchased Forecasting, the Forecast MainMenu option does not appear. If you wish to purchase Forecasting, call your Avaya account executive.

Use the Forecast subsystem to do the following:

- Provide you with the estimated number of agents and the number of trunks required for each intrahour interval.
- Set objectives for Automatic Call Distribution (ACD) activities involving agents, split(s)/skill(s), and trunk/trunk groups for which you want to get forecasting information about upcoming dates or time periods. You do this using the Forecast Administration windows.
- Generate reports using historical data that predict call volume and agent requirements for:
  - Today (Current Day report)
  - Any day up to 35 days in the future (Longterm report)
  - A given profit margin plus how many calls you can expect for a split/skill, and how many agents you will need to handle those calls for any day up to 35 days in the future (Financial report)
  - The remaining part of the current day (Intraday report)
  - A special day, for example, a holiday or a special promotion day (Special Days report).

  Note:

  Other reports also provide information about agent positions required, trunks required, and trunk performance. You do this using the Forecast Report windows.
- Predict the staffing requirements of your call center in hypothetical situations.
- Increase profits by predicting when to reduce surplus labor.
- Generate reports that justify increased staffing based on objectives and predicted call volume.
- Perform careful scheduling and planning to optimize productivity.
- Estimate how many calls a given number of agents can handle per intrahour interval.
- Estimate how many calls can be carried by a given number of trunks per intrahour interval.
- Estimate a margin for predicting the difference between call revenue and call costs for each intrahour interval.
- Gather forecast calls carried information for each intrahour interval in Special Day reports.

Types of Forecasting

The Forecast subsystem allows you to set up the desired report prerequisites through Administration windows. After you complete the setup procedures, you can run various forecast reports. You can either generate reports based on historical data, or you can generate reports for hypothetical situations.

Forecast reports fall into three basic categories:

- Call Volume/Agent (see Chapter 3: Call Volume/Agents Forecast Reports on page 63)
- Requirement (see Chapter 4: Requirement Forecast Reports on page 121)
- Trunk Performance (see Chapter 5: Trunk Performance Report on page 131)

Getting Started with Forecasts

Before you start using the Forecast subsystem, you must do the following:

1. Read this chapter before you start.
2. Determine the type of forecasting you want to use.
3. Complete the start-up tasks for Administration.
4. Select the report from the menu options.
5. Determine which method (algorithm) you want to use.
6. Fill in the required report data entry fields.
7. Run the report.

Controlling Forecast Results

You can control the types of prediction results you receive in forecasting depending on how you enter information in the windows or which method of forecasting you select. You can usually expect to do some additional adjustments to your initial forecasts to get the results you desire.

The following variables can control the prediction results:

- Historical data that the system retrieves
- Date(s) that you enter
- Days (or Data Points) that you select
- Trending patterns in the data the system retrieves
- Trending method of forecasting that you use
- Interval time that you select
- Objectives that you can enter or that vary.

Using Forecast Reports

To assist you in using forecast reports, the following chapters provide you with information for producing reports:

- “Using Call Volume/Agents Forecast Reports” (see Call Volume/Agents Forecast Reports on page 63)
- “Using Requirement Reports” (see CRM Information Development Documentation Template – Version 1.2 11/5/01 on page Reference)
- “Using the Trunk Performance Report” (see Trunk Performance Report on page 131).

Data Used for Split/Skill Forecasts

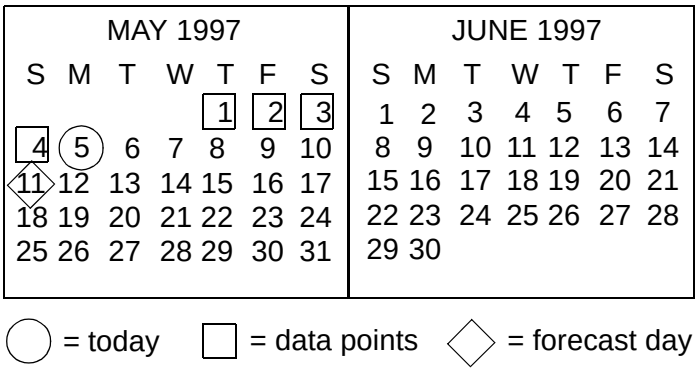
To forecast calls carried to a split/skill, CMS uses historical intrahour interval data. Specifically, CMS uses the sum of ACD and abandoned calls that the split/skill received in each interval. This sum of ACD and abandoned calls is called the `Number of calls carried`.

Data Points

The number of calls carried normally comes from the intrahour intervals from 4 specific days in the past. These 4 days that supply input data are called **data points**. The data points may be either 1 day apart or 1 week apart:

- **One-day-apart** data points are always the 4 sequential days immediately preceding the current day. Look at the following example. If the current day is Monday, May 5, the data points are May 1, 2, 3, and 4.

Figure 1-1: Sample Data Points—One Day Apart.

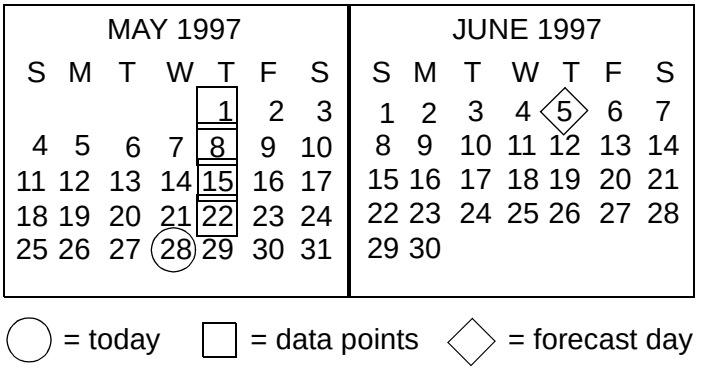


Note:

One-day-apart data points should not be used if they include days that had no activity. For example, two of the data points fall on Saturday and Sunday. If the call center is normally closed on weekends, a forecast with 1-day-apart data points would be skewed.

- **One-week-apart** data points are days in each of the preceding 4 weeks and are the same day of the week as the forecasted day. Look at the example in the following figure. If the forecasted day is Thursday, June 5, and today is Wednesday, May 28, the data points would be the Thursdays on May 1, 18, 15, and 22.

Figure 1-2: Sample Data Points—One Week Apart



For some types of split/skill forecasts, you specify at run time which type of data points CMS should use. For the Current Day and Intraday forecasts, CMS automatically uses 1-week-apart data points.

Note:

The Special Day Forecast uses data from only the last occurrence of a special day, not from data points.

Split/Skill Forecast Methods

CMS uses the data from the data points in different ways, depending on which of the four forecast methods you select. The four available forecast methods are as follows:

No Trending CMS finds the average number of calls, per interval, in the data points.

Current Trending CMS finds the trend of the number of calls in the data points. Thus, if the number of calls in the most recent data points indicates that the number of calls is going down, the calls forecasted will be lower than they would have been forecasted with the “no trending” method.

Expected Calls You enter the number of calls you expect for the forecasted day. CMS checks the data points to find the percentage of historical calls that arrived in each intrahour interval. CMS then distributes your expected calls among the forecast day's intervals using those same percentages.

Seasonal Trending

CMS finds the average number of calls per interval in the current data points. Based on an earlier seasonal trend base date (a seasonal trend base date is a date in the past that you think is similar to the current day), CMS also finds the average number of calls per day in a parallel set of data points (these averages use the data weights). CMS then scales up or down the average found in the current data points according to the ratio of the seasonal trend base date to the seasonal average. Thus, with seasonal trending, CMS uses data for a seasonal set of data points to determine the data in the current set of data points.

Look at the example in the following figure. Since data points for today, May 28, are 1 week apart, when you select a seasonal trend base date of 1 year (52 weeks) ago, CMS automatically uses data points for last year from the base date that are also 1 week apart.

Figure 1-3: Sample Data Points—Seasonal Trending

MAY 1996							JUNE 1996						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
			1	2	3	4							1
5	6	7	8	9	10	11	2	3	4	5	6	7	8
12	13	14	15	16	17	18	9	10	11	12	13	14	15
19	20	21	22	23	24	25	16	17	18	19	20	21	22
26	27	28	29	30	31		23	24	25	26	27	28	29
							30						

= seasonal trend base date = season day

= seasonal data points

MAY 1997							JUNE 1997						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
				1	2	3	1	2	3	4	5	6	7
4	5	6	7	8	9	10	8	9	10	11	12	13	14
11	12	13	14	15	16	17	15	16	17	18	19	20	21
18	19	20	21	22	23	24	22	23	24	25	26	27	28
25	26	27	28	29	30	31	29	30					

= today = data points = forecast day

For most split/skill forecasts, you must select the forecast method(s) at the time you run the report. However, for the Current Day and Intraday forecasts, you assign the forecast method in the Current Day Configuration window (see Current Day Configuration Administration on page 40). The Special Day Forecast uses only Expected Calls and a variation of No Trending.

If you want a trend based on historical data, you must define adequate storage. See Data Storage Allocation Administration on page 30.

For a detailed explanation of these forecast methods, see How the Forecast System Generates Data on page 137.

Start-Up Tasks

You will need to complete the following forecast administration before you can run a forecast report:

- Define the **Data Storage Allocation**.
- Define **Call Handling Profiles** as needed for splits/skills.
- Define a **Current Day Configuration** for each split/skill.
- Define **Costs Profiles** as needed for splits/skills.
- Define **Trunk Group Profiles** for each trunk group.
- Run the **Forecast Manager** every night.
- Define **Special Days** as desired for each split/skill.

See Table 2-1: Summary of Forecast Administration Start-Up Tasks on page 29 for a complete listing of the tasks you must do before you can run forecast reports.

How to Use the Forecast Subsystem

You should set up your forecast conditions in Administration windows prior to accessing reports or creating hypothetical scenarios. This document is organized in the sequence of how you would most typically use the Forecast subsystem.

On the Avaya CMS Forecast menu, the Reports and Hypothetical menu options are listed before Administration so that you can bypass the Administration windows after your initial setup—unless you decide to change your original setup conditions. The following figure shows an overview of the Forecast document's organization.

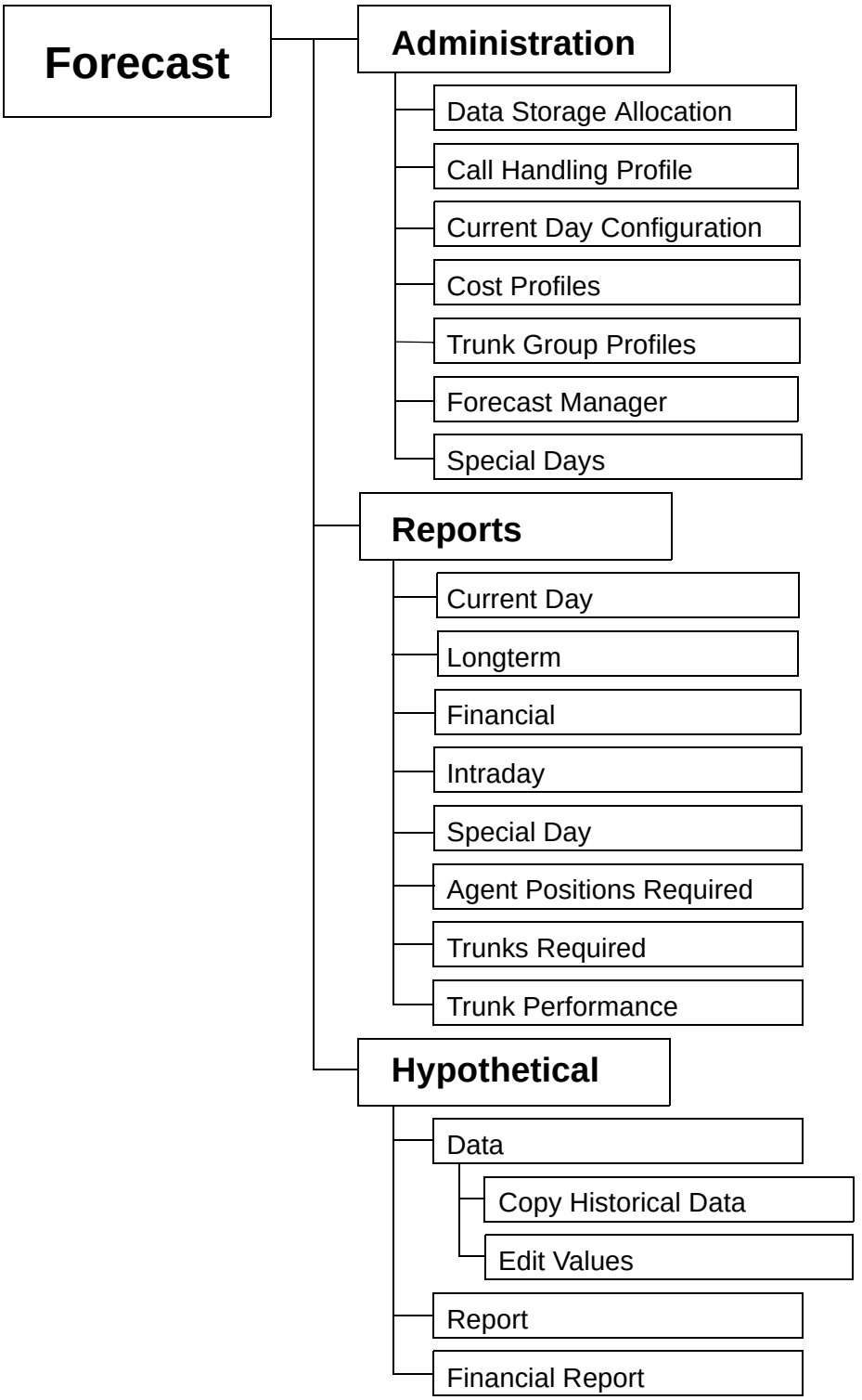
Note:

Hypothetical is listed as a separate section because it does not require historical data but does require some additional information.

This document explains the Forecast user interface and provides you with the necessary information for completing any action using this interface.

For a detailed explanation of how CMS generates forecast data, see Chapter 6: How the Forecast System Generates Data on page 137.

Figure 1-4: Forecast System and Document Organization



Forecast Menus

To run or administer forecasts, you must select the Forecast MainMenu option, and then select the appropriate submenu options. The following figures illustrate the menu options of the Forecast subsystem.

Figure 1-5: Administration Forecast Submenu

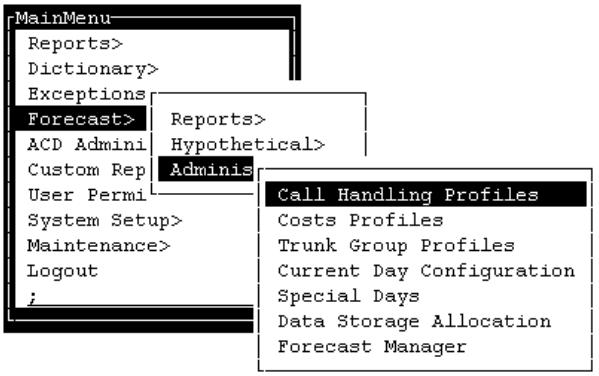


Figure 1-6: Administration Forecast Submenu

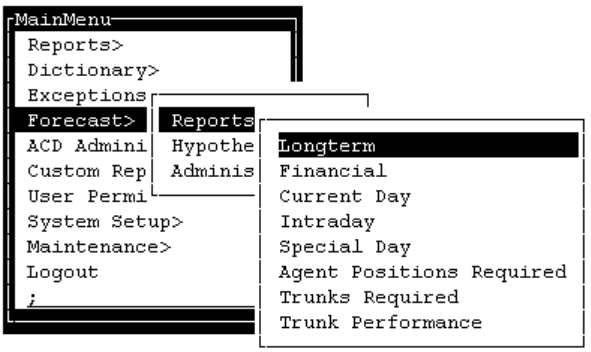


Figure 1-7: Report Forecast Submenu

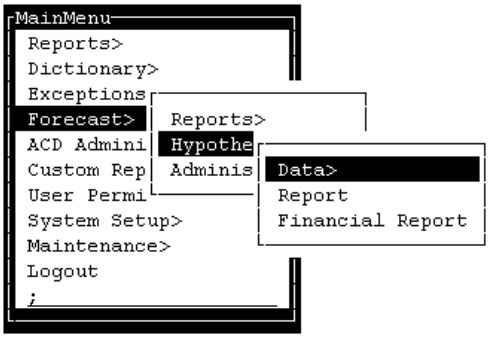
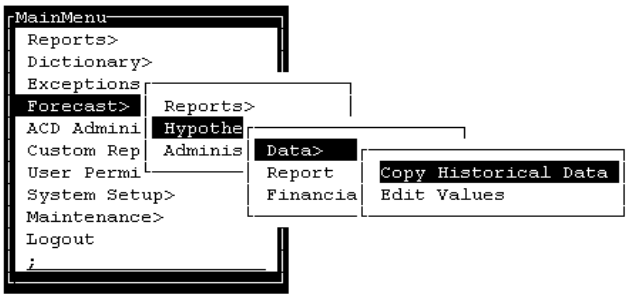


Figure 1-8: Hypothetical Forecast Submenu



Relationships to Other Subsystems

User Permissions

Permissions for the Forecasting subsystem are assigned using the User Permissions: Feature Access window. See *Avaya Call Management System Release 3 Version 11 Administration* (585-215-515) for more information.

Read Permission

You must have *read* permission for the Forecasting subsystem to run reports. If you have read permission for Forecasting, you can do the following:

- View Administration, Report, and Hypothetical windows
- Request reports for split(s)/skill(s) and trunk groups.

Read and Write Permissions

To request *read* and *write* permissions for Forecasting, see your system administrator. If you already have *read* and *write* permissions for Forecasting, you can do the following:

- View Administration, Report, and Hypothetical windows
- Set up Administration tasks in Administration windows
- Modify Administration
- Request reports for split(s)/skill(s) and trunk groups
- Modify Hypothetical data.

To perform administrative tasks for a forecast, you must have both *read* and *write* permissions.

You must have *read* and *write* permissions for a particular split/skill or trunk group to be modified, added, or deleted. Permissions for specific split(s)/skill(s) or trunk groups are assigned in one of the following windows:

- User Permissions—Split/Skill/Access
- User Permissions—Trunk Group Access.

If you have permissions for the Forecast system, but you do not have permissions for a particular split/skill or trunk group, CMS notifies you with an error message if you attempt to access that particular split/skill or trunk group.

Dictionary

You can find all database items, split/skill, and trunk group names in the Dictionary Subsystem. See *Avaya Call Management System Release 3 Version 11 Administration* (585-215-515) for more information.

Timetables/ Shortcuts

You can place any forecasting window on a timetable. Use shortcuts for any reports or windows you may view frequently. See *Avaya Call Management System Release 3 Version 11 Administration* (585-215-515) for more information.

System Setup

After you modify your Forecast Data Storage Allocation window (see Chapter 2: Forecast Administration on page 29), you may need to adjust the disk usage with the System Setup: Free Space Allocation window.

Chapter 2: Forecast Administration

The following table lists the start-up administration tasks you must do before you can run forecast reports. In addition to the tasks listed, you must complete the appropriate forecast input window when you actually run a Forecast report.

Table 2-1: Summary of Forecast Administration Start-Up Tasks

Task	Purpose	When to Do It
Define the **Data Storage Allocation**.	Tell CMS how long to store historical input data it uses for forecasts.	Immediately after your CMS is up and running.
Define **Call Handling Profiles** for splits/skills.	Define call handling objectives which CMS uses to forecast the number of agents required.	Before you run a split/skill forecast or define current day configurations (since current day configurations require you to specify a call handling profile).
Define a **Current Day Configuration** for each split/skill.	Define the forecast method and other forecast parameters for the current day forecast.	After you have defined call handling profiles and before you want the Forecast Manager to begin generating current day forecast data.
Define **Costs Profiles** for splits/skills.	Define the costs per call/agent and the revenue per call.	Before you run a Financial or Hypothetical Financial Forecast.
Define **Trunk Group Profiles** for each trunk group.	Define a targeted percentage chance that calls to a trunk group will be blocked. CMS uses this percentage to find the number of trunks required in a trunk group.	Before running a Trunk Performance report.
Run the **Forecast Manager** every night via Timetable.	Collect, on a daily basis, historical split/skill and trunk group data, and put the data in forecast input tables. Also, generate and store the current day forecast data in the Current Day Forecast table.	Soon after your CMS is up and running. You should have at least 28 days of split/skill data for split/skill forecasts and 35 days of trunk group data for the Trunk Performance report.
Define **Special Days** for each split/skill.	Define the days that have unique call traffic or staffing needs (for example, promotional days or holidays).	Before the Forecast Manager runs to collect data for that day.

Data Storage Allocation Administration

Purpose

Use the Forecast Data Storage to specify how long CMS should store historical data in the forecast input tables. When you order a forecast, CMS uses, as input, the data from these tables to calculate forecast calls carried.

Things to Know Before You Start

- CMS stores forecast input data separately, because only a few database items are used in forecast calculations. Thus, forecast input data can be stored for very long periods yet require a relatively small amount of disk space.
- The intrahour interval data you save for split(s)/skill(s) is the primary input data used for split/skill forecasts. Since current day forecasts always use 1-week-apart data points, the minimum length of time you can store intrahour input data is 28 days (4 data points multiplied by 7 days). You can run forecasts before you have 28 days of intrahour data, but the forecasts may not be accurate.

  The daily data you save for split/skill forecasts are used only if you use the seasonal trending forecast method. If you want to run forecasts for December and use trending from the previous December, you should save daily data for 392 days (52 weeks plus 4 extra weeks for the data points). The minimum length of time you can store daily data is 56 days (4 weeks, plus 4 extra weeks for the data points), since the earliest seasonal trend base date you could logically choose is a month ago.
- The length of time CMS should store input data for trunk groups depends on how far back you want to go to analyze trunk performance. If you want to analyze performance in a month-long period 1 year ago, store data for 397 days (366 days—in case of leap year, plus 31 days for the month you want to analyze).
- The length of time you specify for split/skill data storage applies to all split(s)/skill(s) in the Automatic Call Distribution (ACD). Likewise, the length of time for trunk group data storage applies to all trunk groups in the ACD.
- After modifying your Forecast Data Storage Allocation window, you may need to adjust disk usage with the System Setup: Free Space Allocation window.

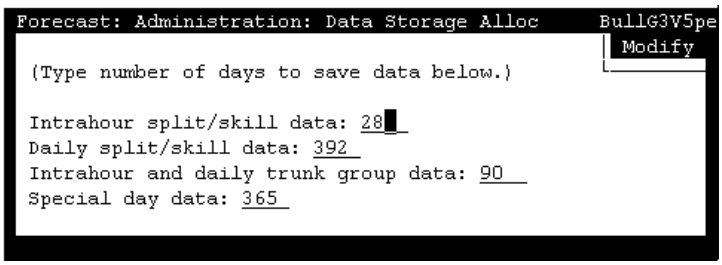
Prerequisite System Administration

- You must have *write* permission for the Forecast subsystem.
- You must run the Forecast Manager to actually retrieve data from the historical data tables. You can run the Forecast Manager either manually or in a timetable. The recommended method is to run the Forecast Manager on a timetable that executes every night. Run the Forecast Manager manually if the timetable fails or if you need to go back and recollect data.

Data Storage Allocation Window

Use the Forecast: Administration: Data Storage Allocation window, shown in the following figure, to specify the length of time CMS stores historical data in the forecast input tables.

Figure 2-1: Data Storage Allocation Window.



Field/Action List Usage

Modify

To change the number of days archived, enter changes and select `Modify`.

Field Descriptions

Intrahour split/skill data:

Enter the number of days of intrahour split/skill data that you want to store for use in split/skill forecasts.

- The minimum number of days you can enter is 28. The maximum number of days is unlimited. However, you should store more than 28 days of data only if you anticipate the need to run current day forecasts for days that have already passed. Also, remember that you will be using additional disk space on your computer for each day of data you choose to store.
- The intrahour split/skill data you store is the number of ACD calls and abandons.

Daily split/skill data:

Enter the number of days of daily split/skill data that you want to store for use in split/skill forecasts.

- You will need daily split/skill data only if you want to use seasonal trending in your forecasts.
- The minimum number of days you can enter is 56. The maximum number of days is 999. However, remember that you will be using additional disk space on your computer for each day of data you choose to store.
- The daily split/skill data you store is the number of ACD calls and abandoned calls.

Intrahour and daily trunk group data:

Enter the number of days of intrahour and daily data that you want to store for use in trunk performance forecasts.

- The minimum number of days of both intrahour and daily data is 35. The maximum number of days is unlimited. However, remember that you will be using additional disk space on your computer for each day of data you choose to store.
- The intrahour and daily data you store is as follows:
  - The number of trunks in the trunk group
  - The number of calls carried
  - The number of seconds the trunks were in use.

Special day data:

Enter, as a number of days, the length of time that you want CMS to store historical data for a special day. This is the data you will use to run a Special Day forecast when the next occurrence of the special day approaches.

- This number applies to all splits/skills in the ACD.
- Normally, you will want to store special day data for 1 year (365 days), since many special days, like holidays, come only once a year.

  For example, if the day after Thanksgiving is a special day for your call center, you will want to save the historical data CMS collects on that day so you can use it to forecast the expected volume of calls for the day after Thanksgiving next year.

Call Handling Profiles Administration

Purpose

You define a call handling profile to specify the following call handling objectives for a split/skill:

- **Average speed of answer**. The average time you are expecting or targeting callers to wait in queue before connecting to an agent.
- **Average agent service time**. The average time you are expecting or targeting each agent to spend on an ACD call, including talk time and After Call Work (ACW) time.
- **Percent within service level**. The percentage of calls that you are expecting or targeting to be answered by an agent within a specific number of seconds.
- **Agent occupancy**. The average time that you are expecting or targeting each split/skill agent to spend, while logged in, on ACD calls and in ACW.

For any split/skill forecast, CMS uses a profile's call handling objectives, along with forecast calls carried, to find the number of agents required to handle the calls. Therefore, you must define a call handling profile which reflects the objectives of the split/skill for use in the split/skill forecast.

Things to Know Before You Start

- Since CMS forecasts the number of agents required for each intrahour interval, you must define objectives for each intrahour interval whose calls you are forecasting.
- Up to 100 call handling profiles may be created per ACD connected to CMS. As a result, you can define a profile which describes one or more splits/skills. You might do this if, for example, you want a profile for forecasts of normal days and another profile for forecasts when your agents begin handling a new type of call.
- You may define a unique call handling profile for each split/skill for which you want forecasts. However, you will normally be able to use the same call handling profile, if appropriate, for multiple splits/skills in the ACD.
- In the Call Handling Profiles window itself, you assign only a profile ID number. To actually define the objectives of a profile, you must use the Get Contents window that displays when you select the Get Contents action list option. See Figure 2-4: Get Contents Window. on page 37.
- In defining the agent occupancy objective, remember that the objective is the percentage of time that you want the agents active on a call or in ACW. CMS uses the

Erlang C algorithm, which assumes that each agent is available and waiting for a call if they are not on an ACD call or in ACW.

Therefore, do not include time agents are in Auxiliary (AUX) work in your agent occupancy objective. Instead, if you want to determine the total agents you need when some are in AUX work, you will have to forecast the agents required, and then factor in AUX work.

For example, if CMS forecasts that you need 30 agents to handle calls during a half-hour interval, and you want 8 agents to take a 15-minute break during that interval, you will actually need to schedule 34 agents for the interval to cover the staff time lost to breaks.

- If you have agents in multiple skills and are using bi-level call distribution, you may want to use the concept of the agent's top skill to refine your agent occupancy numbers. The agent's top skill is the agent's highest-level, first administered skill. If the agent has no other skills at that same level, then the top skill represents that skill for which it is most likely that the agent will take calls.

  When you look at historical skill reports to assess the amount of time agents spent in this skill, use all the time spent in ACD and ACW for the skill (by any agents) and only the time agents with this skill as top skill spent available. This method will avoid counting available time for agents for both top and backup skills, giving a more accurate representation of the agent occupancy for this skill.

- CMS forecasts the number of agents that will be required to handle the volume of calls during a specified time period. This forecast makes the call handling performance equal to or better than your objectives. Therefore, CMS will forecast the number of agents required so that:

  — The average speed of answer for calls will be equal to or faster than your objective.

  Note:

  If you are using multiple call handling or forced multiple call handling, you need to account for the time that the call is on hold at the agent position along with the time that the call is in queue and the time that the call spends ringing at the agent position.

  — Agent occupancy is equal to or less than your objective.

  — The percentage of calls answered within service level is equal to or greater than your objective.

  For example, if your target average speed of answer is 30 seconds, the forecasted number of agents might be able to handle calls with an average speed of answer of 28 seconds.

  To account for the differences between objectives and forecasted performance, split/skill forecasts include "Profile results" which show the average speed of answer, agent occupancy, and percent within service level that the agents should actually achieve.

- You can also copy an existing profile's objectives to the new profile you are defining. You do this via the Copy window which displays when you select the Copy action list option. See Figure 2-3: Copy Window on page 36.
- To simplify building your call profiles, your system comes with a sample call profile. It can be copied to a new profile you are defining. This then allows you to modify your parameters. See Get Contents Window on page 37 for details. You can also modify your parameters across multiple intervals.

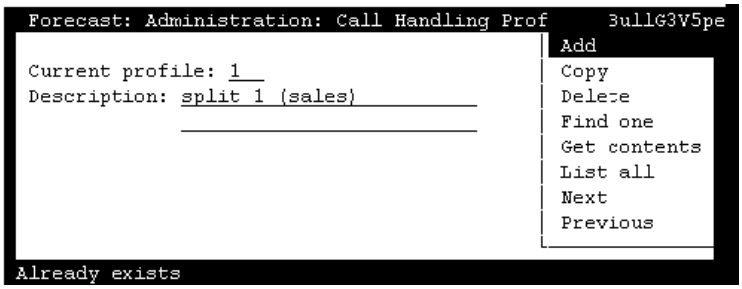
Prerequisite System Administration

You must have *write* permission for the Forecast subsystem if you want to create, change, or add a profile.

Call Handling Profiles Window

Use the Call Handling Profiles window to define the call handling objectives of a split or skill. See the following figure.

Figure 2-2: Call Handling Profiles Window



Field/Action List Usage

Add

To add a call handling profile, complete the `Current profile:` field to assign the profile number, and select `Add`.

Copy

To copy the contents of another profile, select `Copy`.

Delete

To delete a profile, complete the `Current profile:` field, and select `Delete`.

Find one/List all

To display the split/skill name(s) and a description(s) of the split/skill, select `Find one` or `List all`.

Get contents

To define the call handling profile from scratch, select `Get contents`.

To modify a profile, complete the `Current profile:` field, and select `Get contents`.

Field Descriptions

Current profile:

Enter the number, from 1 to 100, of the call handling profile you want to view, add, modify, or delete.

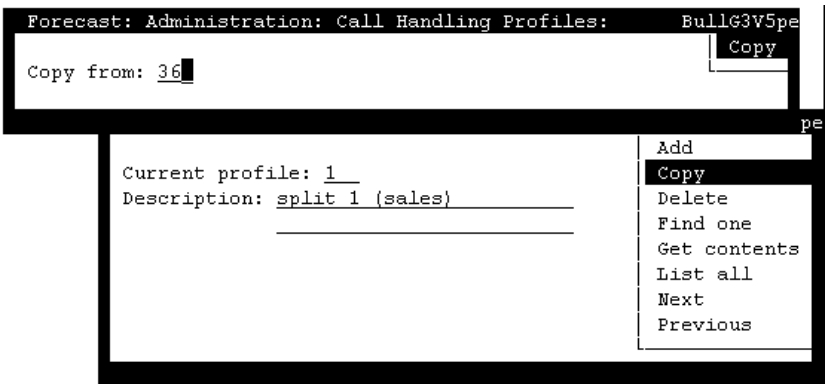
Description:

Enter a description of the profile.

Copy Window

When you select `Copy` on the Call Handling Profiles window, the following Copy window displays. See the following figure.

Figure 2-3: Copy Window



Field Descriptions

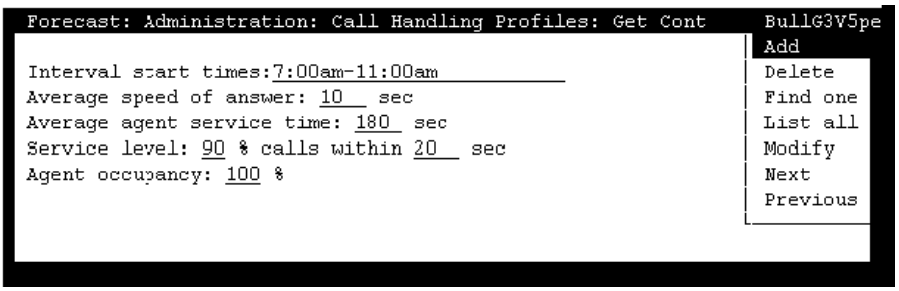
Copy from:

Enter the number, from 1 to 100, of the call handling profile whose contents you want to copy to the new profile number.

Get Contents Window

When you select `Get contents` on the Call Handling Profiles window, the following Get Contents window displays. See the following figure.

Figure 2-4: Get Contents Window.



Field/Action List Usage

Add

To add objectives for one intrahour interval, complete all fields, and select `Add`. Intervals may only be added one at a time.

Delete

To delete objectives for one or more intrahour intervals, complete the `Interval start time:` field, and select `Delete`.

List all

To view the objectives defined for each intrahour interval, enter the appropriate range of intervals (or leave the `Interval start time:` field blank for all intervals), and select `List all`.

Modify/Find one

To modify objectives, do a `Find one` for an interval, change data in the appropriate fields, and select `Modify`.

Field Descriptions

Interval start time:

Enter a time of day in hh:mm format, either as military time (for example, 13:30) or with am or pm appended (for example, 10:15am).

- When viewing, modifying, or deleting objectives, you may specify multiple intervals with:
  - A range (for example, 7:00am-12:00pm)
  - A series (for example, 7:00am;7:30am;4:30pm;5:00pm)
  - A series of ranges (for example, 7:00am-11:30am; 12:30pm- 5:00pm).
- This is the start time of the interval whose call handling objectives you want to view, add, modify, or delete.

Note:

You can add objectives one interval at a time only. If you enter multiple intervals and select Add, the action will fail.

Average speed of answer:

Enter a number of seconds to define the targeted or expected average wait time for calls arriving in the specified intrahour interval(s).

- CMS will forecast just enough agents so that the average time calls wait will be equal to or below this number of seconds.
- The number of seconds should not exceed the length of your administered intrahour interval.

Note:

If you are using multiple call handling or forced multiple call handling, you need to account for the time the call is on hold at the agent position along with the time the call is in queue and the time the call spends ringing at the agent position.

Average agent service time:

Enter a number of seconds to define the targeted or expected average time for each agent to spend on an ACD call, including talk time and ACW time.

The number of seconds should not exceed the length of your administered intrahour interval.

Service level:

Enter a number, 1 to 99, to specify the percentage of calls that you are expecting or targeting to be answered by agents within the specified number of seconds.

- Enter the number of seconds that you are targeting as an acceptable speed of answer for most calls.
- CMS will forecast just enough agents so that, within the specified number of seconds, they can answer a percentage of calls equal to or greater than your target percentage.
- The number of seconds should not exceed the length of your administered intrahour interval.

Agent occupancy:

Enter a number, 0 to 100, to specify the percentage of time agents should spend on ACD calls and in ACW.

CMS will forecast just enough agents so that the percentage of time they spend on ACD calls is equal to or less than your target percentage.

Current Day Configuration Administration

Purpose

You must define a current day configuration for a split/skill to define the forecast method and additional forecast parameters CMS uses to generate current day forecast data.

The kinds of parameters you specify in a current day configuration are the same as those you specify at run time for other types of split/skill forecasts. However, you must specify current day forecast parameters before run time. This condition exists so that, when the Forecast Manager runs, it can automatically generate current day forecast data and store it in the Current Day Forecast Table in the CMS database. This arrangement, shown in the following figure offers you two benefits:

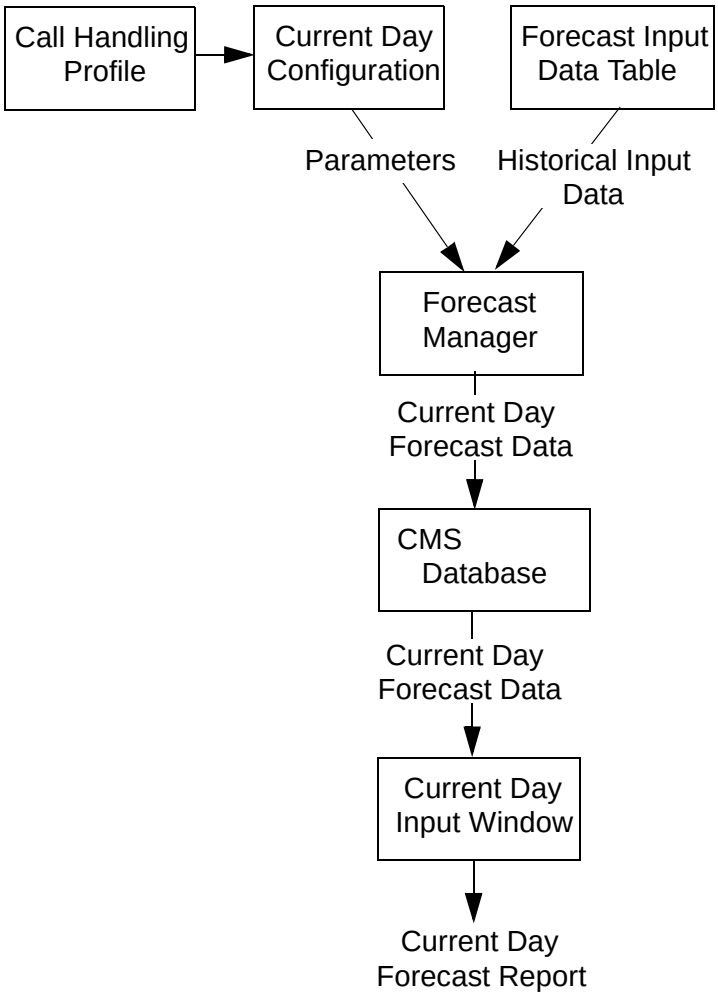
- CMS can include current day forecast data alongside historical data in the standard Forecast Summary report.
- You can include current day forecast data in a custom report.

Note:

Current day forecast data are the only data stored in the CMS database. Therefore, current day forecast data are also the only forecast data you can access later in either standard or custom reports.

As a result of this arrangement, you must first define a split(s)/skill(s) current day configuration, and then the Forecast Manager must run before you can actually run a current day forecast.

Figure 2-5: Generating Current Day Forecast Data



Things to Know Before You Start

- You must administer a Current Day configuration for each split/skill for which you want current day forecasts.
- If you change a split(s)/skill(s) current day configuration, but the Forecast Manager has already generated the forecast data for the day you want, you can rerun the Forecast Manager for the day, and CMS will overwrite the old forecast.
- Even though the Forecast Manager automatically generates current day forecast data for a split/skill (if you have defined a current day configuration for the split/skill), CMS does not automatically generate a Current Day Forecast report. Instead, you have to run the report via the Reports: Current Day Input window or schedule it in a Timetable. See the following figure.
- If any historical data point had unusual call traffic, and a current day forecast will use data from that data point, you may want to de-emphasize that data point in the forecast.

Prerequisite System Administration

- You must have *write* permission for the Forecast subsystem and for the particular split/skill that you identify in the forecast configuration.
- The call handling profile you specify for the current day configuration must already be defined.

Current Day Configuration Window

Use the Current Day Configuration window to set up the current day forecast parameters. See the following figure.

Figure 2-6: Current Day Configuration Window

```
Forecast: Administration: Current Day Configuration                BullG3V5pe
 Split(s)/                                                          Add
 Skill(s): silvercard                                               Delete
 Forecast time                                                      Find one
  First interval start time: 12:00 AM                               List all
  Last interval start time:  11:30 PM                               Modify
 Call handling profile: 2                                           Next
 Forecast method (select one)                                       Previous
  <x> No trending
  <_> Seasonal trending, base date (-n) -30  or (mm/dd/yy)  7/ 7/96
  <_> Current trending
 Change factor: 100  %
 Number of days of current day forecasts to save: 45
 To de-emphasize data, weight each data point (0 - 10) where
     10 = most representative, 0 = do not use this data
  10 Date 1 (most recent)
  10 Date 2
  10 Date 3
  10 Date 4 (least recent)
11 matches found
```

Field/Action List Usage

Add

To add a Current Day Configuration, complete all fields, and select `Add`.

Delete

To delete a configuration, complete the `Split(s)/Skill(s):` field, and select `Delete`.

Find one/List all

To display the split(s)/skill(s) name(s), select `Find one` or `List all`.

Modify

To modify a configuration, complete the `Split(s)/Skill(s)` field and any fields you want to change, and select `Modify`.

Field Descriptions

Split(s)/Skill(s):

Enter the number or name of the split/skill for which you want current day forecast data.

First interval start time: [Forecast time]

Enter a time of day in hh:mm format, either as military time (for example, 13:30) or with am or pm appended (for example, 10:15am).

- This time tells CMS when each current day forecast should begin.
- The time must match the beginning of an intrahour interval, typically the first interval in your call center's work day. In addition, the selected call handling profile must include this interval and all intervals through the interval you enter in the `Last interval start time` field.

Last interval start time:

Enter a time of day in hh:mm format, either as military time (for example, 13:30) or with am or pm appended (for example, 10:15am).

- The time must match the beginning of an intrahour interval, typically the last interval in your call center's work day. In addition, the selected call handling profile must include this interval and all previous intervals starting from the interval you entered in the `First interval start time` field. CMS will generate forecast data through the end of this intrahour interval.
- This time tells CMS which intrahour interval is the last interval it should include in each current day forecast.

Call handling profile:

Enter the number, 1 to 100, of the call handling profile that CMS will use to generate forecast data.

Forecast method: (select one)

Enter an **`x`** to select one of the three trending options:

- **`No trending`**—CMS will use data from data points in the previous 4 weeks but will not generate a forecast based on the trend of that data.

- **`Seasonal trending`**—CMS will use data from a specified `base date` and data points from the 4 weeks previous to that date. CMS will then generate a forecast that projects growth or shrinkage based on the trend of that data.

  `base date`—If you select `seasonal trending`, enter a date as a negative number (-n) to represent how many days in the past the base date should be, or enter a past date in an mm/dd/yy format. Use -n if you plan to automatically run a current day forecast every day via Timetable.

  The base date should be a day when the call center activity was similar to the activity expected for the current day.

- **`Current trending`**—CMS will use data from data points in the previous 4 weeks and will generate a forecast that projects growth or shrinkage based on the trend of that data.

Change factor:

Enter a number from 1 to 1000. This number tells CMS, as a percentage, how much it should increase or decrease the number of calls carried it finds in its initial forecast.

- 100% means that CMS will make no additional changes to the number of calls initially forecasted.
- If you are using trending, you should leave the change factor at 100 except for highly unusual circumstances.

Number of days of current day forecasts to save:

Enter a number, 1 to 999, to tell CMS how many current day forecasts to save for the split/skill.

- If you enter 365 and run a forecast for the split/skill every day, CMS will save each current day forecast for a year. This means that you will be able to redisplay or reprint a current day forecast that is up to 1 year old. This also means that you can run custom reports that include current day forecast data that are 1 year old.
- Current day forecasts use disk space. Therefore, you should save only the number of forecasts you really need.

To de-emphasize data, weight each data point (0-10) where 10=most representative, 0=do not use this data

Note:

You should leave the relative weight of each date at 10 unless you know the data stored for a particular date are highly unusual or incorrect.

Dates 1 (most recent) to 4 (least recent)

Enter a number, 0 to 10, to change the relative weight of data on any or all data points.

Costs Profile Administration

Purpose

You define costs profiles to specify the following objectives for a split/skill:

- Cost per call
- Cost per agent
- Revenue per call.

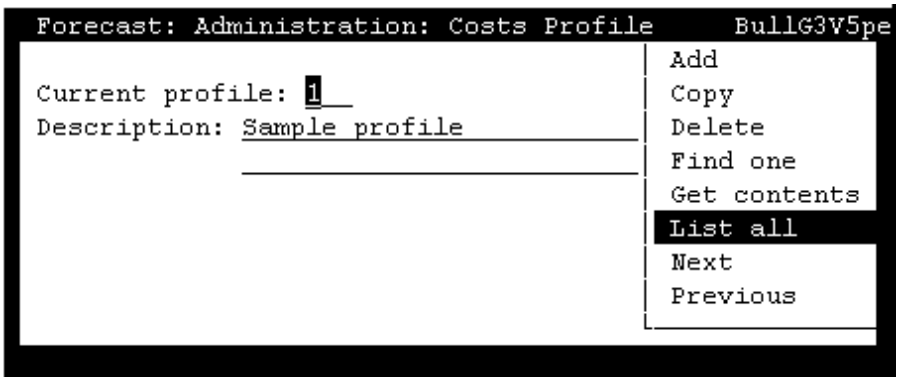
Things to Know Before You Start

- In the Financial and Hypothetical Financial Forecasts, CMS will use the costs profile, along with forecasted calls carried, to forecast “financial information” (both costs and profit and the resulting margin) of a split(s)/skill(s) operation per intrahour interval.
- You must specify cost-per-agent, cost-per-call, and revenue-per-call for each intrahour interval that you want to forecast.
- Up to 100 costs profiles may be created per ACD connected to CMS. As a result, you can define a profile which describes one or more splits/skills. You might do this if, for example, you want a profile for forecasts of weekdays (when calling rates are high), and another profile for forecasts of weekends (when rates are discounted).
- You may define a unique costs profile for each split/skill for which you want forecasts. However, you will normally be able to use the same costs profile, if appropriate, for multiple splits/skills in the ACD.
- In the Costs Profiles window itself, you assign only a profile ID number. To actually define the costs/revenue objectives of a profile, you must use the Get Contents window, which displays when you select the Get Contents action list option. See Figure 2-4: Get Contents Window. on page 37.
- You can also copy an existing profile's objectives to the new profile you are defining. You do this via the Copy window which displays when you select the Copy action list option. See Figure 2-3: Copy Window on page 36.

Costs Profile Window

Use the Costs Profile window, shown in the following figure, to define a costs profile.

Figure 2-7: Costs Profile Window



Field/Action List Usage

Add

To add a costs profile, complete the `Current profile:` field to assign the profile number, and select `Add`.

Copy

To copy the contents of another profile, complete the `Current profile:` field, and select `Copy`.

Delete

To delete a profile, complete the `Current profile:` field, and select `Delete`.

Get contents

To define the costs profile from scratch, select `Get contents`.

To modify a profile, complete the `Current profile` field, and select `Get Contents`.

Find one/List all

To display the split/skill name(s) and a description(s) of the split/skill, select `Find one` or `List all`.

Field Descriptions

Current profile:

Enter the number, 1 to 100, of the costs profile you want to view, add, modify, or delete.

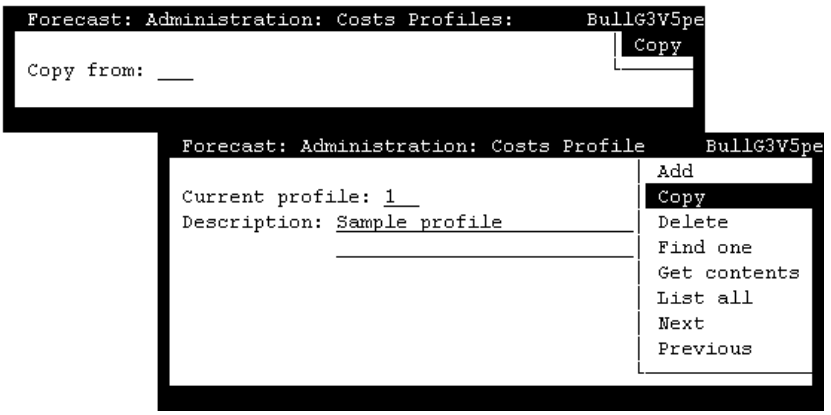
Description:

Enter a description of the profile.

Copy Window

When you select `Copy` on the Costs Profiles window, the following Copy window displays.

Figure 2-8: Copy Window



Field Descriptions

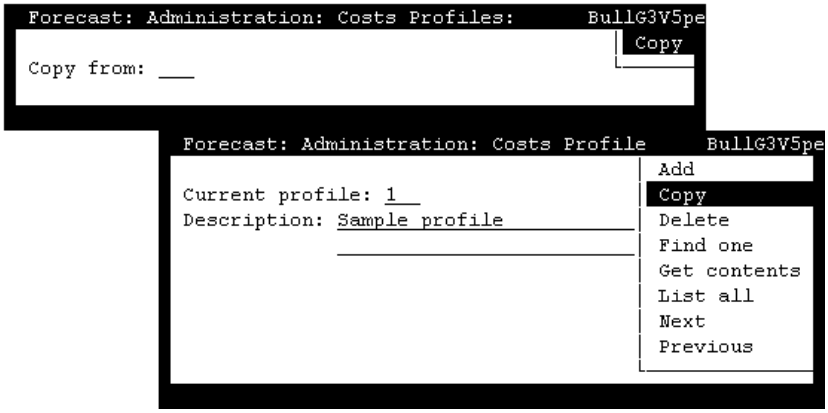
Copy from:

Enter the number, 1 to 100, of the costs profile whose contents you want to copy to the new profile number.

Get Contents Window

When you select `Get contents` on the Costs Profiles window, the following Get Contents window displays.

Figure 2-9: Get Contents Window



Field/Action List Usage

Add

To add costs/revenues for one interval, complete all fields, and select `Add`. Intervals may only be added one at a time.

Delete

To delete costs/revenues for one or more intrahour intervals, complete the `Interval start time` field, and select `Delete`.

Find one/Modify

To modify costs/revenues, do a `Find one` for an interval, change data in the appropriate fields, and select `Modify`.

List all

To view the costs defined for each intrahour interval, enter the appropriate range of intervals (or leave the `Interval start time:` field blank for all intervals), and select `List all`.

Field Descriptions

Interval start time:

Enter a time of day in hh:mm format, either as military time (for example, 13:30) or with am or pm appended (for example, 10:15am).

- This time is the start time of the interval whose costs/revenues you want to view, add, modify, or delete.
- When viewing, modifying, or deleting costs, you may specify multiple intervals with:
  - A range (for example, 7:00am -12:00pm)
  - A series (for example, 7:00am;7:30am;4:30pm;5:00pm)
  - A series of ranges (for example, 7:00am-11:30am; 12:30pm- 5:00pm)

Note:

You can add costs/revenues one interval at a time only. If you enter multiple intervals and select Add, the action will fail.

Cost of a call:

Enter an average cost per call. You may enter a dollar figure from 0 to 1000. You may enter a decimal to specify cents.

In determining an average cost, you may want to consider access line charges, service charges, usage rates, and so on.

Cost of agent for interval:

Enter an average cost per agent for a single intrahour interval. You may enter a dollar figure from 0 to 1000. You may enter a decimal to specify cents.

- Remember that if your intrahour interval is 15 minutes, you must figure your cost per agent for each of the specified 15-minute period(s), not for an hour.
- In determining an average cost, you may want to include equipment and facilities costs, management overhead, benefits, and so on.

Average revenue per call:

Enter an average revenue per call. You may enter a dollar figure from 0 to 10000. You may enter a decimal to specify cents.

Do not enter a comma to specify thousands.

Trunk Group Profile Administration

Purpose

You define a trunk group profile to specify a targeted blocking percentage for the trunks in a trunk group.

Things to Know Before You Start

- A **blocking percentage** is the percentage of time that incoming calls to an ACD will fail to connect to the ACD because all trunks in a trunk group are busy. When a call is blocked, it typically receives a busy signal from the public network.
- In a Trunk Performance report, CMS finds the number of trunks that, in a specified period in the past, would have been required to handle calls carried at your objective blocking percentage.
- You must define a profile for a trunk group before you can run a Trunk Performance report on that trunk group.
- You can define a profile for each measured trunk group in the ACD.
- For the Trunk Performance report, CMS finds the five busiest days in the report's time period, and then finds the busiest intrahour interval in each of those days. CMS finally averages the traffic for those five intervals to determine the average busy interval. The blocking objective you set for a trunk group will apply to this average busy interval.

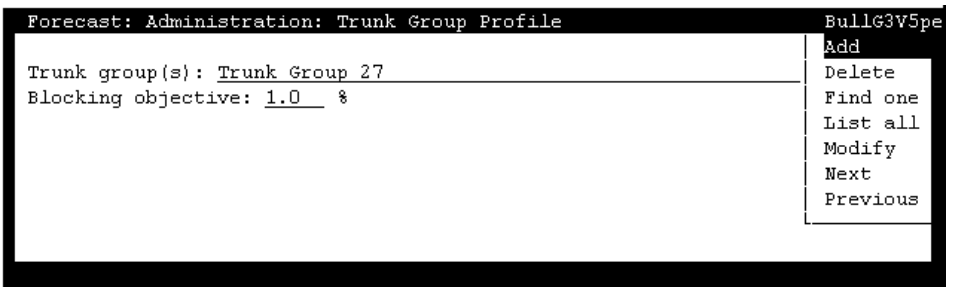
Prerequisite System Administration

- You must have *write* permission for the Forecast subsystem if you want to create, change, or add a profile.
- You must have *write* permission for the trunk group(s) whose profile(s) you are defining.

Trunk Group Profile Window

Use the Trunk Group Profile window, shown in the following figure, to specify a blocking percentage objective for a trunk group.

Figure 2-10: Trunk Group Profile Window



Field/Action List Usage

Add

To add trunk group blocking objectives for one or more trunk groups, complete all fields, and select `Add`.

Delete

To delete a blocking objective for one or more trunk groups, complete the `Trunk group:` field, and select `Delete`.

Find one/Modify

To modify a single trunk group's blocking objective, do a `Find one` for the trunk group, change data in the appropriate fields, and select `Modify`.

List all

To view trunk group blocking objectives, enter the appropriate trunk group numbers or names, range of numbers, or leave the `Trunk group(s):` blank, and select `List all`.

Field Descriptions

Trunk group(s):

Enter the number(s) or name(s) of the trunk group(s) whose blocking objective you want to view, add, modify, or delete.

You can view and modify trunk group profiles only one trunk group at a time.

When adding or deleting profiles, you can enter the following:

- A range (for example, 18-24)
- A series (for example, 18;24;32)
- A series of ranges (for example, 18-24;32-40).

Blocking objective:

Enter a number from 0 to 100. This number tells CMS, as a percentage of time, how often you expect to have calls blocked from reaching the ACD because all trunks are busy. This number is typically small.

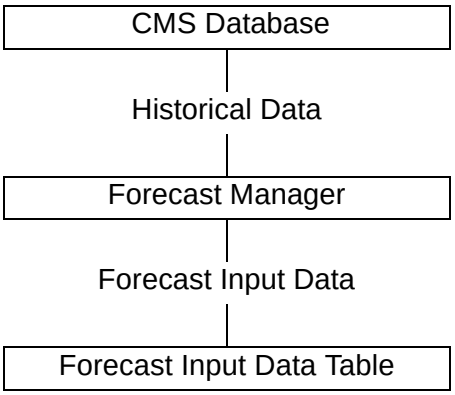
You may enter a decimal to specify percentages (for example, 1.25, which means 1¼ percent).

Forecast Manager Administration

Purpose

You run the Forecast Manager to collect data from the CMS historical tables and to put the data in the forecast input tables. See Figure 2-12: Forecast Manager Window.. on page 56. CMS can then use the data to generate forecasts. The following figure illustrates the process of collecting input data for forecasts.

Figure 2-11: Collecting Forecast Input Data



Note:

You can add costs/revenues one interval at a time only. If you enter multiple intervals and select Add, the action will fail.

You can also set the Forecast Manager to generate current day forecast data and store the data in the Current Day Forecast tables in the CMS database. This storage offers two benefits:

- CMS can include current day forecast data alongside historical data in the standard Split/Skill Forecast Summary report.
- You can include current day forecast data in a custom report. Use the Forecast Manager to calculate the Current Day Forecasts.

Things to Know Before You Start

- You should schedule the Forecast Manager in Timetable to run every night after the Data Summarizing window has compiled and saved daily historical data.

  By running the Forecast Manager via Timetable, you ensure that the Forecast Manager collects input data every day. You also ensure that current day forecast data is put into the database every day.

  Note:

  If you want current day forecasts, you must set the Forecast Manager to generate and store current day forecast data. However, the Forecast Manager does not actually display or print the forecast. To see the forecast, you will have to order the forecast via the Reports: Current Day Input window.

- The Forecast Manager collects and stores intrahour data for an ACD according to the interval length administered in the System Setup: Storage Intervals window.
- Using the `Get status` action in the Forecast Manager window, you may view the last three attempts to collect data and decide whether or not those attempts were successful.
- You can, in addition to scheduling the Forecast Manager to run automatically, run the Forecast Manager on demand to collect input data for past days if you forgot to collect data, lost data, or just purchased forecasting.

  You may collect forecast input data with either of two options:

  `Daily data collection` option—Use this option to collect data for a single day. This is the option to use when you schedule the Forecast Manager in Timetable.

  `Recollect data` option—Use this option to collect data for a range of dates. You should do this only if any of the following conditions are true:

  — You change your intrahour intervals and migrate your historical data into the new intervals.

  — You have not run the Forecast Manager for a period of time (for example, after your CMS is installed, several weeks pass before you start running the Forecast Manager).

  — You are migrating your historical data from an earlier version of the Call Management System, and you want to use this data for forecasting.

Note:

If you use the Recollect option, CMS will delete all data previously stored in the forecast input tables. Therefore, if you recollect data, you should specify a range that includes all forecast input days you need, usually from some date in the past up to yesterday.

Also, if you use the Recollect option, the next backup of data for CMS must be a full backup. A full backup is required before any incremental backups because, during an incremental backup, CMS will look for unchanged data in the forecast input tables and will not find any.

Prerequisite System Administration

- You must create a current day configuration for each split/skill for which you want current day forecast data. Without a current day configuration for a split/skill, the Forecast Manager will not generate current day forecast data on that split/skill.
- You must have *write* permission for the Forecast subsystem.
- The Data Summarizing window must run to summarize a day's intrahour data into daily data before the Forecast Manager can collect the data for that day. Therefore, via Timetable, you should schedule the Data Summarizing window to finish running before the Forecast Manager begins.

Forecast Manager Window

For CMS to generate forecasts, you must run the Forecast Manager to collect data from the CMS historical tables and to put the data in the forecast input tables. See the following figure.

Figure 2-12: Forecast Manager Window..

```
Forecast: Administration: Forecast Manager      BullG3V5pe
 Select one:                                   | Get status
  <x> Daily data collection                    | Run
        Date (mm/dd/yy or -n): -1              |
        Run current day report (y/n): y
  <_> Re-collect data for a range of dates
        Start date (mm/dd/yy or -n): -1
        Stop date (mm/dd/yy or -n):  -1

  Time Manager Ran  Status   Data Collected For
  ---------------------------------------------
   7/24/96  1:05AM  Success  07/23/1996
   7/24/96  5:04AM  Success  07/23/1996
   7/25/96  5:03AM  Success  07/24/1996

Successful
```

Field/Action List Usage

Get status

To check the time, date, and status of the data (success or failure) for the last three times the Forecast Manager ran, select `Get status`. Data collected for a single date are for `Daily data collection`. Data collected for a range of dates are for `Recollect data for a range of dates`.

Run

To generate the Forecast Manager data, select `Run`.

If you want to schedule the Forecast Manager to run at a particular time to make a change, you should run the Forecast Manager in a timetable.

Field Descriptions

Daily data collection:

Enter an **x** to turn on daily data collection.

If you select this option, you must also complete the associated `Date (mm/dd/yy or -n):` and `Run current day report (y/n):` fields.

Date (mm/dd/yy or -n):

Enter a relative day as a negative number (for example, `-1` for yesterday) or a date in mm/dd/yy format to specify the day from which the Forecast Manager should collect data.

If you are going to schedule the Forecast Manager in Timetable to run daily, use `-1`.

Run current day report (y/n):

Enter **y** to generate current day forecast data and store it in the CMS database. You must enter **y** if you want current day forecasts

Note:

The Forecast Manager does not actually display or print the forecast. You have to order the forecast via the Reports: Current Day Input window to display or print it.

.With this option, the Forecast Manager generates current day forecast data for the day that follows the day from which it collects data.

So, if you set the Forecast Manager to collect data from yesterday, the current day forecast data will be for today. If you set the Forecast Manager to collect input data from 06/11/95, the Forecast Manager will in turn generate current day forecast data for 06/12/95.

Enter **n** if you do not want current day forecasts.

Recollect data for a range of dates:

Enter **x** to recollect data

Note:

Do not forget to change the option back to `Daily data collection` when you finish recollecting data.

If you use this option of the Forecast Manager to recollect data, CMS will delete all data previously stored in the forecast input tables. Therefore, if you recollect data, you should specify a range that includes all forecast input days you need, from some date in the past (usually 397 days ago if you use seasonal trending) up to yesterday.

If the CMS database no longer contains historical data for the dates you want to recollect, the Forecast Manager cannot collect that data for the forecast input tables. For example, if the Data Storage Allocation stores 31 days of intrahour split/skill data and 365 days of daily split/skill data, the Forecast Manager can only collect 31 days and 365 days of input data, respectively.

Start date (mm/dd/yy or -n):

Enter a relative day as a negative number (for example, `-397` for the day one year and one month ago) or a date in mm/dd/yy format to specify the day from which the Forecast Manager should begin to re-collect data. This date must be farther in the past than the `Stop date (mm/yy/dd or -n):` field indicates.

Stop date (mm/dd/yy or -n):

Enter a relative day as a negative number (for example, `-1` for yesterday) or a date in mm/dd/yy format to specify the day at which the Forecast Manager should stop recollecting data. This date must be more recent than the `Start date (mm/yy/dd or -n):` field indicates.

When you select `Get status`, the following fields are displayed in a table:

Time Manager Ran – Provides the day(s) and the time manager ran.

Status – Describes if the status of the data for the run was a success or failure.

Data Collected For – Displays the date(s) for which the data was collected.

Special Days Administration

Purpose

You define special days for a split/skill so that CMS can store historical data for those days in a special day forecast input table. CMS can then generate special day forecasts on future occurrences of those days.

A special day is a day that has unusual call traffic, like the day after Thanksgiving. Another example of a special day might be a special television advertising campaign that occurs one day a quarter. If you want to find out how many agents you will need for the next campaign, you can define the date of the most recent campaign as a special day, collect data for that day in the special day table, and then run a special day forecast when the campaign approaches next quarter.

Things to Know Before You Start

- You can define as many special days as necessary for your system. However, remember that each special day uses additional disk space on your computer.
- If a special day you have defined has not yet occurred, the Forecast Manager will automatically collect and store special day input data when the day arrives (assuming the Forecast Manager has been placed on a timetable).
- If a special day you have defined has already occurred, you can rerun the Forecast Manager to collect the data.
- You can set the length of time that CMS will store special day input data. Do this using the Forecast Administration: Data Storage window.

Note:

If you want to change the date for a special day like the day after Thanksgiving, whose date is different each year, you must add a new date. You may, in fact, have two dates with the same definition (for example, 11/23/96 and 11/24/97 could both have “Day after Thanksgiving” for the description).

Prerequisite System Administration

You must run the Forecast Manager either on a timetable or manually to collect special day data. You cannot get a special day forecast unless the Forecast Manager has already collected and stored data for that special day.

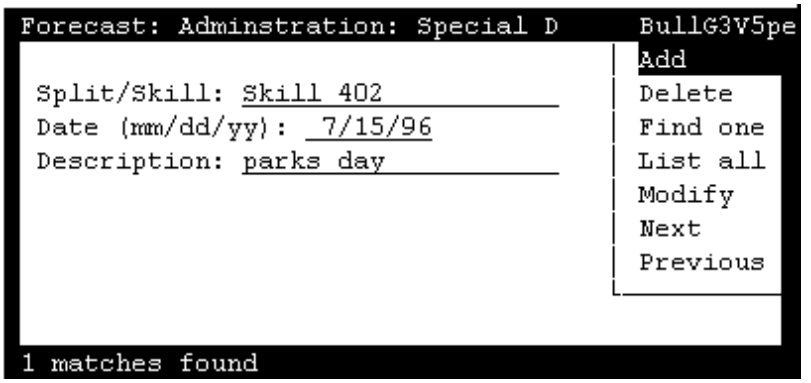
You must define the Forecast Data Storage to save special day data for the length of time that you will need it. Typically, you will want to save special day input data for a year.

You must have *write* permission for the Forecast subsystem and for the split(s)/skill(s) for which you are defining special days.

Special Days Window

Use the Special Days window, shown in the following figure, to define, for a split/skill, those days that have unusual call traffic.

Figure 2-13: Special Days Window



Field/Action List Usage

Add – To add a special day, complete all three fields, and select `Add`.

Delete – To delete a special day, complete the `Split/Skill:` and `Date` fields, and select `Delete`.

Find one – To display the name of a split/skill, select `Find one`.

List all – To view special days for a split/skill, complete the `Split/Skill:` field, and select `List all`.

Modify – To modify a special day, complete the `Split/Skill:` and `Date (mm/dd/yy):` fields and any other fields you want to change, and select `Modify`.

Field Descriptions

Split/Skill: – Enter a split/skill name or number for which you want to add, change, delete, or view a special day.

Date (mm/dd/yy): – Enter the date of a special day you want to add, change, or delete. Use a mm/dd/yy format.

Description: – Enter a description of the special day. Your description should accurately describe the special day you are defining.

Chapter 3: Call Volume/Agents Forecast Reports

This chapter describes the Call Volume/Agent Forecast reports available in Avaya CMS. A call volume/agent forecast predicts the number of calls a split/skill will receive (`Forecast calls carried`) and how many agents will be required to handle those calls (`Number of agents required`). This is the number of agents which should have this number as their top skill (G3V5 and later with EAS). The types of call volume/agent forecasts available are as follows:

Current Day Forecast	A forecast for today — based on historical data.
Longterm Forecast	A forecast for today or a day up to 35 days in the future — based on historical data.
Special Day Forecast	A forecast for a day that has unique characteristics — based on historical data.
Intraday Forecast	A forecast for the remainder of today — based on historical data and on data from the beginning of today.
Financial Forecast	A Longterm Forecast that has an additional forecast of profit margins.
Hypothetical Forecast[1]	A forecast for a day up to 35 days in the future — based on hypothetical data you define.
Hypothetical Financial Forecast	A Hypothetical Forecast that has an additional forecast of profit margins.

1. The hypothetical forecasts do not require historical data. Therefore, you can set up and begin using these reports immediately.

Guidelines for Call Volume/Agents Forecast Reports

The following guidelines provide you with some general rules for choosing input parameters on Call Volume/Agents forecast reports:

- If the number of calls handled by a split/skill over the last month is representative of what you expect in the future, use the regular (Current Day, Longterm, or Financial) forecast reports with 100 percent in the `Change factor` field (indicating no difference).
- If the pattern of calls handled by a split/skill through the day over the last month is representative of what you expect in the future, but the total number of calls is expected to be a higher or lower percentage, use the regular (Current Day, Longterm, or Financial) forecast reports with the `Change factor` field set to 100+ the amount higher or 100- the amount lower.
- If the pattern of calls handled by a split/skill through the day over the last month is representative of what you expect in the future but the number of expected calls for the day is known, use the regular (Longterm, or Financial) forecast reports with `Expected calls` field. Note that `Change factor` is not used when the forecast method is `Expected calls`.
- If the pattern of calls handled by a split/skill through the day is not representative of what you expect in the future, create or edit Hypothetical Data matching the expected pattern, and use the Hypothetical or Hypothetical Financial Forecast reports.
- If the number of calls handled by a split/skill shows a strong weekly pattern (for example, when the volume of calls is low every Monday and increases to a peak on Saturday), then use 7-days-apart data for your Call Volume/Agent Forecast reports.
- If the number of calls handled by a split/skill does not show a weekly pattern, then you can effectively use 1-day-apart data for your Call Volume/Agent forecasts. This is useful for short term projections and before you have accumulated at least 2 weeks of forecast data.
- If the number of calls handled by a split/skill shows a strong pattern across each month, Seasonal Trending may be an effective forecast method for you to use. The `Seasonal trending, base date` field should be a month ago (for example, -28).
- If the number of calls handled by a split/skill shows a strong pattern across the year, Seasonal Trending may be an effective forecast method for you to use. The `Seasonal trending, base date` field should be a year ago (for example, -364).
- If the number of calls handled by a split/skill shows a strong trend that is unrelated to previous times, Current Trending may be an effective forecast method for you to use. Choose whether the `Days between historical data points` field is 1 or 7 based on the length of the current trend. If the trend so far is short, use 1; but if the trend is as long as a month, use 7.

- If a split/skill handles calls 7 days a week, then you can effectively use the `Days between historical data points` field (set to 1). If the split/skill only handles calls 5 days a week, then you must use Days Between Historical Data Points (set to 7).
- If you know a day of data to be used in a forecast is problematic or unreliable, lower the data weight associated with it. The value of this weight compared to the unchanged weight of 10 should reflect your assessment of that data. (For example, if the data is only 80 percent reliable, change the weight from 10 to 8.)
- If the day for which you are forecasting has special characteristics unlike your normal daily call handling, use the Special Day Forecast. This forecast requires you to save special day data whenever you have an unusual day, so that it can be used for Special Day Forecasts. When you are having (or know you will have) a special day, administer a Special Day for the split/skill before you run the Forecast Manager for that day, so that the data will be stored. Examples of special days are holidays and days affected by special advertising or promotions.

The following guidelines allow you to interpret some of the results you may get on some Call Volume/Agent reports:

- If an interval of time between the `First interval start time` field and the `Last interval start time` field is missing, it is because that interval is missing in the `Call Handling Profile` and/or the `Costs Profile` you specified.
- If a row on a Call Volume/Agent report contains zeros for `Forecast calls carried, Num Agents Req'd`, and under the `Profile Results` columns, it is because no historical data was found (as collected by Forecast Manager from the historical tables into the Forecast tables or in the Hypothetical Data) for the dates on which the forecast is based.
- Profile results are given on the Call Volume/Agent reports so that you can compare them directly with your objectives in the `Call handling profile`. The calculation of `Num Agents Req'd` field uses the objectives in the `Call handling profile` field for each interval of time as boundary conditions for the answer. It is normal for one or two of the `Profile Results` field(s) to be close to the corresponding objective. By comparing the `Profile Results` and objectives and selecting the item in which the `Profile Result` is closest to the objective, you can determine which objective to change in the `Call handling profile` field to alter the `Num Agents Req'd` field.

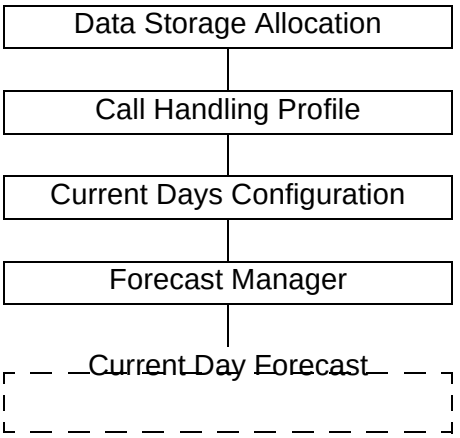
Current Day Report

Purpose

The Current Day Forecast tells you, for today, how many calls you can expect for a split/skill in each intrahour interval and how many agents you will need to handle those calls.

Since current day forecast data is saved for the number of days you specify on the Current Day Configuration window, you can retrieve current day forecasts for days past. You may want a current day forecast of a past day if you want to see how the forecasted calls and required agents compare with the day's actual calls and agent staffing.

Figure 3-1: Current Day Report Administration Overview



Prerequisite System Administration

- You must have **read** permission for the Forecast subsystem and the split/skill for which you are running the report.
- You must have defined a current day configuration for the split/skill for which you are running a forecast.
- The Forecast Manager must have run and generated the current day forecast data before you can actually display the forecast.

- For an accurate report, you should have at least 4 weeks of data stored in the forecast input tables.
- If you want to use seasonal trending, you must have at least 8 weeks of data in the forecast input tables.

Note:

To understand how CMS generates forecast data, see Chapter 6: How the Forecast System Generates Data on page 137.

Current Day Input Window

To run a Current Day Forecast, you must fill in the Current Day Input window. See the following figure.

Figure 3-2: Current Day Input Window

```
Forecast: Reports: Current Day Input        BullG3V5pe
                                             Run

 Split/Skill: 402
 Forecast date (mm/dd/yy or -n): 07/24/96
   First interval start time: 07:30am
   Last interval start time:  05:30pm

 Report destination (Select one):
  <x> Terminal
  <_> Printer, Printer name: _____
  <_> File,
      File name: _____
                 _____
```

Field Descriptions

Split/Skill:

Enter the number or name of the split/skill for which you want a current day forecast.

Forecast date (mm/dd/yy or -n):

Enter a date as a relative day (for example, `-2` means 2 days ago and `0` means today) or in mm/dd/yy format. This is the date for which you want a forecast of call traffic and required agents.

You can get a forecast for any date in the past, up to the number of current day forecasts you told CMS to save.

First interval start time:

Enter a time of day in hh:mm format, either as military time (for example, 13:30) or with am or pm appended (for example, 10:15am).

- This time tells CMS what time the current day forecast should begin.
- The time should match the beginning of an intrahour interval. In addition, the call handling profile selected in the Current Day Configuration window must include this interval.

Last interval start time:

Enter a time of day in hh:mm format, either as military time or with am or pm appended (for example, 10:15am).

- This time tells CMS which intrahour interval is the last interval that it should include in each current day forecast.
- The time should match the beginning of an intrahour interval. In addition, the call handling profile selected in the Current Day Configuration window must include this interval. CMS will generate forecast data through the end of this intrahour interval.

Report destination (Select one):

Enter an **x** next to `Terminal`, `Printer`, or `File`.

- Terminal is the default destination.
- If you selected `Printer` and want to use a printer other than your default printer, enter the printer name in addition to the `x`.
- If you selected `File`, enter a file name. If the file name already exists, the existing file will be overwritten with the new report data. The file is in your home directory in the *UNIX*[1] system (`/usr/<your login ID>`) or *Solaris* system (`/export/home/<your login ID>`) unless you specify a full path name.

1 UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Corporation.

Current Day Forecast Report Example

A description of each report item follows the report example in the Current Day Forecast Report Description table.

Figure 3-3: Current Day Forecast Report Example

```
Forecast: Reports: Current Day                                    BullG3V5pe
                          Current Day Forecast
ACD: BullG3V5pe                                  Printed:  7/25/96 11:20 AM
Split/Skill: Skill 402                                Forecast for  7/24/96
Historical data used (weight)                           75  % Change Factor
          6/26/96 (10)   7/ 3/96 (10)   7/10/96 (10)  7/17/96 (10)
Forecast method: no trending                            Base date:  6/24/96

                          -Call Handling Profile 2  - --Profile Results---
          Forecast Number  Avg    Service  Agent Avg   Avg    Service Agent
          Calls    Agents  Speed  Level    Occ   Serv  Speed  Level   Occ
Time      Carried  Req'd   Answer %   sec  %     Time  Answer %       %
-------------------------------------------------------------------------
Totals         0
-------------------------------------------------------------------------
 7:30 AM       0       0      10  90    20  100   180      0      0      0
 8:00 AM       0       0      10  90    20  100   180      0      0      0
 8:30 AM       0       0      10  90    20  100   180      0      0      0
 9:00 AM       0       0      15  85    25   95   240      0      0      0
 9:30 AM       0       0      15  85    25   95   240      0      0      0
10:00 AM       0       0      15  85    25   95   240      0      0      0
10:30 AM       0       0      15  85    25   95   240      0      0      0 v
Successful                                                        35x76
```

CMS stores current day forecast data in the CMS database so that the data can be included in the standard Split/Skill Forecast Summary report and in custom reports. Data derived from the Current Day Configuration (the data appearing at the top of the forecast) is stored in the `f_cday` table. Current day forecast data is stored in the `f_cdayrep` table.

The following table lists the database items that store the data, along with the tables that contain the items. You will need to know this information if you create custom reports that include forecast data.

Table 3-1: Current Day Forecast Report Description

Report Heading	What It Measures	Database Item	Table
ACD	The ACD of the forecasted split/skill.	ACD	`f_cday` `f_cdayrep`
Printed	The date and time the report was run.	No database item.	Not applicable.
Split/Skill	The name of the split/skill for the forecast.	SPLIT	`f_cday` `f_cdayrep`
Forecast for	The date for which you want the forecast.	ROW_DATE	`f_cday` `f_cdayrep`

Table 3-1: Current Day Forecast Report Description (Continued)

Report Heading	What It Measures	Database Item	Table
Historical data used (weight)	The current data points used for the forecast, and their respective weights (0 to 10), as specified on the Current Day Configuration window.	HDATE1 WT1 HDATE2 WT2 HDATE3 WT3 HDATE4 WT4	f_cday
% Change Factor	The adjustment, expressed as a percentage, that CMS made to its initial forecasted calls carried. CMS makes changes, if any, based on the Change Factor you enter on the Current Day Configuration Input window.	CHANGE	f_cday
Forecast method	The method, as specified on the Current Day Configuration window, used to determine forecast data as follows: ● Seasonal trending ● Current trending ● No trending.	FMETHOD	f_cday
Base date	A past date, as specified on the Current Day Configuration window, that is similar to the current date. This date is used only for seasonal trending.	TRENDBASE	f_cday
Time	The start time of each intrahour interval included in the forecast.	STARTTIME	f_cdayrep
Forecast Calls Carried	The number of calls forecasted to arrive at the split/skill for the associated intrahour interval.	FCALLS	f_cdayrep
Number Agents Req'd	The number of agents that must be logged into the split/skill for the intrahour interval in order to handle the forecasted calls, given the call handling objectives.	NUMAGREQ	f_cdayrep
Avg Speed Answer (Call Handling Profile)	The targeted average time calls should wait before an agent answers. This objective is specified in the Call Handling Profile selected in the Current Day Configuration window.	AVGSPEEDANS	f_cdayrep

Table 3-1: Current Day Forecast Report Description (Continued)

Report Heading	What It Measures	Database Item	Table
Service Level % (Call Handling Profile)	The targeted percentage of calls that the agents will answer within the time specified in the `Service Level sec` field.	`SERVLEVELP`	`f_cdayrep`
Service Level sec (Call Handling Profile)	The targeted number of seconds within which the Service Level % of calls should be answered. This objective is specified in the Call Handling Profile selected in the Current Day Configuration window.	`SERVLEVELT`	`f_cdayrep`
Agent Occ % (Call Handling Profile)	The targeted average percentage of time agents should spend on Automatic Call Distribution (ACD) calls while logged in. This objective is specified in the Call Handling Profile selected in the Current Day Configuration window.	`AGOCC`	`f_cdayrep`
Avg Serv Time (Call Handling Profile)	The targeted average number of seconds each agent should spend on an ACD call, including talk time and (After Call Work) ACW time. This objective is specified in the Call Handling Profile selected in the Current Day Configuration window.	`AVGAGSERV`	`f_cdayrep`
Avg Speed Answer (Profile Results)	The forecasted average time calls will wait before an agent answers. CMS calculates this average after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted average will be slightly lower than the Average Speed of Answer objective.	`RAVGSPEEDANS`	`f_cdayrep`
Service Level % (Profile Results)	The forecasted percentage of calls that the agents will answer within the time specified in the `Service Level sec` field. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly higher than the Service Level % objective.	`RSERVLEVELP`	`f_cdayrep`

Table 3-1: Current Day Forecast Report Description (Continued)

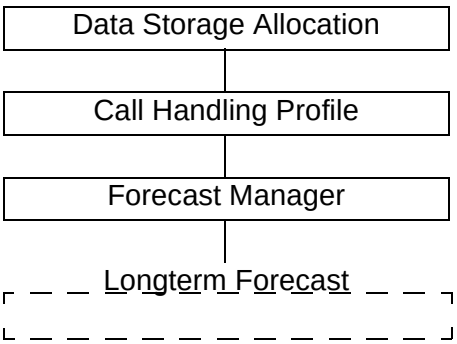
Report Heading	What It Measures	Database Item	Table
Agent Occ % (Profile Results)	The forecasted average percentage of time agents will spend on ACD calls while logged in. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly lower than the Agent Occ % objective.	`RAGOCC`	`f_cdayrep`

Longterm Report

Purpose

The Longterm Forecast tells you, for any day up to 35 days in the future, how many calls you can expect for a split/skill in each intrahour interval and how many agents you will need to handle those calls.

Figure 3-4: Longterm Report Administration Overview.



Things to Know About Report Data

If you select 1-day-apart data points and one or more of those data points had no activity (as, for example, on a weekend), CMS will still use those data points. Therefore, your forecast could be severely skewed.

Note:

For a detailed explanation of how CMS generates forecast data, see Chapter 6: How the Forecast System Generates Data on page 137.

Prerequisite System Administration

- You must have **read** permission for the Forecast subsystem and the split/skill for which you are running the forecast.
- You must have defined a call handling profile to use with the split/skill for which you are running a forecast.
- For you to get accurate forecasts, the Forecast Manager must have collected the forecast input data as follows:
  - For 1-day-apart data points, 4 days of data
  - For 1-week apart data points, 4 weeks of data
  - For seasonal trending, at least 8 weeks of data.

Longterm Report Input Window

To run a Longterm Forecast, you must complete the Longterm Input window. See the following figure.

Figure 3-5: Longterm Input Window

```
Forecast: Reports: Longterm Input                          BullG3V5pe
 Split/Skill: 420                                           Run
 Forecast date (mm/dd/yy or +n): 14
  First interval start time: 06:00am
  Last interval start time:  06:00pm
 Call handling profile: 1
 Days between historical data points (1 or 7): 7
 Forecast method (select one)
  <x> No trending
  <_> Seasonal trending, base date (mm/dd/yy or -n): -364
  <_> Current trending
  <_> Expected calls 0
 Change factor: 100 %
 To de-emphasize data, weight each data point (0 - 10) where
       10 = most representative, 0 = do not use this data
  10 Date 1 (most recent)
  10 Date 2
  10 Date 3
  10 Date 4 (least recent)

 Report destination (Select one):
  <x> Terminal
                                                            25x61
```

Field Descriptions

Split/Skill:

Enter the number or name of the split/skill for which you want a longterm forecast.

Forecast date (mm/dd/yy or +n):

Enter a date as a relative day (for example, **12** means 12 days after today) or in mm/dd/yy format. This is the date for which you want to forecast call traffic and required agents.

First interval start time:

Enter a time of day in hh:mm format, either as military time (for example, 13:30) or with am or pm appended (for example, 10:15am).

- This time tells CMS what time the longterm forecast should begin.
- The time should match the beginning of an intrahour interval. In addition, the split(s)/skill(s) call handling profile must include this interval.

Last interval start time:

Enter a time of day in hh:mm format, either as military time or with am or pm appended (for example, 10:15am).

- This time tells CMS which intrahour interval is the last interval it should include in each longterm forecast.
- The time should match the beginning of an intrahour interval. CMS will generate forecast data through the end of this intrahour interval.

Call handling profile:

Enter the number, 1 to 100, of the call handling profile CMS should use to generate forecast data. The selected call handling profile must include the intervals between the times you entered in the `First interval start time:` and the `Last interval start time:` fields.

Days between historical data points (1 or 7):

Enter 1 or 7 to specify the number of days between data points.

- If you enter 1 to specify that data points will be 1 day apart, you can run the forecast for up to 7 days in the future.
- If you enter 7 to specify that data points will be 7 days apart, you can run the forecast for up to 35 days in the future.

Forecast method (select one):

The forecast method you select always finds the average of the previous 4 weeks. This average is adjusted based on the trending option you select. Enter an **x** to select one of the four trending options:

- **No trending**—CMS will average the data from data points in the previous 4 days or weeks. This option will not generate any trend of that data.
- **Seasonal trending**—CMS will use data from a specified **base date** and data points from the 4 days (or 4 weeks) previous to that date. CMS will then generate a forecast that projects growth or shrinkage based on the trend of that seasonal data.

  Base date—If you select `seasonal trending`, enter a date as a negative number (-n) to represent how many days in the past the base date should be, or enter a past date in a mm/dd/yy format.

  If you use the mm/dd/yy format, then put 0 in the input blank for -n so that CMS knows how to use the mm/dd/yy entry. If the
  -n entry is not 0, it will be used.

  The base date should be a day when the call center activity was similar to that expected for the current day.
- **Current trending**—CMS will use data from data points in the previous 4 days or weeks and will generate a forecast that projects growth or shrinkage based on the trend of that data.
- **Expected calls**—CMS will not forecast the number of calls to the split/skill. Instead, CMS will take the number of calls you enter and distribute them among the specified intervals in amounts that match the pattern in the historical data in your data points.

  If you select `Expected calls`, you must enter the number of calls you expect will connect to the split/skill for the whole forecasted day.

Change factor:

Enter a number from 1 to 1000. This number tells CMS, as a percentage, how much it should increase or decrease the number of calls carried it finds in its initial forecast. 100 means no change. 1000 means the forecast calls carried should be multiplied by 10.

To de-emphasize data, weight each data point (0-10) where 10=most representative, 0=do not use this data.

Note:

You should leave the relative weight of each date at 10 unless you know the data stored for a particular date is highly unusual or incorrect.

Dates 1 (most recent) to 4 (least recent):

Enter a number, 0 to 10, to change the relative weight of data on any or all data points.

Report destination (Select one):

Enter an `x` next to `Terminal`, `Printer`, or `File`.

- Terminal is the default destination.
- If you selected `Printer` and want to use a printer other than your default printer, enter the printer name in addition to the `x`.
- If you selected `File`, enter a file name. If the file name already exists, the existing file is overwritten with the new report data. The file is in your home directory in the *UNIX* system (`/usr/<your login ID>`) or *Solaris* system (`/export/home/<your login ID>`) unless you specify a full path name.

Longterm Forecast Report Example

A description of each report item follows the report example in the Longterm Forecast Report Description table.

Figure 3-6: Longterm Forecast Report Example

```
Forecast: Reports: Longterm                                        BullG3V5pe
                              Longterm Forecast
ACD: BullG3V5pe                                  Printed:  7/25/96 11:32 AM
Split/Skill: Skill 420                               Forecast for  8/ 8/96
Historical data used (weight)                          100 % Change Factor
            6/27/96 (10)   7/ 4/96 (10)   7/11/96 (10)   7/18/96 (10)
Forecast method: no trending                           Base date:  7/27/95
(User expected      0 calls)

                           -Call Handling Profile 1  - --Profile Results---
          Forecast Number  Avg    Service  Agent Avg   Avg    Service Agent
          Calls    Agents  Speed  Level    Occ   Serv  Speed  Level   Occ
Time      Carried  Req'd   Answer %   sec  %     Time  Answer %       %
-------------------------------------------------------------------------
Totals         0
-------------------------------------------------------------------------
 6:00 AM       0       0      10  90    20  100   180      0      0      0
 6:30 AM       0       0      10  90    20  100   180      0      0      0
 7:00 AM       0       0      10  90    20  100   180      0      0      0
 7:30 AM       0       0      10  90    20  100   180      0      0      0
 8:00 AM       0       0      10  90    20  100   180      0      0      0
 8:30 AM       0       0      10  90    20  100   180      0      0      0
Successful                                                         40x76
```

Table 3-2: Longterm Forecast Report Description

Report Heading	What It Means
ACD	The ACD of the forecasted split/skill.
Printed	The date and time the report was run.
Split/Skill	The name of the split/skill for the forecast.
Forecast for	The date for which you want the forecast.

Table 3-2: Longterm Forecast Report Description (Continued)

Report Heading	What It Means
Historical data used	The current data points used for the forecast, and their respective weights (0 to 10), as specified on the Longterm Input window.
% Change Factor	The adjustment, expressed as a percentage, that CMS made to its initial forecasted calls carried. CMS makes changes, if any, based on the Change Factor you enter on the Longterm Input window.
Forecast method	The method, as specified on the Longterm Input window, used to determine forecast data: ● Seasonal trending ● Current trending ● No trending ● Expected calls.
Base date	A past date, as specified on the Longterm Input window, that is similar to the current date. This date is used only for seasonal trending.
Time	The start time of each intrahour interval included in the forecast.
Forecast Calls Carried	The number of calls forecasted to arrive at the split/skill for the associated intrahour interval.
Number Agents Req'd	The number of agents that must be logged into the split/skill for the intrahour interval in order to handle the forecasted calls, given the call handling objectives.
Avg Speed Answer [Call Handling Profile]	The targeted average time calls should wait before an agent answers. This objective is specified in the Call Handling Profile selected in the Longterm Input window.
Service Level % [Call Handling Profile]	The targeted percentage of calls that the split(s)/skill(s) agents will answer within the time specified in the `Service Level sec` field. This objective is specified in the Call Handling Profile selected in the Longterm Input window.
Service Level sec [Call Handling Profile]	The targeted number of seconds within which the Service Level % of calls should be answered. This objective is specified in the Call Handling Profile selected in the Longterm Input window.
Agent Occ % [Call Handling Profile]	The targeted average percentage of time agents should spend on ACD calls while logged in. This objective is specified in the Call Handling Profile selected in the Longterm Input window.
Avg Serv Time [Call Handling Profile]	The targeted average number of seconds each agent should spend on an ACD call, including talk time and ACW time. This objective is specified in the Call Handling Profile selected in the Longterm Input window.

Table 3-2: Longterm Forecast Report Description (Continued)

Report Heading	What It Means
Avg Speed Answer [Profile Results]	The forecasted average time calls will wait before an agent answers. CMS calculates this average after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted average will be slightly lower than the Average Speed of Answer objective.
Service Level % [Profile Results]	The forecasted percentage of calls that the split(s)/skill(s) agents will answer within the time specified in the `Service Level sec` field. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly higher than the Service Level % objective.
Agent Occ % [Profile Results]	The forecasted average percentage of time agents will spend on ACD calls while logged in. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly lower than the Agent Occ % objective.

Financial Report

Purpose

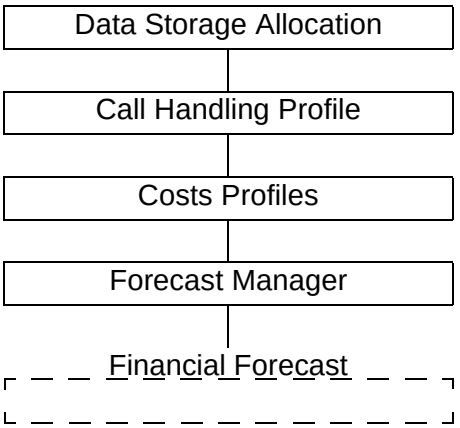
The Financial Forecast tells you, for any day up to 35 days in the future, the following for each intrahour interval in the day:

- How many calls you can expect for a split/skill
- How many agents you will need to handle those calls
- How much your profit margin will be

Note:

For a detailed explanation of how CMS generates forecast data, see Chapter 6: How the Forecast System Generates Data on page 137.

Figure 3-7: Financial Report Administration Overview



Prerequisite System Administration

- You must have **read** permission for the Forecast subsystem and the split/skill for which you are running the forecast.
- You must have defined a call handling profile to use with the split/skill for which you are running a forecast.
- You must have defined a costs profile to use with the split/skill for which you are running a forecast.
- For you to get accurate forecasts, the Forecast Manager must have collected the forecast input data as follows:
  - For 1-day-apart data points, 4 days of data
  - For 1-week apart data points, 4 weeks of data
  - For seasonal trending, at least 8 weeks of data.

Financial Input Window

To run the Financial Forecast, you must complete the Financial Input window. See the following figure.

Figure 3-8: Financial Input Window.

```
Forecast: Reports: Financial Input                    BullG3V5pe
 Split/Skill: 402                                      Run
 Forecast date (mm/dd/yy or +n): 11
  First interval start time: 06:00am
  Last interval start time:  06:00pm
 Call handling profile: 1
 Costs profile: 1
 Days between historical data points (1 or 7): 7
 Forecast method (select one)
  <x> No trending
  <_> Seasonal trending, base date (mm/dd/yy or -n): -364
  <_> Current trending
  <_> Expected calls 0
 Change factor: 100 %
 To de-emphasize data, weight each data point (0 - 10) where
     10 = most representative, 0 = do not use this data
  10 Date 1 (most recent)
  10 Date 2
  10 Date 3
  10 Date 4 (least recent)

 Report destination (Select one):
Working                                               26x61
```

Field Descriptions

Split/Skill:

Enter the number or name of the split/skill for which you want a forecast.

Forecast date (mm/dd/yy or +n):

Enter a date as a relative day (for example, **12** means 12 days after today) or in mm/dd/yy format. This is the date for which you want to forecast call traffic and required agents. A maximum of four digits are allowed.

First interval start time:

Enter a time of day in hh:mm format, either as military time or with am or pm appended (for example, 10:15am).

- This time tells CMS what time the longterm forecast should begin.
- The time must match the beginning of an intrahour interval. In addition, the split(s)/skill(s) call handling profile must include this interval.

Last interval start time:

Enter a time of day in hh:mm format, in military time or with am or pm appended (for example, 10:15am).

- This time tells CMS which intrahour interval is the last interval it should include in each financial forecast.
- The time must match the beginning of an intrahour interval. CMS will generate forecast data through the end of this intrahour interval.

Call handling profile:

Enter the number, 1 to 100, of the call handling profile CMS should use to generate forecast data. The selected call handling profile must include the intervals between the times you entered in the `First interval start time:` and `Last interval start time:` fields.

Costs profile:

Enter the number, 1 to 100, of the costs profile you want to use for this financial forecast. CMS will use the costs profile to determine total costs of calls and agent labor per intrahour interval, as well as estimated revenue per intrahour interval.

The selected costs profile must include the intervals between the times you entered in the `First interval start time:` and `Last interval start time:` fields.

Days between historical data points (1 or 7):

Enter **1** or **7** to specify the number of days between data points.

- If you enter 1 to specify that data points will be 1 day apart, you can run the forecast for up to 7 days in the future.
- If you enter 7 to specify that data points will be 7 days apart, you can run the forecast for up to 35 days in the future.

Forecast method (select one):

Enter an **x** to select one of the four trending options:

- **No trending**—CMS will use data from data points in the previous 4 days or weeks but will not generate a forecast based on the trend of that data.
- **Seasonal trending**—CMS will use data from the data points 4 days or 4 weeks preceding the specified base date. CMS will then generate a forecast that projects growth or shrinkage based on the trend of that seasonal data.

  base date—If you select seasonal trending, enter a date as a negative number (-n) to represent how many days in the past the base date should be, or enter a past date in an mm/dd/yy format. The base date should be a day when the call center activity was similar to that expected for the current day.
- **Current trending**—CMS will use data from data points in the previous 4 days or weeks and will generate a forecast that projects growth or shrinkage based on the trend of that data.
- **Expected calls**—CMS will not forecast the number of calls to the split/skill. Instead, CMS will take the number of calls you enter and distribute them among the specified intervals in amounts that match the pattern in the historical data in your data points.

  If you select Expected calls, you must enter the number of calls you expect will connect to the split/skill for the whole forecasted day.

Change factor:

Enter a number from 1 to 1000. This number tells CMS, as a percentage, how much it should increase or decrease the number of calls carried it finds in its initial forecast. 100 means no change. 1000 means the forecast calls carried should be multiplied by 10.

Do you want to de-emphasize any data (y/n)?

Enter a y if you want to de-emphasize data or an **n** if you do not want to de-emphasize data.

Report destination (Select one):

Enter an `x` next to `Terminal`, `Printer`, or `File`.

- Terminal is the default destination.
- If you selected `Printer` and want to use a printer other than your default printer, enter the printer name in addition to the `x`.
- If you selected `File`, enter a file name. If the file name already exists, the existing file is overwritten with the new report data. The file is in your home directory in the *UNIX* system (`/usr/<your login ID>`) or *Solaris* system (`/export/home/<your login ID>`) unless you specify a full path name.

Financial Forecast Report Example

A description of each report item follows the report example in Table 3-3: Financial Forecast Report Description on page 84.

Figure 3-9: Financial Forecast Report Example”

```
Forecast: Reports: Financial                                        BullG3V5pe
                                          Financial Forecast
ACD: BullG3V5pe
Split/Skill: Skill 402
Historical data used (weight)
            7/ 1/96 (10)   7/ 8/96 (10)   7/15/96 (10)   7/22/96 (10)
Forecast method: no trending
(User expected      0 calls)

                            -Call Handling Profile 1  - --Profile Results---
          Forecast Number  Avg    Service  Agent Avg   Avg    Service Agent
          Calls    Agents  Speed  Level    Occ   Serv  Speed  Level   Occ
Time      Carried  Req'd   Answer %   sec  %     Time  Answer %       %
-------------------------------------------------------------------------------
Totals         0
-------------------------------------------------------------------------------
 6:00 AM       0       0      10  90    20  100   180      0    100      0
 6:30 AM       0       0      10  90    20  100   180      0    100      0
 7:00 AM       0       0      10  90    20  100   180      0    100      0
 7:30 AM       0       0      10  90    20  100   180      0    100      0
 8:00 AM       0       0      10  90    20  100   180      0    100      0
 8:30 AM       0       0      10  90    20  100   180      0    100      0
Successful                                                        40x108   >
```

Table 3-3: Financial Forecast Report Description

Report Heading	What It Means
ACD	The ACD of the forecasted split/skill.
Printed	The date and time the report was run.
Split/Skill	The name of the split/skill for the forecast.
Forecast for	The date for which you want the forecast.

Table 3-3: Financial Forecast Report Description (Continued)

Report Heading	What It Means
Historical data used	The current data points used for the forecast, and their respective weights (0 to 10), as specified on the Financial Input window.
Change Factor	The adjustment, expressed as a percentage, that CMS made to its initial forecasted calls carried. CMS makes changes, if any, based on the Change Factor you enter on the Financial Input window.
Forecast method	The method, as specified on the Financial Input window, used to determine forecast data: ● Seasonal trending ● Current trending ● No trending ● Expected calls.
Base date	A past date, as specified on the Financial Input window, that is similar to the current date. This date is used only for seasonal trending.
Time	The start time of each intrahour interval included in the forecast.
Forecast Calls Carried	The number of calls forecasted to arrive at the split/skill for the associated intrahour interval.
Number Agents Req'd	The number of agents that must be logged into the split/skill for the intrahour interval in order to handle the forecasted calls, given the call handling objectives.
Avg Speed Answer [Call Handling Profile]	The targeted average time calls should wait before an agent answers. This objective is specified in the Call Handling Profile selected in the Financial Input window.
Service Level % [Call Handling Profile]	The targeted percentage of calls that the split/skill agents will answer within the time specified in the `Service Level sec` field. This objective is specified in the Call Handling Profile selected in the Financial Input window.
Service Level sec [Call Handling Profile]	The targeted number of seconds within which the Service Level % of calls should be answered. This objective is specified in the Call Handling Profile selected in the Financial Input window.
Agent Occ % [Call Handling Profile]	The targeted average percentage of time agents should spend on ACD calls while logged in. This objective is specified in the Call Handling Profile selected in the Financial Input window.
Avg Serv Time [Call Handling Profile]	The targeted average number of seconds each agent should spend on an ACD call, including talk time and after-call-work time. This objective is specified in the Call Handling Profile selected in the Financial Input window.

Table 3-3: Financial Forecast Report Description (Continued)

Report Heading	What It Means
Avg Speed Answer [Profile Results]	The forecasted average time calls will wait before an agent answers. CMS calculates this average after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted average will be slightly lower than the Average Speed of Answer objective.
Service Level % [Profile Results]	The forecasted percentage of calls that the split/skill agents will answer within the time specified in the `Service Level sec` field. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly higher than the Service Level % objective.
Agent Occ % [Profile Results]	The forecasted average percentage of time agents will spend on ACD calls while logged in. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly lower than the Agent Occ % objective.
Costs Profile [Costs Profile]	The number of the costs profile specified in the Financial Input window. The three objectives directly below this heading are specified in the Costs Profile.
Cost of Call [Costs Profile]	The expected average cost of a call to this split/skill, as specified in the Costs Profile window.
Cost of Agent [Costs Profile]	The expected average cost per agent for the intrahour interval, as specified in the Costs Profile window.
Revenue per Call [Costs Profile]	The expected average revenue per call, as specified in the Costs Profile window.
Est Margin	The estimated profit per interval, based on the number of calls, their associated revenue and costs, and the cost of agents.

Intraday Report

Purpose

The Intraday report gives you a forecast for the number of agents you will need for the remaining part of the current day. The Intraday Forecast adjusts the normal current day forecast to account for actual call volume in the early part of the day.

Things to Know About Report Data

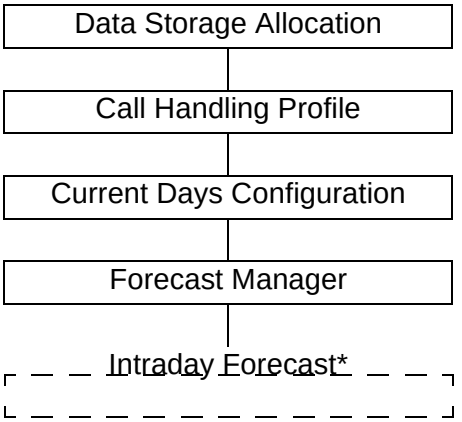
- At least one intrahour interval of data must be collected for the current day before an Intraday Forecast can be run.
- Your forecast start time can be for the current interval or intervals that CMS has already archived. You cannot specify a forecast start time for a future interval.
- CMS automatically uses as input data all intervals of today's historical data, from the specified historical start time to the forecast start time. The interval you identify as the forecast start time will be forecasted, not used to supply input data.
- All intrahour intervals included in the Intraday Forecast must be within the time frame of the associated current day forecast. See the `First interval start time:` and `Last interval start time:` fields on the Current Day Input window in this chapter.
- To figure Intraday Forecast data, CMS finds the ratio of forecasted current day call volume to actual current day call volume and uses that ratio to adjust the forecasted call volume for the remaining intrahour intervals in the day.

  In turn, CMS recalculates the number of agents required to handle the newly calculated call volume, taking into account the call handling profile used for the current day report.

  Note:

  For a detailed explanation of how CMS generates forecast data, see Chapter 6: How the Forecast System Generates Data on page 137.

Figure 3-10: Intraday Report Administration Overview



* Historical Data must be collected prior to using the Intraday Forecast.

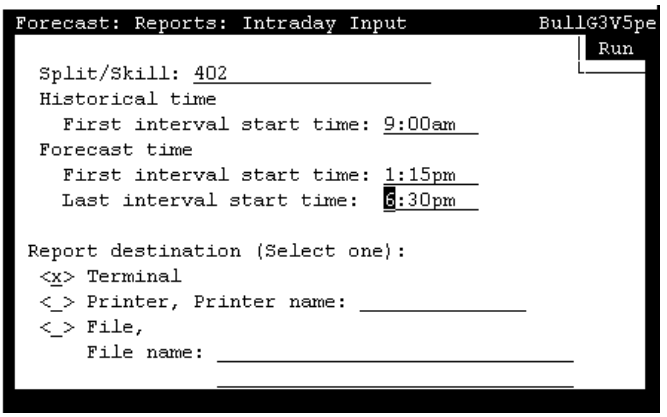
Prerequisite System Administration

- You must have **read** permission for the Forecast subsystem and the split/skill for which you are running the report.
- You must have defined a current day configuration for the split/skill for which you are running a forecast and the call handling profile referenced in the configuration.
- The Forecast Manager must have run and generated the current day forecast data.

Intraday Input Window

To run an Intraday Forecast, you must complete the Intraday Input window, shown in the following figure.

Figure 3-11: Intraday Input Window



Field Descriptions

Split/Skill:

Enter the number or name of the split/skill for which you want an intraday forecast.

First interval start time: [Historical time]

Enter a time of day in hh:mm format, either as military time (for example, 13:30) or with am or pm appended (for example, 10:15am).

- This time tells CMS what time to begin comparing today's forecast to today's actual data.
- CMS will compare forecast to actual current day data for each intrahour interval from this start time up to the intraday forecast start time.

First interval start time: [Forecast time]

Enter a time of day in hh:mm format, either as military time or with am or pm appended (for example, 10:15am).

- This time tells CMS what interval should be the first interval in the intraday forecast.
- The time must match the beginning of the current intrahour interval or an interval that has already passed.
- To generate the forecast, CMS will gather intrahour historical data starting at the equivalent time in each data point.

Last interval start time: [Forecast time]

Enter a time of day in hh:mm format, either as military time or with am or pm appended (for example, 10:15am).

- This time tells CMS which intrahour interval is the last interval it should include in each intraday forecast.
- The time must match the beginning of an intrahour interval and must be within the time frame of the associated current day forecast data. The time frame cannot be after the `Last interval start time:` defined on the Current Day Configuration window. CMS will generate forecast data through the end of this intrahour interval.

Report destination (Select one):

Enter an `x` next to `Terminal`, `Printer`, or `File`.

- Terminal is the default destination.
- If you selected `Printer` and want to use a printer other than your default printer, enter the printer name in addition to the `x`.
- If you selected `File`, enter a file name. If the file name already exists, the existing file is overwritten with the new report data. The file is in your home directory in the *UNIX* system (`/usr/<your login ID>`) or *Solaris* system (`/export/home/<your login ID>`) unless you specify a full path name.

Intraday Forecast Report Example

A description of each report item follows the report example in Table 3-4: Intraday Forecast Report Description on page 90.

Figure 3-12: Intraday Forecast Report Example

```
Forecast: Reports: Intraday                                        BullG3V5pe
                              Intraday Forecast
ACD: BullG3V5pe                                   Printed:  7/25/96  2:53 PM
Split/Skill: Skill 402                                 Forecast for  7/25/96
Forecast method: no trending                             Base date:  6/25/96
75  % Additional Change Factor
Activity today from  9:00 AM to  1:15 PM
  Number of Calls Carried:                9
  Forecast Calls Carried:                 0
  Percentage of Actual to Forecast:    0.00 %

                              -Call Handling Profile 2  - --Profile Results---
          Forecast Number  Avg    Service  Agent Avg    Avg    Service Agent
          Calls    Agents  Speed  Level    Occ   Serv   Speed  Level   Occ
Time      Carried  Req'd   Answer %   sec   %     Time   Answer %       %
---------------------------------------------------------------------------
Totals         0
---------------------------------------------------------------------------
 1:30 PM       0       0      10  90    20  100    180      0    100      0
 2:00 PM       0       0      10  90    20  100    180      0    100      0
 2:30 PM       0       0      10  90    20  100    180      0    100      0
 3:00 PM       0       0      10  90    20  100    180      0    100      0
Successful                                                          28x76
```

Table 3-4: Intraday Forecast Report Description

Report Heading	What It Means
ACD	The ACD of the forecasted split/skill.
Printed	The date and time the report was run.
Split/Skill	The name of the split/skill for the forecast.
Forecast for	The date for which you want the forecast information.

Table 3-4: Intraday Forecast Report Description (Continued)

Report Heading	What It Means
Forecast method	The method, as specified on the Current Day Configuration window, used to determine forecast data: ● Seasonal trending ● Current trending ● No trending.
Base date	A past date, as specified on the Current Day Configuration window, that is similar to the current date. This date is used only for seasonal trending.
% Additional Change Factor	The adjustment, expressed as a percentage, that CMS made to its initial forecasted calls carried. CMS makes changes, if any, based on the Change Factor you enter on the Current Day Configuration window.
Activity today from	The start times of the first and last intervals whose current day forecast data and actual data are compared. The ratio of actual to forecasted call data is the basis for transforming the remainder of the current day forecast data into intraday data.
Number of Calls Carried	The total of actual calls carried for the time period specified by the `Activity today from` field.
Forecast Calls Carried	The total of forecast calls carried for the time period specified by the `Activity today from` field.
Percentage of Actual to Forecast	The percentage of forecast calls carried that actually were carried in the time period. This percentage is found by dividing the actual calls carried by the forecast calls carried.
Time	The start time of each intrahour interval included in the forecast.
Forecast Calls Carried	The number of calls forecasted to arrive at the split/skill for the associated intrahour interval.
Number Agents Req'd	The number of agents that must be logged into the split/skill for the intrahour interval in order to handle the forecasted calls, given the call handling objectives.
Avg Speed Answer [Call Handling Profile]	The targeted average time calls should wait before an agent answers. This objective is specified in the Call Handling Profile selected in the Current Day Configuration window.
Service Level % [Call Handling Profile]	The targeted percentage of calls that the split/skill's agents will answer within the time specified in the `Service Level sec` field.

Table 3-4: Intraday Forecast Report Description (Continued)

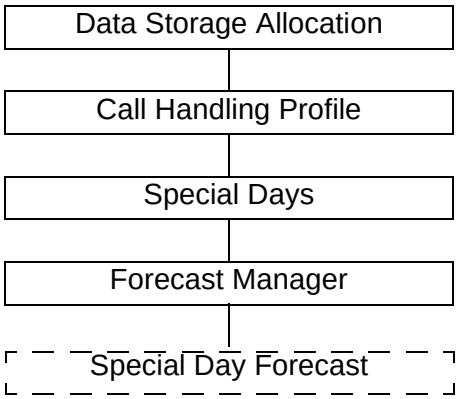
Report Heading	What It Means
Service Level sec [Call Handling Profile]	The targeted number of seconds within which the Service Level % of calls should be answered. This objective is specified in the Call Handling Profile selected in the Current Day Configuration window.
Agent Occ % [Call Handling Profile]	The targeted average percentage of time agents should spend on ACD calls while logged in. This objective is specified in the Call Handling Profile selected in the Current Day Configuration window.
Avg Serv Time [Call Handling Profile]	The targeted average number of seconds each agent should spend on an ACD call, including talk time and after-call-work time. This objective is specified in the Call Handling Profile selected in the Current Day Configuration window.
Avg Speed Answer [Profile Results]	The forecasted average time calls will wait before an agent answers. CMS calculates this average after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted average will be slightly lower than the Average Speed of Answer objective.
Service Level % [Profile Results]	The forecasted percentage of calls that the split/skill agents will answer within the time specified in the `Service Level sec` field. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly higher than the Service Level % objective.
Agent Occ % [Profile Results]	The forecasted average percentage of time agents will spend on ACD calls while logged in. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly lower than the Agent Occ % objective.

Special Day Report

Purpose

The Special Day Report tells you, for a special day, how many calls you can expect for a split/skill in each intrahour interval and how many agents you will need to handle those calls.

Figure 3-13: Special Day Report Administration Overview.



Things to Know About Report Data

- A special day, like a holiday or a special promotion day, may have unique characteristics. As a result, you may want CMS to generate a forecast based only on the historical call volume on the last occurrence of the special day. Therefore, CMS does not use data points in forecasting special day call volume.
- You can adjust the special day forecast with the change factor.
- You can also base the forecast on expected calls, rather than use historical data.

Note:

For a detailed explanation of how CMS generates forecast data, see Chapter 6: How the Forecast System Generates Data on page 137.

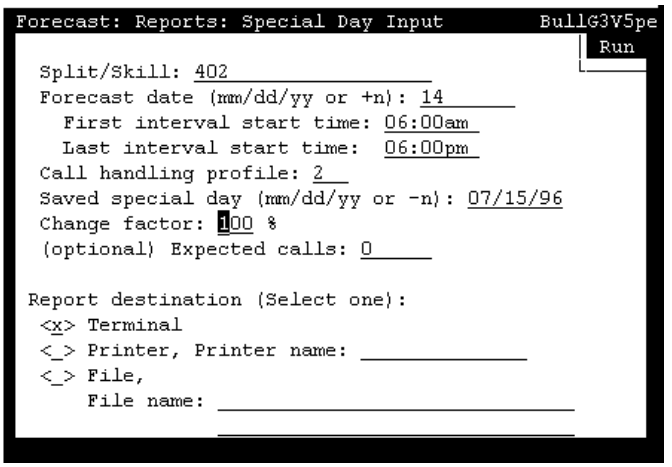
Prerequisite System Administration

- You must have previously defined the special day on the Administration: Special Days window.
- You must have defined a call handling profile to use with the split/skill for which you are running a forecast.
- The Forecast Manager must have collected data for a previous occurrence of that special day. If not, you may manually run the Forecast Manager to collect data for that day, providing that the data is still in the historical database.

Special Day Input Window

To run a Special Day Forecast, you must complete the Special Day Input window, shown in the following figure.

Figure 3-14: Special Day Input Window



Field Descriptions

Split/Skill:

Enter the number or name of the split/skill for which you want a special day forecast.

Forecast date (mm/dd/yy or +n):

Enter a date as a relative day (for example, `12` means 12 days after today) or in mm/dd/yy format. This is the date for which you want to forecast call traffic and required agents.

First interval start time:

Enter a time of day in hh:mm format, either as military time (for example, 13:30) or with am or pm appended (for example, 10:15am).

- This time tells CMS what time the special day forecast should begin.
- The time must match the beginning of an intrahour interval. In addition, the split/skill's call handling profile must include this interval.

Last interval start time:

Enter a time of day in hh:mm format, either as military time or with am or pm appended (for example, 10:15am).

- This time tells CMS which intrahour interval is the last interval it should include in each special day forecast.
- The time must match the beginning of an intrahour interval. CMS will generate forecast data through the end of this intrahour interval.

Call handling profile:

Enter the number, 1 to 100, of the call handling profile CMS should use to generate forecast data. The selected call handling profile must include the intervals between the times you entered in the `First interval start time:` and `Last interval start time:` fields.

Saved special day (mm/dd/yy on -n):

Enter the date, in mm/dd/yy format, of the special day whose data you want to use for the forecast.

Change factor:

Enter a number from 1 to 1000. This number tells CMS, as a percentage, how much it should increase or decrease the number of calls carried it finds in its initial forecast. 100 means no change. 1000 means the forecast calls carried should be multiplied by 10.

(optional) Expected calls:

CMS will not forecast number of calls to the split/skill. Instead, CMS will take the number of calls you enter and distribute them among the specified intervals in amounts that match the pattern in the historical data in your special day.

If you select `Expected calls`, you must enter the number of calls you expect will connect to the split/skill for the whole forecasted day.

Report destination (Select one):

Enter an `x` next to `Terminal`, `Printer`, or `File`.

- Terminal is the default destination.
- If you selected `Printer` and want to use a printer other than your default printer, enter the printer name in addition to the `x`.
- If you selected `File`, enter a file name. If the file name already exists, the existing file is overwritten with the new report data. The file is in your home directory in the *UNIX* system (`/usr/<your login ID>`) or *Solaris* system (`/export/home/<your login ID>`) unless you specify a full path name.

Special Day Forecast Report Description

A description of each report item follows the report example in Table 3-5: Special Day Forecast Report Description on page 96.

Figure 3-15: Special Day Forecast Report Example

```
Forecast: Reports: Special Day                                    BullG3V5pe
                          Special Day Forecast
ACD: BullG3V5pe                                  Printed:  7/25/96  4:20 PM
Split/Skill: Skill 402                                Forecast for  8/ 8/96
Forecast based on data from  7/15/96                    100 % Change Factor
{User expected      0 calls}

                          -Call Handling Profile 2  - --Profile Results---
          Forecast Number  Avg    Service  Agent Avg   Avg    Service Agent
          Calls    Agents  Speed  Level    Occ   Serv  Speed  Level   Occ
Time      Carried  Req'd   Answer %   sec  %     Time  Answer %       %
-----------------------------------------------------------------------------
Totals         1
-----------------------------------------------------------------------------
 6:00 AM       1       2      10  90    20  100   180      0    100      5
 6:30 AM       0       0      10  90    20  100   180      0    100      0
 7:00 AM       0       0      10  90    20  100   180      0    100      0
 7:30 AM       0       0      10  90    20  100   180      0    100      0
 8:00 AM       0       0      10  90    20  100   180      0    100      0
 8:30 AM       0       0      10  90    20  100   180      0    100      0
 9:00 AM       0       0      15  85    25   95   240      0    100      0
 9:30 AM       0       0      15  85    25   95   240      0    100      0
Successful                                                        38x76
```

Table 3-5: Special Day Forecast Report Description

Report Heading	What It Means
ACD	The ACD of the forecasted split/skill.
Printed	The date and time the report was run.
Split/Skill	The name of the split/skill for the forecast.
Forecast for	The date for which you want the forecast information.

Table 3-5: Special Day Forecast Report Description (Continued)

Report Heading	What It Means
Forecast based on data from	The date of the past special day supplying input data for this forecast.
% Change Factor	The adjustment, expressed as a percentage, that CMS made to its initial forecasted calls carried. CMS makes changes, if any, based on the Change Factor you enter on the Special Day Input window.
(User expected calls)	The total number of expected calls for the entire day. Expected calls are specified on the Special Day Input window. Expected calls are spread over the specified intrahour intervals in the day, in amounts equal to the relative amounts each interval had on the previous special day.
Time	The start time of each intrahour interval included in the forecast.
Forecast Calls Carried	The number of calls forecasted to arrive at the split/skill for the associated intrahour interval.
Number Agents Req'd	The number of agents that must be logged into the split/skill for the intrahour interval in order to handle the forecasted calls, given the call handling objectives.
Avg Speed Answer [Call Handling Profile]	The targeted average time calls should wait before an agent answers. This objective is specified in the Call Handling Profile selected in the Special Day Input window.
Service Level % [Call Handling Profile]	The targeted percentage of calls that the split/skill's agents will answer within the time specified in the `Service Level sec` field.
Service Level sec [Call Handling Profile]	The targeted number of seconds within which the Service Level % of calls should be answered. This objective is specified in the Call Handling Profile selected in the Special Day Input window.
Agent Occ % [Call Handling Profile]	The targeted average percentage of time agents should spend on ACD calls while logged in. This objective is specified in the Call Handling Profile selected in the Special Day Input window.
Avg Serv Time [Call Handling Profile]	The targeted average number of seconds each agent should spend on an ACD call, including talk time and after-call-work time. This objective is specified in the Call Handling Profile selected in the Special Day Input window.
Avg Speed Answer [Profile Results]	The forecasted average time calls will wait before an agent answers. CMS calculates this average after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted average will be slightly lower than the Average Speed of Answer objective.

Table 3-5: Special Day Forecast Report Description (Continued)

Report Heading	What It Means
Service Level % [Profile Results]	The forecasted percentage of calls that the agents will answer within the time specified in the `Service Level sec` field. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly higher than the Service Level % objective.
Agent Occ % [Profile Results]	The forecasted average percentage of time agents will spend on ACD calls while logged in. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly lower than the Agent Occ % objective.

Hypothetical Data

Purpose

Prior to running a Hypothetical Report or a Financial Hypothetical Report, you must decide how you want to gather data for your reports.

To define hypothetical data, you may:

- Enter new data in the hypothetical data table from scratch.

  For example, if you anticipate a future day whose call volume will be different from any days in the past, you might want to enter all data in the hypothetical data table from scratch.

- Copy historical data into the hypothetical data table.

  For example, if you anticipate a future day whose call volume will be the same as days in the past.

- Edit data you copied.

  For example, if you anticipate a future day whose call volume is unique for only a part of the day, you might copy the historical data into the hypothetical data table and then edit data for the intrahour intervals you know will be different.

  Note:

  Your choice of how you gather data for your Hypothetical Report and your Hypothetical Financial Report depends on the type of day you want to forecast.

  CMS supplies uniform default data in the hypothetical data table so that you can run hypothetical forecasts immediately. With this uniform default data, you can use a hypothetical forecast to experiment with and clearly study the effects of call profiles, forecast methods, and other forecast inputs.

To view or change this data, you must use the Edit Values window (see Figure 3-17: Edit Values Window on page 103).

See Figure 1-4: Forecast System and Document Organization on page 23 for an overview of Hypothetical Data.

Copy Historical Data

- Use the Copy Historical Data window (see Figure 3-16: Copy Historical Data Window on page 101) to copy historical data for a split/skill from the forecast input table into the hypothetical data table.
- You can use this data, either immediately or after editing it, to run hypothetical forecasts

  Note:

  To actually see the data in the hypothetical data table, you must use the Edit Values window.

Things to Know Before You Start

- Although you can copy historical data from any split/skill in any ACD (real or pseudo-ACD), data in the hypothetical data table is not stored for any particular split/skill or ACD. Instead, the hypothetical data table is simply a collection of ACD calls data for the intervals in four data points.
- You must separately copy data for each of the data points, 1 through 4. When you copy the data, any data that previously had been stored for that data point is overwritten in the table.
- You cannot copy abandons from the forecast input data. However, you can manually include abandons with ACD calls by editing the hypothetical points.

Prerequisite System Administration

- You must have **read** and **write** permission for the Forecast subsystem.
- You must have read permission for the split/skill (and ACD, if applicable) from which you are copying data.
- Before you can copy data, you must have previously run the Forecast Manager to copy data from the historical data tables to the forecast input table. You can run the Forecast Manager either manually or in a timetable.

Copy Historical Data Window

To copy historical data for a split/skill from the forecast input table into the hypothetical data table, use the Hypothetical Data: Copy Historical Data window.

Figure 3-16: Copy Historical Data Window

```
Forecast: Hypothetical: Data: Copy Historical Data                BullG3V5pe
                                                                   Copy

  Copy from
    ACD:  burbank
    Split/Skill:  silverpurchase
    Date:   12/24/96
  Copy to
    Data point(1-4): 1
```

Field/Action List Usage

Run

Enter any changes, and select Run.

Field Descriptions

ACD: [Copy from]

Enter the number or name of the ACD that contains the split/skill data you want to copy. The ACD can be either the ACD connected to CMS or a pseudo-ACD.

Split/Skill: [Copy from]

Enter the name or number of the split/skill whose data you want to copy.

Date: [Copy from]

Enter a date whose data you want to copy to the hypothetical data table. Use mm/dd/yy format.

Data for all intrahour intervals will be copied from this date.

Data point (1-4): [Copy to]

Enter a number from 1 to 4 to specify which data point the data should be copied to.

- Entering **1** copies data to the most recent data point. Enter a 4 to copy data to the oldest data point.
- Whether the data points are 1 day apart or 7 days apart is determined when you actually run a hypothetical forecast.

Edit and View Hypothetical Data

Use the Edit Values window (Figure 3-17: Edit Values Window on page 103) to view, add, change, or delete the data in the hypothetical data table.

Things to Know Before You Start

- You can edit data for only one data point and one interval at a time.
- The only data you can change is the number of ACD calls per intrahour interval, since this is the only data used for hypothetical forecasts.
- When you run a hypothetical forecast, the interval length of the data must match the interval length of the ACD that supplies the forecast's call handling profile. To check the interval length of the data, do a `List all` for each data point. If the length does not match, you must either:
  - Copy, via the Copy Historical Data window, new data that has the same interval length as the call handling profile's ACD.
  - Change the intervals in the hypothetical data table.
  - Select a call handling profile from an ACD with a matching interval length.

    If an ACD with a matching interval length does not exist, you can create a pseudo-ACD with the right interval length. You must also create an appropriate call handling profile for that ACD.

  Note:

  Changing the intrahour interval on this window does not affect how real historical data is collected and stored.

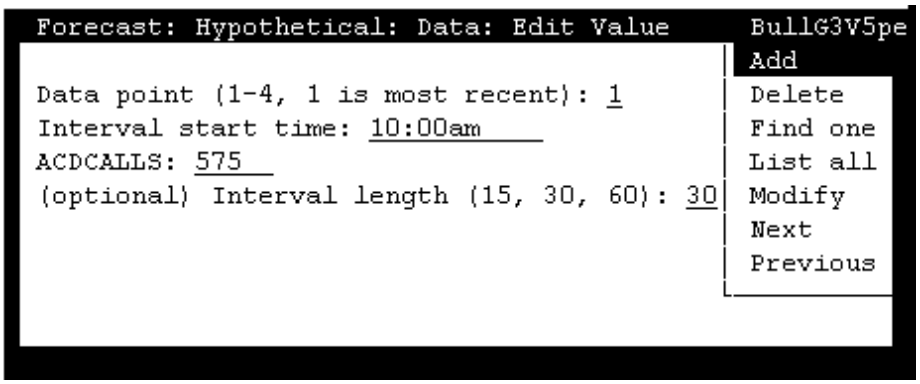
Prerequisite System Administration

To use the hypothetical data, you must have **read** and **write** permission for the Forecast subsystem and the specified split/skill.

Edit Values Window

To view hypothetical data, you must use the Edit Values window , shown in the following figure.

Figure 3-17: Edit Values Window



Field/Action List Usage

Add

To add a hypothetical data entry, complete all the input fields and select `Add`.

Delete

To delete a hypothetical data entry, complete all the input fields, and select `Delete`.

Find one/List all

To display an existing hypothetical data entry, select `Find one` or `List all`.

Modify

To modify an existing hypothetical data entry, do a `Find one` to bring up the existing data, change data in the appropriate fields, and select `Modify`.

Field Description

Data point (1-4, 1 is most recent):

Enter a number from **1** to **4** to specify the data point whose data you want to edit.

Interval start time:

Enter the start time of the intrahour interval for which you want to edit hypothetical data.

ACDCALLS:

Enter the number of ACD calls you want considered for the specified data point and intrahour interval(s) when CMS calculates the hypothetical forecast.

(optional) Interval length (15, 30, 60):

Enter, in minutes, the length of the intrahour interval you want to appear in the hypothetical forecast.

Note:

The interval length must be the same for all intervals and all data points in the hypothetical data table in the CMS database. Therefore, if you want to change the length of an interval of data, you must change the length for all intervals in all data points.

Change the Interval Length of Hypothetical Data

If you want to change the intrahour interval length of data in the hypothetical data table, you will either have to:

- Insert intervals of data (as when changing from 60-minute to 30-minute intervals, from 60-minute to 15-minute intervals, or from 30-minute to 15-minute intervals).
- Delete intervals of data (as when changing from 15-minute to 30-minute intervals, from 15-minute to 60-minute intervals, or from 30-minute to 60-minute intervals).

Note:

When you run a hypothetical forecast, the interval length of the data must also match the interval length of the ACD that supplies the forecast's call handling profile.

Two sample procedures for changing interval length follow.

Change Data from 30-Minute Intervals to 15-Minute Intervals

1.	In the `Data point` field, enter the data point whose intervals you want to change.		
2.	Select `Find one` to display the first interval of data in the data point.	→	*The* `ACDCALLS` *field displays the number of ACD calls for the first interval. The* `Interval length:` *field displays the length of the interval.*
3.	If desired, change the number of ACD calls in the `ACDCALLS` field. You may want to enter half the number displayed, since you are changing 30-minute data to 15-minute data.		
4.	In the `Interval length` field, enter **`15`**, and select `Modify`.	→	`Successful` *appears on the status line to indicate that the interval of data has been changed.*
5.	In the `Interval start time` field, enter a start time exactly 15 minutes after the start time of the previous interval.		
6.	If desired, change the number of ACD calls in the `ACDCALLS` field. If you previously entered half of the ACD calls stored for a 30-minute interval, you may want to leave this number in the field, since this also represents the other half of the calls for the 30-minute interval.		
7.	Leave **`15`** in the `Interval length` field, and select `Add`.	→	`Successful` *appears on the status line to indicate that the interval of data has been added.*
8.	Press Ctrl **z**.	→	*Data in all of the input fields disappears.*

9. Repeat Steps 1 through 8 for each 30-minute interval in the data point.
10. Repeat Steps 1 through 9 for the other three data points you want for your forecast. When you are done, you can run the Hypothetical Forecast with the new interval length.

Note:

To change data from 60- to 30-minute intervals or 60- to 15-minute intervals, you use the same procedure as the preceding sample. However, to change from 60- to 15-minute intervals, you will need to add three intervals of data per 60-minute interval, normally with each interval containing only a fourth of the ACD calls contained in the associated 60-minute interval.

Changing Data from 15-Minute Intervals to 30-Minute Intervals

1. In the `Data point` field, enter the data point whose data you want to change.
2. Select `List all` to display all of the 15-minute intervals of data. → *The List All window displays. The window contains all 15-minute intervals in the data point*.
3. Note the sum of data for the first two 15-minute intervals, and make the Edit Values window current again (with the **Current** SLK). → *The Edit Values window becomes current.*
4. In the `Interval start time` field, enter the start time of the first 15-minute intrahour interval, and select `Find one`. → *The* `ACDCALLS` *field displays the number of ACD calls for the next interval. The* `Interval length` *field displays the length of the interval.*
5. In the `ACDCALLS` field, enter the sum of ACD calls in the first two 15-minute intervals.

6.	In the `Interval length` field, enter **`30`**, and select `Modify`.	→ `Successful` *appears on the status line to indicate that the interval of data has been changed.*
7.	In the `Interval start time` field, enter the start time of the second 15-minute interval listed in the List All window.	
8.	Select `Delete`.	→ `Successful` *appears on the status line to indicate that the interval of data has been changed.*
9.	Repeat Steps 1 through 8 for each pair of 15-minute intervals in the data point.	
10.	Repeat Steps 1 through 9 for the other three data points you want for your forecast. When you are done, you can run the Hypothetical Forecast with the new interval length.	

Note:

To change data from 30- to 60-minute intervals or 15- to 60-minute intervals, you use the same procedure as the preceding sample. However, to change from 15- to 60-minute intervals, you will need to delete three intervals of data per 60-minute interval, normally with each 60-minute interval containing the sum of the ACD calls contained in the four associated 15-minute intervals.

Hypothetical Report

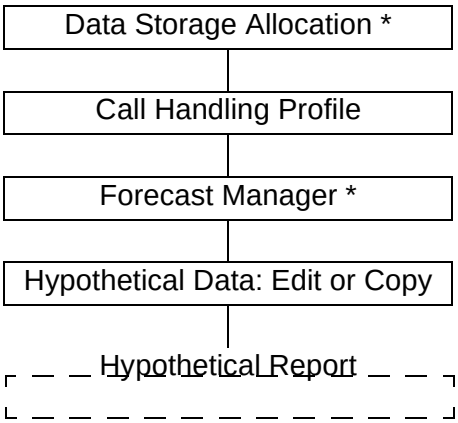
The Hypothetical Data Forecast lets you play with “what if . . .” scenarios. For example, you might ask yourself, “If, during the first week of selling a new product, Split 1 gets 1,000 calls per intrahour interval, how many agents will I need to handle them efficiently?” The hypothetical forecast can give you an answer to this scenario because the forecast uses data that you define in the hypothetical data table.

Note:

For a detailed explanation of how CMS generates forecast data, see Chapter 6: How the Forecast System Generates Data on page 137.

To run a hypothetical forecast, you must fill in the Report Input window (see Figure 3-19: Report Input Window on page 109.)

Figure 3-18: Hypothetical Report Administration Overview



*Optional. If you enter data manually, these Administrative tasks are not necessary.

Prerequisite System Administration

- Data must exist in the hypothetical data table for each intrahour interval you specify for the forecast. For a forecast to make sense, all four data points in the table should have data for the intrahour interval(s).
- The call handling profile you specify for the report must be defined.
- The ACD from which you select a call handling profile must have the same intrahour interval length as that of the data in the hypothetical data table.

Hypothetical Report Input Window

To run a Hypothetical Forecast, you must complete the Hypothetical Report Input window, shown in the following figure.

Figure 3-19: Report Input Window

```
Forecast: Hypothetical: Report Input                    BullG3V5pe
 Days between historical data points (1 or 7): 7          Run
  Forecast day (+n): 8
  First interval start time: 8:00am
  Last interval start time:  4:40pm
 Call handling profile: 1    ACD: burbank
 Forecast method (select one)
  <x> No trending
  <_> Current trending
  <_> Expected calls 0
 Change factor: 100  %
 To de-emphasize data, weight each data point (0 - 10) where
      10 = most representative, 0 = do not use this data
  10 Date 1 (most recent)
  10 Date 2
  10 Date 3
  10 Date 4 (least recent)

 Report destination (Select one):
  <x> Terminal
  <_> Printer, Printer name:
  <_> File,
                                                          23x60
```

Field Descriptions

Days between data points (1 or 7):

Enter **1** or **7** to specify the number of days between data points.

- If you enter 1 to specify that data points will be 1 day apart, you can run the forecast for up to 7 days in the future.
- If you enter 7 to specify that data points will be 7 days apart, you can run the forecast for up to 35 days in the future.

Forecast day (+n):

Enter a date as a relative day (for example, 12 means 12 days after today). This is the date for which you want to forecast call traffic and required agents.

First interval start time:

Enter a time of day in hh:mm format, either as military time (for example, 13:30) or with am or pm appended (for example, 10:15am).

- This time tells CMS what time the hypothetical forecast should begin.
- The time should match the beginning of an intrahour interval. In addition, the selected call handling profile must include this interval.

Last interval start time:

Enter a time of day in hh:mm format, either as military time or with am or pm appended (for example, 10:15am).

- This time tells CMS which intrahour interval is the last interval it should include in each hypothetical forecast.
- The time should match the beginning of an intrahour interval. CMS will generate forecast data through the end of this intrahour interval.

Call handling profile:

Enter the number, 1 to 100, of the call handling profile CMS should use to generate forecast data. The selected call handling profile must include the intervals between the times you entered in the `First interval start time` and `Last interval start time` fields.

ACD:

Enter the number or name of the ACD from which CMS should retrieve the call handling profile you specified.

Forecast method (Select one)

Enter an **`x`** to select one of the three trending options:

- **`No trending`**—CMS will use data from the data points, but will not generate a forecast based on the trend of that data.
- **`Current trending`**—CMS will use data from the data points, and will generate a forecast that projects growth or shrinkage based on the trend of that data.
- **`Expected calls`**—CMS will not forecast number of calls. Instead, CMS will take the number of calls you enter and distribute them among the specified intervals in amounts that match the pattern in the hypothetical data in your data points.

  If you select `Expected calls` field, you must enter the number of calls you expect will connect for the whole forecasted day.

Change factor:

Enter a number from 1 to 1000. This number tells CMS, as a percentage, how much it should increase or decrease the number of calls carried it finds in its initial forecast. 100 means no change. 1000 means the forecast calls carried should be multiplied by 10.

Do you want to de-emphasize any data (y/n)?

Enter a **y** if you want to de-emphasize data or an **n** if you do not want to de-emphasize data.

Report destination (Select one):

Enter an `x` next to `Terminal`, `Printer`, or `File`.

- Terminal is the default destination.
- If you selected `Printer` and want to use a printer other than your default printer, enter the printer name in addition to the `x`.
- If you selected `File`, enter a file name. If the file name already exists, the existing file is overwritten with the new report data. The file is in your home directory in the *UNIX* system (`/usr/<your login ID>`) or *Solaris* system (/export/home/<your login ID>) unless you specify a full path name.

Hypothetical Forecast Report Example

A description of each report item follows the report example in Table 3-6: Hypothetical Forecast Report Description on page 112.

Figure 3-20: Hypothetical Forecast Report Example

```
Forecast: Hypothetical: Report                                    BullG3V5pe
                          Hypothetical Forecast
ACD for Call Handling Profile: NonameG3V5          Printed:  7/26/96 10:29
Forecast data 7 days apart                                Forecast for day
Data point (weight)  Point 1 (10) Point 2 (10) Point 3 (10) Point 4 (10)
Forecast method: no trending                              100 % Change Fact
(User expected      0 calls)

                          -Call Handling Profile 1  - --Profile Results---
          Forecast Number  Avg    Service  Agent Avg    Avg    Service Agent
          Calls    Agents  Speed  Level    Occ   Serv   Speed  Level   Occ
Time      Carried  Req'd   Answer %   sec  %     Time   Answer %       %
-------------------------------------------------------------------------
Totals       144
-------------------------------------------------------------------------
 8:00 AM       0       0      10  90    20  100   180      0    100      0
 8:30 AM       0       0      10  90    20  100   180      0    100      0
 9:00 AM       0       0      10  90    20  100   180      0    100      0
 9:30 AM       0       0      10  90    20  100   180      0    100      0
10:00 AM     144      20      10  90    20  100   180      4     94     72
10:30 AM       0       0      10  90    20  100   180      0    100      0
11:00 AM       0       0      10  90    20  100   180      0    100      0
Successful                                                     32x79    >
```

Table 3-6: Hypothetical Forecast Report Description

Report Heading	What It Means
ACD for Call Handling Profile	The ACD of the call handling profile used in the forecast.
Printed	The date and time the report was run.
Forecast data _ days apart	The number of days between data points, as specified in the Hypothetical report input window.
Forecast for day	The relative date in the future for which you want the forecast information.
Data point (weight)	The current data points used for the forecast, and their respective weights (0 to 10), as specified on the Hypothetical report input window.
Forecast method	The method, as specified on the Hypothetical report input window, used to determine forecast data: ● No trending ● Current trending ● Expected calls.
% Change Factor	The adjustment, expressed as a percentage, that CMS made to its initial forecasted calls carried. CMS makes changes, if any, based on the Change Factor you enter on the Hypothetical Input window.
User expected calls	The number of calls entered on the Hypothetical Input window, if the expected calls forecast method is used.
Time	The start time of each intrahour interval included in the forecast.
Forecast Calls Carried	The number of calls forecasted to arrive at the split/skill for the associated intrahour interval.
Number Agents Req'd	The number of agents that must be logged into the split/skill for the intrahour interval in order to handle the forecasted calls, given the call handling objectives.
Avg Speed Answer [Call Handling Profile 1]	The targeted average time calls should wait before an agent answer. This objective is specified in the Call Handling Profile selected in the Hypothetical report input window.
Service Level % [Call Handling Profile 1]	The targeted percentage of calls that the split/skill's agents will answer within the time specified in the `Service Level sec` field.
Service Level sec [Call Handling Profile 1]	The targeted number of seconds within which the Service Level % of calls should be answered. This objective is specified in the Call Handling Profile selected in the Hypothetical report input window.

Table 3-6: Hypothetical Forecast Report Description (Continued)

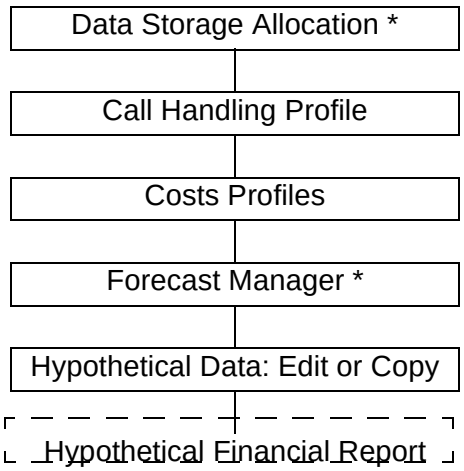
Report Heading	What It Means
Agent Occ % [Call Handling Profile 1]	The targeted average percentage of time agents should spend on ACD calls while logged in. This objective is specified in the Call Handling Profile selected in the Hypothetical report input window.
Avg Serv Time [Call Handling Profile 1]	The targeted average number of seconds each agent should spend on an ACD call, including talk time and after-call-work time. This objective is specified in the Call Handling Profile selected in the Hypothetical report input window.
Avg Speed Answer [Profile Results]	The forecasted average time calls will wait before an agent answers. CMS calculates this average after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted average will be slightly lower than the Average Speed of Answer objective.
Service Level % [Profile Results]	The forecasted percentage of calls that the split/skill's agents will answer within the time specified in the `Service Level sec` field. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly higher than the Service Level % objective.
Agent Occ % [Profile Results]	The forecasted average percentage of time agents will spend on ACD calls while logged in. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly lower than the Agent Occ % objective.

Hypothetical Financial Report

Purpose

Like the Hypothetical Forecast, the Hypothetical Financial Forecast lets you play with “what if . . .” scenarios, with the additional ability to forecast call revenues, call handling costs, and the resulting profit margin. So, in addition to running test forecasts based on data that you enter in the hypothetical data table (via the Copy Historical Data and the Edit Values windows), you can run those tests using various costs profiles.

Figure 3-21: Hypothetical Financial Report Administration Overview



* Optional. If you enter data manually, these Administrative tasks are not necessary.

In addition, you can use the Hypothetical Financial Forecast to experiment with and study the financial effects of call profiles and other forecast inputs.

Note:

For a detailed explanation of how CMS generates forecast data, see Chapter 6: How the Forecast System Generates Data on page 137.

Prerequisite System Administration

- Data must exist in the hypothetical data table for each intrahour interval in the forecast. And for a forecast to make sense, all four data points in the table should have data for the intrahour interval(s).
- The call handling profile you specify for the report must be defined.
- The ACD from which you select a call handling profile must have the same intrahour interval length as that of the data in the hypothetical data table.
- The costs profile you specify for the report must be defined.
- The ACD from which you select a costs profile must have the same intrahour interval length as the data in the hypothetical data table.

Financial Report Input Window

You must fill out the Financial Report Input window to run your financial report. Field descriptions follow the example.

Figure 3-22: Financial Report Input Window

```
Forecast: Hypothetical: Financial Report Input      BullG3V5pe
 Days between historical data points (1 or 7): 7          Run
  Forecast day (+n): 17
  First interval start time: 8:00am
  Last interval start time:  4:30pm
 Call handling profile: 1    ACD: 2
 Costs profile: 1    ACD: 2
 Forecast method (select one)
  <x> No trending
  <_> Current trending
  <_> Expected calls 0
 Change factor: 100  %
 To de-emphasize data, weight each data point (0 - 10) where
       10 = most representative, 0 = do not use this data
  10 Date 1 (most recent)
  10 Date 2
  10 Date 3
  10 Date 4 (least recent)

 Report destination (Select one):
  <x> Terminal
  <_> Printer, Printer name:
                                                          24x60
```

Field Descriptions

Days between historical data points (1 or 7):

Enter 1 or 7 to specify the number of days between data points.

- If you enter 1 to specify that data points will be 1 day apart, you can run the forecast for up to 7 days in the future.
- If you enter 7 to specify that data points will be 7 days apart, you can run the forecast for up to 35 days in the future.

Forecast day (+n):

Enter a date as a relative day (for example, 12 means 12 days after today). This is the date for which you want to forecast call traffic and required agents.

First interval start time:

Enter a time of day in hh:mm format, either as military time (for example, 13:30) or with am or pm appended (for example, 10:15am).

- This time tells CMS what time the forecast should begin.
- The time should match the beginning of an intrahour interval. In addition, the selected call handling profile must include this interval.

Last interval start time:

Enter a time of day in hh:mm format, either as military time or with am or pm appended (for example, 10:15am).

- This time tells CMS which intrahour interval is the last interval it should include in each forecast.
- The time should match the beginning of an intrahour interval. In addition, the selected call handling profile must include this interval. CMS will generate forecast data through the end of this intrahour interval.

Call handling profile:

Enter the number, 1 to 100, of the call handling profile CMS should use to generate forecast data. The selected call handling profile must include the intervals between the times you entered in the `First interval start time:` and `Last interval start time:` fields.

ACD:

Enter the number or name of the ACD from which CMS should retrieve the call handling profile you specified.

Costs profile:

Enter the number, 1 to 100, of the costs profile you want to use for this financial forecast. CMS will use the costs profile to determine total costs of calls and agent labor per intrahour interval, as well as estimated revenue per intrahour interval.

The selected costs profile must include the intervals between the times you entered in the `First interval start time:` and `Last interval start time:` fields.

ACD:

Enter the number or name of the ACD from which CMS should retrieve the costs profile you specified.

Forecast method (Select one)

Enter an **`x`** to select one of the three trending options:

- **`No trending`**—CMS will use data from the data points but will not generate a forecast based on the trend of that data.
- **`Current trending`**—CMS will use data from the data points and will generate a forecast that projects growth or shrinkage based on the trend of that data.
- **`Expected calls`**—CMS will not forecast number of calls. Instead, CMS will take the number of calls you enter and distribute them among the specified intervals in amounts that match the pattern in the hypothetical data in your data points.

  If you select `Expected calls` field, you must enter the number of calls you expect will connect for the whole forecasted day.

Change factor:

Enter a number from 1 to 1000. This number tells CMS, as a percentage, how much it should increase or decrease the number of calls carried it finds in its initial forecast. 100 means no change. 1000 means the forecast calls carried should be multiplied by 10.

To de-emphasize data, weight each data point (0-10) where 10=most representative, 0=do not use this data.

Note:

You should leave the relative weight of each date at 10 unless you know the data stored for a particular date is highly unusual or incorrect.

Dates 1 (most recent) to 4 (least recent)

Enter a number, 0 to 10, to change the relative weight of data on any or all data points.

Report destination (Select one):

Enter an `x` next to `Terminal`, `Printer`, or `File`.

- Terminal is the default destination.
- If you selected `Printer` and want to use a printer other than your default printer, enter the printer name in addition to the `x`.
- If you selected `File`, enter a file name. If the file name already exists, the existing file is overwritten with the new report data. The file is in your home directory in the *UNIX* system (`/usr/<your login ID>`) or *Solaris* system (`/export/home/<your login ID>`) unless you specify a full path name.

Hypothetical Financial Forecast Report Example

A description of each report item follows the report example in the Hypothetical Financial Forecast Report Description table.

Figure 3-23: Hypothetical Financial Forecast Report Example

```
Forecast: Hypothetical: Financial Report                          BullG3V5pe
                                   Hypothetical Financial Forecast
ACD for Call Handling Profile: NonameG3V5
ACD for Costs Profile: NonameG3V5
Forecast data 7 days apart
Data point (weight)  Point 1 (10) Point 2 (10) Point 3 (10) Point 4 (10)
Forecast method: no trending
(User expected      0 calls)

                            -Call Handling Profile 1  - --Profile Results---
          Forecast Number  Avg    Service  Agent Avg   Avg    Service Agent
          Calls    Agents  Speed  Level    Occ   Serv  Speed  Level   Occ
Time      Carried  Req'd   Answer %   sec  %     Time  Answer %       %
-------------------------------------------------------------------------------
Totals       144
-------------------------------------------------------------------------------
 8:00 AM       0       0      10  90    20  100   180      0    100      0
 8:30 AM       0       0      10  90    20  100   180      0    100      0
 9:00 AM       0       0      10  90    20  100   180      0    100      0
 9:30 AM       0       0      10  90    20  100   180      0    100      0
10:00 AM     144      20      10  90    20  100   180      4     94     72
10:30 AM       0       0      10  90    20  100   180      0    100      0
Successful                                                      33x106   >
```

Table 3-7: Hypothetical Financial Forecast Report Description

Report Heading	What It Means
ACD for Call Handling Profile	The ACD of the call handling profile used in the forecast.
Printed	The date and time the report was run.
ACD for Costs Profile	The ACD of the costs profile used in the forecast.
Forecast for day	The relative date in the future for which you want the forecast information.
Forecast data *x* days apart	The number of days between data points, as specified in the Hypothetical Financial report input window.
Data point (weight)	The current data points used for the forecast, and their respective weights (0 to 10), as specified on the Hypothetical Financial report input window.

Table 3-7: Hypothetical Financial Forecast Report Description (Continued)

Report Heading	What It Means
Forecast method	The method, as specified on the Hypothetical Financial report input window, used to determine forecast data: ● No trending ● Current trending ● Expected calls.
% Change Factor	The adjustment, expressed as a percentage, that CMS made to its initial forecasted calls carried. CMS makes changes, if any, based on the Change Factor you enter on the Hypothetical Financial Input window.
User expected calls	The number of calls entered on the Hypothetical Financial Input window, if the expected calls forecast method is used.
Time	The start time of each intrahour interval included in the forecast.
Forecast Calls Carried	The number of calls forecasted to arrive at the split/skill for the associated intrahour interval.
Number Agents Req'd	The number of agents that must be logged into the split/skill for the intrahour interval in order to handle the forecasted calls, given the call handling objectives.
Avg Speed Answer [Call Handling Profile 1]	The targeted average time calls should wait before an agent answers. This objective is specified in the Call Handling Profile selected in the Hypothetical Financial report input window.
Service Level % [Call Handling Profile 1]	The targeted percentage of calls that the split/skill's agents will answer within the time specified in the `Service Level sec` field.
Service Level sec [Call Handling Profile 1]	The targeted number of seconds within which the Service Level % of calls should be answered. This objective is specified in the Call Handling Profile selected in the Hypothetical Financial report input window.
Agent Occ % [Call Handling Profile 1]	The targeted average percentage of time agents should spend on ACD calls while logged in. This objective is specified in the Call Handling Profile selected in the Hypothetical Financial report input window.
Avg Serv Time [Call Handling Profile 1]	The targeted average number of seconds each agent should spend on an ACD call, including talk time and after-call-work time. This objective is specified in the Call Handling Profile selected in the Hypothetical Financial report input window.
Avg Speed Answer [Profile Results]	The forecasted average time calls will wait before an agent answers. CMS calculates this average after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted average will be slightly lower than the Average Speed of Answer objective.

Table 3-7: Hypothetical Financial Forecast Report Description (Continued)

Report Heading	What It Means
Service Level % [Profile Results]	The forecasted percentage of calls that the split/skill's agents will answer within the time specified in the `Service Level sec` field. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly higher than the Service Level % objective.
Agent Occ % [Profile Results]	The forecasted average percentage of time agents will spend on ACD calls while logged in. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly lower than the Agent Occ % objective.
Costs Profile [Costs Profile 1]	The number of the costs profile specified in the Financial Input window. The three objectives directly below this heading are specified in the Costs Profile.
Cost of Call [Costs Profile 1]	The expected average cost of a call to this split/skill, as specified in the Costs Profile window.
Cost of Agent [Costs Profile 1]	The expected average cost per agent for the intrahour interval, as specified in the Costs Profile window.
Revenue per Call [Costs Profile 1]	The expected average revenue per call, as specified in the Costs Profile window.
Est Margin	The estimated profit per interval, based the number of calls, their associated revenue and costs, and the cost of agents.

Chapter 4: Requirement Forecast Reports

The following two requirement forecast reports can tell you, given specific call handling objectives, how many calls you can handle.

Agent Positions Required Report

The Agent Positions Required Report provides a table showing how many calls a specified number of agents can handle given specified call handling objectives. This report forecasts the number of agents a split/skill will need as the number of calls increases.

Trunks Required Report

The Trunks Required Report provides a table showing how many calls can be carried by a specified number of trunks given a specified trunk blocking objective. This report forecasts the number of trunks a trunk group will need as the number of calls increases.

Requirement forecast reports do not require set up and do not use historical data. Therefore, you can begin using these reports immediately.

Note:

These reports do not actually predict the number of calls.

Guidelines for Requirement Reports

- Use the Agent Positions Required report to determine the number of calls that can be handled by a certain number of agents during an interval given your objectives.
- Use the Agent Positions Required report to explore the effects of changing your call handling objectives. The calculation of `Calls Carried/Interval` field uses the input objectives as boundary conditions for the answer. It is normal for one or two of the results (printed in the report columns) to be close to the corresponding objective. You can determine which input objective to change to alter the `Calls Carried/Interval` field by comparing the results and your input objectives (at the top of the report) and selecting the item in which the result is closest to the objective.
- Use the Trunks Required report to determine the number of calls that can be handled by a certain number of trunks during an interval given your objectives.
- Varying the `Trunk holding time` and/or `Trunk blocking probability` input fields on the Trunks Required report will vary the `Number of Calls Carried/Interval` field.
- `Usage Rate`, given in Erlangs, may be thought of as the average number of trunks that are busy on a call at any instant of time. Therefore, this number is always lower than the total number of trunks. `Usage Rate` can approach the number of trunks only with a very high `Trunk Blocking Probability` resulting in more blocking calls.

Agent Positions Required Report

Purpose

The Agent Positions Required Forecast generates a table that tells you, given specific call handling objectives, how many calls per intrahour interval can be handled by variable numbers of agents.

The Agent Positions Required Forecast is a quick calculator that lets you see how adjustments to call handling objectives can affect your agents' call handling efficiency.

Things to Know About Report Data

- The Agent Positions Required Forecast, in addition to calculating the number of calls handled for each number of agents, converts your call handling objectives into performance data for each level of staffing. Comparison of this data to your objectives will show which objective(s) have the most impact on performance.
- You can run a forecast for a single agent or a specific number of agents. You can also specify a range of agents.
- If you specify a range of agents (for example, **`100-200`**), you will get a table with 101 rows, one row for each increment of one agent. However, you can choose to have only gradations of agents listed. For example, instead of having 101 rows (100 to 200) in your report, selecting gradations will cause your performance data to be listed in increments of 10 agents (that is, at 100, 110, 120, and so on).
- The number of agents you specify may be thought of as the number who have a given skill as their top skill. These are the agents that will be handling the calls in this skill when call volume is heavy (for Generic 3 with the Expert Agent Selection [EAS] feature activated).

Note:

For a detailed explanation of how CMS generates forecast data, see Chapter 6: How the Forecast System Generates Data on page 137.

Agent Positions Required Input Window

To run an Agent Positions Required Forecast, use the Agent Positions Required Input window, shown in the following figure.

Figure 4-1: Agent Positions Required Input Window

```
Forecast: Reports: Agent Positions Required I     BullG3V5pe
 Average speed of answer:     10   sec                 Run
 Average agent service time: 180   sec
 Service level: 90 % calls within 20   sec
 Agent Occupancy:  100 %
 Number of agents: 150
 Gradations(y/n):  y

 Report destination (Select one):
  <x> Terminal
  <_> Printer, Printer name: _____
  <_> File,
      File name: _____
                 _____
```

Field Descriptions

Average speed of answer:

Enter a number of seconds to define the targeted or expected average wait time for calls to the split/skill.

Average agent service time:

Enter a number of seconds to define the targeted or expected average time for each agent to spend on an Automatic Call Distribution (ACD) call, including talk time and after-call-work (ACW) time.

Service level:

Enter a number, 1 to 99, to specify the percentage of calls that you are expecting or targeting to be answered by split/skill agents within the specified number of seconds. Also, enter the number of seconds you are targeting as an acceptable speed of answer for most calls.

Agent occupancy:

Enter a number, 0 to 100, to specify the percentage of time agents should spend, while logged in, on ACD calls. This percentage should include after-call-work.

Number of agents:

Enter a number of agents or a range of agents for which you want to see the number of calls that can be handled.

Gradations (y/n):

Enter `y` if you specified a range of agents, but you want CMS to list agent numbers in reasonable increments rather than listing every number in the range.

Report destination (Select one):

Enter an `x` next to `Terminal`, `Printer`, or `File`.

- Terminal is the default destination.
- If you selected `Printer` and want to use a printer other than your default printer, enter the printer name in addition to the `x`.
- If you selected `File`, enter a file name. If the file name already exists, the existing file is overwritten with the new report data. The file is in your home directory in the *UNIX*[1] system (`/usr/<your login ID>`) or *Solaris* system (`/export/home/<your login ID>`) unless you specify a full path name.

Agent Positions Required Report Example

A description of each report item follows the report example in the Agent Positions Required Report Description table.

Figure 4-2: Agent Positions Required Report Example

```
Forecast: Reports: Agent Positions Require     G3V5_eas
              Agent Positions Required
Parameters Specified
  Average Speed of Answer:      10 sec
  Average Agent Service Time:  180 sec
  Service Level: 90 % calls within   20 sec
  Agent Occupancy: 100 %

           Avg                      Agent     Calls
Agents     Speed      Service       Occ       Carried/
Req'd      Answer     Level         (%)       Interval
-----------------------------------------------------
   10          7        90 %         65          64
   12          7        90 %         68          81
   14          7        90 %         70          98
   16          7        90 %         72         115
   18          6        90 %         74         133
   20          6        90 %         76         151
   25          6        90 %         79         196
   30          6        90 %         81         242
   35          6        90 %         82         288
   40          6        90 %         84         335
Successful                                   28x53
```

1 UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Corporation.

Table 4-1: Agent Positions Required Report Description

Report Heading	What It Means
Average Speed of Answer	The targeted average time calls should wait before an agent answers. You define this parameter on the Agent Positions Required Input window.
Average Agent Service Time	The targeted average time each agent should spend on an ACD call, including talk time and after-call-work time. You define this parameter on the Agent Positions Required Input window.
Service Level %	The targeted percentage of calls that the agents will answer within the specified number of seconds. You define this parameter on the Agent Positions Required Input window.
Service Level calls within ___ sec	The targeted number of seconds within which the specified percentage of calls should be answered. You define this parameter on the Agent Positions Required Input window.
Agent Occupancy	The targeted average percentage of time agents should spend on ACD calls while logged in. You define this parameter on the Agent Positions Required Input window.
Agents Req'd	The number of agents specified on the Agent Positions Required Input Window, or an increment of agents within the range specified on the Agent Positions Required Input window.
Avg Speed Answer	The forecasted average time calls will wait before an agent answers. CMS calculates this average after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted average will be slightly lower than the Average Speed of Answer objective.
Service Level	The forecasted percentage of calls that the split/skill's agents will answer within the time specified in the `Service Level within ___ sec` field. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly higher than the Service Level % objective.
Agent Occ (%)	The forecasted average percentage of time agents will spend on ACD calls while logged in. CMS calculates this percentage after calculating the number of agent positions required to meet the call handling profile objectives. Normally, the forecasted percentage will be slightly lower that the Agent Occupancy objective.
Calls Carried/ Interval	The number of calls that the associated number of agents can handle during your intrahour interval.

Trunks Required Report

Purpose

The Trunk Required Forecast generates a table that tells you how many calls per intrahour interval can be handled by variable numbers of trunks. The trunk blocking probability and holding time per call that you specify also affect the number of calls that the trunks can handle.

The Trunks Required Forecast is a quick calculator that lets you see how adjusting the number of trunks can affect your center's call handling efficiency.

Things to Know About Report Data

- The Trunks Required Forecast, in addition to calculating the number of calls handled for each number of trunks, tells you what the usage rate of your trunks will be.
- The forecast presents the usage rate in **Erlangs**. An Erlang is 100% occupancy of one trunk in a given time frame — for this forecast, the length of your intrahour interval. If the forecast shows a usage rate of 7 Erlangs and your intrahour interval is 30 minutes, this means the trunk occupancy of all trunks added together would equal 210 minutes (7 times 30 minutes). If your intrahour interval were 15 minutes, 7 Erlangs would equal a total trunk occupancy of 95 minutes.

  Therefore, you could think of 7 Erlangs as equivalent to 7 trunks occupied for the whole intrahour interval. Or, from a different perspective, you could think of 7 Erlangs as meaning that an average of 7 trunks will be in use at any given time in the interval.
- You can run a forecast for a specific number of trunks or a range of trunks.
- If you specify a range of trunks (for example, **`100-200`**), you will get a table with 101 rows, one row for each increment of one trunk. However, you can choose to have only gradations of trunks listed. For example, instead of having 101 rows (100 to 200) in your report, selecting gradations will cause the forecast to list increments of trunks according to a fixed algorithm (perhaps, at 100, 110, 120, and so on).

  Note:

  For more explanation of how CMS generates forecast data, see Chapter 6: How the Forecast System Generates Data on page 137.

Prerequisite System Administration

You must have **write** permission for the Forecast subsystem.

Trunks Required Input Window

To run the Trunks Required Forecast, you must complete the Trunks Required Input window, shown in the following figure.

Figure 4-3: Trunks Required Input Window.

```
Forecast: Reports: Trunks Required Input          G3V5_eas
 Trunk blocking probability: 1.0 %                 Run
 Average trunk holding time per call: 180  sec
 Number of trunks: 20
 Gradations(y/n):  y

 Report destination (Select one):
  <x> Terminal
  <_> Printer, Printer name: _____________
  <_> File,
      File name: ______________________________
                 ______________________________
```

Field Descriptions

Trunk blocking probability:

Enter a number from 1 to 100. This number tells CMS, as a percentage of time, how often calls will be blocked from reaching the ACD because all trunks are busy.

You may enter a decimal to specify percentages of less than one (for example, 1.25, which means 1¼ percent).

Average trunk holding time per call:

Enter the targeted or expected number of seconds each call, on average, should be connected to a trunk. This time would include time a call on a trunk waited in queue, as well as time connected to an agent.

Number of trunks:

Enter the maximum number of trunks for which you want CMS to calculate call volume.

You may also enter a range of trunks (for example, 20-45).

Gradations (y/n):

Enter a `y` if you want only gradations of trunk quantities listed in the report. Enter an `n` if you want to list every possible quantity of trunks, as specified in the `Number of trunks:` field.

Report destination (Select one):

Enter an `x` next to `Terminal`, `Printer`, or `File`.

- Terminal is the default destination.
- If you selected `Printer` and want to use a printer other than your default printer, enter the printer name in addition to the `x`.
- If you selected `File`, enter a file name. If the file name already exists, the existing file is overwritten with the new report data. The file is in your home directory in the *UNIX* system (`/usr/<your login ID>`) or *Solaris* system (`/export/home/<your login ID>`) unless you specify a full path name.

Trunks Required Report Example

A description of each report item follows the report example in Table 4-2: Trunks Required Report Description on page 129.

Figure 4-4: Trunks Required Report Example

```
Forecast: Reports: Trunks Requi      G3V5_eas
              Trunks Required
 1.0   % Trunk Blocking Probability
 180   sec Trunk Holding Time / Call

Trunks      Calls Carried/     Usage Rate
Req'd       Interval           (Erlangs)
-----------------------------------------
   20            119             12.01

Successful
```

Table 4-2: Trunks Required Report Description

Report Heading	What It Means
% Trunk Blocking Probability	The percentage of time, specified on the Trunks Required Input window, that calls will be blocked because all trunks are busy.
sec Trunk Holding Time/Call	The average number of seconds, specified on the Trunks Required Input window, that each call will be connected to a trunk.

Table 4-2: Trunks Required Report Description (Continued)

Report Heading	What It Means
Trunks Req'd	The number of trunks specified on the Trunks Required Input window, or an increment of trunks within the range of trunks specified on the Trunks Required Input Window.
Calls Carried/ Interval	The number of calls the associated number of trunks can handle during your intrahour interval.
Usage Rate (Erlangs)	Total trunk occupancy of the associated number of trunks, expressed in Erlangs.

Chapter 5: Trunk Performance Report

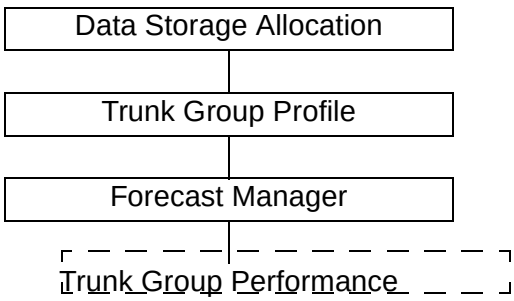
The Trunk Performance report estimates, at the busiest intervals in a specified range of historical dates, what the usage rate and blocking percentages were for the selected trunk group(s).

Note:

This report does not actually predict the number of trunks needed.

The report also tells you, given the objective blocking percentage(s) specified in the Trunk Group Profile window, how many trunks the trunk group(s) would have needed during the busiest intervals to meet the objectives

Figure 5-1: Trunk Performance Report Administration Overview.



Guidelines for the Trunk Performance Report

The Trunk Performance Report tells you, based on the number of calls in a period of time in the past (usually a month), how many trunks in a trunk group will maximize call handling efficiency.

Note:

This report does not actually predict the number of trunks.

To make its calculations, the Trunk Performance Report requires trunk group data in which the number of trunks in the trunk group is the same for each day. The number of trunks uses data that is found in the `Stop date (mm/dd/yy or -n:` field. Therefore, you must have data (collected by the Forecast Manager from historical trunk group tables in the forecast tables) for the `Stop date (mm/dd/yy or -n:` you specify. Only data for dates between your `Start date (mm/dd/yy or -n:` and your `Stop date (mm/dd/yy or -n:` which has the same number of trunks are used in the calculation.

If a row in the report contains all zeros except for Objective Blocking, then there was no data found in the forecast trunk group tables between the `Start date (mm/dd/yy or -n:` and the `Stop date (mm/dd/yy or -n:` field to make a calculation on.

Things to Know About Report Data

- CMS finds the number of trunks each trunk group had on the stop date of the report time period. CMS then searches for the 5 busiest days in the report time period where the trunk group had that same number of trunks.
- From the 5 busiest days, the 5 busiest intervals are selected. This trunk group interval data may be marked incomplete if the link was down or if there were trunk failures or trunks were made maintenance busy while on a call. You may direct CMS to consider incomplete data in the busy interval calculation or choose not to.
- The Trunks Performance Report, in addition to calculating the number of calls carried for each trunk group, tells you what the usage rate of the trunks in each trunk group will be.

  The report presents the usage rate in **Erlangs**. An Erlang is 100 percent occupancy of one trunk in a given time frame — for this forecast, the length of your intrahour interval. If the report shows a usage rate of 7 Erlangs and your intrahour interval is 30 minutes, this means the trunk occupancy of all trunks added together would equal 210 minutes (7 times 30 minutes). If your intrahour interval were 15 minutes, 7 Erlangs would equal a total trunk occupancy of 95 minutes.

  Therefore, you could think of 7 Erlangs as equivalent to 7 trunks occupied for the whole intrahour interval. Or, from a different perspective, you could think of 7 Erlangs as meaning that, on average, 7 trunks will be in use at any given time in the interval.

  Note:

  For a detailed explanation of how CMS generates forecast data, see the section, “How the Forecast System Generates Data,” at the end of this chapter.

Prerequisite System Administration

- You must have previously defined a Trunk Group Profile for each trunk group in the report.
- The Forecast Manager must have collected data for the days in the reporting period. If not, you may manually run the Forecast Manager to collect data for those days, providing that the data is still in the historical database.

Trunk Performance Input Window

To run a Trunk Performance Report, you must complete the Trunk Performance Input window, shown in the following figure.

Figure 5-2: Trunk Performance Input Window

```
Forecast: Reports: Trunk Performance Inpu      G3V5_eas
 Start date (mm/dd/yy or -n): -30                Run
 Stop date (mm/dd/yy or -n):  -1
 Trunk group(s): 22-42
                 _____________________
 Consider incomplete data (y/n): n

 Report destination (Select one):
  <x> Terminal
  <_> Printer, Printer name: _____________
  <_> File,
      File name: ______________________________
                 ______________________________
```

Field Descriptions

Start date (mm/dd/yy or -n: – Enter a past date as a relative day (for example, -2 means 2 days ago) or in mm/dd/yy format. This is the first date in the time period for which CMS will check call volume and trunk usage.

Stop date (mm/dd/yy or -n: – Enter a past date as a relative day or in mm/dd/yy format. This is the last date in the time period for which CMS will check call volume and trunk usage.

The stop date must be more recent than the start date.

Trunk group(s): – Enter the number(s) or name(s) of the trunk groups for which you want trunk performance data.

Consider incomplete data (y/n: – Enter y or n. Enter y if you think your trunk group data may be incomplete due to link outages (link between CMS and the switch) or frequent trunk failures. This allows consideration of data that would not normally be found in a busy interval since some trunks were not working or data was not being collected for some portion of the interval.

Report destination (Select one: – Enter an `x` next to `Terminal`, `Printer`, or `File`.

- Terminal is the default destination.
- If you selected `Printer` and want to use a printer other than your default printer, enter the printer name in addition to the `x`.
- If you selected `File`, enter a file name. If the file name already exists, the existing file is overwritten with the new report data. The file is in your home directory in the *UNIX*[1] system (`/usr/<your login ID>`) or *Solaris* system (`/export/home/<your login ID>`) unless you specify a full path name.

Trunk Performance Report Example

A description of each report item follows the report example in Table 5-1: Trunk Performance Report Description on page 135.

Figure 5-3: Trunk Performance Report Example

```
Forecast: Reports: Trunk Performance                                BullG3V5pe
                                          Trunk Performance
ACD: BullG3V5pe
 6/30/96 to  7/29/96

                  Avg     Busy      Usage     Estimated Objective Actual Estima
Trunk Group       Use/    Interval  Rate      Blocking  Blocking  Number Trunks
No.  Name         Trunk   CCS       (Erlangs)    (%)       (%)    Trunks Requir
-------------------------------------------------------------------------------
 26 t26 ,.+'AbCd   521     62.51       3.47     0.02      1.00     12        9
 27 Trunk Group   1500    179.97      10.00    24.97      1.00     12       22
 28 Trunk Group    661    152.03       8.45     0.00      2.00     23       15
 29 Trunk Group      0      0.00       0.00     0.00      0.00      0        0
 30 Trunk Group    127     14.00       0.78     0.00      2.00     11        4
 31 Trunk Group      4      0.48       0.03     0.00      3.00     12        1
 32 32               0      0.00       0.00     0.00      0.00      0        0

Successful                                                        15x105   >
```

1 UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Corporation.

Table 5-1: Trunk Performance Report Description

Report Heading	What It Means
ACD	The ACD of the trunk group(s) in the report.
Printed	The date and time the report was run.
__ to __	The start and stop dates of the historical data CMS used in the report.
Trunk Group No. Name	The number and name of the trunk group(s) included in the report.
Avg/Use Trunk	The average number of seconds each trunk in the trunk group was in use during the average busy intrahour interval.
Busy Interval CCS	The Centum Call Seconds (CCS) for the trunk group during the average busy intrahour interval. CCS is the number of 100-second increments in which the trunk was busy during the intrahour interval.
Usage Rate (Erlangs)	The average number of trunks that were seized at any point in time during the busy interval.
Estimated Blocking (%)	The estimated percentage of incoming ACD calls, during the busy interval, that were blocked because all trunks in the trunk group were busy.
Objective Blocking (%)	The objective blocking percentage specified in the trunk group's profile.
Actual Number Trunks	The actual number of trunks in the trunk group on the last day in the specified time period.
Estimated Trunks Required	The number of trunks the trunk group should have had to make the Estimated Blocking % equal the Objective Blocking%.
Days Used	For each trunk group, the number of days in the specified time period where the number of trunks equaled the number of trunks on the last day of the time period.
Days Examined	The total number of days in the time period.
Incomplete Busy Intervals	If incomplete data has been considered in the calculation, this is the number of busy intervals used in the calculation which are marked incomplete. If incomplete data was not considered, this number will be 0.

Chapter 6: How the Forecast System Generates Data

This chapter describes how the Forecast subsystem generates the data for a forecast. Algorithms are included for the following:

- Call Volume/Agents Forecast Reports
- Requirement Reports
- Trunk Performance Report

This information is provided to help you understand forecasting.

Call Volume/Agents Forecast Reports

This section includes all of the algorithms used for Call Volume/Agents Forecast Reports. For the CMS to use the algorithms for forecasting, you must first define the following types of information:

- Which dates of data to use
- Which forecast method to use.

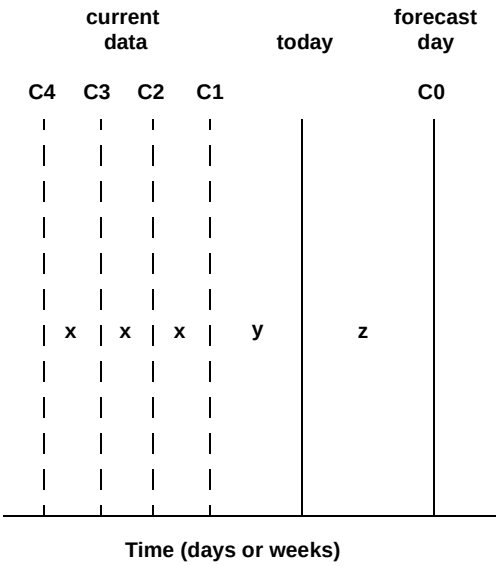
Algorithm for Current and Seasonal Data Points

Forecasting uses algorithms to find data points. A data point is a day of historical data and can be current or seasonal. These data points are used in calculations. The Call Management System calculates the algorithms for you, so you will see only the results. You can vary the results you get by changing the information in the report input windows. Refer to the timeline below as you go through the steps of the algorithm and encounter the different variables (for example, C1, S0, etc.).

Current Data Points

The following figure describes which dates of data to use for the current data points.

Figure 6-1: Current Data Points Graphic Example



x = 1 or 7 days (Number of days between historical data points)
y = days from today to C1
z = days from today to forecast day

You use Current Data Points for all of the Call Volume/Agents Forecast Reports based on historical data. The system does the following:

1. Gets today's date
2. Determines the day-of-week of the forecast day
3. Calculates the number of days from today to the forecast day (z)
4. Assigns X for the value of the number of days between historical data. Acceptable values are 1 or 7
5. Finds the most recent historical day (C1) and the number of days from today to that day (y) as follows:
   a. If the number of days between each data point is 1 (x = 1), then C1 is yesterday and y = 1.
   b. If the number of days between each data point is 7 (x = 7), then C1 is the most recent historical day which is the same day-of-week as the forecast day. "y" is the number of days from today to C1.
6. Finds the remaining historical days C2, C3, and C4.
   a. C2 = C1 - x
   b. C3 = C2 - x
   c. C4 = C3 - x.

Example 1: Current Data Points

Assume that today is 5/24/97 and you have entered the following parameters for a report:

- 6/1/97 as the forecast date
- 1 as the number of days between historical data points
- Current trending.

The current data points are determined as shown below.

Figure 6-2: Current Data Points Example

MAY 1997							JUNE 1997						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
				1	2	3	1	2	3	4	5	6	7
4	5	6	7	8	9	10	8	9	10	11	12	13	14
11	12	13	14	15	16	17	15	16	17	18	19	20	21
18	19	20	21	22	23	24	22	23	24	25	26	27	28
25	26	27	28	29	30	31	29	30					

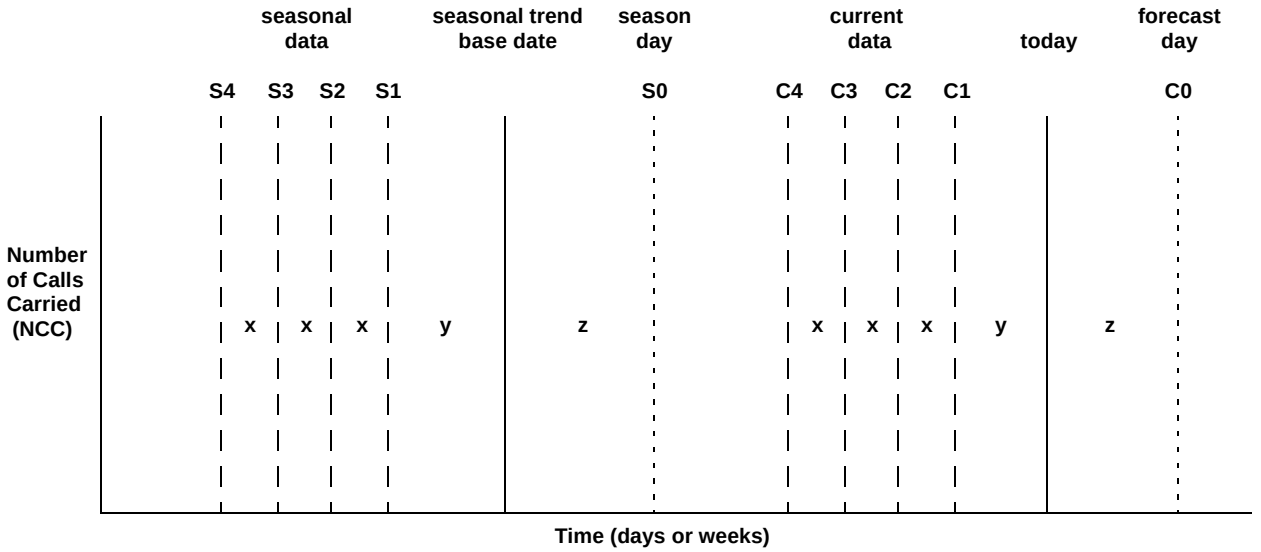
◯ = today ◇ = forecast day

□ = current data points (C1 = 5/23, C2 = 5/22, etc.)

Seasonal Data Points

The following figure shows which dates of data to use for the seasonal data points.

Figure 6-3: Seasonal Data Points Graphic Example



x = 1 or 7 days (Number of days between historical data points)
y = days from today to C1
z = days from today to forecast day

If seasonal trending is used, the algorithm continues:

1. Gets the seasonal trend base date.
2. Finds season day S0. S0 = seasonal trend base date + z.
3. Finds the closest seasonal day S1. S1 = seasonal trend base date -y
4. Finds the remaining seasonal days S2, S3, and S4.
   a. S2 = S1 - x
   b. S3 = S2 - x
   c. S4 = S3 - x.

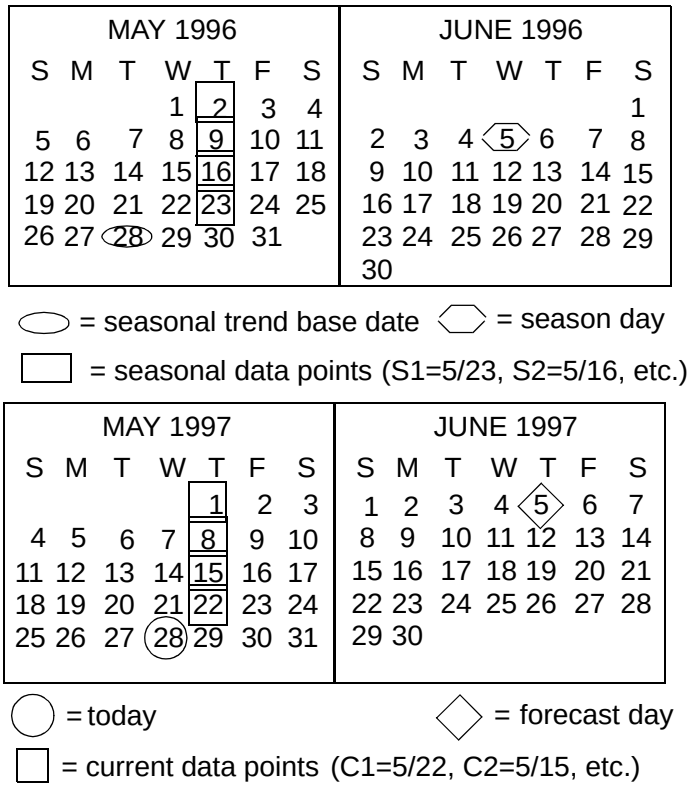
Example 2: Seasonal Data Points

Assume that today is 5/28/96, and you have entered the following parameters for a report:

- 6/5/97 as the forecast date
- 7 as the number of days between historical data points
- Seasonal trending with the base date = -364.

The current and seasonal data points are determined as shown below:

Figure 6-4: Seasonal Data Points Example



Algorithm for Forecast Calls Carried

This section includes all of the algorithms used to calculate Call Volume/Agent Forecast Reports:

- Forecast Methods
- Algorithm for FCC Intraday
- Algorithm for FCC Special Days
- Algorithm for Number of Agents Required
- Algorithm for Estimated Margin

Forecast Methods

This algorithm computes the Forecast Calls Carried (FCC) for each intrahour interval in the following reports:

- Longterm
- Financial
- Current Day
- Hypothetical
- Hypothetical Financial.

The algorithm computes the FCC using one of four forecast methods:

- No trending (weighted average of data)
- Seasonal trending
- Current trending
- Expected calls

Note:

The expected calls method is not applicable for Current Day reports, and seasonal trending is not applicable for Hypothetical reports.

The algorithm for each forecast method is presented on the following pages.

No Trending (Weighted Average of Data)

1. Find the Weighted Average of Calls Carried (WACC) for the current data.
   a. Multiply the Number of Calls Carried (NCC) in each intrahour interval for historical days C1 through C4 by the assigned data weights.
   b. Add the weighted data together, and divide that sum by the sum of the individual weights.

      The equation for WACC is as follows:

$$WACC = \frac{(W_1 x NCC_{C1}) + (W_2 x NCC_{C2}) + (W_3 x NCC_{C3}) + (W_4 x NCC_{C4})}{W_1 + W_2 + W_3 + W_4}$$

      where W_1 through W_4 are the corresponding data weights.
2. Divide the Change Factor (CF) by 100. For example, if the CF were 100, this step would produce a value of 1.
3. Multiply the factors found in the previous two steps to get the FCC for each intrahour interval.

$$FCC = (WACC)[\frac{CF}{100}]$$

Seasonal Trending

1. Find the Seasonal Trending Ratio (STR).
   a. Multiply the Number of Calls Carried (NCC) for seasonal days S1 through S4 by the assigned data weights.

      The NCC for a seasonal day includes the NCC for the whole day, not just one intrahour interval.

   b. Add the weighted data together and divide that sum by the sum of the individual weights.

   c. Divide the NCC for season day S0 by the quotient found in Step b.

The equation for STR is as follows:

$$STR = \frac{NCC_{S0}}{\left[\frac{(W_1 \times NCC_{S1}) + (W_2 \times NCC_{S2}) + (W_3 \times NCC_{S3}) + (W_4 \times NCC_{S4})}{W_1 + W_2 + W_3 + W_4}\right]}$$

where W_1 through W_4 are the corresponding data weights.

2. Find the Weighted Average of Calls Carried (WACC) of the current data.

$$WACC = \frac{(W_1 x NCC_{C1}) + (W_2 x NCC_{C2}) + (W_3 x NCC_{C3}) + (W_4 x NCC_{C4})}{W_1 + W_2 + W_3 + W_4}$$

3. Divide the Change Factor (CF) by 100.
4. Multiply the factors found in the previous three steps to get the FCC for each intrahour interval.

$$FCC = STR \times WACC \times \left[\frac{CF}{100}\right]$$

Current Trending

1. Find the projected number of calls in each intrahour interval of the forecast date using a weighted quadratic least squares curve fit.

   The weighted quadratic least squares curve fit is an algorithm that fits a curve to the current data. The algorithm uses the fitted curve as a trend, and projects the number of calls based on this trend. The algorithm works in the following manner:

   - If four data points are given (all four points have weights greater than 0), the algorithm derives a parabolic curve that fits the four points with the least error. The algorithm then uses this curve to project the number of calls for the forecast date.
   - If three data points are given (one point has a weight of 0), the algorithm derives a straight line that runs through the three points with the least error. The algorithm uses the slope of this line to project the number of calls for the forecast date.
   - If two data points are given, the algorithm returns the weighted average of the two points as the projected number of calls.
   - If one data point is given, that value is returned as the projected number of calls.
2. Divide the Change Factor (CF) by 100.
3. Multiply the factors found in the previous two steps to get the FCC for each intrahour interval.

$$FCC = projectedcalls \times \left[\frac{CF}{100}\right]$$

Expected Calls

1. Find the Weighted Average of Calls Carried (WACC) of the current data.

$$WACC = \frac{(W_1 x NCC_{C1}) + (W_2 x NCC_{C2}) + (W_3 x NCC_{C3}) + (W_4 x NCC_{C4})}{W_1 + W_2 + W_3 + W_4}$$

2. Divide the WACC for each interval by the sum of WACC for all intervals.
3. Multiply the quotient found in Step 2 by the Expected Calls (EC) to get the FCC for each intrahour interval.

$$FCC = \left[\frac{WACC\ each\ interval}{WACC\ all\ intervals}\right] \times EC$$

Algorithm for FCC Intraday

This algorithm computes the FCC for each intrahour interval in Intraday reports. The algorithm uses the NCC from intervals that have already passed and the FCC in the Current Day report to obtain a ratio of actual calls to forecast calls. Then, using this ratio, the algorithm scales the FCC for the remaining intervals in the day. The number of agents required to handle the new call volume is recalculated.

1. Sum together the NCC for all specified passed intervals.
2. Sum together the FCC for all specified passed intervals.
3. Divide the sum found in Step 1 by the sum found in Step 2.
4. Multiply the FCC for the remaining intervals in the Current Day report by the quotient found in Step 3.
5. The equation for FCC is as follows:

$$FCC = FCC\ remaining\ interval \times \left[\frac{NCC\ passed\ intervals}{FCC\ passed\ intervals}\right]$$

Algorithm for FCC Special Days

This algorithm computes the FCC for each intrahour interval in Special Day reports. The algorithm computes the FCC using historical data collected from the previous special day. There is no trending; however, you may or may not specify Expected Calls which results in the following two algorithms:

No Expected Calls

1. Find the NCC in each intrahour interval of the previous special day.
2. Divide the Change Factor (CF) by 100.
3. Multiply the factors found in the previous two steps to get the FCC for each intrahour interval.

$$FCC = NCC\ each\ interval\ Prev\ Spec\ Day \times \left[\frac{CF}{100}\right]$$

Expected Calls

This algorithm distributes the Expected Calls into intrahour intervals in a pattern similar to the NCC of the previous special day.

1. Divide the NCC in each interval of the previous special day by the sum of NCC in all intervals of that day.
2. Multiply the quotient found in Step 2 by the Expected Calls (EC) to get the FCC for each intrahour interval.

$$FCC = \left[\frac{NCC\ each\ interval\ Prev\ Spec\ Day}{NCC\ all\ intervals\ Prev\ Spec\ Day}\right] \times EC$$

Algorithm for Number of Agents Required

This algorithm computes the Number of Agents Required for each intrahour interval in the following reports:

- Longterm
- Financial
- Current Day
- Intraday
- Special Day
- Hypothetical
- Hypothetical Financial.

Use the following procedure:

1. Convert FCC to traffic load in Erlangs.
2. Set the number of agents to the load + 1.
3. Compute the initial probability that all agents are busy.

$$P = \frac{\dfrac{a^n}{(n-1)!(n-a)}}{1 + \sum_{k=1}^{n-1} \dfrac{a^k}{k!} + \dfrac{a^n}{(n-1)!(n-a)}}$$

4. Compute subsequent values for the probability with the following formula:

$$P_n = \frac{1}{1 + \dfrac{n-1-aP_{n-1}}{(n-1-a)P_{n-1}} \times \dfrac{n-a}{a}}$$

   where P = probability all agents are busy, n = number of agents, a = load in Erlangs.

5. Using the above probability, the number of agents, and the given load, compute a new set of objectives which correspond to the objectives in the Call Handling Profile.
6. If any of the new objectives exceeds or falls below the objectives in the Call Handling Profile, end the search. Return the number of agents as the answer. Otherwise, add 1 to the number of agents, and repeat Steps 4 through 6.

Algorithm for Estimated Margin

This algorithm computes the Estimated Margin for each intrahour interval in Financial reports. The Estimated Margin is the difference between call revenue and call costs.

1. Multiply the Number of Agents Required (NAR) by the cost of each agent.
2. Multiply the Forecast Calls Carried (FCC) by the cost of each call.
3. Add together the products found in Steps 1 and 2.
4. Multiply the FCC by the revenue from each call.
5. Subtract the agent and call costs from the revenue to get the Estimated Margin (EM).

$$EM = (FCC \times call\ revenue) - [(NAR \times agent\ cost) + (FCC \times call\ cost)]$$

Requirement Reports

This section includes all of the algorithms used in Requirement Reports:

- Algorithm for Agent Positions Required
- Algorithm for Trunks Required.

Algorithm for Agent Positions Required

This algorithm computes how many calls a given number of agents can handle per intrahour interval. The number of agents can be a number or a range of numbers. The results of the algorithm are within the call handling objectives you specify in the report.

1. Determine the number of agents for which the calls carried is to be computed.
2. For each number of agents, compute the load.

   The following search calculates the load using an upper and lower bound:

   a. Set the lower bound for the load to 0.

   b. Set the upper bound for the load to the number of agents.

   c. Compute the midpoint.

   $$Midpoint = \left[\frac{lower\ bound + upperbound}{2}\right]$$

   d. Compute the probability that all agents are busy using the midpoint as the load.

   $$P = \frac{\dfrac{a^n}{(n-1)!(n-a)}}{1 + \sum_{n-1} \dfrac{a^k}{k!} + \dfrac{a^n}{(n-1)!(n-a)}}$$

   where P = probability all agents are busy, n = number of agents, and a = load in Erlangs (midpoint).

   e. Compute a new set of call handling objectives using the above probability.

   f. If any of the new objectives exceeds or falls below the objectives in the Call Handling Profile, set upper bound = midpoint. Otherwise, set lower bound = midpoint.

   g. Compute the new midpoint.

   h. If the new midpoint changed less than 0.001 from the previous midpoint, end the search. Return the midpoint as the load. Otherwise, repeat Steps d through h using the new midpoint.

3. Convert the load into calls carried.

   When you enter a range of numbers, you can set graduations to yes or no. With no graduations, the algorithm does its computations for every number in the range. With graduations, the algorithm starts its computations with the closest number in the following set and proceeds as follows: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100...(continuing by tens).

Algorithm for Trunks Required

This algorithm computes how many calls a given number of trunks can handle per intrahour interval. The number of trunks can be a number or a range of numbers. The results of the algorithm are within the trunk blocking probability and the average trunk holding time you specify in the report.

1. Determine the number of trunks for which the calls carried is to be computed.
2. For each number of trunks, compute the load.

   The following search computes the load using an upper and lower bound:

   a. Set the lower bound for the load to 0.

   b. Set the upper bound for the load to the number of trunks, and, while the blocking probability produced by the number of trunks and the high load is ≥ blocking objective, double the upper bound.

   c. Compute the midpoint.

$$Midpoint = \left\lceil \frac{lower\ bound + upperbound}{2} \right\rceil$$

   d. Calculate the blocking probability using the midpoint as the load.

$$P = \frac{\frac{a^n}{n!}}{1 + \sum_{k=1}^{n} \frac{a^k}{k!}}$$

   where P = blocking probability, n = number of trunks, a = load in Erlangs (midpoint).

   e. If $P \leq$ blocking objective, set the lower bound = midpoint. Otherwise, set the upper bound = midpoint.

   f. If the midpoint is close enough, return the midpoint as the desired load. Otherwise, repeat Steps *c* through *f*.

This algorithm handles graduations the same way as the Agent Positions Required algorithm.

Trunk Performance Report

This section includes all the algorithms used in the Trunk Performance report.

Algorithm for Trunk Performance

This algorithm estimates, at the busiest intervals in the specified time period, the number of trunks required to meet your objective blocking percentage.

To determine the actual blocking percentage for a trunk group, CMS uses the following algorithm:

1. Find the trunk occupancy for the trunk group in the average busy interval for the period of the report.
2. Convert the trunk occupancy into Erlangs (that is, the number of trunks that are likely to busy at any given point in time). For example, if at any point in time 8 trunks are likely to be busy, trunk occupancy is 8 Erlangs. This is the actual carried load for the busy hour and represents the trunk occupancy due to calls that actually connected to the switch.
3. Set lower and upper boundaries for offered load. The offered load is the actual carried load, plus the additional load that would have occurred if blocked calls had connected to the switch. The initial upper boundary for the offered load is set at twice the actual carried load. The initial lower boundary is set at 0.
4. Find the midpoint of the lower and upper boundaries, and use this midpoint as the offered load in Equation 1.
5. Complete the following equation to find the estimated blocking percentage *P* (which will be represented as a decimal between 0 and 1).

$$P = \frac{\frac{a^n}{n!}}{1 + \sum^{n} \frac{a^k}{k!}}$$

where *a* = load in Erlangs (midpoint), *n* = the number of trunks.

Complete Equation 2 to find an estimated carried load. Use the estimated blocking percentage *P* found in Step 5 and the offered load (midpoint) found in Step 4.

carried = offered (1-P)(2)

Compare the estimated carried load found in Step 6 with the actual carried load found in Step 2.

If the estimated carried load is greater than the actual carried load:

a. Return to Step 3, and replace the upper boundary with the midpoint previously found in Step 4.

b. Repeat Step 4 to find the new midpoint of the lower and upper boundaries.

c. Repeat Steps 5 through 7.

6. If the estimated carried load is less than the actual carried load:

   a. return to Step 3, and replace the lower boundary with the midpoint value previously found in Step 4.

   b. Repeat Step 4 to find the new midpoint of lower and upper boundaries.

   c. Repeat Steps 5 through 7.

If the estimated carried load approximately equals the actual carried load, the estimated blocking percentage found in Step 5 is the actual blocking percentage.

“Approximately equals” means that the following expression is true:

difference between actual and estimated load Š .0001 ¥ estimated load

Once the offered load has been found, it is used to find the number of trunks which should have been in the trunk group to meet your blocking objective. A recursive formula is used to calculate the actual probability of blocking *P*.

$$P_0 = 1.0$$

$$P_n = \frac{aP_{n-1}}{n + aP_{n-1}}$$

where *a* = offered load in Erlangs, *n* = the number of trunks, and
P_n = probability of blocking where there are n trunks.

The number of trunks *n* starts at 0 and counts up until the actual blocking probability *P* becomes less than or equal to the objective blocking probability.

Glossary

Abandoned Call

A call in which a caller hangs up before receiving an answer from an agent. The call could be queued to a split or in the vector/VDN before abandoning.

Access Permissions

Permissions assigned to a CMS user so that user can access different subsystems in CMS or administer specific elements (splits/skills, trunks, vectors, etc.) of the ACD. Access permissions are specified as **read** or **write** permission. Read permission means the CMS user can access and view data (for example, run reports or view the Dictionary subsystem). Write permission means the CMS user can add, modify, or delete data and execute processes.

ACD

See *Automatic Call Distribution*.

ACD Call

A call that queued to a split/skill and was answered by an agent in that split/skill, or a call that queued as a direct agent call and was answered by the agent to whom it was queued.

ACW

See *After Call Work*.

After Call Work (ACW)

An agent state generally representing work related to the preceding ACD call. Going on-hook after an ACD call during MANUAL-IN operation places the call in ACW. With Generic 1 and Generic 3, ACW is accessible by a key on the agent's set and may not be related to an ACD call.

Agent

A person who answers calls to an extension in an ACD split/skill. The agent is known to CMS by a login identification keyed into a voice terminal.

Agent Occupancy

The average percentage of time that you are expecting or targeting for each split/skill agent to spend, while logged in, on ACD calls and in after call work (ACW).

Agent State

A feature of agent call handling. Agent states are the different call work modes an agent can be in (ACD, ACW, AVAIL, AUX, UNSTAFF, DACD, DACW, OTHER, UNKNOWN, RING). Data about these states is displayed in real-time and historical reports.

See the definition of each state for additional information.

Algorithm

A prescribed set of well-defined rules or instructions for the solution of a problem; for example, the performance of a calculation, in a finite number of steps. Expressing an algorithm in a formal notation is one of the main parts of a software program.

Automatic Call Distribution (ACD)

A switch feature. Automatic Call Distribution (ACD) is software that channels high-volume incoming call traffic to agent groups (splits or skills).

Also an agent state where the extension is engaged in an ACD call (with the agent either talking to the caller or the call waiting on hold).

Average Agent Service Time

The average time you are expecting or targeting for each agent to spend on an ACD call, including talk time and ACW time.

Average Speed of Answer

The average time you are expecting or targeting for callers to wait in queue before connecting to an agent.

Blocking

Used by the Forecast subsystem just as traffic engineers use it: to model system performance based on specified levels of accessibility to the system. This blocking objective is administered on a trunk-group-by-trunk-group basis in the Forecast subsystem.

Call Handling Profile

A set of objectives describing how you want a split/skill to handle calls.

Call Volume/Agents Forecast

A type of forecast report which calculates the expected number of calls (forecast calls carried) and the number of agents required to handle those calls within the objectives you specified in the call handling profile.

Calls Carried

The number of inbound/outbound calls carried.

Forecast uses historical data to determine the sum of the ACD and abandoned calls.

See also *Number of Calls Carried* and *Forecast Calls Carried*.

Avaya Call Management System (CMS)

A software product used by business customers that have Avaya telecommunications switches and receive a large volume of telephone calls that are processed through the Automatic Call Distribution (ACD) feature of the switch. The CMS collects call-traffic data, formats management reports, and provides an administrative interface to the ACD feature in the switch.

CMS

See *Call Management System*.

Cost Profile

A set of objectives describing costs and revenues used in calculating financial forecasts.

Current Day Configuration

A set of input parameters that describe how Forecast Manager is to calculate a Current Day Forecast for a specified split/skill.

Current Day Forecast

A forecast for today calculated by the Forecast Manager (usually in the early morning on a timetable after Daily Summarizing).

Current Trending

A forecast method in which the trend of recent historical data is used to predict the forecast calls carried.

See the 585-215-822, *Call Management System R3V5 Custom Reports,* document for more information.

Data Points

Dates of historical data. A data point should include data for each interval of the working day.

Data Weights

Data weights are used to reduce (de-emphasize) the relative importance of data in a data point used in a forecast. For example, you should leave the relative weight of each date at 10 unless you know that the data stored for a particular date is highly unusual or incorrect.

Expected Calls

A forecast method in which you specify the number of calls to be carried for a day, and the system distributes them into intervals based on the pattern in the historical data.

Financial Forecast

A Longterm Forecast which also includes financial information based on the Costs Profile you specify.

Forecast

Forecasting is the method used to estimate, calculate, or predict, in advance, the staffing and capacity for specified time periods. With forecasting, you can predict the following:

- Number of calls you could receive during a specified time period
- Number of agents you will need to handle a specified volume of calls (for example, you can vary the input parameters for agent occupancy, average speed of answer, average agent service time, and service level to predict different needs for your call center)
- Number of required trunks you will need
- Trunk performance.

Forecast Calls Carried

The sum of future ACD and abandoned calls.

See also *Calls Carried* and *Number of Calls Carried*.

Forecast Input Data

The split/skill and trunk group data collected from the historical data tables and stored in special forecast tables. (Also known as Forecast Data.)

Forecast Manager

The process which collects forecast input data from historical data, manages the forecast data, and calculates configured Current Day Forecasts.

Forecast Reports

These reports display expected call traffic and agent/trunk group requirements for your call center for a particular day or period in the future.

Historical Database	Contains intrahour records for up to 62 days in the past, daily records for up to 5 years in the past, and weekly/monthly records for up to 10 years for each CMS-measured agent, split/skill, trunk, trunk group, vector, and VDN.
Hypothetical Forecast	A Longterm-type Forecast which is calculated based on the Hypothetical Data which you have defined (and edited).
Intraday Forecast	A forecast for the remainder of today which adjusts the Current Day Forecast based on data collected so far today.
Longterm Forecast	A forecast for a day between today and 35 days in the future calculated on demand based on your inputs and saved forecast data.
Number of Calls Carried	Forecast uses historical data to determine the sum of the ACD and abandoned calls. See also *Calls Carried* and *Forecast Calls Carried*.
Percent Within Service Level	The percentage of calls that you are expecting or targeting to be answered by an agent within a specific number of seconds.
Profile	An abstraction of the behavioral objectives of some part of the system. Forecast includes profiles for call handling objectives, trunk group blocking objectives, and cost/profit objectives.
Real-Time Database	Consists of the current and previous intrahour data on each CMS-measured agent, split, trunk, trunk group, vector, and Vector Directory Number (VDN).
Seasonal Trending	A forecast method which scales the average number of calls in recent historical data with the trend present in the seasonal data to predict Forecast Calls Carried.
Special Day Forecast	A forecast for an unusual day (for example, a holiday) based on specially saved historical data.
Top Skill	An agent's top skill is the agent's highest-level, first administered skill. If the agent has no other skills at that same level, then the top skill represents that skill for which it is most likely that the agent will take calls.
Trending	Used in forecasting. The overall direction of change in call volume over time. Trending may be figured from seasonal data or current data.

Trunk Blocking Probability

Used in forecasting. The percent chance that a call coming in on a trunk group will be blocked at the central office because no trunks in the trunk group are available. This caller receives a busy signal.

Trunk Group Profile

An objective for a specified trunk group describing a percentage of trunk blocking that is acceptable.

Trunk Performance

A forecast calculating actual trunk blocking based on historical data. This is determined by projecting the number of trunks that should have been in the trunk group to handle that call volume given your objective for blocking in the trunk group profile.

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