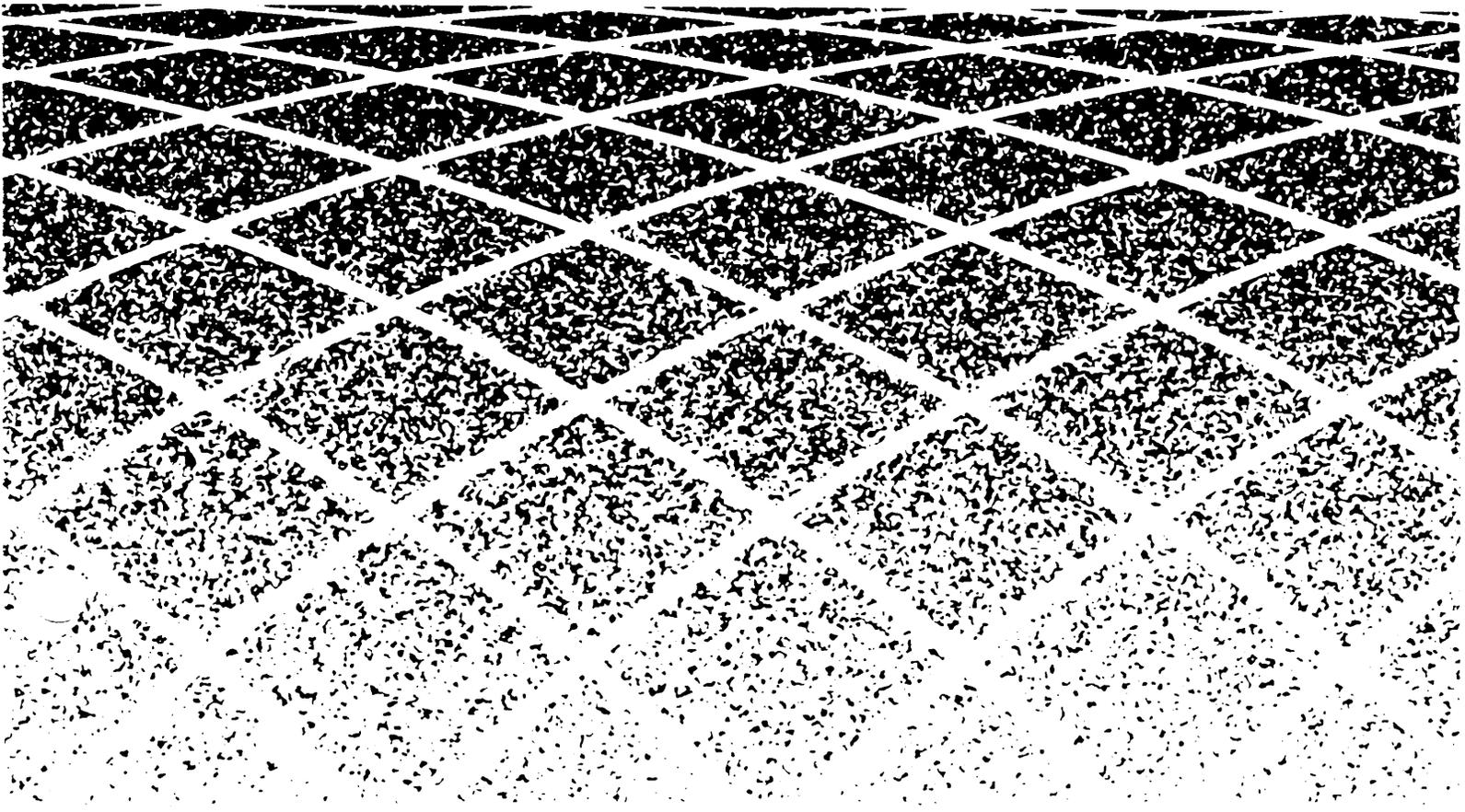




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Custom Reports



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CMS Custom Reports

Table of Contents

	Page
Chapter 1 Introduction to CMS Custom Reports	1-1
What is a Custom Report	1-1
Custom Report Design Options	1-1
How CMS Stores and Retrieves Data	1-3
How CMS Stores Data	1-3
How CMS Retrieves Data	1-6
Basic Tasks in Creating a Custom Report	1-13
Chapter 2 Getting Started	2-1
General Information	2-1
Prerequisite System Administration	2-1
Define a Report's Name, Access, and Type	2-2
Step 1: Access the Report Select Window	2-2
Step 2: Assign a Name to the Report	2-3
Step 3: Enter a Report Description	2-4
Step 4: Define the User ID	2-5
Step 5: Define Access to the Report	2-5
Step 6: Define the Report as Real-time or Historical	2-6
Step 7: Save the Report Name	2-6
Changing a Report's Access or Description	2-7
Deleting a Custom Report	2-8
Chapter 3 Using Screen Painter Editing Tools	3-1
Accessing the Screen Painter	3-1
Special Properties of the Screen Painter	3-2
Moving the Cursor On the Screen Painter	3-2
The Screen Painter Size	3-3
Scrolling the Screen Painter	3-4
Properties of Secondary Windows	3-5
Editing Keys in Secondary Windows	3-5
Copying an Existing Report Design	3-6
General Information	3-6
Step 1: Access the Get Copy Window	3-6
Step 2: Enter a Report Name	3-7
Step 3: Enter a User ID	3-8
Step 4: Select a Report Type	3-8
Step 5: Verify the Report	3-8
Step 6: Copy the Report	3-8
Editing a Report With Blocks	3-10
General Information	3-10
Erasing a Block	3-10
Moving a Block	3-13
Copying a Block	3-15
Entering Report Text	3-16

Chapter 4	Defining the Data For a Custom Report	4-1
	Defining Fields for the Report Input Window	4-1
	General Information	4-1
	Step 1: Access the Define Input Window	4-1
	Step 2: Define the Variable Name	4-2
	Step 3: Enter a Field Prompt	4-4
	Step 4: Define the Field Length	4-4
	Step 5: Define the Field As Single Value or Range/List	4-4
	Step 6: Provide a Default Value For the Field	4-5
	Step 7: Select a Field Type	4-5
	Input Fields That Allow Pattern Matching	4-7
	Step 8: Associate an ACD With the Variable Field	4-9
	Step 9: Save A Variable Input Field	4-10
	Defining the Order in Which Input Fields Appear	4-10
	Changing Report Input Fields	4-11
	Defining Report Fields	4-13
	General Information	4-13
	What the x's, v's, and h's Mean in a Field	4-13
	Step 1: Define the Position and Length of a Field	4-14
	Step 2: Define the Field's Data Expression	4-15
	Database items	4-15
	Constants	4-16
	Calculations	4-17
	Calculation names	4-17
	Aggregate Functions	4-20
	count(*)	4-22
	Data From More Than One Table	4-23
	Step 3: Define the Table(s) For Calculation Names	4-23
	Step 4: Justify Data in the Field	4-24
	Step 5: Define the Format For the Field	4-24
	Step 6: Save the Field Definition	4-28
	Changing a Field Definition	4-29
	Defining Bars in a Report	4-30
	General Information	4-30
	What the Xs, V's, and H's Mean in a Bar	4-30
	Step 1: Define the Position and Length of a Bar	4-31
	Step 2: Define the Bar's Data Expression	4-32
	Step 3: Define the Table(s) For Calculation Names	4-32
	Step 4: Define the Direction of the Bar	4-32
	Step 5: Define the Bar Scale	4-33
	Step 6: Define the Maximum Graph Value	4-34
	Step 7: Define the First Threshold	4-35
	Step 8: Define the Second Threshold	4-36
	Step 9: Select Normal or Reversed Thresholds	4-36
	Step 10: Save the Bar Definition	4-37
	Changing a Bar Definition	4-38
	Defining the Rows of Data for a Report	4-39
	General Information	4-39
	Step 1: Access the Row Search Window	4-39
	Step 2: List the Report Input Variables	4-40
	Step 3: Select a Row Search ID	4-41

Step 4: Select Tables	4-41
Step 5: Select Rows In the Table(s)	4-43
Basic “Where” Clause	4-43
“Where” Clause With Variable	4-45
Multiple “Where” Clauses	4-45
“Where” Clause With a Range/List Variable	4-46
Selecting Rows From An ACD	4-46
Excluding Rows of Data	4-46
Step 6: Select a Sort Order for Data	4-47
Step 7: Select a Sort Type	4-48
Step 8: Select a Field/Bar Type	4-49
Step 9: Save Your Row Search Conditions	4-51
Assign a Row Search ID to Report Field(s) and Bar(s)	4-51
Changing Row Search Conditions	4-56
Changing the Row Search-Field Assignment(s)	4-56
Defining Fields To Show Run Time/Date and User Inputs	4-58
General Information	4-58
Step 1: Access the Var/Time/Date Window	4-58
Step 2: Define the Display Type and Format	4-59
Step 3: Save the Var/Date/Time Field	4-61
Chapter 5 Completing Your Custom Report	5-1
Highlighting Fields	5-1
Defining Stationary (No-Scroll) Areas	5-4
Changing a No-scroll Area	5-6
Saving the Report Design	5-7
Testing a Report Design	5-8
Test Design Error Messages	5-11
Phase 1 Error Messages	5-11
Phase 2 Historical Error Codes	5-15
Phase 2 Real-Time Error Codes	5-21
Running Custom Reports	5-23
Chapter 6 Advanced Report Design	6-1
Creating a Custom Data Table	6-1
Step 1: Access the CMS Database in INFORMIX	6-3
Step 2: Build the Table	6-4
Step 3: Add Data to the Table	6-10
Modifying a Table	6-14
Adding a Column	6-14
Changing a Column	6-15
Deleting a Column	6-15
Changing Data in a Table	6-15
Adding Rows of Data to a Table	6-16
Changing Rows of Data in a Table	6-16
Deleting Rows of Data in a Table	6-17
Including Forecast Data in a Custom Report	6-18
Including Exceptions Data in a Custom Report	6-22
Selecting Rows From More Than One Table	6-26
Other Alternative Row Search Conditions	6-30
Selecting Rows Based On a Range of Values	6-30

Using Apostrophes For Some Database Item Values	6-31
Using String-value Database Items	6-32
Other Available Formats For “Where” Clauses	6-33
Repeating Aggregate Function Values in Historical Reports	6-35
Chapter 7 Dictionary	7-1
General Information	7-1
Dictionary Menu	7-1
Dictionary-Specific Rules	7-2
Calculations	7-3
Purpose	7-3
Things to Know Before You Start	7-3
Prerequisite System Administration	7-3
Relationships to Other Subsystems	7-4
Calculations Window	7-4
Field Descriptions	7-4
Constants	7-6
Purpose	7-6
Things to Know Before You Start	7-6
Prerequisite System Administration	7-6
Constants Window	7-7
Field Descriptions	7-7
Database Items >	7-8
Database Items Submenu	7-8
Agent String Values	7-9
Things to Know Before You Start	7-9
Prerequisite System Administration	7-9
Relationships to Other Subsystems	7-9
Agent String Values Window	7-10
Field/Action List Usage	7-10
Field Descriptions	7-10
Split String Values	7-13
Things to Know Before You Start	7-13
Prerequisite System Administration	7-13
Relationships to Other Subsystems	7-13
Split String Values Window	7-14
Field/Action List Usage	7-14
Field Descriptions	7-14
Trunk String Values	7-16
Things to Know Before You Start	7-16
Prerequisite System Administration	7-16
Relationships to Other Subsystems	7-16
Trunk String Values Window	7-17
Field/Action List Usage	7-17
Field Descriptions	7-17
Standard CMS Items	7-20
Things to Know Before You Start	7-20
Prerequisite System Administration	7-20
Standard CMS Items Window	7-20
Field/Action List Usage	7-21
Field Descriptions	7-21

Custom Items	7-22
Things To Know Before You Start	7-22
Prerequisite System Administration	7-22
Custom Items Window	7-22
Field/Action List Usage	7-23
Field Descriptions	7-23
Global Search	7-24
Purpose	7-24
Things to Know Before You Start	7-24
Prerequisite System Administration	7-24
Global Search Window	7-25
Field Descriptions	7-25
Report	7-26
Purpose	7-26
Prerequisite System Administration	7-26
Report Window	7-26
Field/Action List Usage	7-27
Field Descriptions	7-27

Appendix A Database Items and Calculations

Appendix A Database Items and Calculations	A-1
General Information	A-1
Database Rules	A-2
Database Table Names	A-6
Real-Time Database Items	A-8
Split Real-Time Database Items	A-8
Agent Real-Time Database Items	A-17
Trunk Group Real-Time Database Items	A-25
Trunk Real-Time Database Items	A-29
Vector Real-Time Database Items	A-32
VDN Real-Time Database Items	A-35
Call Work Codes Real-Time Database Items	A-39
Historical Database Items	A-40
Split Historical Database Items	A-40
Agent Historical Database Items	A-46
Agent Login/Logout Historical Database Items	A-52
Agent Trace Historical Database Items	A-53
Trunk Group Historical Database Items	A-55
Trunk Historical Database Items	A-59
Vector Historical Database Items	A-61
VDN Historical Database Items	A-64
Call Work Codes Historical Database Items	A-68
Current Day Forecast Configuration Database Items	A-69
Current Day Forecast Report Database Items	A-70
Exceptions Historical Database Items	A-71
Agent Historical Exception Database Items	A-72
Split Historical Exception Database Items	A-74
Trunk Group Historical Exception Database Items	A-75
VDN Historical Exception Database Items	A-76
Vector Historical Exception Database Items	A-77
Malicious Call Trace Historical Exception Database Items	A-78
Data Collection Historical Exception Database Items	A-79

State Names and Row Search Values Cross-Reference
Standard Dictionary Calculations

A-80

A-81

Glossary

GL-1

Index

IN-1

Chapter 1

Introduction to CMS Custom Reports

	Page
What is a Custom Report	1-1
Custom Report Design Options	1-1
How CMS Stores and Retrieves Data	1-3
How CMS Stores Data	1-3
How CMS Retrieves Data	1-6
Basic Tasks in Creating a Custom Report	1-13

List of Figures

Figure 1-1: Sample CMS Table (Current Interval Agent Table)	1-3
Figure 1-2: Sample CMS Table (Intrahour Interval Split Table)	1-4
Figure 1-3: Sample 1 of Database Item Selection	1-7
Figure 1-4: Sample 1 of Selection of Table Rows	1-8
Figure 1-5: Sample Custom Report 1	1-8
Figure 1-6: Sample 2 of Database Item Selection	1-10
Figure 1-7: Sample 2 of Selection of Table Rows	1-11
Figure 1-8: Sample Custom Report 2	1-12

List of Tables

Table 1-1: Basic Tasks For Creating a Custom Report	1-13
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What is a Custom Report

A custom report is a report that you create and design using the Custom Reports subsystem. Like standard CMS reports, a custom report displays information about Automatic Call Distribution (ACD) activity in your call center. For a custom report, you determine what specific ACD information is displayed and how it is displayed.

Like standard reports, custom reports fall into two categories: real-time and historical. A single custom report can contain either real-time data or historical data, but **not** both.

Also, you run a custom report via the `Custom Reports` main menu option, **not** via the `Reports` option.

Custom Report Design Options

You design your custom reports on a window called the **Screen Painter**. The Screen Painter is a powerful tool that gives you the following design options:

- Copying existing report designs, including standard report designs. You can then modify the design you copied.
- Defining ACD data for report fields.
- Defining ACD data for bar graphs.



You must have purchased the CMS Graphics feature to include bar graphs in a custom report.

- Arranging report fields and bars the way you want them.
- Entering text for field labels, column headers, row headers, or special instructions.
- Emphasizing or deemphasizing text and fields with a variety of highlighting options.
- Editing report designs using block moves, copies, and deletions.
- Defining stationary (no-scroll) areas.

In addition, the historical part of the Custom Reports subsystem taps many of the capabilities of INFORMIX® Relational Database Query Language (RDSQL). Therefore, Custom Reports offers additional advanced design options for historical reports, such as:

- Merging data in a report field to include data from different ACD entities (for example, defining a field that represents the percentage of calls an agent answered when compared to all calls handled by that agent's split).
- Merging data in a report field to include data with different timeframes (for example, defining a field that represents the percentage of calls answered in an intrahour interval when compared to all calls answered in the day).



You cannot, however, merge real-time data with historical data.

- Including data from custom data tables that you create and populate within the CMS database.



CMS does not automatically check the database for disk space used by data in custom tables. As a result, you can inadvertently fill up your disk with custom data. When this happens, you can lose or damage custom data and ACD data. Therefore, if you create custom data tables, be careful to check the amount of disk space available from time to time.

See Chapter 11, "System Setup" in the *CMS Administration* (585-215-511) document for more information on disk storage.



Do not tamper with standard ACD data in the CMS database. Though you can access the data and change it via INFORMIX, doing so can cause you to actually lose data.

Both the basic and advanced options are described in detail in later chapters of this document.

How CMS Stores and Retrieves Data

The most important, and difficult, part of designing a custom report is defining the data that goes in the report. To define custom report data, you must first understand how CMS stores and retrieves data.

How CMS Stores Data

CMS stores data in the CMS database. The database is divided into 52 different tables. A **table** is an array of columns and rows that stores data for a type of ACD element (split, agent, trunk, trunk group, VDN, vector, or call work code) and for a specific time frame (for the current intrahour interval, for past intrahour intervals, for past days — summarized by day, and so on).

Figure 1-1 shows how a small piece of a table (the Current Interval Agent table, in this case) might look in the database.

ACD	LOGID	SPLIT	EXTENSION	WORKMODE*	ACDCALLS	ACDTIME
1	1001	1	3201	1	21	988
1	1002	1	4440	1	19	777
1	1003	1	3002	2	15	400
1	1004	1	3003	2	9	58
1	1005	1	4003	2	11	644
1	1006	1	5671	4	20	245
1	1007	5	7635	3	7	851
1	1008	1	6666	3	18	603
1	1010	1	3241	1	18	203
1	2001	2	7762	4	13	789
1	2002	5	5642	2	14	549
1	2003	2	2221	2	10	402
1	2004	2	2242	4	19	452
1	2005	2	2287	1	21	616
1	2006	2	3982	3	19	569
1	2007	2	6543	2	15	745
1	2008	2	2345	2	9	109
1	2009	5	2022	2	11	367
1	2010	2	4323	4	20	322
1	3001	3	7655	1	7	188
1	3002	3	3425	1	16	704
1	3003	3	4563	1	18	256
1	3004	5	8885	2	13	980
1	3005	3	5544	2	14	589
1	3006	3	3789	2	10	340
1	3007	3	8675	2	19	299
1	3008	6	3009	1	21	688
1	3009	3	4477	2	19	901

* The numeric values for WORKMODE represent agent states that appear in reports. For example, 1 = AVAIL, 2 = ACD, 3 = ACW, and 4 = AUX.

Figure 1-1: Sample CMS Table (Current Interval Agent Table)

Note The example in Figure 1-1 shows data for the current intrahour interval for agents 1001 to 3009. Because data in this table is in real-time, data changes second by second. Therefore, the example represents what would be a snapshot (or the most recent update) of the table.

Figure 1-2 shows how a small piece of the Historical Intrahour Interval Split table would look.

ROWDATE	INTERVAL	ACD	SPLIT	ACDCALLS	ABANDONS	ACDTIME	ABNTIME
070191	0800	1	1	443	48	36898	988
070191	0800	1	2	234	37	20012	777
070191	0800	1	3	111	20	13111	400
070191	0900	1	1	652	59	53442	1058
070191	0900	1	2	451	32	27635	644
070191	0900	1	3	93	11	15321	245
070191	1000	1	1	509	43	35401	851
070191	1000	1	2	391	31	19768	603
070191	1000	1	3	142	10	9786	203
070191	1100	1	1	480	39	33389	789
070191	1100	1	2	491	22	26789	549
070191	1100	1	3	297	15	12530	402
070291	0800	1	1	399	36	37651	1452
070291	0800	1	2	299	20	29602	7616
070291	0800	1	3	138	13	11523	2569
070291	0900	1	1	400	46	36178	1745
070291	0900	1	2	300	33	24303	1109
070291	0900	1	3	225	12	15628	367
070291	1000	1	1	394	40	40002	1322
070291	1000	1	2	323	34	29881	1188
070291	1000	1	3	105	14	12115	704
070291	1100	1	1	418	41	34819	1256
070291	1100	1	2	246	30	21173	980
070291	1100	1	3	100	18	10281	589
070391	0800	1	1	417	34	37856	1340
070391	0800	1	2	247	24	26308	1299
070391	0800	1	3	141	14	12567	688
070391	0900	1	1	444	43	39003	1001
070391	0900	1	2	301	31	27034	809
070391	0900	1	3	206	8	14230	445
070391	1000	1	1	420	51	39045	1733
070391	1000	1	2	299	39	29562	1303
070391	1000	1	3	198	24	12400	899
070391	1100	1	1	403	50	30990	1812
070391	1100	1	2	320	31	25410	904
070391	1100	1	3	99	21	10222	587

Figure 1-2: Sample CMS Table (Intrahour Interval Split Table)

Note The example in Figure 1-2 shows data from July 1 to July 3, 1991, and simulates data for an ACD that has only three splits, 60-minute intrahour intervals, and activity each day from 8:00 a.m. to 12:00 p.m only.

The CMS database uses names to refer to columns of data in a table. These names are called **database items** in CMS. In Figures 1-1 and 1-2, database items are indicated with arrows pointing to their associated columns. The Current Interval Agent and Intrahour Interval Split tables actually contain many more columns (and hence many more database items) than are shown in the figures. For a complete listing of database items for these tables, or any other table, refer to Appendix A “Database Items and Calculations.”

Each **row** in a table contains data that is related by the value(s) of one or more of the columns. In Figure 1-1, each row in the Current Interval Agent table contains data related by agent login ID. Thus, if you look at the row for login ID 1006 (displayed in bold), you will see that the agent is logged into Split 1 on extension 5671 and is currently in AUX work mode. In addition, up to this point in the current interval, the agent has had:

- 20 ACD calls (ACDCALLS).
- 245 seconds of ACD talk time (ACDTIME).

A column that causes the values in a row to be related is called an **index**. An index stores data sequentially and adds structure for the storage of data in the other columns. For each value in an index column, the remaining values in the corresponding row will be related to that value. Thus, in Figure 1-1, the LOGID database item is an index.

In Figure 1-2, each row in the Intrahour Interval Split table contains data related by date, interval, and split. Thus, if you look at the row for Split 1 for the 10 o'clock interval on July 1, 1991 (displayed in bold), you will see that Split 1 had:

- 509 ACD calls (ACDCALLS).
- 43 abandoned calls (ABANDONS).

- 35,401 cumulative seconds of ACD talk time for all ACD calls (ACD_{TIME}).
- 851 cumulative seconds of wait time for all calls that abandoned before being answered (ABN_{TIME}).

How CMS Retrieves Data

CMS retrieves data from the database based on three types of information you supply when you design a custom report:

- The name of the table
- The database items in the table
- The rows of data in the table.

For example, say that you want a custom real-time agent report that lists the agents in a split. The report design might appear as follows:

Note Each series of v's in the illustration represents a report field for which it is expected that CMS will find multiple values (in this case, values for more than one agent) and will display the values vertically in a column.

The x's by the Split: label represent the fact that only one value (in this case, a single split's name or number) is expected for the field.

Split: xxxxxxxxxxxx				
Agent ID:	Current State	ACD Calls	ACD Time	Average Talk Time
vvvv	vvvvv	vvv	vvv	vvv
↓	↓	↓	↓	↓

To tell CMS how to retrieve data, you would tell CMS to access the `cagent` (Current Interval Agent) table. Then, for each report field, you would assign the appropriate database items. When you ran the report, CMS would find, in the `cagent` table, the columns of data associated with the database items (shaded columns in Figure 1-3).

Note For the report field Average Talk Time, you would actually assign a calculation, `ACDTIME/ACDCALLS`.

ACD	LOGID	SPLIT	EXTENSION	WORKMODE	ACDCALLS	ACDTIME
1	1001	1	3201	1	21	988
1	1002	1	4440	1	19	777
1	1003	1	3002	2	15	400
1	1004	1	3003	2	9	58
1	1005	1	4003	2	11	644
1	1006	1	5671	4	20	245
1	1007	5	7835	3	7	851
1	1008	1	6666	3	18	603
1	1010	1	3241	1	18	203
1	2001	2	7762	4	13	789
1	2002	5	5642	2	14	549
1	2003	2	2221	2	10	402
1	2004	2	2242	4	19	452
1	2005	2	2287	1	21	616
1	2006	2	3982	3	19	569
1	2007	2	6543	2	15	745
1	2008	2	2345	2	9	109
1	2009	5	2022	2	11	367
1	2010	2	4323	4	20	322
1	3001	3	7655	1	7	188
1	3002	3	3425	1	18	704
1	3003	3	4563	1	18	256
1	3004	5	8885	2	13	980
1	3005	3	5544	2	14	589
1	3006	3	3789	2	10	340
1	3007	3	8675	2	19	299
1	3008	6	3009	1	21	688
1	3009	3	4477	2	19	901

Figure 1-3: Sample 1 of Database Item Selection

Next, you would identify the appropriate rows that would supply data. If you wanted agents in Split 1, you would tell CMS to find rows that have the value 1 for the `SPLIT` database item. When you ran the report, CMS would find the appropriate rows of data in the `cagent` table (see rows with arrows in Figure 1-4).

	ACD	LOGID	SPLIT	EXTENSION	WORKMODE	ACDCALLS	ACDTIME
1	1	1001	1	3201	1	21	988
1	1	1002	1	4440	1	19	777
1	1	1003	1	3002	2	15	400
1	1	1004	1	3003	2	9	58
1	1	1005	1	4003	2	11	644
1	1	1006	1	5671	2	20	245
1	1	1007	5	7835	3	7	851
1	1	1008	1	6666	3	18	603
1	1	1010	1	3241	1	18	203
1	1	2001	2	7762	4	13	789
1	1	2002	5	5642	2	14	549
1	1	2003	2	2221	2	10	402
1	1	2004	2	2242	4	19	452
1	1	2005	2	2287	1	21	616
1	1	2006	2	3982	3	19	569
1	1	2007	2	6543	2	15	745
1	1	2008	2	2345	2	9	109
1	1	2009	5	2022	2	11	367
1	1	2010	2	4323	4	20	322
1	1	3001	3	7655	1	7	188
1	1	3002	3	3425	1	18	704
1	1	3003	3	4563	1	18	256
1	1	3004	5	8885	2	13	980
1	1	3005	3	5544	2	14	589
1	1	3006	3	3789	2	10	340
1	1	3007	3	8675	2	19	299
1	1	3008	6	3009	1	21	688
1	1	3009	3	4477	2	19	901

Figure 1-4: Sample 1 of Selection of Table Rows

The data that CMS would plug into the report would be the data found in the intersection of the selected database items and rows. Thus, the report would show data as follows:

Split: 1				
Agent ID:	Current State	ACD Calls	ACD Time	Average Talk Time
1001	AVAIL	21	988	47.00
1002	AVAIL	19	777	40.89
1003	ACD	15	400	26.67
1004	ACD	9	58	6.44
1005	ACD	11	644	58.54
1006	AUX	20	245	12.25
1008	ACW	18	603	33.50
1010	AVAIL	18	203	11.28

Figure 1-5: Sample Custom Report 1

Note In actuality, when you design a custom report, you normally set up the row selection so that the users running the report can choose the rows in the report's input window. For example, to run the report in Figure 1-5, you would set up the row selection so users would fill out a report input window that asked them for a Split number. See "Defining the Report Input Window" in Chapter 4 for more information.

As mentioned earlier, CMS uses indexes to create a structure for storing data. Similarly, CMS uses these indexes to search for data. Indexes allow CMS to find data much faster than if data were stored more randomly. Therefore, when you design a custom report, the rows of data for the report should be defined on the basis of index values. See "Defining the Rows of Data for a Report" in Chapter 4.

Note The indexes for each standard table are fixed and cannot be changed, deleted or added to. However, if you define a custom table in the CMS database via INFORMIX SQL, you may define any indexes desired for that new table.

As another example of how CMS retrieves report data, say that you want a custom intrahour interval split report that lists, by intrahour interval, data for a split in a single day. The report design might appear as follows:

Split:	xxxxxxxxxxx		
Date:	xxxxxxx		
		ACD	
		Calls	Abandons
<u>Interval</u>	<u> </u>	<u> </u>	<u> </u>
vvvvvv		vvvv	vvvv
↓		↓	↓

To tell CMS how to retrieve data, you would tell CMS to access the `hsplit` (Intrahour Interval Split) table. You would then assign the appropriate database items to the fields. When you ran the report, CMS would find the columns of data associated with the database items in the `hsplit` table (shaded columns in Figure 1-6).

ROWDATE	INTERVAL	ACD	SPLIT	ACDCALLS	ABANDONS	ACDTIME	ABNTIME
070191	0800	1	1	443	48	36898	988
070191	0800	1	2	234	37	20012	777
070191	0800	1	3	111	20	13111	400
070191	0900	1	1	652	59	53442	1058
070191	0900	1	2	451	32	27635	644
070191	0900	1	3	93	11	15321	245
070191	1000	1	1	509	43	35401	851
070191	1000	1	2	391	31	19768	603
070191	1000	1	3	142	10	9786	203
070191	1100	1	1	480	39	33389	789
070191	1100	1	2	491	22	26789	549
070191	1100	1	3	297	15	12530	402
070291	0800	1	1	399	36	37651	1452
070291	0800	1	2	299	20	29602	7616
070291	0800	1	3	138	13	11523	2569
070291	0900	1	1	400	46	36178	1745
070291	0900	1	2	300	33	24303	1109
070291	0900	1	3	225	12	15628	367
070291	1000	1	1	394	40	40002	1322
070291	1000	1	2	323	34	29881	1188
070291	1000	1	3	105	14	12115	704
070291	1100	1	1	418	41	34819	1256
070291	1100	1	2	246	30	21173	980
070291	1100	1	3	100	18	10281	589
070391	0800	1	1	417	34	37856	1340
070391	0800	1	2	247	24	26308	1299
070391	0800	1	3	141	14	12567	688
070391	0900	1	1	444	43	39003	1001
070391	0900	1	2	301	31	27034	809
070391	0900	1	3	206	8	14230	445
070391	1000	1	1	420	51	39045	1733
070391	1000	1	2	299	39	29562	1303
070391	1000	1	3	198	24	12400	899
070391	1100	1	1	403	50	30990	1812
070391	1100	1	2	320	31	25410	904
070391	1100	1	3	99	21	10222	587

Figure 1-6: Sample 2 of Database Item Selection

Next, you would identify the appropriate rows that would supply data. You might want data for the following:

- Split 1, which means you would identify rows that have the value 1 for the SPLIT database item.
- The date 07/02/91, which means you would identify rows with the value 070291 for the ROWDATE database item.
- The intrahour intervals 8:00am to 11:00am, which means you would identify rows with the values 0800 through 1100 for the INTERVAL database item.

CMS would then find the appropriate rows of data (see rows with arrows in Figure 1-7).

ROWDATE	INTERVAL	ACD	SPLIT	ACDCALLS	ABANDONS	ACDTIME	ABNTIME
070191	0800	1	1	443	48	36898	986
070191	0800	1	2	234	37	20012	777
070191	0800	1	3	111	20	13111	400
070191	0900	1	1	652	59	53442	1058
070191	0900	1	2	451	32	27635	644
070191	0900	1	3	93	11	15321	245
070191	1000	1	1	509	43	35401	851
070191	1000	1	2	391	31	19768	603
070191	1000	1	3	142	10	9786	203
070191	1100	1	1	480	39	33389	789
070191	1100	1	2	491	22	26789	549
070191	1100	1	3	297	15	12530	402
070291	0800	1	1	399	36	37651	1452
070291	0800	1	2	299	20	29602	7616
070291	0800	1	3	138	13	11523	2569
070291	0900	1	1	400	46	36178	1745
070291	0900	1	2	300	33	24303	1109
070291	0900	1	3	225	12	15628	367
070291	1000	1	1	394	40	40002	1322
070291	1000	1	2	323	34	29881	1188
070291	1000	1	3	105	14	12115	704
070291	1100	1	1	418	41	34819	1256
070291	1100	1	2	246	30	21173	980
070291	1100	1	3	100	18	10281	589
070391	0800	1	1	417	34	37856	1340
070391	0800	1	2	247	24	26308	1299
070391	0800	1	3	141	14	12567	688
070391	0900	1	1	444	43	39003	1001
070391	0900	1	2	301	31	27034	809
070391	0900	1	3	206	8	14230	445
070391	1000	1	1	420	51	39045	1733
070391	1000	1	2	299	39	29562	1303
070391	1000	1	3	198	24	12400	899
070391	1100	1	1	403	50	30990	1812
070391	1100	1	2	320	31	25410	904
070391	1100	1	3	99	21	10222	587

Rows where
SPLIT = 1,
ROWDATE = 07/02/91,
and INTERVAL from
08:00 to 11:00am.

Figure 1-7: Sample 2 of Selection of Table Rows

The data that CMS would plug into the report would be the data found in the intersection of the selected database items and columns. Thus, the report would show data as follows:

Split: 1		
Date: 07/02/91		
	ACD	
Interval	Calls	Abandons
08:00am	399	36
09:00am	400	46
10:00am	394	40
11:00am	418	41

Figure 1-8: Sample Custom Report 2

Defining data is the central task of creating and designing a custom report. However, you must do many other tasks to create a custom report. These tasks are listed in the following section, "Basic Tasks in Creating a Custom Report."

Basic Tasks in Creating a Custom Report

The following table lists the basic tasks of creating a custom report.

Table 1-1: Basic Tasks For Creating a Custom Report

Task	Purpose
1 Define the Report's Name, Access, and Type	You define the name that you use both to run the report and to access the report design if you want to change the design. You define access to determine whether other users can run the report and copy the report's design to create their own custom reports. You define type as either real-time or historical.
2 Access the Screen Painter	You access the Screen Painter so that you can design the report. You use the Screen Painter for all tasks in designing a custom report. You can access the Screen Painter only after you have defined the report's name, access, and type.
3 Copy an Existing Report Design	You copy an existing design so that you start with existing report headings, data fields, bars, and other report features. While this is an optional step, you normally save a lot of time and trouble by copying, and then modifying, an existing report design. You can copy both standard and custom report designs.
4 Edit the Report With Blocks	You can edit a report design using block moves, copies, and deletions. Editing with blocks lets you rearrange and delete sections of a report design quickly and easily. Block editing is particularly convenient when you have just copied an existing report design.
5 Enter Report Text	You normally enter text to provide headings for the data fields in the report. Entering report text should be one of the first things you do so that: <ul style="list-style-type: none"> ● The text will provide a skeleton layout for positioning your data fields. ● The text will help you remember what data is supposed to go in the data fields. If you copy a report design, the text of that report will be copied as well. You can then modify the text as required.
6 Define the Report Input Window	You define fields for the report input window so that users can run the report using parameters they choose (that is, what split, agent, time, date, and so on the report is for). If you copy a report design, the definition of that report's input window will be copied as well. You can then modify the input fields as required.

Table 1-1: Basic Tasks For Creating a Custom Report (Contd)

Task	Purpose
7 Define Report Data Fields and Bars	<p>You define the location of fields and bars in the report, as well as the field length, bar height/length, and the data that should appear in the fields/bars. Defining data consists primarily of specifying which database items supply data to the fields/bars. Your definition of report data is not complete, however, until you complete Task 8, "Select Rows of Data from the Database Tables."</p> <p>If you copy a report design, the definition of that report's data fields/bars will be copied as well. You can then modify the data fields/bars as required.</p>
8 Select Rows of Data from the Database Tables	<p>You define which rows of data in a table will supply data for the fields and bars you defined in Task 7.</p> <p>If you copy a report design, the definition of that report's rows of data will be copied as well. You can then modify the selection of rows as required.</p>
9 Define Run Time/Date and User Input Fields	<p>You can define fields on the report to show when the report was run and to show what items the report covers (as defined by the users' inputs when running the report).</p> <p>If you copy a report design, these fields will be copied as well. You can then modify them as required.</p>
10 Highlight Fields	<p>You can emphasize or deemphasize individual fields and text in the report by changing brightness levels (or color if you have a color terminal) and by using underlines and reverse video.</p> <p>If you copy a report design, the highlighting and other video attributes will be copied as well. You can then modify them as required.</p>
11 Define No-Scroll Areas	<p>You can define parts of the report that will stay in the same place in the report window even when you are scrolling up and down or right and left. You will normally define no-scroll areas for column headers, column totals, and row identifiers.</p> <p>If you copy a report design, no-scroll areas will be copied as well. You can then modify them as required.</p>
12 Save the Design	<p>After doing any work on the design of a custom report, you must save the design. Otherwise, any work you did will be lost.</p>
13 Test the Design	<p>You can test your report immediately after designing and saving it. Testing helps eliminate wasted time in running a report whose design still has errors.</p>

In addition to the basic tasks, you may perform tasks in Dictionary. See Chapter 7, "Dictionary," for a description of these tasks.

You will also need to perform tasks in INFORMIX RDSQL if you want to create custom data tables. See Chapter 6, "Advanced Report Design," for a description of these tasks.

Chapter 2

Getting Started

	Page
General Information	2-1
Prerequisite System Administration	2-1
Define a Report's Name, Access, and Type	2-2
Step 1: Access the Report Select Window	2-2
Step 2: Assign a Name to the Report	2-3
Step 3: Enter a Report Description	2-4
Step 4: Define the User ID	2-5
Step 5: Define Access to the Report	2-5
Step 6: Define the Report as Real-time or Historical	2-6
Step 7: Save the Report Name	2-6
Changing a Report's Access or Description	2-7
Deleting a Custom Report	2-8

List of Figures

Figure 2-1: The Report Select Window	2-3
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General Information

This chapter tells you how to:

- Define a custom report's name, access, and type. (This is the **first** task in designing a custom report.)
- Change a custom report's access or description.
- Delete a custom report.

You do these tasks via the Edit Report: Report Select window.

To complete the design of a custom report, you must also follow the procedures in Chapters 3, 4, and 5, and, optionally, Chapters 6 and 7.

Prerequisite System Administration

- To create, change, or delete a custom report, you must have **read** and **write** permission for the Custom Reports subsystem.

Define a Report's Name, Access, and Type

Use the steps in this section to define a new custom report's:

- Name
- Access
- Type.

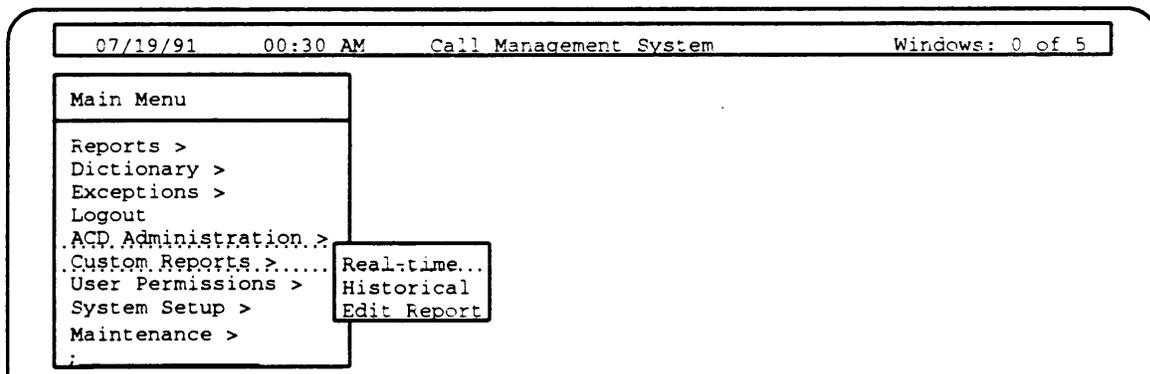
These are the first steps in designing a new custom report.

Note If you are a CMS administrator, you can also specify the owner of the report you are defining (see Step 3 of this procedure, "Define the User ID"). If you are not a CMS administrator, you can define a report with only you as the owner.

Note You cannot define a custom report with a timetable.

Step 1: Access the Report Select Window

1a Select the **Custom Reports** main menu option. -> *The Custom Reports submenu appears.*



1b Select the **Edit Report** submenu option. -> *The Report Select window appears.*

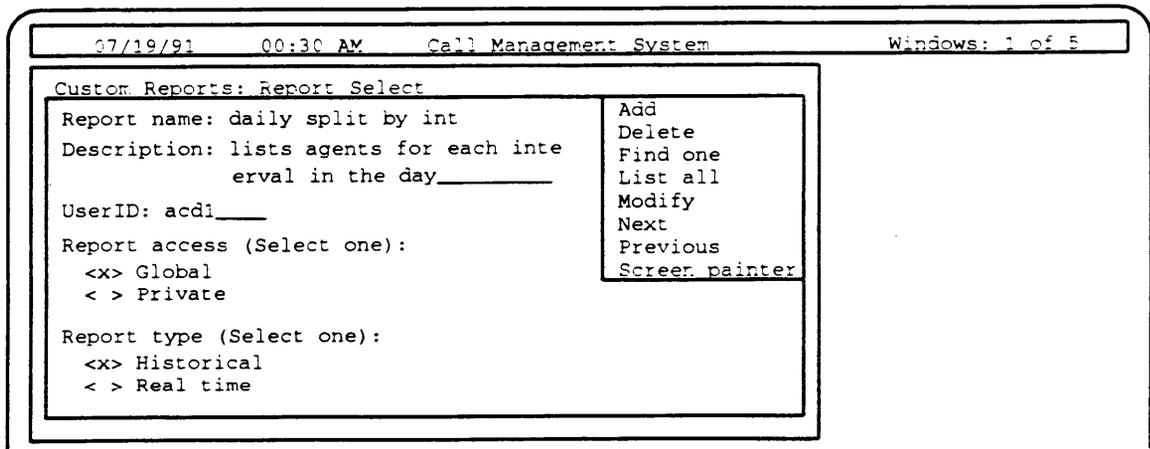


Figure 2-1: The Report Select Window

Step 2: Assign a Name to the Report

Enter, in the **Report name** field, a name for your report. The name can have up to 20 characters, including blanks.

Because, in most cases, the name you give your report must be unique, you may want to look at existing custom report names before entering a name for your report.

Use the following steps to list existing report names.

- 2a Press [**CTRL**] **z**. -> *All fields in the Report Select window become blank.*
- 2b Enter an **x** to select a report type — either **historical** or **real-time**.
- 2c Select **List all**. -> *The List All window appears, listing all global and private custom report names for the specified report type.*

- 2d Check the list to ensure that the name you want to give your report has not already been used. If your report will be **global** (see Step 5), its name must be different from any name in the list. If your report will be **private** (see Step 5), its name must be different from names of any existing global reports and names of your existing private reports.

Note If your report will be private, its name can be the same as another user's private report.

- 2e Press [**Exit**] to return to the Report Select window. -> *The List All window disappears, and the cursor returns to the Report Select window.*

- 2f Now enter the name you want for your report.

Note You may do a "List all" of reports based on different combinations of field entries. However, you must always select a report type, **historical** or **real-time**.

Step 3: Enter a Report Description

If desired, enter a description of the report in the **Description** field. The description can have up to 50 characters, including blanks.

Your description should be detailed enough to accurately describe the report's contents. You **cannot** enter the following characters:

- \ (backslash)
- ^ (circumflex)
- ~ (tilde)
- " (double quotes)
- | (bar)
- * (asterisk)
- ? (question mark)

Step 4: Define the User ID

Enter the user ID of the user who will own the report. The default is your user ID. If you are a CMS administrator, you can enter another user's ID if you wish to create a custom report for that user. This might be the case if you want only that user to be able to run the report.

Note You can enter another user's ID, even if you are not the CMS administrator, if you want to do a "List All" of that user's existing custom reports.

Step 5: Define Access to the Report

Enter an **x** to select a report access option, either **global** or **private**.

Global access to the report gives other users the following capabilities:

- Other users can run the report.
- Other users can copy the report design when designing their own custom report (see "Copying an Existing Report Design").

If you select **global**, your report's name must be different from the name of any other custom report — global or private.

Private access to the report means that only you (and the CMS administrator(s)) can run the report. In addition, no other users, except for CMS administrators, can copy the report design for use in their own custom reports.

If you select **private**, your report's name must be different from the names of the following:

- Any other private report you have created of the same type.
- Any user's global custom report of the same type.

Note No other normal CMS user can modify a report design you create, regardless of whether the report is global or private. However, a CMS administrator always has the ability to modify your report design, even if you make it private.

Step 6: Define the Report as Real-time or Historical

Enter an **x** to select a report type option, **real-time** or **historical**.

When you design the report on the Screen Painter, you will be able to access data only for the category you select here. For example, if you select **real-time**, you will not be able to specify historical data in the report design.

Also, when you go to run the report, CMS will list the report under the appropriate submenu, **real-time** or **historical**.

You **must** select the **historical** option if you want to include:

- Exceptions data
- Forecast data
- Call work code data
- Agent trace data

Step 7: Save the Report Name

Select **Add**.

-> *The following message appears in the status line: **successful**. If CMS will not add the report name because the name is not unique, do a "List all" to see what names already exist, and go back to Step 2 in this procedure.*

After you have added the report name, you may access the Screen Painter to begin designing the report (see Chapter 3).

Changing a Report's Access or Description

Note You cannot change a report's name, type, or owner once you have added the report. Instead, you must create a new report with the desired name, type, or owner, and then copy the design of the old report to the new report.

- 1 On the Report Select window, complete the fields you wish to search on, and select the **List all** option. (**Report type** is a required field.) -> *A List All window appears containing a list of all global and private custom reports for the specified type and user ID, if applicable.*

Note You may change the **User ID** field to list another user's custom reports. However, you cannot change the user ID of a report that already exists.

- 2 In the List All window, find the report you want to change, and press [**Exit**] to return to the Report Select window. -> *The List all window disappears, and the cursor returns to the first field of the Report Select window.*
- 3 In the **Report name** field on the Report Select window, enter the name of the report whose description or access you want to change.
- 4 If necessary, change the default **Report type** selection. Then, select **Find one**. -> *CMS fills in all fields with the report's select characteristics.*
- 5 Change the description or report access as desired, and select **Modify**. -> *The following message appears in the status line: Successful.*

Note You cannot change a report's name or user ID using **Modify**. To change a report name or user ID, you must add a new report name (with the desired user ID), access the Screen Painter, copy the old report's design to the new report, and finally delete the old report name. **Also, you can only change the user ID if you are a CMS administrator.**

Deleting a Custom Report

Note You may delete another user's custom reports only if you are a CMS administrator.

- 1 On the Report Select window, complete the fields you wish to search on, and select the **List all** option. (**Report type** is a required field.) -> *A List All window appears containing a list of all global and private custom reports for the specified type and user ID.*

Note You may change the **User ID** field to list another user's custom reports. However, you cannot delete another user's report unless you are a CMS administrator.

- 2 In the List All window, find the report you want to delete, and press [**Exit**] to return to the Report Select window. -> *The List all window disappears, and the cursor returns to the first field of the Report Select window.*
- 3 In the **Report name** field on the Report Select window, enter the name of the report you want to delete.
- 4 Select **Find one**. -> *CMS fills in all fields with the report's select characteristics.*

Note If more than one report has the same name, you may have to use **Next** to find the report you want.

6 Select **Delete**.

-> *The following message appears in the status line: **Successful**.*

Note You can delete another user's report only if you are a CMS administrator.

Chapter 3

Using Screen Painter Editing Tools

	Page
Accessing the Screen Painter	3-1
Special Properties of the Screen Painter	3-2
Moving the Cursor On the Screen Painter	3-2
The Screen Painter Size	3-3
Scrolling the Screen Painter	3-4
Properties of Secondary Windows	3-5
Editing Keys in Secondary Windows	3-5
Copying an Existing Report Design	3-6
General Information	3-6
Step 1: Access the Get Copy Window	3-6
Step 2: Enter a Report Name	3-7
Step 3: Enter a User ID	3-8
Step 4: Select a Report Type	3-8
Step 5: Verify the Report	3-8
Step 6: Copy the Report	3-8
Editing a Report With Blocks	3-10
General Information	3-10
Erasing a Block	3-10
Moving a Block	3-13
Copying a Block	3-15
Entering Report Text	3-16

List of Figures

Figure 3-1: The Screen Painter	3-2
Figure 3-2: Screen Painter Size and Cursor Position	3-4
Figure 3-3: The Get Copy Window	3-7
Figure 3-4: Case Study Sample — Copy of a Report Design (Using Get copy)	3-9
Figure 3-5: Sample Case Study — Defining a Block to Erase	3-11
Figure 3-6: Case Study Sample — Erasing the Block	3-12
Figure 3-7: Case Study Sample — Defining a Block to Move	3-13
Figure 3-8: Case Study Sample — Completing a Block Move	3-14

Accessing the Screen Painter

To design your custom report, use the Screen Painter (Figure 3-1). On the Screen Painter, you can enter report text, data fields, and data bars in a layout that closely resembles the layout of the actual report.

You access the Screen Painter using the following steps.

Note You must define, in the Edit Report: Report Select window, the report name and its select characteristics before you can access the Screen Painter for that report.

Note You can access the Screen Painter for a report that someone else designed only if you are a CMS administrator. However, if another user's report has global access, you may add your own report name and then copy that user's report design on the Screen Painter (see "Copying an Existing Report Design" later in this chapter).

- 1 On the Report Select window, enter the name of the report in the **Report name** field, and select **Find one**. -> *The select characteristics of the report appear.*
- 2 Select the **screen painter** action list option. -> *The Screen Painter appears.*

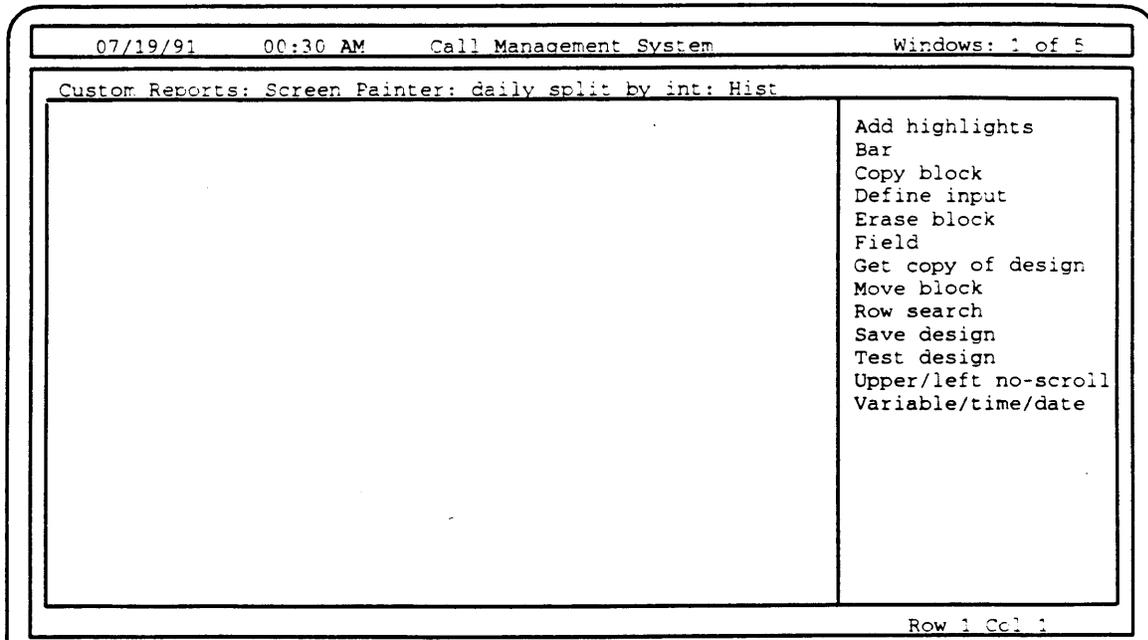


Figure 3-1: The Screen Painter

Special Properties of the Screen Painter

On the Screen Painter, cursor movement, scrolling, and data entry all differ from those operations in normal CMS windows.

Moving the Cursor On the Screen Painter

Since the Screen Painter has no predefined fields, you can freely move the cursor around the interior of the Screen Painter with the following keys:

Arrow keys (↓, ↑, →, ←) Moves the cursor one space in the direction of the arrow.

[**TAB**] Moves the cursor eight spaces to the right. You can also use [**TAB**] when you are defining blocks (see "Block Editing").

[<u>SHIFT</u>] + [<u>TAB</u>]	Moves the cursor eight spaces to the left. You can also use [<u>SHIFT</u>] + [<u>TAB</u>] when you are defining blocks (see “Editing a Report With Blocks”).
	[<u>SHIFT</u>] + [<u>TAB</u>] may not be available on some terminals.
[<u>BACK SPACE</u>]	Moves the cursor one space to the left.
[<u>CTRL</u>] + f	Moves the cursor to the far right edge (132nd column) of the Screen Painter.
[<u>CTRL</u>] + b	Moves the cursor to the left edge (1st column) of the Screen Painter.
[<u>CTRL</u>] + d	Moves the cursor to the bottom (Line 25) of the Screen Painter.
[<u>CTRL</u>] + u	Moves the cursor to the top (Line 1) of the Screen Painter.

The Screen Painter Size

The Screen Painter allows you to create a report design with maximum dimensions as follows:

- A horizontal size of 132 columns (character spaces).
- A vertical size of 25 lines.

For most terminals, CMS will display, in the lower right border of the Screen Painter, the exact position of the cursor within the Screen Painter’s 25 x 132 grid (see Figure 3-2). However, because the interior of the Screen Painter window is only 54 columns wide and 20 lines high, you may have to scroll the Screen Painter horizontally or vertically to access areas that do not fit within the window.

Note The widest custom report that you can display on your terminal without having to scroll is 78 columns wide. The terminal actually displays 80 columns, but the side borders of the report window use two of the columns.

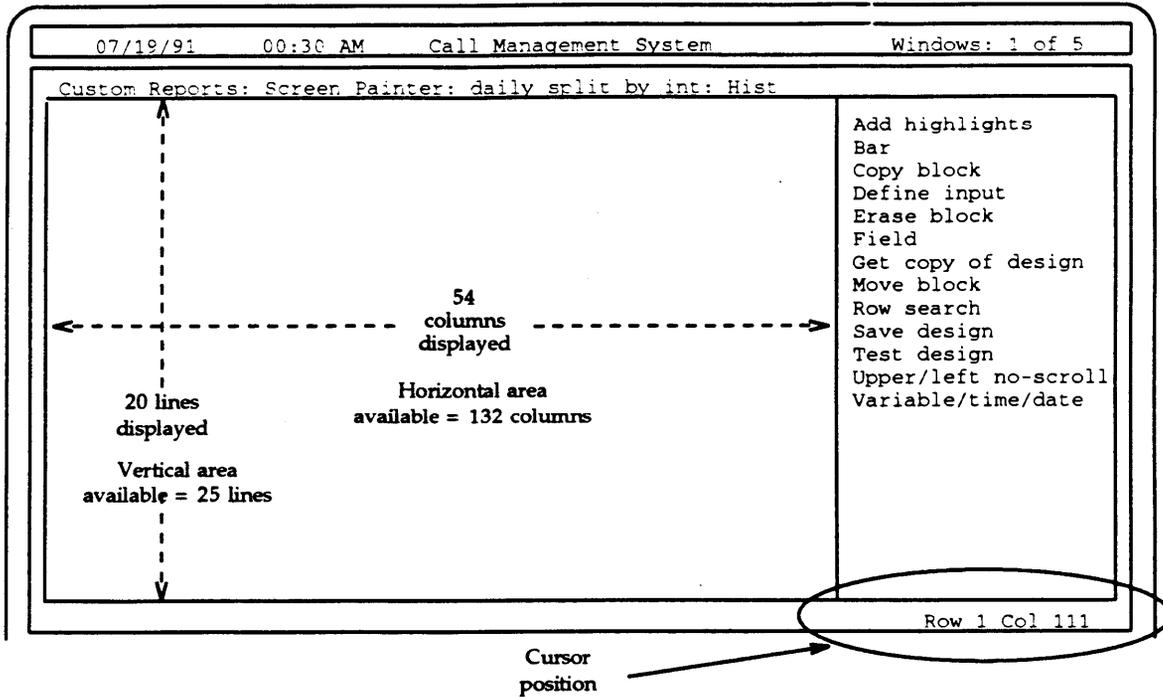


Figure 3-2: Screen Painter Size and Cursor Position

Scrolling the Screen Painter

The Screen Painter will scroll automatically when the cursor hits the left, right, top, or bottom border. The Screen Painter scrolls one column or one line at a time when you use the arrow keys, but will scroll 8 columns at a time when you use [TAB] for horizontal scrolling. Right scrolling will beep when the 132nd column appears. Left scrolling will beep when the first column reappears. Down scrolling will stop when the 25th line appears. Up scrolling will stop when the top line reappears.

Properties of Secondary Windows

For most tasks on the Screen Painter, you must complete a secondary window. These secondary windows pop up after you select an action list option. Some secondary windows automatically disappear when you are finished entering data and select an action list option. However, for some secondary windows, you must press **Exit** to close the window and return to the Screen Painter.

If you use the **Current** SLK to leave a secondary window and return to the Screen Painter, the secondary window will remain open. However, until you close the secondary window, the Screen Painter will be locked such that you cannot enter text or select any other action list options.

Editing Keys in Secondary Windows

In the secondary windows only, you can use the standard field editing keys. These keys, which offer you considerable convenience, are as follows:

[CTRL] **e** Turns insert mode on or off. With insert mode on, you insert characters at the cursor's current position in the field.

[CTRL] **x** Erases characters in a field from the current position to the end of the field.

[CTRL] **y** Erases all characters in a field.

[CTRL] **z** Erases inputs in all fields in a window

Note These keys are **not** available on the Screen Painter itself.

Copying an Existing Report Design

General Information

In the majority of cases, you should begin your design of a custom report by copying an existing report design, then making desired changes. Copying, then modifying, an existing report design is usually the quickest, easiest method for designing a custom report.

You can copy standard report designs or custom report designs. You can also copy more than one report design into a single custom report. However, if your report is an historical report, you cannot copy a real-time report onto the Screen Painter. Likewise, if your report is a real-time report, you cannot copy an historical report onto the Screen Painter.

Note Items in the report you are copying may overlap text, fields, or bars you previously entered on the Screen Painter. If items in the copied report overlap existing items, CMS will copy to the Screen Painter only those parts of the report that **do not** overlap.

To prevent overlapping, you may need to clear the area in the upper left portion of the Screen Painter before copying a report design. You can clear the area easily by moving or deleting all data as a block (see “Editing a Report With Blocks”). Be sure the cleared space is large enough to contain the report design you are copying.

Note You **cannot** copy the Multi-ACD By Split and Busy Hour By Trunk Group standard reports.

To copy an existing report design, do the following steps:

Step 1: Access the Get Copy Window

On the Screen Painter, select the **Get copy of design** action list option.

-> *The Get Copy window appears.*

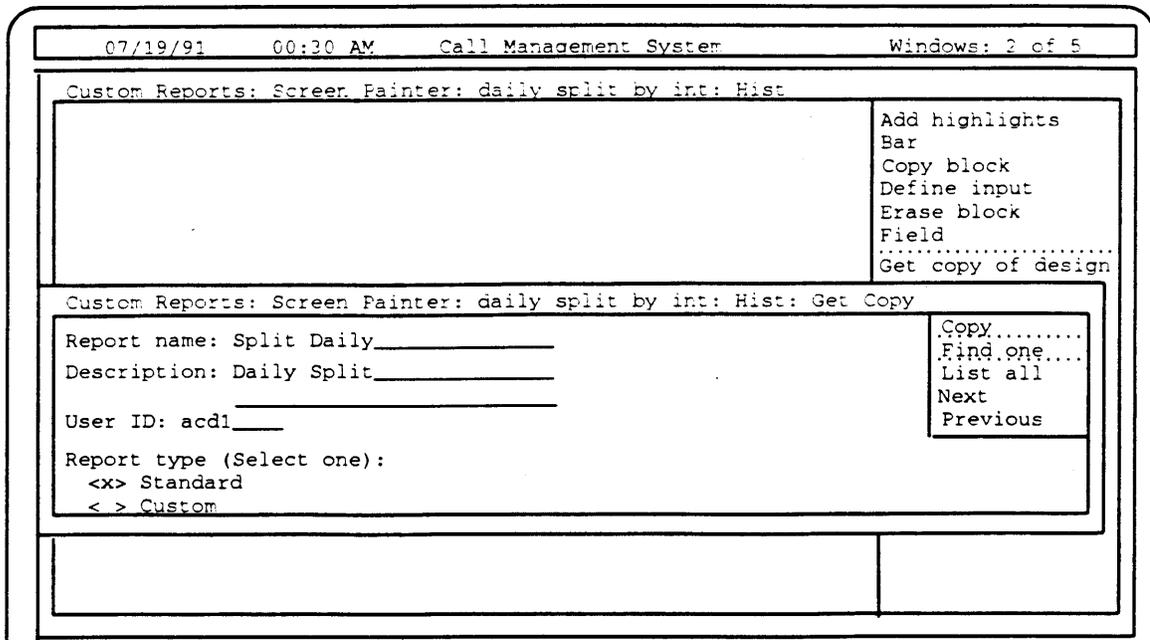


Figure 3-3: The Get Copy Window

Step 2: Enter a Report Name

In the **Report name** field, enter the name of the report you want to copy. You can copy standard report designs, global report designs, and private report designs. However, you **cannot** copy another user's private report designs unless you are a CMS administrator.

If you do not know the report name, first select **List all**. For **List all**, you may leave the **Report name** blank, but you **must** complete the **Report type** field, described later. After the List all, you can go back and enter the report name.

Note Because of the need to shorten names of standard reports for this window, the name you must enter in this window will not always exactly match actual names of standard reports.

Step 3: Enter a User ID

In the `User ID` field, enter a user ID only if one of the following is true:

- You are a CMS administrator and you want to copy another user's private report.
 - You want to list the custom reports of a specific user only.
-

Step 4: Select a Report Type

Type `x` to select the `Report type` option — either `standard` or `custom` — for the type of report you want to copy. If the wrong option is selected, CMS may not find or copy the report you actually want.

Step 5: Verify the Report

Select `Find one` to verify the report is the one you want to copy.

-> *The user ID appears in the `User ID` field and, if it exists, the report description appears in the `Description` field.*

Step 6: Copy the Report

Select `Copy` to copy the report's design to the Screen Painter.

-> *The Get Copy window disappears and the report design appears on the Screen Painter, starting in the upper left corner.*

If you want to copy another report design, clear the upper-left area by deleting or moving any existing block of text and fields (see the next section, "Editing a Report With Blocks"). Then, repeat Steps 1 through 5.

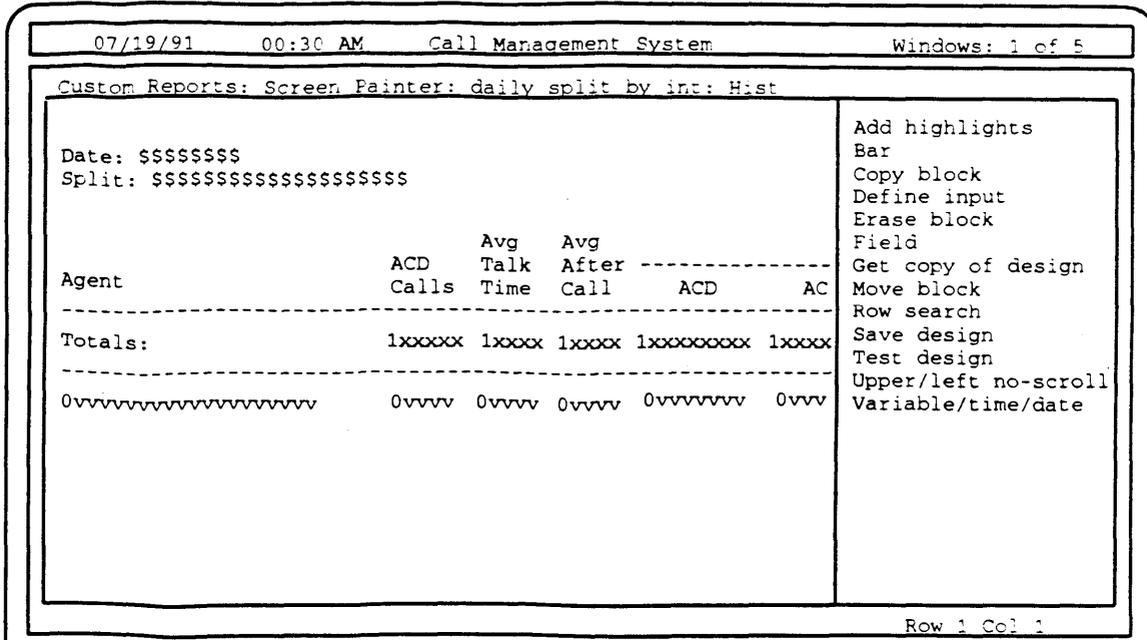


Figure 3-4: Case Study Sample — Copy of a Report Design (Using Get copy)

Note The sample report design copy in Figure 3-4 is actually much wider than the Screen Painter. If the Screen Painter were big enough to show the complete report design, the design would look like the following illustration.

Daily Split

Date: \$\$\$\$\$\$ Printed: mm/dd/yy hh:mm AM
 Split: \$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$ ACD: \$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$

Agent	ACD Calls	Avg Talk Time	Avg After Call	ACD	ACW	Agent Ring	Time AUX	Avail	Staff	Trans Assists	Out	Calls Held	Avg Hold Time
Totals:	1xxxx	1xxxx	1xxxx	1xxxxxxxx	1xxxxxxxx	1xxxxxxxx	1xxxxxxxx	1xxxxxxxx	1xxxxxxxx	1xxxx	1xxxx	1xxxx	1xxxx
0vvvvvvvvvvvvvvvv	0vvvv	0vvvv	0vvvv	0vvvvvvvv	0vvvvvvvv	0vvvvvvvv	0vvvvvvvv	0vvvvvvvv	0vvvvvvvv	0vvvv	0vvvv	0vvvv	0vvvv

Note If part of the report you are copying overlaps existing text or fields on the Screen Painter, CMS will not copy that part of the report to the Screen Painter.

Editing a Report With Blocks

General Information

A **block** is a rectangular area on the Screen Painter that you define and use to quickly rearrange fields and text. You can erase blocks, copy blocks, or move blocks.

You define a block with the cursor by marking two opposite corners of a rectangle. The block so defined becomes highlighted. A block may contain a single character of text, a single field or bar, several words of text, several fields/bars, a combination of fields/bars and text, or a whole report design.

Note If a block includes any part of a field/bar, then CMS will automatically include the entire field in the block. You should therefore use care when deleting blocks to avoid unintentionally deleting a field/bar.

You can edit a report in blocks using the steps described in the following pages.

Erasing a Block

Note Prior to completing a block erase, you may press [CTRL] **C** to cancel the erasure.

- 1 On the Screen Painter, place the cursor in a position where you want one corner of the block to be, and select **Erase block**.
-> *The cursor returns to its original position, and the following message appears on the status line: **Move cursor to define opposite corner of block, press RETURN.***

- 2 Move the cursor to a position where you want the opposite corner of the block to be. The block should include all fields and text you want to erase. -> *The block you are defining becomes highlighted as you move the cursor.*

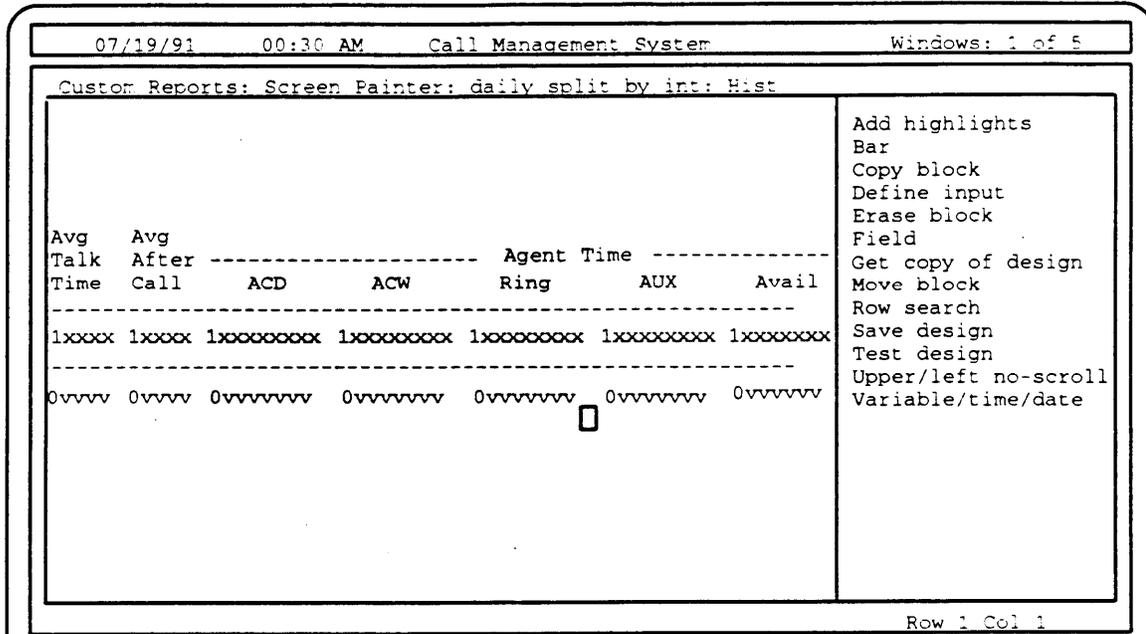


Figure 3-5: Sample Case Study — Defining a Block to Erase

Note In our case study sample, we want to erase the middle section of the copied report design. Therefore, in Figure 3-5, we have scrolled horizontally to the middle section and defined the block we want to erase.

- 3 Press [RETURN]. -> *An acknowledge window appears with the following request: Enter y to delete the block or n to cancel deletion.*

- 4 Enter **y**, and press [**RETURN**]. -> *All fields and text within the block disappear.*

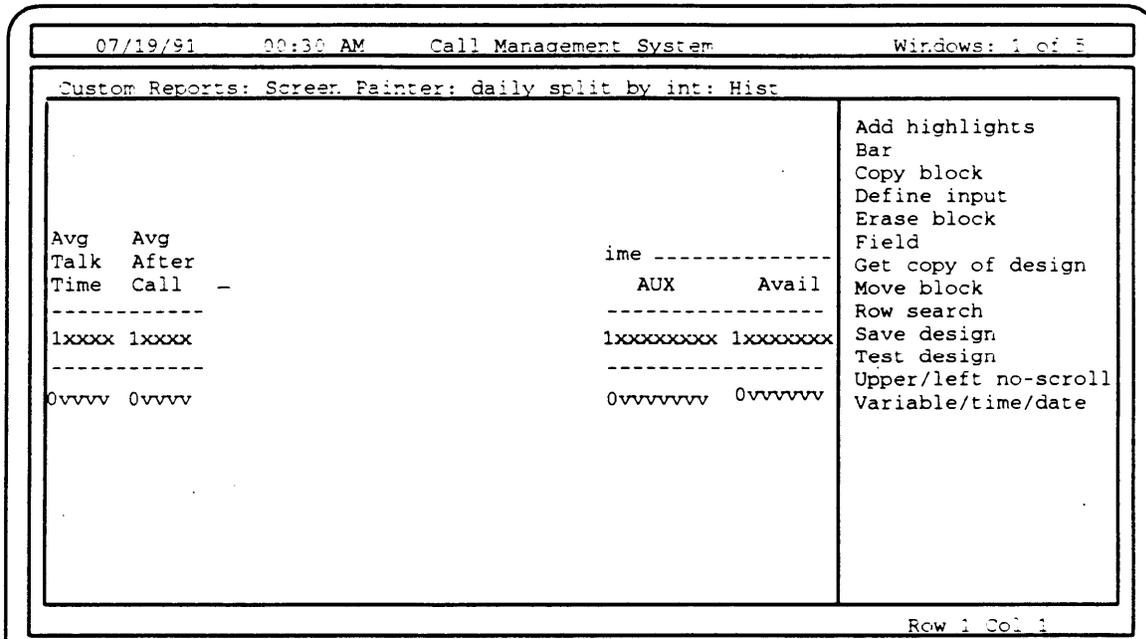


Figure 3-6: Case Study Sample — Erasing the Block

Moving a Block

Note Prior to completing a block move, you may press [CTRL] **c** to cancel the move.

- 1 On the Screen Painter, place the cursor in a position where you want one corner of the block to be, and select **Move block**.
 - > *The cursor returns to its original position, and the following message appears on the status line: **Move cursor to define opposite corner of block, press RETURN.***

- 2 Move the cursor to a position where you want the opposite corner of the block to be. The block should include all fields and text you want to move.
 - > *The block you are defining becomes highlighted as you move the cursor.*

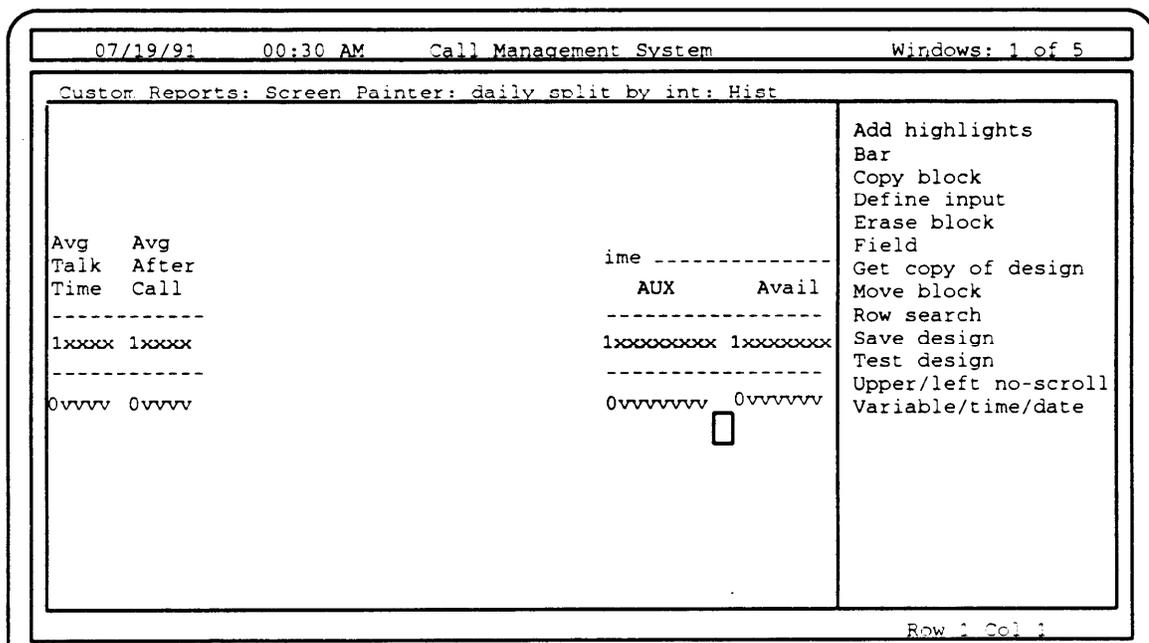


Figure 3-7: Case Study Sample — Defining a Block to Move

Note In our case study, we want to keep the AUX time column, but we want to move it over to the left next to the other report items we want to keep.

- 3 Press [RETURN]. -> The following message appears in the status line: Move cursor to locate upper left corner of move, press RETURN.

- 4 Move the cursor to a new position for the upper left corner of the block, and press [RETURN]. -> All fields and text within the block move to the new location.

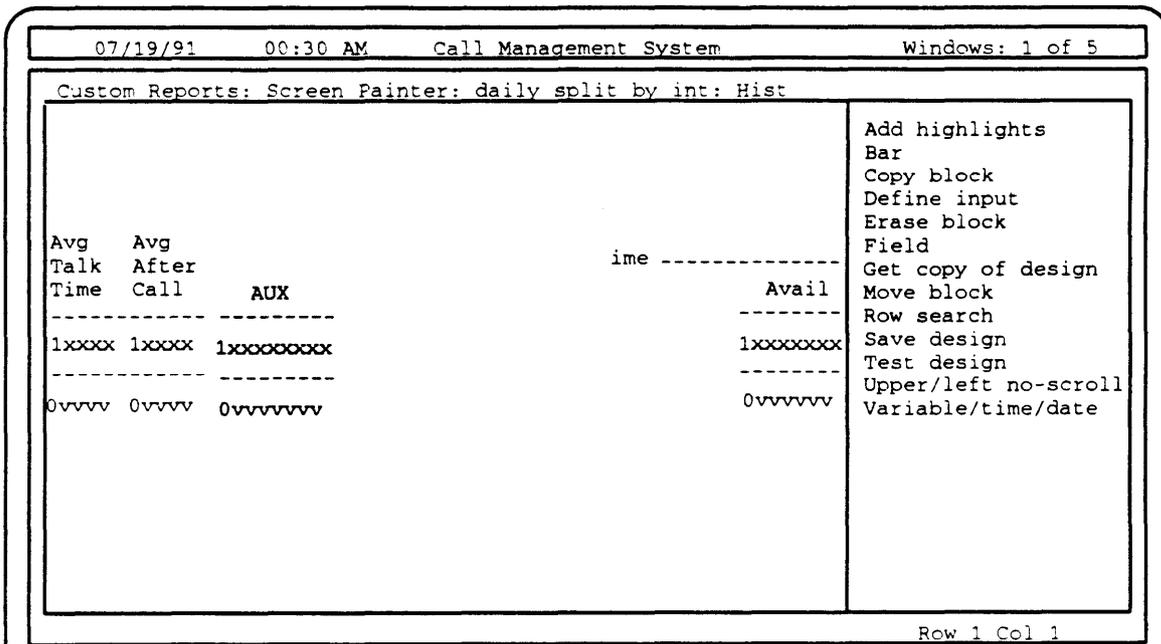


Figure 3-8: Case Study Sample — Completing a Block Move

When the block moves to its new location, the block's text or fields **cannot overlap** any other text or fields.

Copying a Block

Note Prior to completing a block copy, you may press [CTRL] **c** to cancel the copy.

- 1 On the Screen Painter, place the cursor in a position where you want one corner of the block to be, and select **Copy block**.
-> *The cursor returns to its original position, and the following message appears on the status line: **Move cursor to define opposite corner of block, press RETURN.***
- 2 Move the cursor to a position where you want the opposite corner of the block to be. The block should include all fields and text you want to copy.
-> *The block you are defining becomes highlighted as you move the cursor.*
- 3 Press [RETURN].
-> *The following message appears in the status line: **Move cursor to locate upper left corner of copy, press RETURN.***
- 4 Move the cursor to a new position for the upper left corner of the block, and press [RETURN].
-> *All fields and text within the block are copied to the new location.*

When you complete the copy of a block, the block's text or fields **cannot** overlap any other text or fields.

Entering Report Text

You can enter text on the Screen Painter to label your fields, enter a report title, or include special instructions for the report. You should normally enter text to label each data field so that when you run the report, you will know what data the field is showing.

You should enter text **before** defining the data fields for two reasons:

- The text will provide a skeleton layout to help you position your data fields.
- The text will help you remember what each data field represents. If you have to change fields, the accompanying text will save you a lot of time.

To enter text, simply position the cursor where you want the text and type the characters. You can use the space bar to create spaces and to delete text. You can also simply overwrite existing text with new text.

Note You cannot overwrite a data field.

To delete large portions of text, use the **Erase block** action list option (see “Erasing Blocks”).

Chapter 4

Defining the Data For a Custom Report

	Page
Defining Fields for the Report Input Window	4-1
General Information	4-1
Step 1: Access the Define Input Window	4-1
Step 2: Define the Variable Name	4-2
Step 3: Enter a Field Prompt	4-4
Step 4: Define the Field Length	4-4
Step 5: Define the Field As Single Value or Range/List	4-4
Step 6: Provide a Default Value For the Field	4-5
Step 7: Select a Field Type	4-5
Input Fields That Allow Pattern Matching	4-7
Step 8: Associate an ACD With the Variable Field	4-9
Step 9: Save A Variable Input Field	4-10
Defining the Order in Which Input Fields Appear	4-10
Changing Report Input Fields	4-11
Defining Report Fields	4-13
General Information	4-13
What the x's, v's, and h's Mean in a Field	4-13
Step 1: Define the Position and Length of a Field	4-14
Step 2: Define the Field's Data Expression	4-15
Database items	4-15
Constants	4-16
Calculations	4-17
Calculation names	4-17
Aggregate Functions	4-20
count(*)	4-22
Data From More Than One Table	4-23
Step 3: Define the Table(s) For Calculation Names	4-23
Step 4: Justify Data in the Field	4-24
Step 5: Define the Format For the Field	4-24
Step 6: Save the Field Definition	4-28
Changing a Field Definition	4-29
Defining Bars in a Report	4-30
General Information	4-30
What the X's, V's and H's Mean in a Bar	4-30
Step 1: Define the Position and Length of a Bar	4-31
Step 2: Define the Bar's Data Expression	4-32
Step 3: Define the Table(s) for Calculation Names	4-32
Step 4: Define the Direction of the Bar	4-32
Step 5: Define the Bar Scale	4-33
Step 6: Define the Maximum Graph Value	4-34
Step 7: Define the First Threshold	4-35
Step 8: Define the Second Threshold	4-36

Step 9: Select Normal or Reversed Thresholds	4-36
Step 10: Save the Bar Definition	4-37
Changing a Bar Definition	4-38

Defining the Rows of Data for a Report	4-39
General Information	4-39
Step 1: Access the Row Search Window	4-39
Step 2: List the Report Input Variables	4-40
Step 3: Select a Row Search ID	4-41
Step 4: Select Tables	4-41
Step 5: Select Rows In the Table(s)	4-43
Basic “Where” Clause	4-43
“Where” Clause With Variable	4-45
Multiple “Where” Clauses	4-45
“Where” Clause With a Range/List Variable	4-46
Selecting Rows From An ACD	4-46
Excluding Rows of Data	4-46
Step 6: Select a Sort Order for Data	4-47
Step 7: Select a Sort Type	4-48
Step 8: Select a Field/Bar Type	4-49
Step 9: Save Your Row Search Conditions	4-51
Assign a Row Search ID to Report Field(s) and Bar(s)	4-51
Changing Row Search Conditions	4-56
Changing the Row Search-Field Assignment(s)	4-56

Defining Fields to Show Run Time/Date and User Inputs	4-58
General Information	4-58
Step 1: Access the Var/Time/Date Window	4-58
Step 2: Define the Display Type and Format	4-59
Step 3: Save the Var/Date/Time Field	4-61

List of Figures

Figure 4-1: Sample Report Input Window	4-1
Figure 4-2: The Define Input Window (With Sample Inputs)	4-2
Figure 4-3: How a Variable Links the Report Input and Row Search	4-3
Figure 4-4: Sample Multi-ACD Report Input Window	4-9
Figure 4-5: The Define Input: Order Window	4-11
Figure 4-6: The Field Window	4-14
Figure 4-7: Sample Intrahour Split Table Data	4-21
Figure 4-8: The Bar Window (With Sample Input)	4-31

Figure 4-9:	Bars — With and Without Scales	4-34
Figure 4-10:	Bar Graph Thresholds	4-35
Figure 4-11:	Reversed Bar Graph Thresholds	4-37
Figure 4-12:	The Row Search Window	4-40
Figure 4-13:	Sample Current Interval Split Table*	4-44
Figure 4-14:	Sample Discrete Field and Bar Design	4-53
Figure 4-15:	Sample Report with Discrete Field and Bar	4-53
Figure 4-16:	Sample Field and Bar Design — Vertically Repeated	4-54
Figure 4-17:	Sample Report with Vertically Repeated Field and Bar	4-54
Figure 4-18:	Sample Field and Bar Design — Horizontally Repeated	4-55
Figure 4-19:	Sample Report with Horizontally Repeated Field and Bar	4-55
Figure 4-20:	The Var/Time/Date Window	4-59

List of Tables

Table 4-1:	Report Input Field Types	4-6
Table 4-2:	Date Formats For Report Fields	4-25
Table 4-3:	Synonym Types For Report Fields	4-26

Defining Fields for the Report Input Window

General Information

To run a standard report, you first access a report input window (see sample in Figure 4-1). The report input window gives you control over what data (which splits, trunks, dates, intrahour intervals, and so on) is included in the report.

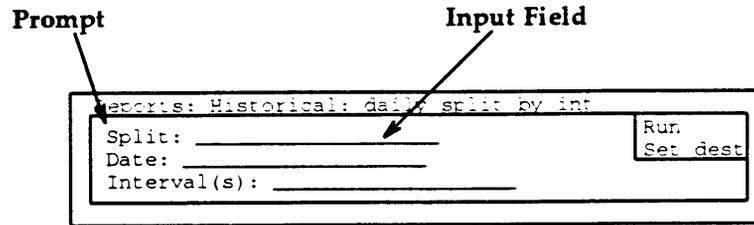


Figure 4-1: Sample Report Input Window

To define report input fields, use the Define Input window (Figure 4-2). You must complete a Define Input window for each input field. When you are done, you will have created a report input window. When you or another user goes to run your custom report, this input window will appear with the field prompt(s) and the input field(s) you defined (like those shown in Figure 4-1).

You define fields for the report input window using the steps described in the following pages.

Step 1: Access the Define Input Window

On the Screen Painter, select the Define input action list option.

-> *The Define Input window appears.*

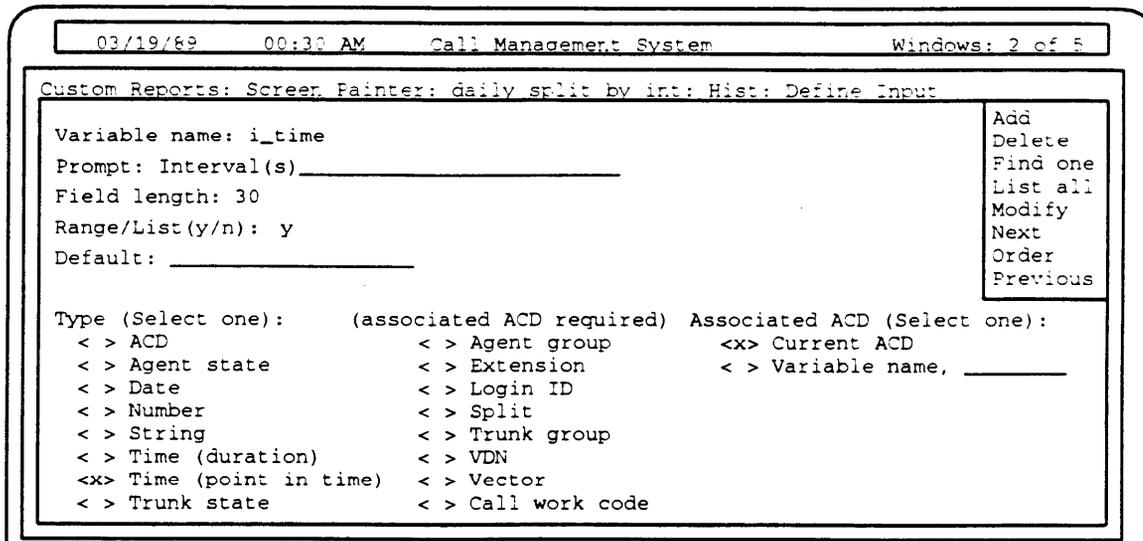


Figure 4-2: The Define Input Window (With Sample Inputs)

Step 2: Define the Variable Name

Enter a name of up to eight alphanumeric characters in the **Variable name** field. You must use this exact variable name again in the Row Search window when you define your row search conditions (see “Defining the Rows of Data For a Report”). In this way, the variable name links the report input field to the row search conditions. This link enables CMS to use the value(s) a user enters when running the report to search the database for appropriate report data. See Figure 4-3.

Note If you copy a report (via Get Copy), that report’s input fields and row search conditions are also copied. Before entering any variable names, you may first want to do a “List all” to see the report input fields that are already defined and the variable names they use. If you then add, delete, or change a variable name for a report input field, you must also add, delete, or change that variable name in the row search conditions.

Note You cannot do a “List all” nor a “Find one” in the Define Input window by searching on multiple fields. For a “Find one” search, CMS uses only the entry in the **variable name** field. CMS ignores the other fields. For a “List all” search, CMS ignores all fields.

The following illustration shows an example of how the report input fields are linked to a report’s search conditions.

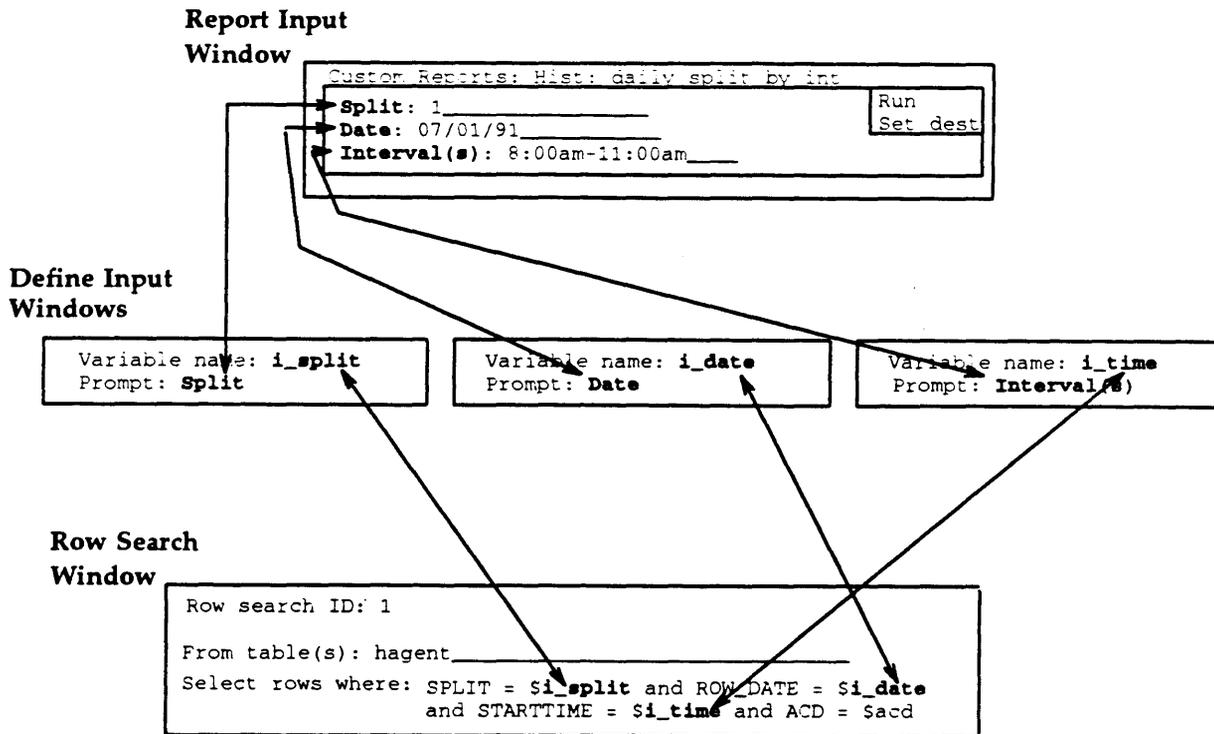


Figure 4-3: How a Variable Links the Report Input and Row Search

In the illustration, the user enters a split number of 1, a date of 07/01/91, and intrahour intervals from 8:00 a.m. to 11:00 a.m. CMS identifies 1 as the value for variable name **i_split**, 07/01/91 as the value for variable name **i_date**, and 8:00 to 11:00 as the values for variable name **i_time**. CMS then searches the specified database items (**SPLIT**, **ROW_DATE**, and **STARTTIME**) in the Intrahour Agent (**hagent**) table for rows that have those values. Finally, CMS extracts data from those rows and displays the data into the report’s fields.

Step 3: Enter a Field Prompt

In the **Prompt** field, enter a name of up to 30 characters to appear next to the input field on the report input window. Because you can use blanks, your prompt can be more than one word.

This name should describe the information (what split, what date, what time, etc.) a user must enter in the field when ordering the report. For example, if you want the user to enter a date, "Date" would be an appropriate prompt. However, if the user can enter more than one date in the field, "Date(s)" would be more appropriate.

Step 4: Define the Field Length

In the **Field length** field, enter a number from 1 to 50 to define the length of the input field on the report input window. If the user will order the report with names (for example, split names) instead of numbers, make sure the field is long enough for the user to enter the complete name (up to 20 characters). If the user can enter a range of values, make sure the field is long enough for any range the user might possibly enter.

Step 5: Define the Field As Single Value or Range/List

Enter **y** in the **Range/List** field to allow the user to enter a range or list of values in the input field. **n** means the user will be able to enter only one value in the input field when ordering the report. For example, if you define a "Date" input field, but you want a report to show data for only one day, type **n**. If you define a "Times" or "Intervals" input field so the report can show data for multiple intrahour intervals in a day, type **y**.

Note If you specify a range/list for a variable name in the Define Input window, then, in the Row Search window, you **must** use the equals (=) sign in the "where" clause for that variable name. See "Defining the Rows of Data for a Report."

Step 6: Provide a Default Value For the Field

Enter a value in the `Default` field of up to 50 characters. This value will appear in the input field when the user first accesses the report input window. The user can then choose to overwrite this value with another value or order the report with this value.

You may also leave the `Default` field blank. In this case, the input field will be blank when the user accesses the report input window.

Step 7: Select a Field Type

Enter an `x` to select an item in the `Type` list. The field type tells CMS what kind of values it should expect the user to enter. If CMS knows what to expect, CMS can do the following:

- Check that the user's entries are valid system values and are values CMS can use to search the database tables.
- Check that the user has permissions to run a report for the entries.
- Allow the user to enter names defined in Dictionary.

For example, say that you define an input field for the user to select a split for the report. If you assign the "Split" field type to the input field, the following would be possible:

- If the user enters a number, CMS can check, **before searching the database**, to see that the number is within system limits (for example, 1 to 60 for System 85).
- The user can enter the name of the split as defined in Dictionary. CMS can check the Dictionary: Split Names list to find the split number associated with the name.
- CMS can check to see that the user has read permission for the split.

Similarly, if your variable's input field requires a date, by specifying a "Date" field type, CMS can check that the user does not enter a date like 070191 — which is not in a format that CMS can use.

The field types are as follows:

Table 4-1: Report Input Field Types

Type	Description	Type	Description
ACD	The user must enter an ACD number or name.	Agent group	The user must enter an agent group name (as defined in Dictionary).
Agent state	The user must enter an agent state name (standard or new name as defined in Dictionary). Standard names are ACD , AUX , ACW , and so on.	Extension	The user must enter an extension number of 1 to 5 digits (as administered for System 75/Generic 1/ Generic 3) or 3 to 5 digits (as administered for System 85/Generic 2).
Date	The user must enter a date in MM/DD/YY format or as a relative number (for example, -7 for seven days ago).	Login ID	The user must enter a login ID of 1 to 9 digits (as administered on your System 75/Generic 1/Generic 3) or 4 digits on System 85/Generic 2.
Number	The user enters a number, which may include decimals. This type applies if your variable field asks for specific values about ACD performance (for example, number of ACD calls or percent within service level).	Split	The user must enter a split number or name.
String	The user enters a character string. Select this type only if one of the following is true: <ol style="list-style-type: none"> 1. Your variable field is linked to a custom database item that you identify in INFORMIX as a CHAR column. 2. Your variable field is linked to a standard database item that is a CHAR column AND you want to allow the user to do pattern searching when running the report. See the following section, "Input Fields That Allow Pattern Searching." 	Trunk group	The user must enter the number or name of a trunk group.

Table 4-1: Report Input Field Types (Contd)

Type	Description	Type	Description
Time (duration)	The user enters a number, including decimals, of seconds. This type would apply if your variable field asks for specific values regarding ACD performance (for example, time in AUX work, average speed of answer, or average talk time).	VDN	The user must enter a Vector Directory Number of 1 to 5 digits as administered for System 75/Generic 1/ Generic 3) or 3-to-5 digits (as administered for System 85/Generic 2).
Time (point in time)	The user enters a specific time of day in hh:mm format, either as military time or with am or pm appended.	Vector	The user must enter a vector number or name.
Trunk state	The user must enter a trunk state name (standard name or new name as defined in Dictionary). Standard names are IDLE , SIEZED , QUEUED , and so on.	Call Work Code	The user must enter a call work code.

Note If you select a **String** or **Number** field type, CMS will **not** accept any names (for VDNs, splits, login IDs, agent groups, and so on) defined in Dictionary. In addition, CMS will **not** check permissions or system limits.

Basically, the **Number** type allows the user to enter any number. The **string** type allows the user to enter any number, letter of the alphabet, or keyboard symbol in any format.

Note The field type **does not** determine what database item(s) the variable represents. The database item(s) linked to the variable are specified in the Row Search window.

Input Fields That Allow Pattern Matching

CMS can search for values in certain database items according to wildcard search patterns. As a result, you can create a custom report that allows report inputs based on character strings, plus either * (matches on blank and all characters) or ? (matches on any single character). CMS then includes data for all items that match the character strings the user entered.

The standard database items that allow this type of searching are:

VDN (the value is a VDN number)
EXTENSION (the value is an extension number)
LOGID (the value is an agent login ID)
EQLOC (the value is a 9-digit trunk location number)
CWC (the value is a call work code)
ROW_DATE (the value is a date)

In addition, any custom database items that you define as CHAR columns in INFORMIX will also allow this type of searching.

As an example of matching with *****, if an input field were a **string** type and were associated with the LOGID database item, the user could enter **1***, and CMS would include data for all agents with logid IDs that start with 1 (1, 10, 1238, 190, and so on, depending on the switch's administered login length). As an example of matching with **?**, if an input field were a **string** type and were associated with the VDN database item, the user could enter **21?0**, and CMS would include data for all VDNs that start with 21, end with 0, and have any single character appearing between the 0 and the 21 (2100, 2110, 2120, 2130, and so on).



If you select **string** for an input field, CMS will not check a user's inputs in that field for appropriate read permissions or valid switch parameters. If you want CMS to check permissions for a VDN input field, you must select the **VDN** field type. If you want CMS to check switch parameters for a VDN, login ID, extension, or call work code input field, you must select that field type, **not string**. In addition, if you select **string** for a field, the user will not be able to enter Dictionary names. So, again, if you want to let the user enter VDN, login ID, or call work code names to run a report, you must select that specific field type, **not string**.

Step 8: Associate an ACD With the Variable Field

Enter an **x** in the **Associated ACD** list to associate the variable field with either the current ACD or a user-selected ACD. You **must** select an associated ACD if the input field you are defining is a type listed under the heading (**associated ACD required**). These field types require an associated ACD because they are administered for each ACD. For other field types not administered per ACD, CMS ignores any selection of an associated ACD.

Select **Current ACD** if either of the following conditions is true:

- You have only one ACD.
- You always want the report to show data for the user’s current ACD.

Select **Variable name** if you want to let the user select the ACD. If you select **Variable name**, you must also enter a name of up to 8-characters in the field next to the **Variable name** list item.

Using a variable name for the associated ACD is most useful when you are creating a multi-ACD report. For example, the report input window in Figure 4-4 is for a multi-ACD report and has four different **splits** fields, each with a different associated **ACD** field.

The screenshot shows a report input window with the following elements:

- Title: Reports: Historical: System: Daily Multi-ACD by Split
- Date: _____
- Run Send to (button)
- Splits: _____
- ACD: _____

Figure 4-4: Sample Multi-ACD Report Input Window

Note Selecting **variable name** only makes sense if the user(s) who will run the report have read permission for more than one ACD.

Note Before you can select **Variable name** for an input field's associated ACD, you must define a separate report input field for the ACD number/name. This field must have:

- An assigned field type of **ACD**
- The same variable name you are assigning to the associated ACD.

Step 9: Save A Variable Input Field

Select the **Add** action list option to save the definition of the variable input field.

Note **Add** saves newly-defined input fields. If you have previously saved an input field definition and you are changing it, you must use **Modify** instead.

To define more input fields, press [**CTRL**] + **z** to clear the Define Input window, and repeat steps 2 through 9.

Note If you are defining a real-time report, you **cannot** and **do not need to** define an "Update Rate in Seconds" input field. CMS will put this field in the report input window automatically.

Defining the Order in Which Input Fields Appear

On the report input window, CMS will display your input fields in the same order you defined them in. However, you have the option of changing this order. To change the order in which the input fields appear, do the following steps.

- 1 Select the **Order** action list option after you have defined **(and saved)** all of your input fields.

-> *The Define Input: Order window appears. The window displays the prompts for each input field you have defined.*

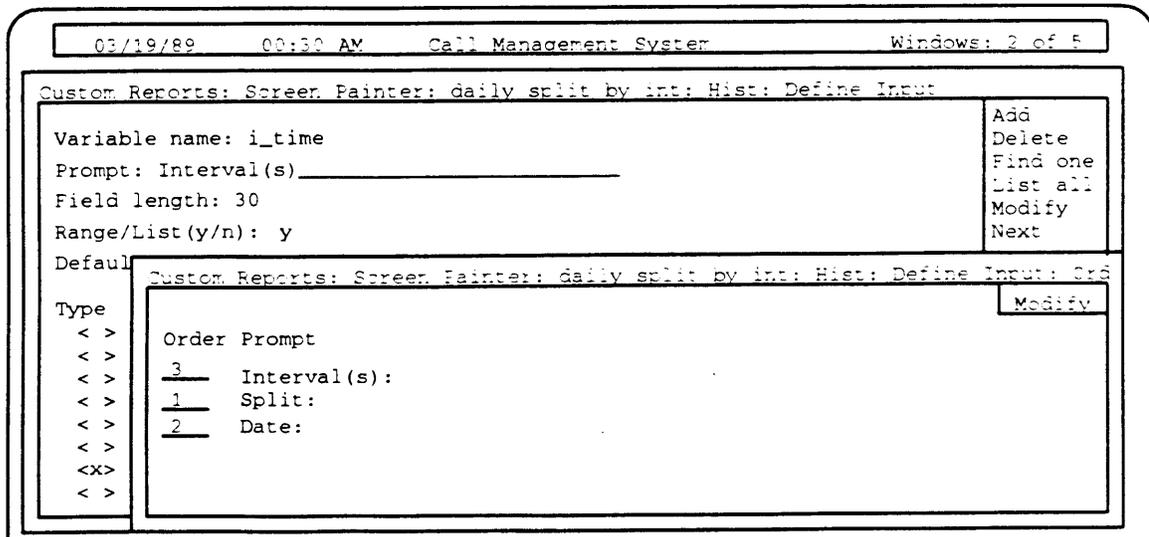


Figure 4-5: The Define Input: Order Window

- 2 Enter 1 next to the prompt you want to appear first on the report input window. Enter 2 for the second prompt, 3 for the third, and so on.
- 3 Select the **Modify** action list option to save the display order. -> *The Define Input: Order window disappears, and the cursor returns to its previous position on the Define Input window.*

Changing Report Input Fields

- 1 On the Screen Painter, select the **Define input** action list option. -> *The Define Input window appears.*
- 2 Enter the desired name in the **Variable name** field, and select **Find one**. -> *The defined characteristics of the variable name appear.*

Before entering any variable names, you may first want to do a “List all” to see what report input fields you have already defined. If you copied an existing report design, report input fields defined for that report will also be copied and available in the Define Input window.



You cannot do a “List all,” nor a “Find one” search, on multiple fields in the Define Input window. For a “Find one” search, you can only have an entry in the **variable name** field. The other fields are ignored. For a “List all” search, all fields are ignored.

- 3 Change data in any field(s) except **variable name**, and select the **Modify** action list option. -> *The message **successful** appears in the window's status line to indicate the input field definition has been changed.*



If you wish to change a variable name, you must delete the variable and then add a new one.

Defining Report Fields

General Information

A report consists of fields of data. Defining those fields is the central task of creating a custom report.

To define a field, you must specify the following items:

- The position of the field.
- The length of the field.
- The format of the field's data.
- **Most importantly**, the specific data that goes in the field.

You do all of these tasks in a predefined sequence described in the following pages.

What the x's, v's, and h's Mean in a Field

If you copy the design of an existing report, the field(s) on the Screen Painter will appear filled with **x's**, **v's**, or **h's**.

- **x's** indicate that the field is discrete. That is, the field will appear as a single field in the report because, based on the row search conditions assigned to the field, CMS will find only one value.
- **v's** indicate that the field is repeated vertically in the report. That is, the field will appear as a column of fields because, based on the row search conditions assigned to the field, CMS will find multiple values.
- **h's** indicate that the field is repeated horizontally in the report. That is, the field will appear as a row of fields because, based on the row search conditions assigned to the field, CMS will find multiple values.

See "Assign a Row Search ID to Report Field(s) and Bar(s)" for illustrations of discrete and repeated fields.

Step 1: Define the Position and Length of a Field

1a On the Screen Painter, position the cursor where you want a field to begin, and select the **Field** action list -> *The cursor returns to its original position, and the following message appears:*
Move cursor to define opposite corner of field and press RETURN.

1b Move the cursor using the arrow keys to define a field length, and press [**RETURN**]. -> *The field appears as a question mark (?) followed by x's. The question mark indicates that you have not yet assigned a Row Search ID to the field.*

Be sure the field is long enough to contain the data. If the field is too short for a value, the report will show asterisks (*) in the field or, if the data is a word, cut letters off.

The Field window also appears.

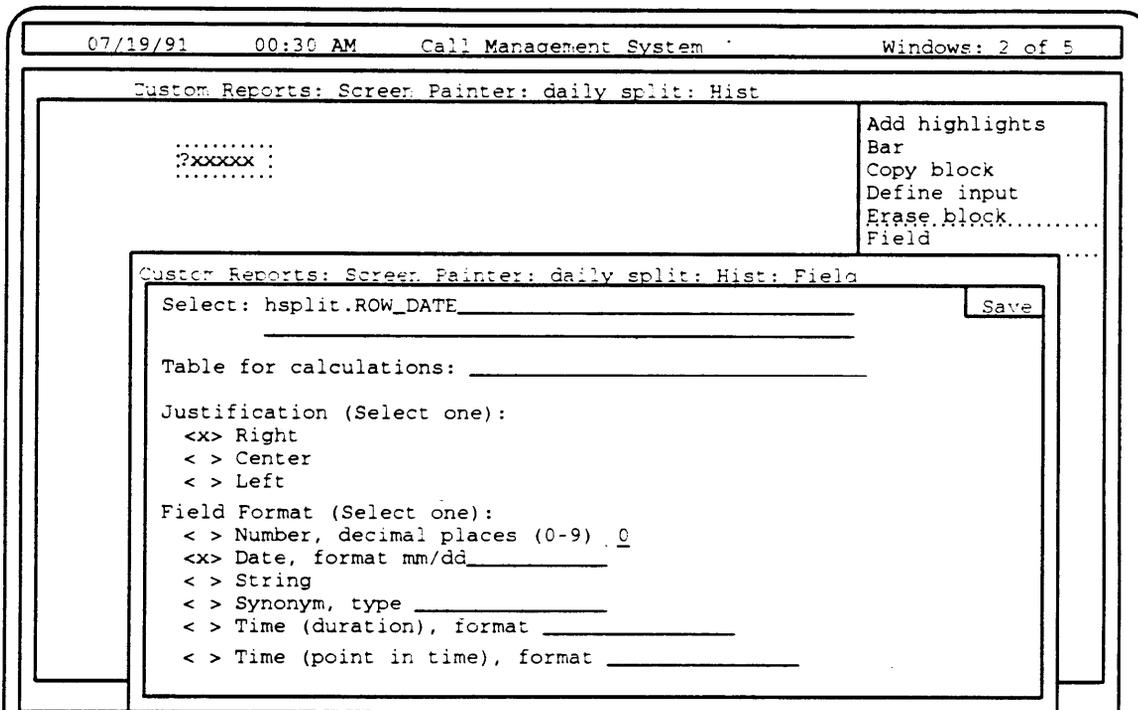


Figure 4-6: The Field Window

Step 2: Define the Field's Data Expression

In the `select` field, enter a data expression to tell CMS two things:

- What table column(s) should supply data to the field.
- How to manipulate that data.

CMS actually picks out values from a table with both row and column identifiers. CMS identifies rows of data according to the user's inputs and the row search conditions you define (see "Defining the Rows of Data For a Report"). CMS identifies columns according to the data expression you define here.

You can enter the following types of data expressions:

Database items

A database item is the name of a column of data in a table, either standard or custom. When you enter a database item, you must always add the name of a table and a period (.) as a prefix. The format is as follows:

```
<table name>.<database item>
```

Examples:

```
dsplit.ACDCALLS
hagent.STARTTIME
ctrkgrp.NUMINUSE
```

Standard database items

Standard database items are listed in Dictionary as having all upper-case letters (as in the preceding examples).

A standard database item can store:

- Identifiers (for example, `SPLIT`, `VDN`, `LOGID`, and so on).
- Timed data (for example, `ACDTIME`, `ABANTIME`, `AUXOUTIME`, and so on).
- Event counts (for example, `ACDCALLS`, `INTERFLOWCALLS`, `ABNCALLS`, and so on).
- **For real-time and agent trace reports**, current state data (for example, `WORKMODE`, `DURATION`, `NUMINUSE`, and so on).

See Appendix A for a list of the tables and the database items they contain. This includes the exceptions, forecast, and login/logout tables. See Chapter 6, "Advanced Report Design," for more information about custom reports that include exceptions and forecast data.

Remember - Standard database items are often shared by more than one table. For example, **ABNCALLS** can identify a column in the Current Interval Split, Daily Split, or Intrahour Agent tables (or many other tables). Thus, CMS can determine the exact database item only when it is identified with a table.

Custom database items

You must enter a custom database item, with the custom table name as a prefix, exactly as you defined it in Dictionary. The data identified by a custom database item depends entirely on the data you entered for the item in the custom table. See Chapter 6 "Advanced Report Design."

Constants

A constant is the name of a fixed numerical value (whole number or decimal) that you define in Dictionary (see Chapter 7, "Using Dictionary"). Constant names may be up to 20 characters long. A constant could represent a per-minute usage rate for trunks, a daily or hourly wage rate, or a service objective (like number of abandons, number of ACD calls, or percent within service level). A constant could also represent an average for the estimated dollar loss of an abandoned call, which could then be used to calculate daily loss of revenue due to abandoned calls. No standard constants exist in CMS when it is first installed. Therefore, you must define every constant you want to use.

Using constants only makes sense if you have a fixed value that you want to use under one or both of the following conditions:

- The constant is a value that you will use in a number of different custom reports (for example, an average wage rate).
- You would not be able to remember the numerical value, but could remember a name assigned to the value (for example, for the \$9.50 hourly wage rate for an agent called Smith, you could have a constant called **smithwage**).

Calculations

A calculation is a combination of database items and arithmetic operators. You may also include constants in a calculation. The arithmetic operators are:

+	add
-	subtract
*	multiply
/	divide
()	perform first

Some examples of calculations are:

- **dsplit.ACDCALLS/dsplit.ACETIME**
- **hagent.AUXOUTTIME+hagent.ACWOUTTIME**
- **100*((cagent.I_ACETIME+cagent.I_ACETIME)/cagent.I_STAFFTIME)**

Arithmetic operations are generally performed in order from left to right. However, multiplication and division operations are performed before addition and subtraction operations, unless the addition or subtraction operations are enclosed in parentheses. Operations in parentheses are always performed first. If more than one set of parentheses is used, the operation in the set farthest to the left is performed first. If one set of parentheses is inside of another set, the operation of the inner set is performed first.

Calculation names

A calculation name is a name, as defined in Dictionary, that can substitute for the actual calculation. The calculation name can be a standard name (used in standard reports) or a name you define. You cannot append a table name to a calculation name. Therefore, you must specify a table name in the **Table for calculations** field.

Note CMS differentiates between upper-case and lower-case letters in calculation names. Therefore, be sure you enter the desired calculation name exactly as it appears in Dictionary.

A calculation name normally reflects the purpose of the calculation. As a result, entering a name is an easier, more meaningful way to define data for a report field. More importantly, if you use a calculation name in many custom reports and later decide to

change the calculation, you can simply make your changes once in Dictionary. CMS will then apply those changes to every report that uses the calculation name.

For example, say that you have several different custom split reports, and in each report, a field uses the standard calculation name `PERCENT_ACD_TIME`. `PERCENT_ACD_TIME` represents the calculation $100 * ((I_ACD_TIME + I_ACW_TIME) / I_STAFF_TIME)$. This calculation, when assigned to the Intrahour Split table, finds the percentage of time a split's agents spent on ACD calls while logged in. The calculation includes talk time (`I_ACD_TIME`) and after-call-work time (`I_ACW_TIME`). If you no longer wish to include after-call-work time in the calculation, you can change the calculation in Dictionary such that `PERCENT_ACD_TIME` represents $100 * (I_ACD_TIME / I_STAFF_TIME)$. Then, any custom report that uses the calculation name `PERCENT_ACD_TIME` will reflect the new calculation.



If you change the calculation for a standard calculation name, the change will affect any standard report, as well as any custom report, that uses that calculation name.

At times, using calculation names helps save space in the `select` field so you can create more complex calculations. For example, if you wanted the average time agents spent on all extension calls (both incoming and outgoing), you might have to add the following calculation:

```
(csplit.ACWINTIME+csplit.AUXINTIME+csplit.ACWOUTTIME+csplit.AUXOUTTIME)/(csplit.ACWINCALLS+csplit.AUXINCALLS+csplit.ACWOUTCALLS+csplit.AUXOUTCALLS)
```

Unfortunately, the `select` field is not long enough to enter the complete calculation. However, you could define in Dictionary two separate calculation names for each half of the calculation.

That is, for:

```
(csplit.ACWINTIME+csplit.AUXINTIME+  
csplit.ACWOUTTIME+csplit.AUXOUTTIME),
```

you could enter, in Dictionary, the calculation name:

```
TIME_ON_NON-ACD_SUM with the assigned calculation  
(ACWINTIME+AUXINTIME+ACWOUTTIME+AUXOUTTIME).
```

Likewise, for:

```
csplit.ACWINCALLS+csplit.AUXINCALLS+  
csplit.ACWOUTCALLS+csplit.AUXOUTCALLS),
```

you could enter the calculation name:

```
NON-ACD_CALLS_SUM with the assigned calculation  
(ACWINCALLS+AUXINCALLS+ACWOUTCALLS+AUXOUTCALLS).
```

As a result, you can enter the following calculation in the `select` field:

```
TIME_ON_NON-ACD_SUM/NON-ACD_CALLS_SUM
```

Then, you can enter the table name `csplit` in the `Table for calculation` field.

Note You **should not** add table names to your custom calculations in Dictionary. Doing so makes the assigned calculation name less flexible for use in custom reports. Also, if you append table names to the Dictionary calculation and then also assign a table name to the calculation name in the Field window, the report will fail.

Aggregate Functions

An aggregate function is a prefix attached to a database item, a calculation, parts of a calculation, or a calculation name. When you define an aggregate function, you must place the database item or calculation in parentheses (as in the following example).

```
max(dsplitt.ACDCALLS/dsplitt.ACDCALLS)
```

Note

In real-time reports, fields with aggregate functions **cannot** share a set of row search conditions with non-aggregate fields. And for historical reports, special considerations exist when you assign the same row search conditions to both aggregate functions and other types of data expressions. See “Repeating Aggregate Function Values in Historical Reports” later in this chapter.

An aggregate function can be one of four types. Each type retrieves a different value from the data.

- **max**

The **max** aggregate function retrieves the highest value for a calculation or database item over the time frame of the report.

For example, say that your Intrahour Split table contained data as shown in Figure 4-7 and you entered **max(hsplitt.ACDCALLS)** for a field in a report. If you ran the report for Split 1 for all intervals on 07/02/91, CMS would find all rows shown in bold. However, CMS would display only the value **418** (shown in the box), which is the maximum ACD calls in any single interval on 07/02/91. Likewise, if you entered **max(ACDCALLS/ACDCALLS)** for the field, CMS would display the value **101.52** (which is the highest average talk time in any single interval on 07/02/91).

DATE	SPLIT	STARTTIME	ACDCALLS	ABANDONS	ACDTIME	ABNTIME	
070191		1000	2	391	31	19768	603
070191		1000	3	142	10	9786	203
070191		1100	1	480	39	33389	789
070191		1100	2	491	22	26789	549
070191		1100	3	297	15	12530	402
070291	0800	1	399	36	37651	1452	
070291	0800	2	299	20	29602	7616	
070291	0800	3	138	13	11523	2569	
070291	0900	1	400	46	36178	1745	
070291	0900	2	300	33	24303	1109	
070291	0900	3	225	12	15628	367	
070291	1000	1	394	40	40002	1322	
070291	1000	2	323	34	29881	1188	
070291	1000	3	305	14	12115	704	
070291	1100	1	418	41	34819	1256	
070291	1100	2	246	30	21173	980	
070291	1100	3	100	18	10281	589	
070391	0800	1	417	34	37856	1340	
070391	0800	2	247	24	26308	1299	

Figure 4-7: Sample Intrahour Split Table Data

- **min**

The **min** aggregate function retrieves the lowest value for a calculation or database item over the time frame of the report.

For example, say that in the previous example, you entered **min(hsplit.ACDCALLS)** instead of **max(hsplit.ACDCALLS)** for the field. If you ran the report for Split 1 for all intervals on 07/02/91, CMS would display only the value **394** which is the smallest number of ACD calls in any single interval on 07/02/91.

- **sum**

The **sum** aggregate function retrieves the sum of all values for a calculation or database item over the time frame of the report.

For example, say again that the Intrahour Split table contained data as shown in Figure 4-7. You enter **sum(hsplit.ACDCALLS)** for a field in a report. For Split 1 and all intervals on 07/02/91, CMS would take the values for **hsplit.ACDCALLS** and add them up to display only the value **1611**. Likewise, if you entered **sum(hsplit.ABANDONS+hsplit.ACDCALLS)** for the field, CMS would display only the value **1774**, which is the total of all ACD calls and abandons for Split 1 on 07/02/91.

- **avg**

The **avg** aggregate function retrieves the average of all values found over the time frame of the report. Thus, using the sample table in Figure 4-7, if you enter **avg(ACDCALLS)** for a field and run the report for Split 1 for all intervals on 07/02/91, CMS would display the value **402.75**, which is the average of **399**, **400**, **394**, and **418**.

count(*)

The **count(*)** expression tells CMS to count the number of rows in a table that match certain row search conditions (as defined in the Row Search window). For example, say that you want the number of agents in a split that had more than 5 extension-out calls. In this case, the Row Search window would have a row search statement like the following:

```
select rows where: SPLIT = 1 and (ACWOUTCALLS+
                    AUXOUTCALLS) > 5
```

This statement means, "Find rows of data where the SPLIT value is 1 and total extension-out calls, for both ACW and AUX states, is greater than 5." Then, by entering **count(*)** in the **select:** field in the Field window, the report field would count the number of rows that match and display the number in your report.

Note Do not append a table name to the beginning of **count(*)**.

count(*) is always a number of matching rows and only makes sense if you want to track some specific measure of performance by ACD elements (for example, the number of agents currently logged into a split, the number of trunks that were occupied for more than 80% of the time, the number of VDNS that had over 30 abandoned calls in an intrahour interval).

Thus, **count(*)** actually allows you to create fields that act as exception counts.

Data From More Than One Table

A calculation can merge data from more than one table in a report field.

For example, you may want the percentage of a split's ACD calls an agent handled in a day. Thus, you may enter a calculation that merges data from the Daily Agent and Daily Split tables, as in the following example.

```
dagent.ACDCALLS/dsplit.ACDCALLS
```

When you merge data from two tables, you must define your row search conditions in a special way. See "Selecting Rows From More Than One Table" in Chapter 6 of this document.

Note You cannot use calculation names for a field in which you merge data from two tables.

Step 3: Define the Table(s) For Calculation Names

Enter a table name in the **Table for calculations** field **only** if you entered a calculation name in the **select** field. The table name tells CMS in what table to look for the database items in the calculation.

Note The **Table for calculations** field is necessary because you **cannot** append a table name to a calculation name in the **select** field.

For example, look at the following entries:

```
Select: AVG_POS_STAFF
Table for calculation: hsplit
```

These entries mean, "Take the calculation defined in Dictionary for **AVG_POS_STAFF**, which is $I_STAFFTIME/(INTERVAL*60)$, and apply the **hsplit** table name to the database items." In effect, the two fields make the calculation $hsplit.I_STAFFTIME/(hsplit.INTERVAL*60)$.

Step 4: Justify Data in the Field

Select, from the **Justification** list, the way you want CMS to line up data when the data appears in the field. Normally, numerical data is right-justified so that the right hand side lines up in a column. Names are normally left-justified so that the first character of each name is lined up. However, you may choose any of the three options for any type of data.

Step 5: Define the Format For the Field

Enter an **x** to select an item in the **Field Format** list. You must also complete the field associated with the list item.

The format type and the format you specify in the associated field tell CMS how to display the values it finds for the field. However, the format you select depends on the type of data CMS will display. The format options are as follows:

Number Select **Number** if the field will display a number of events, an average, or a percentage. You must also specify a number of decimal places for the field. Enter **0** if you do not need decimal places displayed. If the field's expression were **ACDCALLS**, you would select **Number** and enter **0** in the field. However, if the field expression were to generate an average (for example, **I_STAFFTIME / (INTERVAL*60)** — the average staffed positions per interval), you may want to include decimal places.

When you run the report, the decimal point and the decimal places will use up spaces in the field. For example, if the field contains six spaces and you specify three decimal places for the field, then data will appear with two characters to the left and three characters to the right of the decimal point (for example, **12.344**).

Date Select **Date** if the field expression is **ROW_DATE**. You must also specify a date format, with appropriate punctuation. You may select a single format or a combination of formats. The available formats are as follows:

Table 4-2: Date Formats For Report Fields

mm	The numerical month (for example, 12 for December).
MMM	The month represented by three letters (for example, APR for April).
yy	The year as two digits (for example, 91).
yyyy	The year as four digits (for example, 1991).
dd	The numerical day of the month (for example, 31).
jjj	The day of the year in the Julian calendar (for example, 151 for May 31).
www	The day of the week as three letters (for example, THU).

If you want to display just the day and month, you would enter **mm/dd**.

String

Select **string** for those database items whose data CMS identifies as character strings, not numbers. (Each of these items is identified as being a CHAR column type in INFORMIX terminology). Even though these items store numbers, CMS searches for values as if the items stored non-numeric symbols and alphabetic words, as well as numbers.

Database items for which you might select **string** are as follows:

- VDN** (the value is a VDN number)
- EXTENSION** (the value is an extension number)
- LOGID** (the value is an agent login ID)
- EQLOC** (the value is a 9 digit trunk location number)
- CWC** (the value is a call work code)
- Custom database items** with the **CHAR** column type.

String here **does not** have the same meaning as string-value database item, as defined for Dictionary. For the purposes of custom report design, Dictionary names for string-value database items are referred to as **synonyms**, and include names for agents, splits, VDNs, trunk groups, and vectors. In fact, for the **VDN** and **LOGID** database items, you may wish to select **synonym**, not **string**, since you may have assigned names to VDNs and login IDs in Dictionary.

Synonym Select **synonym** to display a name defined in Dictionary, instead of the value stored in the database table(s). You must also enter the Dictionary name type.

The type must correspond to the database item you enter in the **select** field. The types you enter are as follows:

Table 4-3: Synonym Types For Report Fields

Names of ACD Entities		Agent States		Trunk States	
Type	Database Item	Type	Database Item	Type	Database Item
acd	ACD	work mode**	WORKMODE	tkstate	TKSTATE
agname	LOGID	ag_ orig†	ORIGIN	tk_pri	PRIORITY
tkgrp	TKGRP	ag_ dir	DIRECTION	tk_qtype	QUETYPE
split	SPLIT	ag_ dest	DESTINATION	tk_vpri*	PRIORITY
vdn*	VDN			tk_dir	DIRECTION
vector*	VECTOR			tk_allbusy	ALLINUSE

Split States	
Type	Database Item
slvlchg	SVCLEVELCHG
per_chg	PERIODCHG

Refer to Chapter 7, “Dictionary,” in the CMS Administration (585-215-511) document for a complete description of types.

* This type is available only with the CMS Vectoring feature.

** This type applies to the WORKMODE database item in both the Agent and Agent Trace tables.

† This type is available only with adjunct routing on a Generic 3.

**Time
(duration)**

Select **Time (duration)** if the field expression will display a length of time. You must also enter a time format with the appropriate punctuation.

CMS stores durations (for example, **ACDTIME**) as a number of seconds. However, you may choose to display time as minutes and seconds, or even hours, minutes, and seconds.

The time formats available are as follows.

ss	Display time only as the number of seconds. You must enter as many s's as there are needed to display the seconds. If the number of seconds can reach six digits, enter ssssss .
mm	Display time only as the number of minutes. You must enter as many m's as the digits needed to display the minutes. If the number of minutes can reach six digits, enter mmmmmm .
hh	Display time only as the number of hours. You must enter as many h's as there are digits needed to display the hours. If the number of hours can reach three digits, enter hhh .
mm:ss	Display time as minutes and seconds. In this format, CMS will increase the minutes count by one and reset the seconds count to 00 when the seconds count reaches 60. The two digits for minutes will count minutes up to 99. You can specify more than two digits for minutes if the minutes will exceed 99. For example, if you enter mmmm:ss , CMS might display 2822:35 (2822 minutes and 35 seconds) in the report.
hh:mm	Display time as hours and minutes. In this format, CMS will increase the hours count by one and reset the minutes count to 00 when the minutes count reaches 60. The two digits for hours will count hours up to 99. You can specify more than two digits for hours if hours will exceed 99. For example, if you enter hhh:mm , CMS could possibly display 333:35 (333 hours and 35 minutes) in the report.
hh:mm:ss	Display time as hours, minutes, and seconds. In this format, CMS will increase the minutes count by one when the seconds count reaches 60. CMS will also increase the hours count by one when the minutes count reaches 60. With this format, you may increase the digits for hours if necessary, but not the minutes digits.

Time (point in time) Select **Time (point in time)** if the field expression will display a point in time (for example, **10:34am**). You must also enter a time format with the appropriate punctuation.

You can use one of the following formats:

HH	The hour only, in military time (24 hour clock). For example, 15 would mean 3:00 p.m.
hh	The hour only, according to a 12-hour clock. For example, 3 could mean 3:00 a.m. or 3:00 p.m. For this reason, if you use hh , you should also add am (hham).
mm	The number of minutes after the hour only.
ss	The number of seconds into the minute.
HH:mm:ss or HH:mm	Military time, either to the second or to the minute.
hh:mm:ssam or hh:mmam	12-hour clock time, with AM or PM attached, either up to the second or up to the minute.

Step 6: Save the Field Definition

Select the **save** action list option.

-> *The Field window disappears, and the message **successful** appears in the Screen Painter's status line to indicate the field definition has been added.*

To define additional fields, repeat steps 1 through 6.

Note You must assign a Row Search ID to the field before your field definition is truly complete. See "Defining the Rows of Data For a Report."

Changing a Field Definition

- 1** On the screen painter, place the cursor on the field you want to change, and select **Field**.

-> *The cursor returns to the field and rests on the last space of the field. The following message appears on the Screen Painter status line: **Move cursor to define opposite corner of field, press RETURN.***
- 2** If desired, move the cursor using the arrow keys to either make the field longer or shorter, and press [**RETURN**].

-> *The Field window appears.*
- 3** Overtyping any data in fields you want to change, and select **Save**.

-> *The Field window disappears, the message **Successful** appears in the Screen Painter status line, and the cursor returns to the field you just changed.*

Defining Bars in a Report

General Information



You may define bars in a custom report **only if** you have purchased the CMS Graphics feature. If you have not purchased the Graphics feature, the **Bar** action list option will **not** be available.

You may want a report to display data as bar graphs instead of numbers. Defining a bar or bars in a report is similar to defining fields, except in the way you define the format. To define a bar's format, you must specify the following items:

- The position and length of the bar.
- The direction of the bar — horizontal or vertical.
- The thresholds that cause the bar to change color.
- The scale of the bar.

What the X's, V's, and H's Mean in a Bar

If you copy the design of an existing bar graph, the bar(s) will appear filled with **x's**, **v's**, or **h's**.

- **x's** indicate that the bar is discrete. That is, the bar will appear as a single bar in the report because, based on the row search conditions assigned to the bar, CMS will find only one value.
- **v's** indicate that the bar is repeated vertically in the report. That is, the bar will appear as a series of bars, one over the other, because, based on the row search conditions assigned to the bar, CMS will find multiple values.
- **h's** indicate that the bar is repeated horizontally in the report. That is, the bar will appear as a series of bars, side by side, because, based on the row search conditions assigned to the bar, CMS will find multiple values.

See “Assign a Row Search ID to Report Field(s) and Bar(s)” for illustrations of discrete and repeated bars.

Step 1: Define the Position and Length of a Bar

- 1a On the Screen Painter, position the cursor where you want a bar to begin, and select the **Bar** action list option. -> *The cursor returns to its original position, and the following message appears: Move cursor to define opposite corner of bar and press RETURN.*
- 1b Move the cursor using the arrow keys to define the length and width of the bar, and press [**RETURN**]. -> *A question mark (?) appears in the upper left corner of the bar. The question mark indicates that you have not yet assigned a Row Search ID to the bar.*

The Bar window also appears.

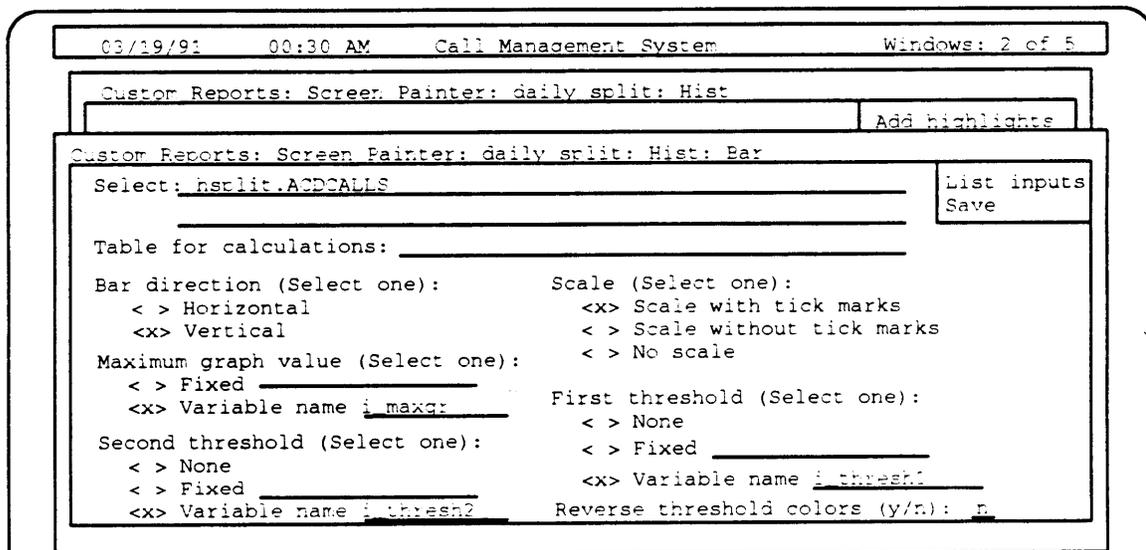


Figure 4-8: The Bar Window (With Sample Input)

Step 2: Define the Bar's Data Expression

Enter a data expression in the `select` field to tell CMS two things:

- What table column(s) should supply data to the bar.
- How to manipulate that data.

The rules for this `select` field are identical to those of the `select` field for the Field window. However, the following types of database items do not make sense for bars:

- Identifiers (for example, `SPLIT`, `VDN`, `LOGID`, and so on).
- Current state data (for example, `WORKMODE`, `DURATION`, `NUMINUSE`, and so on).
- Constants (unless they are part of a calculation).

Also, if a bar's expression is a database item that stores a number of seconds, the bar will normally show time as seconds. However, you can make the bar represent minutes by dividing the database item by 60.

In addition, to complete your definition of bar data, you must, like field data, define row search conditions for the bar(s). This includes whether a bar you define will be repeated to display multiple bars for multiple values. See "Defining the Rows of Data For a Report."

Step 3: Define the Table(s) For Calculation Names

Enter a table name in the `Table for calculations` field **only** if you entered a calculation name in the `select` field. The table name tells CMS in what table to look for the database items in the calculation.

Note The `Table for calculations` field is necessary when using calculation names because you **cannot** append a table name to a calculation name in the `select` field.

Step 4: Define the Direction of the Bar

Enter, in the `Bar direction` list, an **x** to select either a horizontal or vertical format for the bar. **Vertical** means the bar will go up and down as values change. **Horizontal** means the bar go left and right as values change.

Step 5: Define the Bar Scale

Enter an **x** to select an option in the `scale` list.

- `scale without tick marks`

The scale will automatically appear in the report as a line parallel to the bar (see Figure 4-9). The line will be a fixed length equal to the maximum length of the bar. In this way, the end of the scale always represents the maximum graph value you define.

- `scale with tick marks`

The scale will appear in the report as a line, segmented by evenly-spaced marks (see Figure 4-9). For a vertical scale, a tick mark appears for each vertical character space. For a horizontal scale, a tick mark appears at every fifth horizontal character space.

- `No scale`

The bar will not have a scale (see Figure 4-9). You may want this option if the scale defined for another bar applies to the bar you are currently defining. For example, in Figure 4-9, the scale for the `ACD Calls` bar could apply to the `Abandons` bar.

A scale defined for one bar will appear in correct relation to other bars only if the following are true:

- All bars are parallel, have the same length, and have the same starting points.
- All bars have the same maximum graph value.
- All bars display the same units (number of calls, averages, percentages, number of seconds, and so on).

Note

If you select a scale for a bar, the scale will appear in the report, but **not** on the Screen Painter. Therefore, on the Screen Painter, **do not** enter any text or fields in the column immediately to the right of a vertical bar (where the scale will appear). And, **do not** enter any text or fields in the row immediately above a horizontal bar.

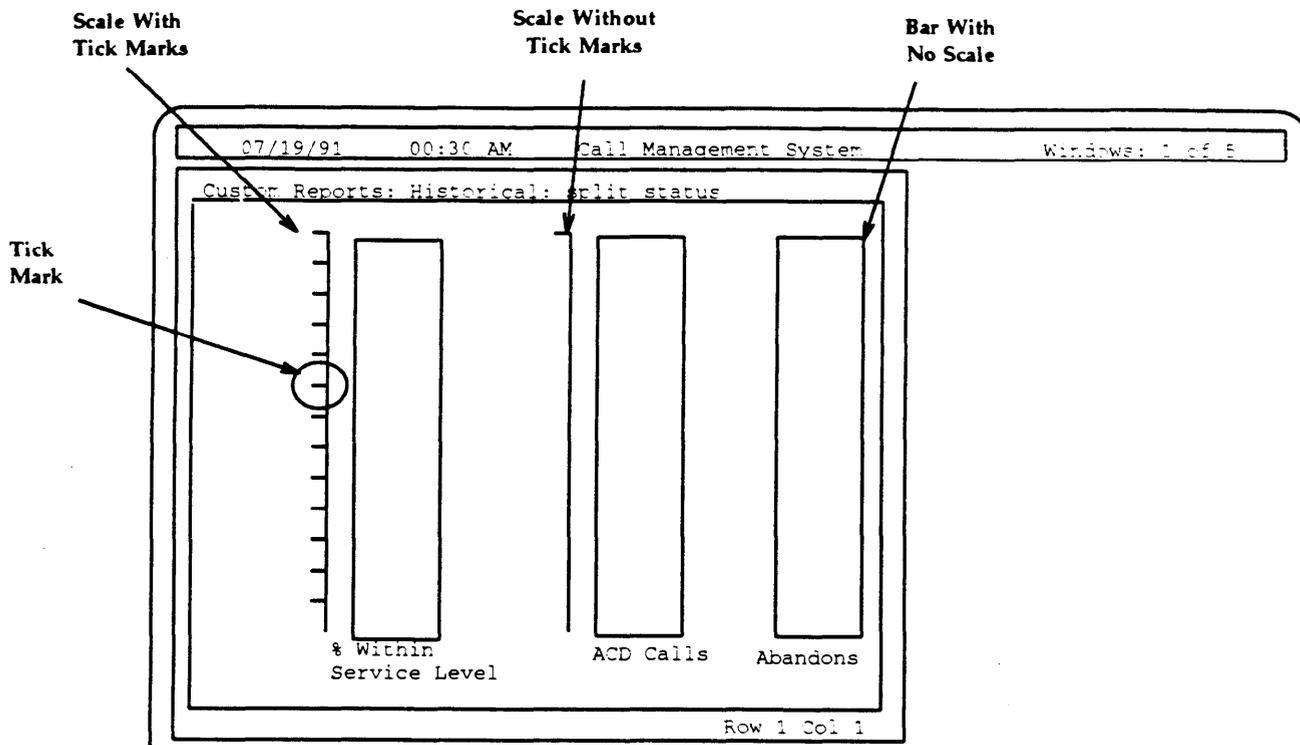


Figure 4-9: Bars — With and Without Scales

Step 6: Define the Maximum Graph Value

Enter an **x** in the **Maximum Graph Value** list to select either a fixed or variable maximum graph value. The maximum graph value is the value that the bar represents when the bar is at its maximum length or height (see Figure 4-10). The value must always be a whole number or decimal.

If you select **Fixed**, you must also enter, in the accompanying field, the value the bar should represent when the bar is at its maximum length or height.

If you select **variable name**, you must also enter, in the accompanying field, a variable name that references a report input field. Thus, selecting **variable name** allows the user to enter a maximum graph value for the bar when ordering the report. The variable name you enter must be identical to a variable name defined in the Define Input window.

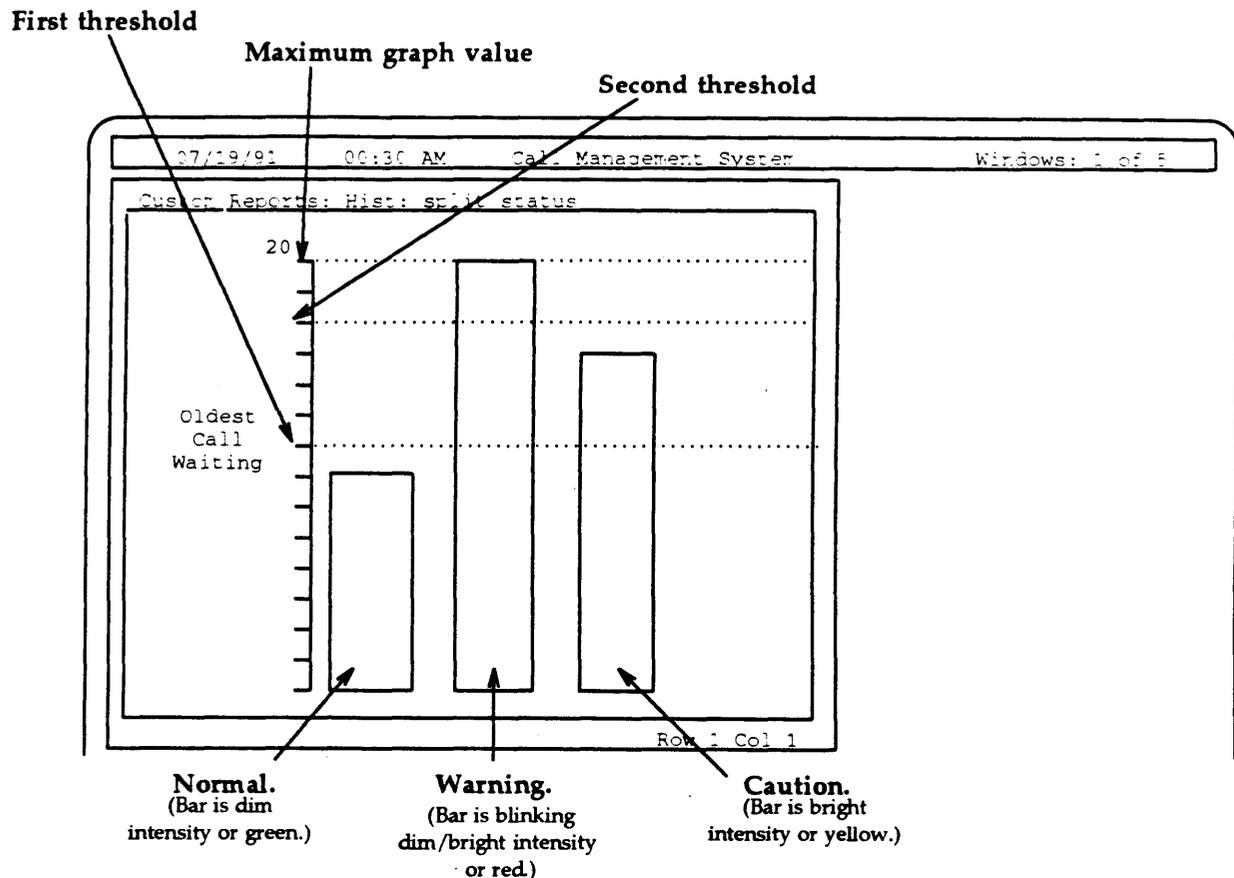


Figure 4-10: Bar Graph Thresholds

Step 7: Define the First Threshold

Enter an **x** in the **First threshold** list to select a fixed threshold, variable threshold, or no threshold. The first threshold identifies the point at or above which the bar will change color — normally to indicate a caution condition (see Figure 4-10). The first threshold should have the lowest value of the two thresholds. The value must always be a whole number or decimal.

If you select **None**, the bar will not have a first threshold at which the bar will change color.

If you select **Fixed**, you must also enter, in the accompanying field, the value at or above which the bar will change color.

If you select **Variable name**, you must also enter, in the accompanying field, a variable name. The variable name, which will reference a report input field, allows the user to enter a first threshold value for the bar when ordering the report. The variable

name you enter must be identical to the variable name you assign to a report input field (see “Defining Report Input Fields”).

Step 8: Define the Second Threshold

Enter an **x** in the **second threshold** list to select a fixed threshold, variable threshold, or no threshold. The second threshold identifies the point at or above which the bar will change color — normally to indicate a warning condition (see Figure 4-10). The second threshold should have the highest value of the two thresholds. The value must always be a whole number or decimal.

If you select **None**, the bar will not have a second threshold at which the bar will change color.

If you select **Fixed**, you must also enter, in the accompanying field, the value at or above which the bar will change color.

If you select **Variable name**, you must also enter a variable name in the accompanying field. The variable name, which will reference a report input field, allows the user to enter a maximum graph value for the bar when ordering the report. The variable name you enter must be identical to the variable name you assign to a report input field (see “Defining Report Input Fields”).

Step 9: Select Normal or Reversed Thresholds

Enter a **y** or **n** to select reversed threshold colors or normal threshold colors. **n** means the bar will change to a caution color at the first threshold and change to a warning color at the second threshold.

Enter **y** if you want to reverse the meanings of the thresholds. With meanings reversed, the bar will be a normal color when it is **above** the second threshold. The bar will change to a caution color when the bar shrinks to or below the second threshold but remains above the first threshold. The bar will change to a warning color when the bar shrinks to or below the first threshold.

Reversed colors would be appropriate for a bar that represents the percentage of calls answered within service level (see Figure 4-11). In this case, you would want the bar to be a normal color when the percentage is high, a caution color when the percentage goes down, and a warning color when the percentage is very low.

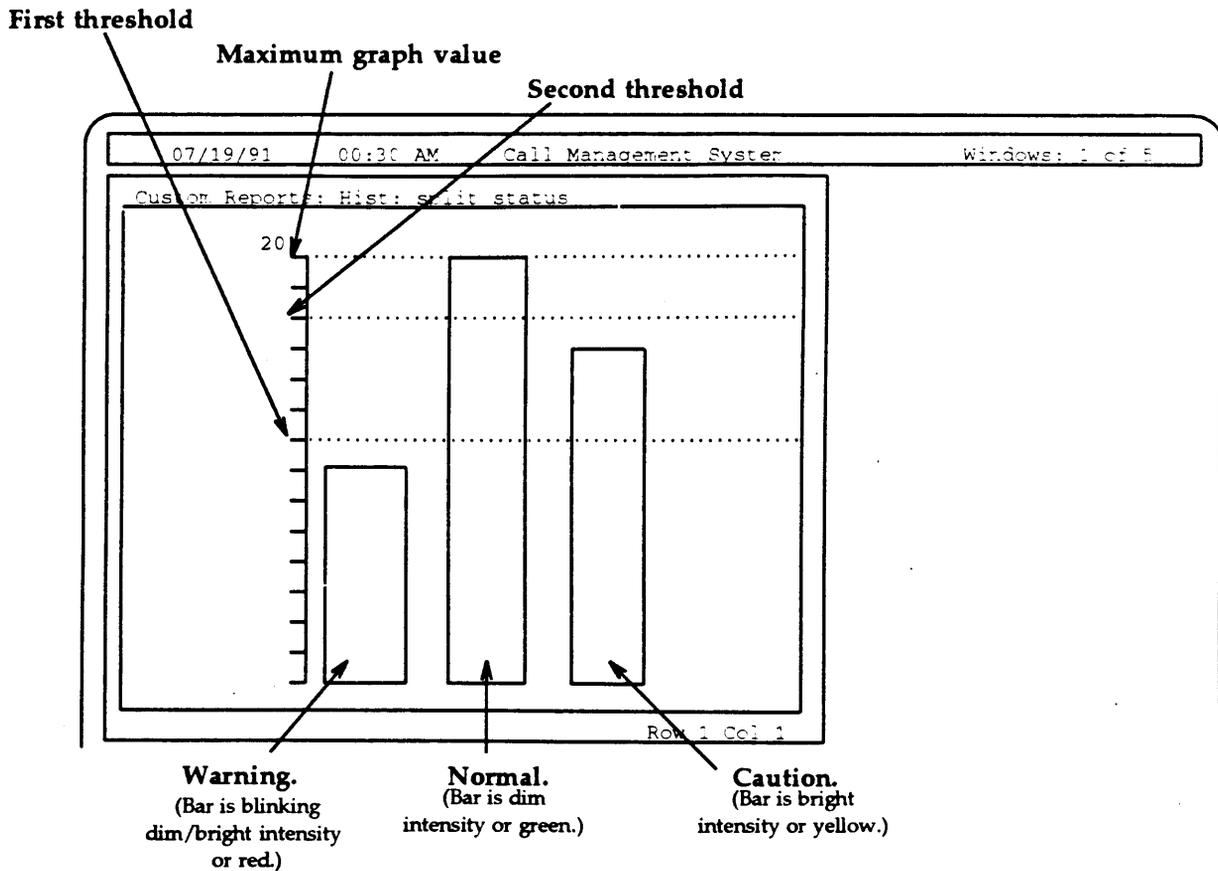


Figure 4-11: Reversed Bar Graph Thresholds

Step 10: Save the Bar Definition

Select the **save** action list option.

-> *The Bar window disappears, and the message **successful** appears in the Screen Painter's status line to indicate the bar definition has been added.*

To define additional bars, repeat steps 1 through 10.

Note You must assign a Row Search ID to the bar before your field definition is truly complete. When you do, the question mark (?) will change to that ID number. See “Defining the Rows of Data For a Report.”

Note If a bar will be a repeated bar (as defined with the Row Search window), you cannot define any other bars in the direction the bar of the repeat. That is, if the bar will be repeated vertically, no other bars (nor text and fields) can appear directly below the bar. If the bar will be repeated horizontally, no other bars (nor text and fields) can appear directly to the right of the bar.

Changing a Bar Definition

- 1 On the Screen Painter, place the cursor on the bar you want to change, and select **Bar** .
-> *The cursor returns to the bar and rests on the lower right corner of the bar. The following message appears on the Screen Painter status line:
Move cursor to define opposite corner of bar and press RETURN.*
- 2 If desired, move the cursor using the arrow keys to either make the bar bigger or smaller, and press [**RETURN**].
-> *The Bar window appears.*
- 3 Overtyping any data in fields you want to change, and select **Save** .
-> *The Bar window disappears, the message **Successful** appears in the Screen Painter status line, and the cursor returns to the bar you just changed.*

Defining the Rows of Data for a Report

General Information

To complete the definition of a report's fields/bars, you must define the rows of the table(s) that supply data to the fields/bars. To do this, you must:

- Define, via the Row Search window (Figure 4-12), the criteria needed to find the appropriate rows of data. Each set of criteria is stored by row search ID.
- Assign the row search ID(s) to the appropriate fields/bars.

Row search criteria are values for either **database items** or **calculations**. In most cases, however, your criteria will specify variable names, rather than specific values, for the database items or calculations. These variable names allow CMS to use the values entered in the report input window as its row search criteria. From the rows CMS finds, CMS then retrieves report data for the report fields. See "How CMS Stores and Retrieves Data" in Chapter 1 for a description of this process.



If you copy the design of an existing report, the row search criteria will be copied, as will the report's input fields (as defined in the Define Input window). If you then delete or change a variable name in the Row Search window, you must delete or change that variable name in the Define Input window.

The task of defining the rows of data for report fields/bars is described in the following pages.

Step 1: Access the Row Search Window

On the Screen Painter, select the **Row search** action list option.

-> *The Row Search window appears.*

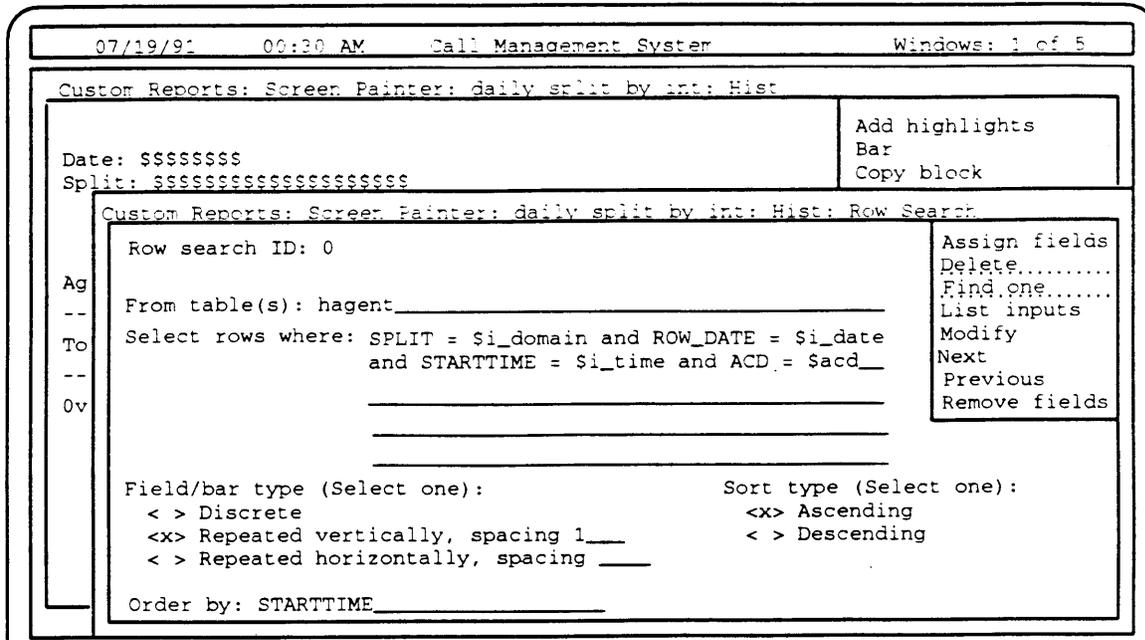


Figure 4-12: The Row Search Window

Step 2: List the Report Input Variables

- 2a Select the **List inputs** action list option to see the variable names previously defined on the Define input window. -> *The List Inputs window appears.*
- 2b Print the window's contents via the [**Commands**] SLK and **Print contents** option.
- 2c Press [**Exit**] to return to the Row Search window. -> *The List Inputs window disappears and the cursor returns to the Row Search window.*

Note If you defined report input fields in the Define Input window (or you copied a report design that has report input fields), your row search criteria will (and must) use the variable names for those input fields.

Conversely, to use a variable name in your row search criteria, an input field with that variable name must first be defined in the Define Input window.

Step 3: Select a Row Search ID

Enter a number from 0 to 9 in the **Row search ID** field. The I.D. identifies the set (or one of the sets) of row search conditions you are using in the report. Thus, for a single report, you can use 10 different sets of conditions to select rows of data.

You may create a new set of conditions from scratch or use Find One with Next/Previous to view and/or change an existing set of conditions. (If you have already assigned row search conditions to a field/bar on the Screen Painter, the row search ID will appear as the first character in that field/bar.)

Step 4: Select Tables

In the **From table(s)** field, enter the name(s) of the table(s) whose rows will supply data. Use a comma to separate multiple table names.

Example:

From table(s): hagent,dagent_____

If you are going to assign this row search ID to a particular report field/bar, the name(s) in the **From table(s)** field must include the table name(s) that you assigned to the report field.

Note If a report field merges data from two tables, you must include both table names in this field. See "Fields/Bars With Data From More Than One Table" in Chapter 6 of this document.

Available table names are as follows:

Real-time Tables

Current Interval	Previous Interval
csplit	psplit
cagent	pagent
ctrunk	ptrunk
ctkgrp	ptkgrp
cvdn	pvdn
cvector	pvector
ccwc*	pcwc*

Historical Tables

Historical Intrahour	Daily	Weekly	Monthly
hsplit	dsplit	wsplit	msplit
hagent	dagent	wagent	magent
htrunk	dtrunk	wtrunk	mtrunk
htkgrp	dtkgrp	wtkgrp	mtkgrp
hvdn	dvdn	wvdn	mvdn
hvector	dvector	wvector	mvector
hcwc*	dcwc*	wcwc*	mcwc*

Exceptions	Forecast	Login/Logout
spex	f_cdayrep	haglog
agex	f_cday	
trkex		
vdnex		
vecex		
linkex		
mctex		

See Appendix A for a description of these tables and the database items they contain.

* **cwc** represents **call work code**.

Step 5: Select Rows In the Table(s)

In the `select rows where` field, enter a selection criteria statement to tell CMS how to select data from the table. The statement specifies value(s) for one or more database items or calculations.

Note To ensure a reasonable run time for your report, the database items you specify in the `select rows where:` field should include index items. For an historical report, you should especially include a “where” clause with the `ROW_DATE` database item. If your row search is based on items that are **not** indexes, your report may take a very long time to run. To check that your row search items are indexes, see the appropriate table listing in Appendix A, “Database Items and Calculations.”

Note Your row search criteria **must always** include the selection of an ACD. See “Selecting Rows From An ACD” later in this section.

Basic “Where” Clause A basic clause can have the following format:

`Expression Relational Operator Value`

The `Expression` can be a database item or calculation. The `Value` is a whole number. Relational operators available for a “where” clause are as follows:

<code>=</code>	Equal to
<code><></code> or <code>!=</code>	Not equal to
<code>></code>	Greater than
<code>>=</code>	Greater than or equal to
<code><</code>	Less than
<code><=</code>	Less than or equal to

You will use the `=` relational operator most often.

Note Also, **do not** try to enter calculation names. They will not work in the `select rows where` field.

Note Remember — standard database items consist of upper-case letters only.

As an example of a basic where clause, say you are creating a real-time report using data from the Current Interval Split table. Also say that you defined three report fields for the report:

- Split: (the SPLIT database item)
- ACD Calls: (the ACDCALLS database item)
- Average Talk Time: (the calculation ACDTIME/ACDCALLS)

Your “where” clause might be:

select rows where: SPLIT = 5

When you run the report, CMS will find the row in the table (Figure 4-13) for Split 5 and fill in the report fields with data from that row (in bold in the figure).

SPLIT	ACDCALLS	ABANDONS	ACDTIME	ABNTIME
1	443	48	36898	988
2	234	37	20012	777
3	111	20	13111	400
4	652	59	53442	1058
5	451	32	27635	644
6	93	11	15321	245
7	509	43	35401	851
8	391	31	19766	603
9	142	10	9786	203
10	480	39	33389	789

Figure 4-13: Sample Current Interval Split Table

Thus, the report fields will show the following data:

- Split: 5
- ACD Calls: 451
- Average Talk Time: 61 (the result of 27635/451)

Note Actually, this example of row search criteria would also include the selection of an ACD. See “Selecting Rows From An ACD” later in this section.

“Where” Clause With Variable

The previous examples create **hardcoded** row search conditions. That is, when you run the report, CMS will always search for the values you entered in the “where” clause. However, instead of a hardcoded value, you can enter a variable name in a clause. A **variable name** tells CMS to search for whatever value(s) you or another user choose when you run the report. You must define a variable on the Define Input window before using it in a “where” clause. The variable name, then, links a report input field to the “where” clause that will use the value(s) entered.

Note To see the variable names you previously defined on the Define Input window, select the **List inputs** action list option. See “Step 2: List the Input Variables.”

In a clause with a variable name, you must always enter a dollar sign (\$) in front of the variable. The format is as follows:

```
Expression Relational Operator $variable
```

As with a basic “where” clause, the `Expression` can be a database item or calculation. The relational operators available are the same as those available for a basic “where” clause.

Look at the following “where” clause:

```
Select rows where: SPLIT = $splitvar
```

This “where” clause tells CMS to search for rows with the Split value the user enters when ordering the report. The example clause presupposes that the variable name, “splitvar,” has been defined on the Define Input window.

Multiple “Where” Clauses

To put two or more clauses in a statement, use **and** or **or**. Use **and** to define two or more clauses where CMS finds only rows that meet all conditions. For example, the following statement searches for rows where splits had an average speed of answer greater than 30 seconds **and** abandons greater than 100.

```
Select rows where: ANSTIME/ACDCALLS > 30 and ABANDONS > 100
```

Use **or** to define two conditions where CMS finds rows that meet either condition but not necessarily both. For example, the following statement searches for rows where splits had too many abandoned calls or too many extension-out calls.

```
Select rows where: ABANDONS > 15 or AUXOUTCALLS+ACWOUTCALLS > 7
```

“Where” Clause With a Range/List Variable

If a variable name, as defined in the Define Input window, has been assigned the Range/list option, your “where” clause **must** use the equals sign (=) with the variable name. In addition, if a variable name has the Range/list option, the “where” clause for that variable name should appear in the **select rows where** field before any “where” clause that does not have a Range/list variable.



If a variable name has the Range/list option and the “where” clause for that variable name appears in the **select rows where** field after a “where” clause that does not have a Range/list variable, the report will not show accurate data when you run it.

Selecting Rows From An ACD

In your “where” statement, you must always include a clause regarding the ACD. If you always want a report to find data for the user’s current ACD, append **and ACD = \$acd** to the “where” statement, as shown in the following example:

```
Select rows where: SPLIT = $splitvar and  
ROW_DATE = $datevar and ACD = $acd
```

If you use the variable name **acd**, you do not need to define the variable in the Define Input window. CMS will always understand **acd** to be the current ACD. However, if you wish, you can define a different variable name for the **ACD** database item so the user can specify the desired ACD(s) when ordering the report. You can also hardcode the ACD in a “where” clause, as in the following example.

```
Select rows where: ACD = 1
```

Excluding Rows of Data

If you want to **exclude** Split 5 from the report, but include all other splits, you might enter a “where” clause as follows:

```
Select rows where: SPLIT != 5  
or  
Select rows where: SPLIT <> 5
```

Step 6: Select a Sort Order for Data

Enter a database item (with its table name) in the **Order by** field to specify how multi-row data should be sequenced in the report. CMS will order the rows of data by the values for the database item. For example, you might enter `dsplit.ROW_DATE` in the **order by** field. CMS would then display data by date, as in the following report.

DATE	SPLIT	ACDCALLS
10/10/89	1	40
10/10/89	2	36
10/10/89	3	30
10/11/89	1	25
10/11/89	2	50
10/11/89	3	41
10/12/89	1	7
10/12/89	2	6
10/12/89	3	5

If, on the other hand, you enter `dsplit.SPLIT` in the **Order by** field, CMS will display data by split, as shown in the following report.

DATE	SPLIT	ACDCALLS
10/10/89	1	40
10/11/89	1	25
10/12/89	1	7
10/10/89	2	36
10/11/89	2	50
10/12/89	2	6
10/10/89	3	30
10/11/89	3	41
10/12/89	3	5

If you leave the **Order by** field blank, CMS will display data in the report using the same sequence CMS uses to store the data in the table.

For historical reports only, you can enter more than one database item in the **Order by** field. The database items must be separated by commas. The effect of more than one sorting database item is that data will be ordered first by values found for the first sorting database item, then sorted by values for the second sorting database item, and so on.

For example, **Order by: dsplit.SPLIT,dsplit.ACDCALLS** would cause the data shown in the previous illustration to be ordered as follows:

DATE	SPLIT	ACDCALLS
10/12/89	1	7
10/11/89	1	25
10/10/89	1	40
10/12/89	2	6
10/10/89	2	36
10/11/89	2	50
10/12/89	3	5
10/10/89	3	30
10/11/89	3	41

Notice that the data is first sorted by split number, then by the number of ACD calls. As a result, the dates appear totally out of sequence.

Step 7: Select a Sort Type

Enter an **x** to select either ascending or descending order for values of the database item(s) in the **order by** field. Ascending order means CMS will display data from the lowest to the highest values of the **order by** database item(s). Descending order means CMS will display data from the highest to the lowest values.

Continuing with the previous example, if the **Order by** database item is **ROW_DATE** and you choose a descending order, the data will be listed as shown in the following illustration.

DATE	SPLIT	ACDCALLS
10/12/89	1	7
10/12/89	2	6
10/12/89	3	5
10/11/89	1	25
10/11/89	2	50
10/11/89	3	41
10/10/89	1	40
10/10/91	2	36
10/10/89	3	30

For dates and times, lowest values are those dates/times farthest in the past.

Step 8: Select a Field/Bar Type

Enter an **x** to select one of the following field/bar types.

Discrete

Select the **Discrete** type if CMS will find only one value for each report field/bar you are assigning this Row Search ID to. CMS will find only one value if the field/bar is an aggregate function (SUM, AVG, MIN, or MAX), or if **both** of the following conditions are true:

- You enter a “where” statement that is so specific that CMS finds only one row.
- On the Define Input window, you select **n** for Range/list for any variables used in the “where” statement.

For example, if you select the Daily Split (**dsplit**) table and enter the following “where” statement:

```
Select rows where: ROW_DATE = $datevar and
SPLIT = $splitvar and ACD = $acd
```

and you select **n** for Range/list for both the **splitvar** and **datevar** variables, CMS will find a single row containing the date and split the user enters when ordering the report.

Note If you are assigning the row search ID only to fields and bars that contain aggregate functions (sum, max, min, or avg), you will normally select the **Discrete** type. See “Repeating Aggregate Function Values in Historical Reports” in Chapter 6 of this document.

Repeated vertically

Select **Repeated vertically** to display a column of multiple field values, or a vertical series of bars, one for each value.

If you select **Repeated vertically**, you must also enter a number in the **spacing** field. This number tells CMS how many lines to go down to display each value. **1** means to display a value on every line. **2** means to display a value on every other line.

Repeated horizontally

Select **Repeated horizontally** to display multiple field values in row format or a horizontal series of bars, one for each value.

If you select **Repeated horizontally**, you must also enter a number in the **Spacing** field. This number tells CMS how many characters to move horizontally from the **beginning** of one value to the beginning of the next. This means that the spacing you enter must include the blank spaces between fields/bars **and** the width of a field/bar. For example, if a field/bar is 4 characters wide and you enter **8** in the Spacing field, CMS will display each value with 4 blank characters in between.

Repeated values, whether repeated horizontally or vertically, apply only if CMS will find multiple values for the report field(s). CMS will find multiple values if **one** of the following conditions exists:

- Your “where” statement specifies one or more ranges of values.
- On the Define Input window, you entered **y** for Range/list for at least one variable.
- Your “where” statement is general enough to select multiple rows.

One example of a general “where” statement would be, for the **dsplit** table, the following statement:

```
Select rows where: ROW_DATE = $datevar and ACD  
= $acd
```

Since no split values are specified, CMS will display, for a user-specified date, a value for every split in the ACD.

If, based on your “where” statement and Define Input entries, CMS finds multiple values, but you select **Discrete**, the report will display only the first value CMS finds for each report field.

Note If you select **Repeated vertically**, you cannot define any fields directly under a repeated field. If you select **Repeated horizontally**, you cannot define any fields directly to the right of a repeated field. Also, the report will display horizontally repeated values only up to the maximum width (132 columns) of a report. CMS will drop any additional values that would have extended beyond the maximum report width.

Step 9: Save Your Row Search Conditions

Select the **Modify** action list option.

-> *The message **Successful** appears in the window's status line to indicate the Row Search conditions have been added.*

After you have successfully saved your row search conditions, you can then assign the row search ID to report fields/bars.

Assign a Row Search ID to Report Field(s) and Bar(s)

To complete the definition of data for a field or bar, you must assign a row search ID to the field/bar. Use the following steps to do this.

Note If a field already has an assigned row search ID (for example, a field that is part of a design you have copied), you must first **remove** the existing row search ID assignment. See "Changing the Row Search-Field Assignment(s)."

- 1 On the Screen Painter, place the cursor on a field to which you want to assign a row search ID. To assign a row search ID to several fields at one time, place the cursor in a position from which you can define an appropriate block.
- 2 Select the **Row search** action list option. -> *The Row Search window appears.*
- 3 Enter the desired row search ID and select the **Find one** action list option. -> *The row search conditions for the ID appear.*

- 4 Select the **Assign fields** action list option. -> *The Row Search window disappears, the cursor moves to its original position on the Screen Painter, and the following message appears on the Screen Painter status line:*
- Move cursor to define a block and press RETURN.**
- 5 Move the cursor using the **[TAB]**, **[SHIFT]+[TAB]**, and arrow keys. If the block you define contains one or more characters of a field/bar, CMS will assign the row search ID to that field/bar. -> *The cursor defines a block on your terminal in inverse video (or color).*
- 6 Press **[RETURN]**. -> *The ? in each field/bar changes to the row search ID to indicate the row search conditions have been assigned. Additional characters fill the field or bar as shown in the following illustrations.*

If your row search conditions specify discrete fields/bars, assigned fields will appear with lower-case **x's** and assigned bars will appear with upper-case **x's**. See Figure 4-14.

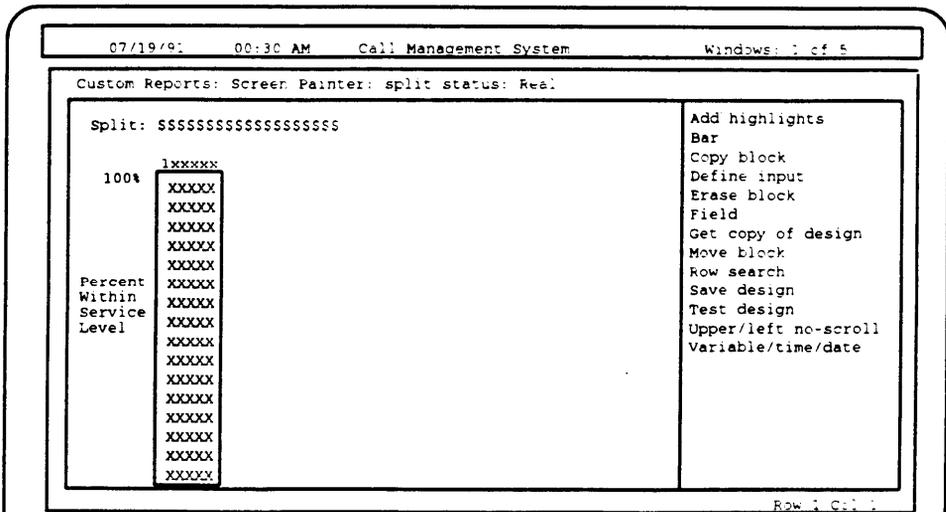


Figure 4-14: Sample Discrete Field and Bar Design

A report with the design in Figure 4-14 might appear as shown in Figure 4-15.

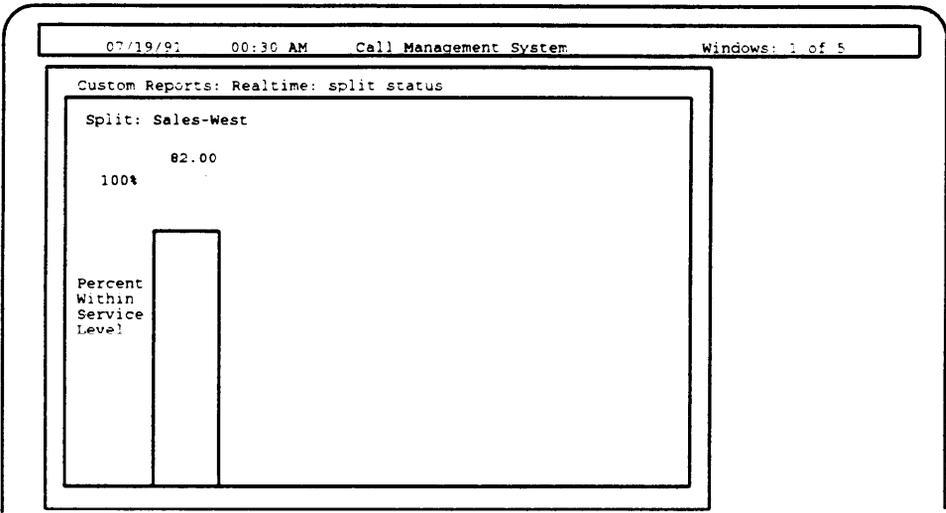


Figure 4-15: Sample Report with Discrete Field and Bar

If your row search conditions specify vertically repeated fields/bars, assigned fields will appear with lower-case v's and assigned bars will appear with upper-case V's. See Figure 4-16.

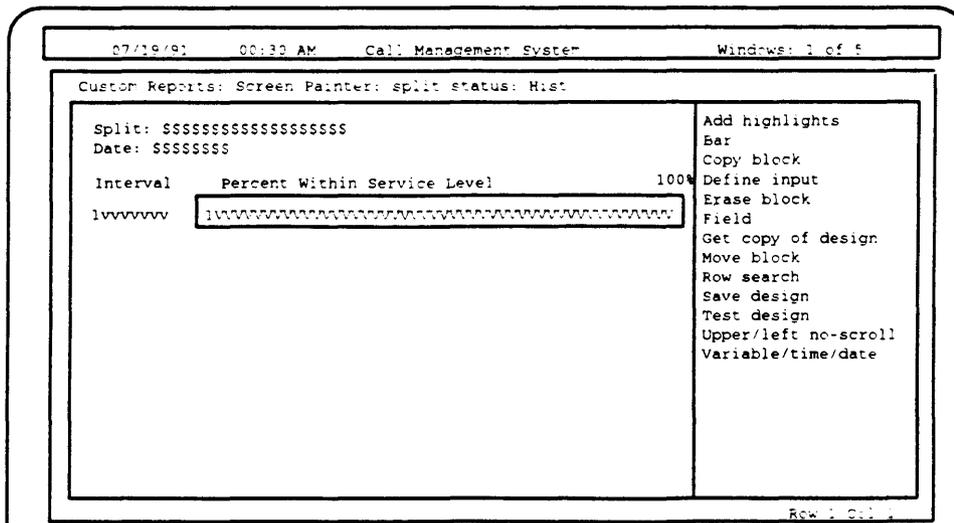


Figure 4-16: Sample Field and Bar Design — Vertically Repeated

A report with the design in Figure 4-16 might appear as shown in Figure 4-17.

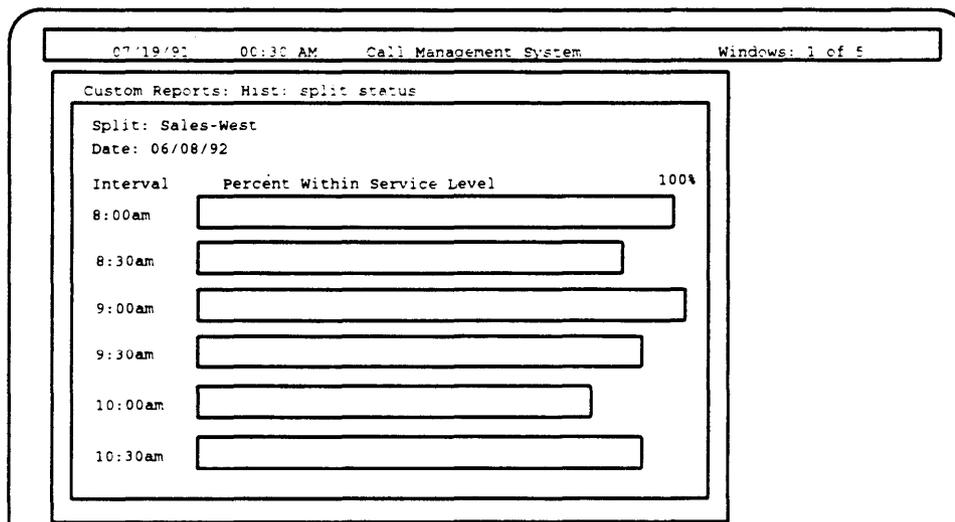


Figure 4-17: Sample Report with Vertically Repeated Field and Bar

If your row search conditions specify horizontally repeated fields/bars, assigned fields will appear with lower-case **h**'s and assigned bars will appear with upper-case **H**'s. See Figure 4-18.

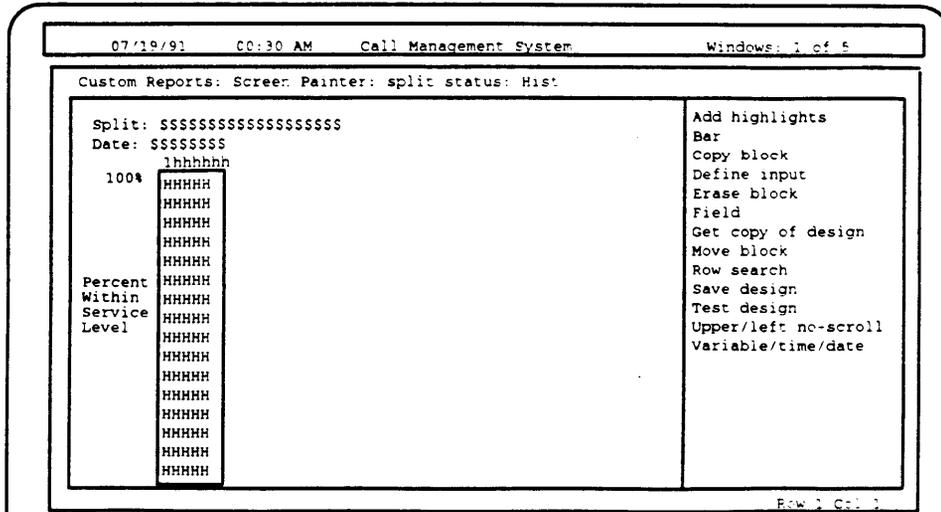


Figure 4-18: Sample Field and Bar Design — Horizontally Repeated

A report with the design in Figure 4-18 might appear as shown in Figure 4-19.

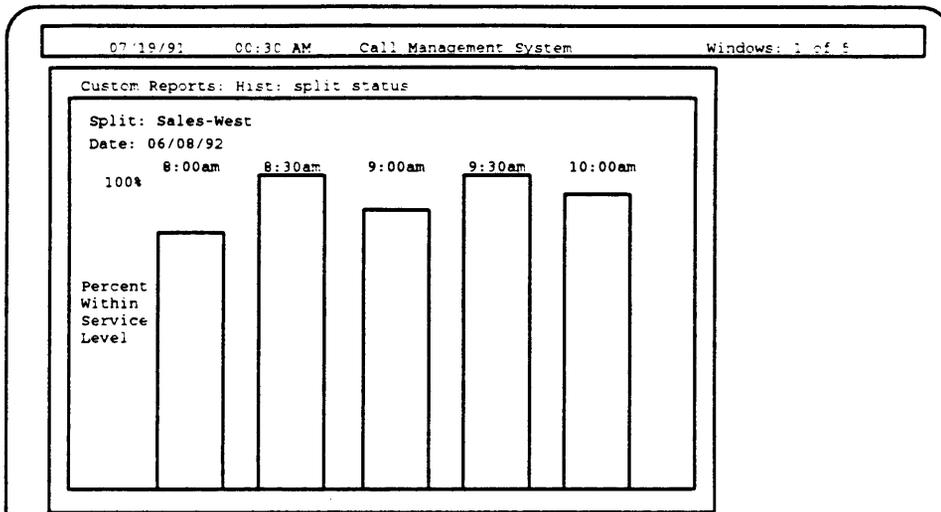


Figure 4-19: Sample Report with Horizontally Repeated Field and Bar

Changing Row Search Conditions

- 1 On the Screen Painter, select the **Row search** action list option. -> *The Row Search window appears.*
- 2 Enter a number from 0 to 9 in the **Row Search ID** field, and select the **Find one** action list option. -> *The row search conditions for the ID appear.*

Note For a “Find one” search, only your entry in the **Row Search ID** field counts. CMS ignores the other fields.

- 3 Change data in any field(s), and select the **Modify** action list option. -> *The message **successful** appears in the window's status line to indicate the Row Search conditions have been changed.*

The changes will apply to any fields to which you had previously assigned the row search ID.

Changing the Row Search-Field Assignment(s)

To change the row search ID assigned to a particular field, you must first disassociate the field from the row search ID. You do this using the **Remove field** action list option.

- 1 On the Screen Painter, place the cursor on a field/bar from which you want to disassociate the row search ID. To disassociate a row search ID from several fields/bars at one time, place the cursor in a position from which you can define a block that will include all appropriate fields/bars.
- 2 Select the **Row search** action list option. -> *The Row Search window appears.*

- 3 Enter the desired row search ID and select the **Find one** action list option. -> *The row search conditions for the ID appear.*

- 4 Select the **Remove fields** action list option. -> *The Row Search window disappears, the cursor moves to its original position on the Screen Painter, and the following message appears on the Screen Painter status line:

Move cursor to define a block and press RETURN.*

- 5 Move the cursor using the [**TAB**], [**SHIFT**]+ [**TAB**], and arrow keys. The block you define should contain all characters of each field/bar from which you are disconnecting the row search ID. -> *The cursor defines a block on your terminal in inverse video (or color).*

- 6 Press [**RETURN**]. -> *The row search ID in each field/ bar is replaced by a question mark ? to indicate the row search conditions have been disconnected.*

- 7 Assign a new row search ID to the fields/bars.

Defining Fields To Show Run Time/Date and User Inputs

General Information

The time or date when a report is run is not stored in any database table. Instead, CMS simply recognizes when it has finished processing the report, and if requested, can display this information on the report. Similarly, CMS knows what your current ACD is when you order the report and can display the current ACD name or number on the report.

To display the report's run-time, run-date, or the current ACD when you ordered the report, you must define a field using the Var/Time/Date window (Figure 4-20). The Var/Time/Date window also allows you to define fields that mirror your entries in the report input window. That is, CMS simply takes the values you enter for an input variable (as defined in the Define Input window) and displays those values on the report.

To define a field with one of these types of information, use the following steps.

Step 1: Access the Var/Time/Date Window

- 1 On the Screen Painter, place the cursor where the left end of the field should appear, and select `variable/time/date`. -> *The Var/TimeDate window appears.*

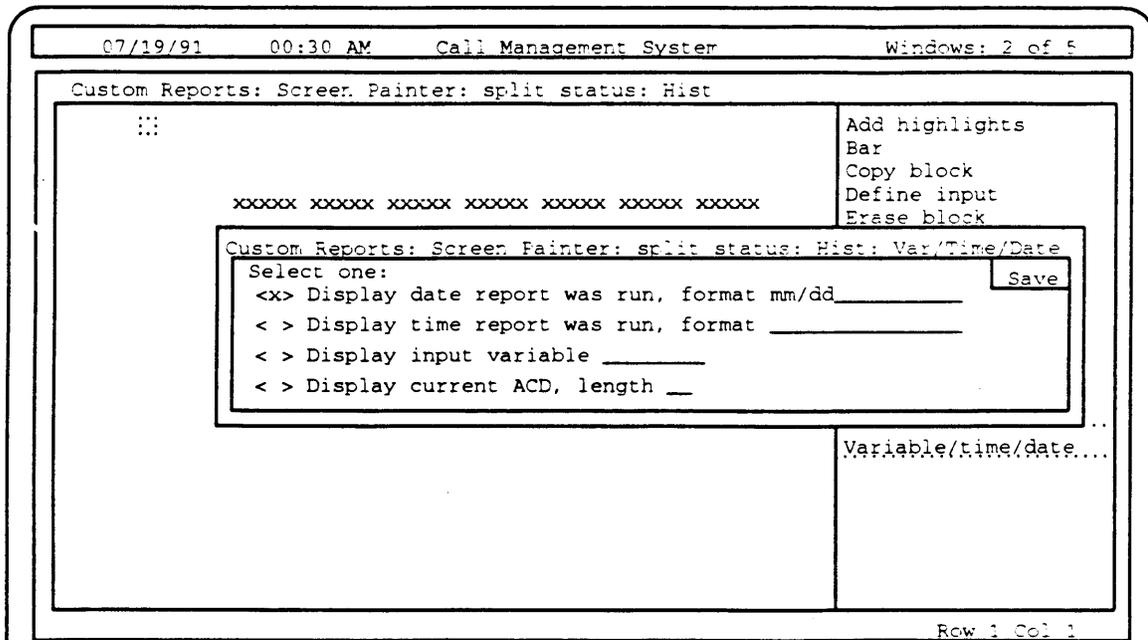


Figure 4-20: The Var/Time/Date Window

Step 2: Define the Display Type and Format

Enter an **x** to select an item in the Display Type list. You must also complete the associated field.

The display options are as follows:

- date** Select this option to display the date you ran the report.
- report was** You must also specify a date format, with appropriate
- run** punctuation, in the associated field. You can enter any of
- the following formats or combination of formats:

mm	The numerical month.
MMM	The month represented by three letters.
yy	The year as two digits.
yyyy	The year as four digits.
dd	The numerical day of the month.
jjj	The day of the year in the Julian calendar.
www	The day of the week as three letters.

An example of combined formats would be the standard date format **mm/dd/yy**. Or, you could enter just the day and month, **mm/dd**.

**time
report was
run**

Select this option to display the time you ran the report. You must also enter a time format with the appropriate punctuation.

You can use one of the following formats:

HH	The hour only, in military time (24 hour clock). For example, 15 would mean 3:00 p.m.
hh	The hour only, according to a 12-hour clock. For example, 3 could mean 3:00 a.m. or 3:00 p.m. For this reason, if you use hh , you should also add am (hham).
mm	The number of minutes after the hour only.
ss	The number of seconds into the minute.
HH:mm:ss Or HH:mm	Military time, either to the second or to the minute.
hh:mm:ssam Or hh:mmam	12-hour clock time, with AM or PM attached, either up to the second or up to the minute.

**input
variable**

Select **input variable** to display data exactly as it is entered in one of the fields on the report input window. You must also enter, in the associated field, the variable name assigned to the report input field (on the Define Input window).

**current
ACD**

Select **current ACD** to display the number or name of the ACD that was current when you ordered the report. You must also enter, in the associated field, the number of characters, 1 to 20, that the ACD field should have. If you have defined names in Dictionary for your ACD(s), you may want to enter **20**, since this is the maximum length for Dictionary names.

Step 3: Save the Var.Date/Time Field

Select **save**.

->

The Var/Time/Date window disappears. CMS marks the field in one of the following ways:

For a date, the format you defined is displayed (for example, mm/dd/yy).

For a time, the format you defined is displayed (for example, hh:mmam).

For an input variable, a string of dollar signs (\$\$\$) is displayed, with the number of dollar signs equaling the field length you assigned to variable's input field on the Define Input window.

For current ACD, a string of dollar signs (\$\$\$) is displayed, with the number of dollar signs equaling the length you specified in the Var/Date/Time window.

Repeat Steps 1 through 3 for each field you want to define.

Chapter 5

Completing Your Custom Report

	Page
Highlighting Fields	5-1
Defining Stationary (No-Scroll) Areas	5-4
Changing a No-scroll Area	5-6
Saving the Report Design	5-7
Testing a Report Design	5-8
Test Design Error Messages	5-11
Phase 1 Error Messages	5-11
Phase 2 Historical Error Codes	5-15
Phase 2 Real-Time Error Codes	5-21
Running Custom Reports	5-23

List of Figures

Figure 5-1: The Add Highlights Window	5-2
Figure 5-2: Sample Non-Scroll Areas	5-4
Figure 5-3: Sample Test Design Window - Phase One Errors	5-8
Figure 5-4: Sample Test Design Input Window	5-9
Figure 5-5: Sample Test Design Input Window	5-10

Highlighting Fields

For each individual custom report, you can administer how the screen displays the colors and brightness levels of the text, data and background. You can also administer color, brightness level, reverse video, and underlining to emphasize individual fields and text in the report.

Note You **cannot** change the way bars are displayed with the procedure that follows. However, you **can** change the the bars' threshold colors via the [Commands] SLK and the **Options: Color** submenu selection.

To change the way the screen displays fields and text in your report, do the following steps:

- 1** On the Screen Painter, place the cursor in a position where you want one corner of a block to be, and select **Add highlights**.

-> *The cursor returns to its original position, and the following message appears on the status line: **Move cursor to define opposite corner of block, press RETURN.***
- 2** Move the cursor to a position where you want the opposite corner of the block to be. The block should include all fields/bars/text you want to highlight.

-> *The block you are defining becomes highlighted.*
- 3** Press [RETURN].

-> *The Add Highlights window appears.*

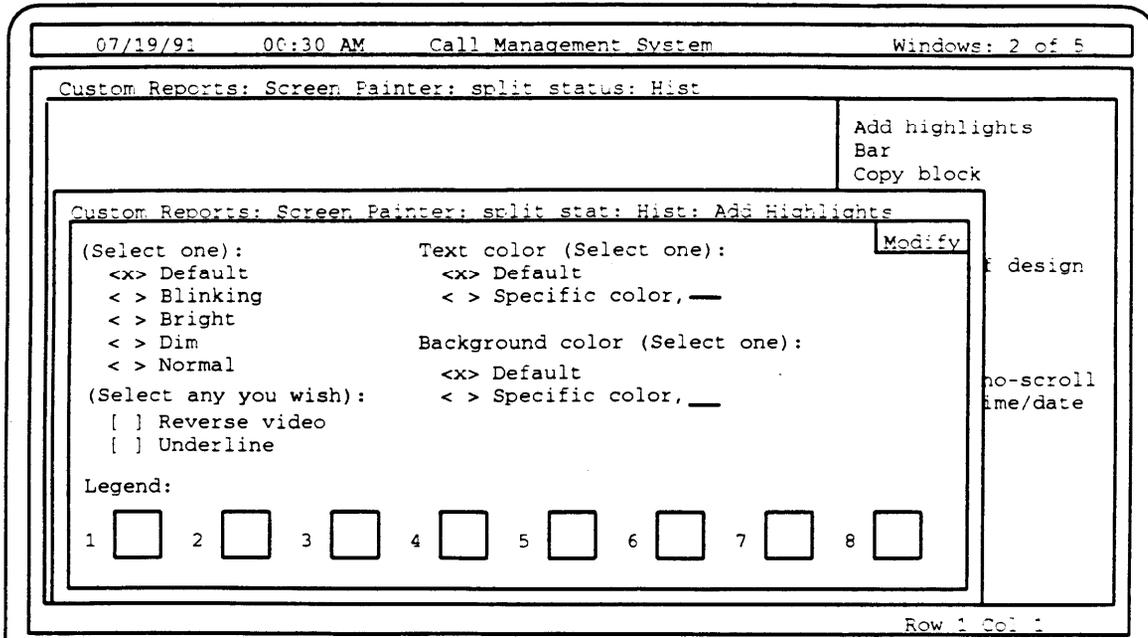


Figure 5-1: The Add Highlights Window

- 4 Select the highlighting options you want. The highlighting options are as follows:

Select One List

- Default** The "Default" setting reflects the text and background settings administered for this terminal.
- Blinking** The "Blinking" setting causes the text/data in the defined area to blink (continuous alternation between dim and normal brightness or foreground/background colors).
- Bright** This setting makes the text/data in the defined area become bright. If your terminal does not have a "bright" capability, "bright" will equal "normal."
- Dim** This setting makes the text/data in the defined area become dim. If your terminal does not have a "dim" capability, "dim" will equal "normal."
- Normal** The "normal" setting makes the text/data in the defined area a brightness level between "dim" and "bright."

Select any you wish

Reverse video This setting causes brightness/color settings for text and background to be reversed. For example, for an amber monochrome terminal, reverse video makes the background amber and the text/data black. For a color terminal set for white text on blue background, reverse video makes the background white and the text blue.

The brightness/blinking options will also affect the display of reverse video.

Underline This setting draws a line under any text/data in the defined area. If you also select "Reverse video," the underline color/brightness will be reversed.

Text color (for color terminals only)

Default This setting displays text in the color set in the Options: Color window, which you access via [**Commands**].

Specific color This setting assigns to the text one of the eight colors displayed at the bottom of the window. If you select this option, you must enter, in the associated field, the number of the color you want.

Background color (for color terminals only)

Default This setting displays the background in the color set in the Options: Color window, which you access via [**Commands**].

Specific color This setting assigns to the background one of the eight colors displayed at the bottom of the window. If you select this option, you must enter, in the associated field, the number of the color you want.

- 5 Select the **Modify** action list option. -> *The Add Highlights window disappears.*



For some color terminals, dim or bright settings may affect the colors selected.

In your custom report, you may wish to assign areas as no-scroll areas. You may assign one no-scroll area on the left side of the report and one no-scroll area at the top of the report. To define no-scroll areas, use the following steps:

- 1** On the Screen Painter, select **Upper/left no-scroll**. -> *The cursor returns to the upper left corner of the report. The following message appears on the status line: **Move the cursor down and right. Press RETURN when finished.***
- 2** To define a no-scroll area at the top, move the cursor down the desired number of lines. To define a no-scroll area on the left, move the cursor to the right. -> *CMS highlights the no-scroll area as you move the cursor.*
- 3** Press [**RETURN**] to save the no-scroll area.

Changing a No-scroll Area

- 1 On the Screen Painter, select Upper/left no-scroll.

-> *The cursor returns to a position at the edge of the top and/or left no-scroll areas. The following message appears on the status line: **Move the cursor down and right. Press RETURN when finished.***
- 2 To change a no-scroll area at the top, move the cursor up or down the desired number of lines. To change a no-scroll area on the left, move the cursor to the right or left.

-> *As you move the cursor, CMS highlights the no-scroll area that you add or removes the highlight for the no-scroll area you delete.*
- 3 Press [RETURN] to save your changes.

Saving the Report Design

Before you exit the Screen Painter, you must save your report design. If you do not save the design, all work you did since accessing the Screen Painter will be lost, **including** any work you did with secondary windows. You must also save the design even if you successfully test it with the **Test design** action list option.

To save your report design, do the following steps:

- 1 On the Screen Painter, select **Save**. -> The following message may appear on the Screen Painter status line:
Successful.

Or, if you did not define all necessary elements of the design, the Save Design window will appear with a list of errors.
- 2 If you successfully saved your design, you can continue working on the design, test it, or exit the Screen Painter and continue working on the design at a later time.

If CMS displays errors, do the following steps:

- Note the errors
- Press **Exit**
- Fix the errors on the Screen Painter
- Repeat Step 1.

Note If you exit the Screen Painter without first fixing errors found in the Save Design window, the report items associated with the errors will be deleted from the Screen Painter.

Testing a Report Design

Instead of running a report and having it fail because you had errors in your design, you can test the design directly from the Screen Painter. Testing your report design can save you a lot of time if it turns out that you, indeed, have errors in the design.

Use the following steps to test a report design:

- 1 On the Screen Painter, select **Test design.** -> *If your design has Phase One errors, a window (Figure 5-3) listing those errors appears. See the following section, "Test Design Errors" for a description of these errors. If your design has no Phase One errors, the Test Design window (Figure 5-4) appears with a facsimile of the Report Input window.*

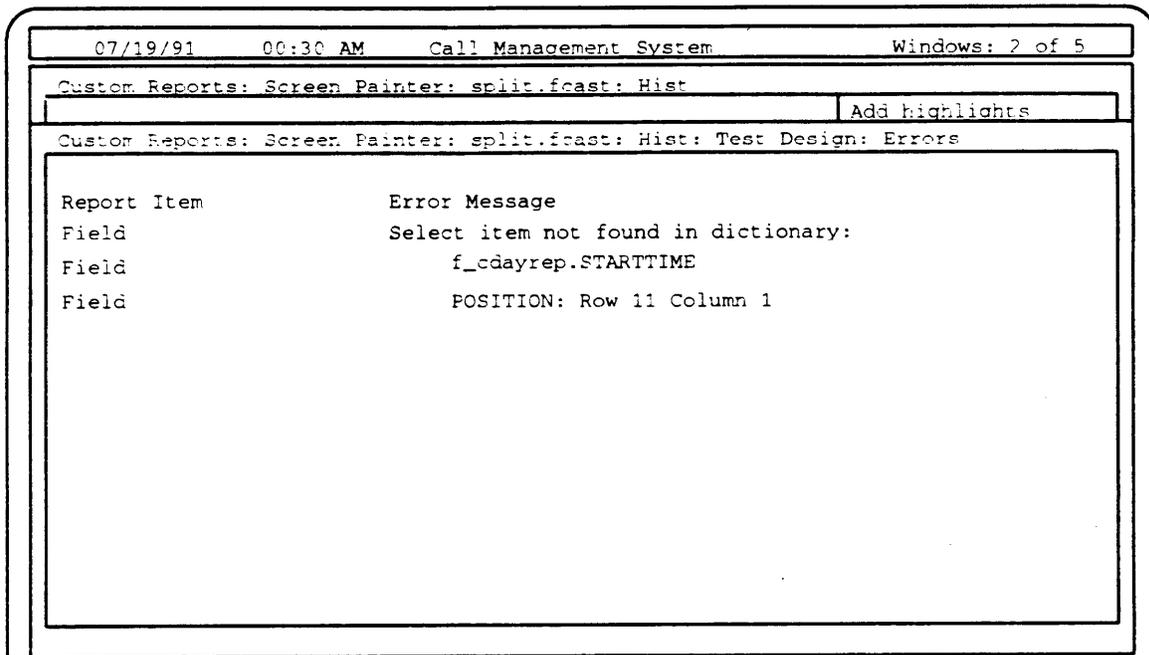


Figure 5-3: Sample Test Design Window - Phase One Errors

The screenshot shows a window titled 'Call Management System' with a status bar at the top displaying '07/19/91 00:30 AM' and 'Windows: 2 of 5'. Below the title bar, there are two window titles: 'Custom Reports: Screen Painter: split.fcast: Hist' and 'Custom Reports: Screen Painter: split.fcast: Hist: Test Design'. The 'Test Design' window contains three input fields: 'Agent: _____', 'Times: _____', and 'Date: _____'. A 'Test select' button is located in the top right corner of the input area.

Figure 5-4: Sample Test Design Input Window

- 2 Complete the fields on the Report Input window, and select **Test selects**.

Note If you had Phase One errors, fix the errors indicated, and go back to Step 1.

-> A list of the row search conditions appears (Figure 5-5), with a list of any Phase Two errors. See the following section, "Test Design Errors," for a description of these errors.

If you have no errors, the following message appears in the window: **No errors found.**

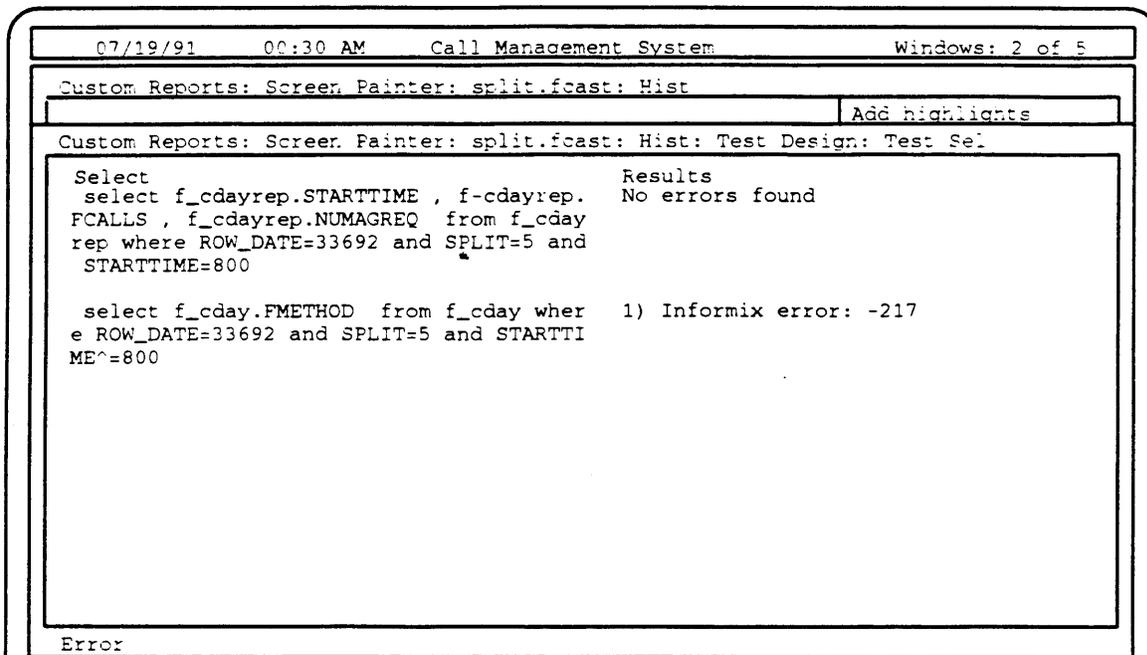


Figure 5-5: Sample Test Design Input Window

- 3 If you have errors, do the following steps:
 - Note the errors.
 - Press **Exit**.
 - Fix any errors.
 - Select **Test design** again.
 - Repeat Steps 1 and 2.

If you have no errors, press **Exit** and continue with your design, or save the design and exit the Screen Painter.

Test Design Error Messages

Test design error messages are divided into three categories:

- Phase 1 Error Messages
- Phase 2 Historical Error Messages
- Phase 2 Real-Time Error Messages.

Phase 1 Error Messages

This section contains Phase 1 error messages. The messages are presented alphabetically. Each message includes a cause and a recommended solution.

Message:	<code>\$<variable name> not defined</code>
Cause:	The where clause contains a variable that is not defined.
Solution:	Define the variable using the define input action or remove the variable from the row search criteria.
Message:	<code>cannot mix aggregates and non-aggregates in the select</code>
Cause:	You cannot specify both aggregate columns and non-aggregate columns in the same select for real-time reports.
Solution:	Create two identical row search conditions and apply one to the aggregate columns and one to the non-aggregate columns.
Message:	<code>cannot use the SYN function for order by</code>
Cause:	You cannot use a synonym to sort the output.
Solution:	Remove the SYN aggregate from the <code>Order by</code> field.

<p>Message:</p> <p>Cause:</p> <p>Solution:</p>	<p>CMS system error - Check the error log</p> <p>A CMS system error occurred while the select executed. The error should be recorded in the error log.</p> <p>Check the error in the error log to initiate corrective action.</p> <p> If you run a report that merges data from two tables (particularly tables with large amounts of data) into a single field and your select rows where statement is not specific enough, you may get this error message. The specific cause may be that the number of selected rows is very large, and CMS does not have enough space to create temporary files. If this is the case, you should add additional “where” clauses to the row search criteria.</p>
<p>Message:</p> <p>Cause:</p> <p>Solution:</p>	<p>CMS system error - Data collection off</p> <p>CMS cannot test the row search criteria while data collection is off.</p> <p>Turn data collection on and rerun test of report design.</p>
<p>Message:</p> <p>Cause:</p> <p>Solution:</p>	<p>CMS system error - Too much data retrieved - try a more restrictive search</p> <p>Too much data was retrieved with the given row search criteria.</p> <p>Add more conditions to the row search criteria so that fewer rows are retrieved.</p>

Message:	CMS system error - Updating translations
Cause:	CMS cannot test the row search criteria while CMS is receiving the set of configuration data from the PBX.
Solution:	Wait until configuration data has been sent. Then rerun the test of report design.
Message:	keyword AVG invalid in where clause
Cause:	You cannot use the keyword AVG in row search criteria.
Solution:	Remove the keyword AVG from the row search criteria.
Message:	keyword BETWEEN invalid for real-time
Cause:	You cannot use the keyword BETWEEN in row search criteria for a real-time report.
Solution:	Remove the keyword BETWEEN from the row search criteria.
Message:	keyword COUNT invalid in where clause
Cause:	You cannot use the keyword COUNT in row search criteria.
Solution:	Remove the keyword COUNT from the row search criteria.

Message:	keyword MAX invalid in where clause
Cause:	You cannot use the keyword MAX in row search criteria.
Solution:	Remove the keyword MAX from the row search criteria.
Message:	keyword MIN invalid in where clause
Cause:	You cannot use the keyword MIN in row search criteria.
Solution:	Remove the keyword MIN from the row search criteria.
Message:	keyword SUM invalid in where clause
Cause:	You cannot use the keyword SUM in row search criteria.
Solution:	Remove the keyword SUM from the row search criteria.
Message:	keyword SYN invalid in where clause
Cause:	You cannot use the keyword SYN in row search criteria.
Solution:	Remove the keyword SYN from the row search criteria.

Phase 2 Historical Error Codes

This section contains the INFORMIX-SQL error codes most likely to appear for CMS historical reports. Each code includes a description of the error and the recommended corrective action.

These errors are reported in the following format:

```
INFORMIX error: <error number>
```

In addition, a circumflex (^) will appear in the listed Select statement(s) to mark the location of an error.

Note If an error code appears that is not listed in this document, see the *INFORMIX-SQL Relational Database Management System Reference Guide* for INFORMIX SQL Version 2.10.03J.

- 201 **Description:** A syntax error has occurred.
- Corrective Action:** Check that you have not misspelled an RDSQL statement, placed key words out of sequence, or included an INFORMIX-SQL reserved word in your query.
- 202 **Description:** An illegal character has been found in the statement.
- Corrective Action:** Remove the illegal character (often a non-printable control character) and resubmit the statement.
- 203 **Description:** An illegal integer has been found in the statement.
- Corrective Action:** Integers must be whole numbers from -2,147,483,647 to 2,147,483,647. Check that you have not included a number with a fractional portion or a number outside of the range of acceptable whole numbers. Check also that you have not inadvertently entered a letter in place of a number (for example, 125p3 instead of 12503).

- 204 **Description:** An illegal floating-point number has been found in the statement.
- Corrective Action:** Check that you have not inadvertently entered a letter in place of a number (for example, 125p3 instead of 12503) .
- 206 **Description:** The specified table name is not in the database.
- Corrective Action:** Check the spelling of the table name in your statement.
- 217 **Description:** Column *column-name* not found in any table in the query.
- Corrective Action:** Correct the spelling of the database item and that the item exists in the database table. Check for the presence of required commas and quotes.
- 219 **Description:** Wildcard matching may not be used with non-character types.
- Corrective Action:** Wildcards (*,?) and characters enclosed in brackets [] can be used only with CHAR data types. Check the data type for the offending column.
- 220 **Description:** There is no FROM clause in the query.
- Corrective Action:** Must include a FROM clause in the query. Check that you do not have an illegal character (\$, #, &, etc., or a CONTROL character) in the line prior to the FROM keyword.
- 223 **Description:** Duplicate table name *table-name* in the FROM clause.
- Corrective Action:** Remove the redundant table name from the statement or use an alias to rename one of the tables.

- 228 **Description:** Cannot have negative characters.
- Corrective Action:** Check that you have not included a negative CHAR data type (for example, **-a** or **-p**) in your statement.
- 278 **Description:** Too many ORDER BY columns; maximum is 8.
- Corrective Action:** Reduce the number of columns included in the ORDER BY clause to 8 or less.
- 280 **Description:** Total size of ORDER BY columns exceeds 120 bytes.
- Corrective Action:** Reduce the number of columns included in the ORDER BY clause so that the total number of characters is less than or equal to 120 (perhaps delete a CHAR column of 30 or more characters).
- 282 **Description:** Found a quote for which there is no matching quote.
- Corrective Action:** Check that all quoted strings are properly terminated with a quote.
- 284 **Description:** A subquery has returned not exactly one value.
- Corrective Action:** Check data for the subquery. Restructure the subquery by adding more components in the WHERE clause so that only one value is returned.

- 297 **Description:** The SELECT list may not contain a subquery.
- Corrective Action:** Remove the subquery from the SELECT list in the statement.
- 300 **Description:** There are too many GROUP BY columns (maximum is 8).
- Corrective Action:** Reduce to 8 or less the number of non-aggregate database items that are assigned the same row search ID as that assigned to an aggregate function.
- 301 **Description:** The total size of the GROUP BY columns exceeds 120 characters.
- Corrective Action:** The total number of characters in all columns listed in the GROUP BY list exceeds 120 characters. Reduce the number of non-aggregate database items that are assigned to a row search ID that is also assigned to an aggregate function.
- 303 **Description:** Expression mixes columns with aggregates.
- Corrective Action:** Restructure your query so that columns and aggregates are not included in the same expression.
- 309 **Description:** ORDER BY database item must be included in a report field that the row search ID is assigned to.
- Corrective Action:** Check that database items included in the ORDER BY clause appear in the report and are assigned the row search ID. list.

- 324 **Description:** Ambiguous database item.
- Corrective Action:** A database item in your row search criteria exists in more than one table also cited in your row search criteria. Append each database item with the appropriate table name.
- 352 **Description:** Database item not found.
- Corrective Action:** Check the spelling of the database item.
- 367 **Description:** Sums and averages cannot be computed for character columns.
- Corrective Action:** Check that you have not included a database item of a string type (VDN, LOGID, and so on) in the aggregate function statement.
- 522 **Description:** A database item in a field/bar does not exist in the table specified in the field's row search ID.
- Corrective Action:** Check the Select statement that has the error. The database item that does not exist in the table will be marked with a circumflex (^). Change or delete the database item or change the table in the field's row search ID.
- 809 **Description:** RDSQL syntax error has occurred.
- Corrective Action:** Check that you have not misspelled an RDSQL statement, placed key words out of sequence, or included an INFORMIX-SQL reserved word in your query.

-1202 **Description:** An attempt was made to divide by zero.

Corrective Action: Check that you are not attempting to divide a numerical column type by a character column type (for example, 16/Jones) or that the value of the divisor does not equal zero.

-1203 **Description:** Values used in a MATCH must both be type CHARACTER.

Corrective Action: Check that the values included in your MATCH condition are both CHAR types. Use an alternate comparison condition for non-CHAR types.

-1204 **Description:** Invalid year in date.

Corrective Action: Acceptable years are 0001 to 9999. If two digits are used, RDSQL assumes the year is 19xx. Check the value entered in the date field.

-1205 **Description:** Invalid month in date.

Corrective Action: Months must be represented as the number of the month (1 through 12). Check the value entered in the date field.

-1206 **Description:** Invalid day in date.

Corrective Action: Acceptable days are 01 through 31. Check the value entered in the date field.

-1226 **Description:** Decimal or money value exceeds maximum precision.

Corrective Action: Increase the precision of the DECIMAL or MONEY field.

Phase 2 Real-Time Error Codes

This section contains the Real-Time Database Manager error codes. Each code includes a description of the error and a recommended solution.

These errors are reported in the following format:

CMS Database Manager error: <error number>

In addition, a circumflex (^) will appear in the listed Select statement(s) to mark the location of an error.

- 1 **Description:** A syntax error has occurred.

 Solution: Check the select for misspelled keywords or keywords that are out of order.

- 2 **Description:** An illegal character has been found in the select statement.

 Solution: Remove the illegal character (often a non-printable control character).

- 3 **Description:** The specified table name is invalid.

 Solution: Check the spelling of the table name and for required commas in the "From tables" field.

- 4 **Description:** An invalid column has been specified (it is not found in any of the specified tables).

 Solution: Check the spelling of the column names.

- 5 **Description:** A mixture of aggregates and non-aggregates are being selected and this is not allowed in real-time reports.

 Solution: Create two identical row search conditions and apply one to the aggregate columns and one to the non-aggregate columns.

- 6 **Description:** Bad column in the order by clause.
- Solution:** Check that the column name in the order by clause is spelled correctly and that it is being selected by one of the fields included in this row search.
- 8 **Description:** Bad argument given to an aggregate function. For example, you can not take the SUM or AVG of a character column.
- Solution:** Check the arguments for the aggregates and be sure the data type is appropriate.
- 9 **Description:** In the “Select” of one of the fields associated with this row search, an action is being performed with the wrong data types. For example, you can not use arithmetic with character fields.
- Solution:** Check for these types of errors in the fields associated with the row search.
- 11 **Description:** CMS system error.
- Solution:** Check the error logs.
- 12 **Description:** Memory allocation error.
- Solution:** Check the error logs.

Running Custom Reports

You run reports using steps similar to steps you use to run standard reports. However, you run custom reports from the **Custom Reports** main menu option. Also, the Report Input window will show input fields you defined on the Define Input window for the report. For real-time reports, the Report Input window will also automatically show a **Refresh rate in seconds** field.

- 1 Select the **Custom Reports** main menu option. → *The Custom Reports submenu appears.*
- 2 Select either the **Real-time** or **Historical** submenu option. → *A submenu of custom reports, either real-time or historical, appears. The list includes all existing global reports and your private reports.*
- 3 Select the desired report. → *The Report Input window for the report appears.*

Note If more than 20 custom reports are available, you may need to scroll the submenu to find the report you want. Do this with the down arrow (↓). Scroll up with the up arrow (↑).

- 4 Complete the fields of the Report Input window, and select **Run**.

If you did not define Report Input fields because you “hardcoded” all row search conditions, the Report Input window will be blank. In this case, you need only select **Run** to run the report.

→ *The message **Working** first appears on the Report Input window status line. Then, the report appears — if the destination is the terminal. If the destination is a printer, the message **Destination is printer <printername>** appears. If the destination is a file, the message **Destination is file <filename>** appears.*

Chapter 6

Advanced Report Design

	Page
Creating a Custom Data Table	6-1
Step 1: Access the CMS Database in INFORMIX	6-3
Step 2: Build the Table	6-4
Step 3: Add Data to the Table	6-10
Modifying a Table	6-14
Adding a Column	6-14
Changing a Column	6-15
Deleting a Column	6-15
Changing Data in a Table	6-15
Adding Rows of Data to a Table	6-16
Changing Rows of Data in a Table	6-16
Deleting Rows of Data in a Table	6-17
Including Forecast Data in a Custom Report	6-18
Including Exceptions Data in a Custom Report	6-22
Selecting Rows From More Than One Table	6-26
Other Alternative Row Search Conditions	6-30
Selecting Rows Based On a Range of Values	6-30
Using Apostrophes For Some Database Item Values	6-31
Using String-value Database Items	6-32
Other Available Formats For “Where” Clauses	6-33
Repeating Aggregate Function Values in Historical Reports	6-35

List of Figures

Figure 6-1: Sample Forecast Report Design	6-19
Figure 6-2: Row Search Conditions For Forecast Data — Sample 1	6-20
Figure 6-3: Row Search Conditions For Forecast Data — Sample 2	6-20
Figure 6-4: Custom Exceptions Report — Sample 1	6-23
Figure 6-5: Custom Exceptions Report — Sample 2	6-24
Figure 6-6: Report Design With Data From Two Tables Merged in a Field	6-28
Figure 6-7: Sample Report With Merged Data	6-29

Figure 6-8:	Sample of Repeated Aggregate Function Report	6-35
Figure 6-9:	Sample Report Design for Repeated Aggregate Functions	6-36
Figure 6-10:	Sample Row Search of Grouped Aggregate Functions	6-37

List of Tables

Table 6-1:	Prompts for INFORMIX Data Types	6-7
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Creating a Custom Data Table

The section of the CMS database that stores historical ACD data has been built using the INFORMIX® SQL Relational Database Management System. All historical ACD data available for use in custom reports is stored in tables in the CMS database. You, however, can access INFORMIX and the CMS database to build your own data tables. You may build tables to contain financial information, schedule information, product or service information, or any other type of information you want. You can then design historical custom reports to display this data, either with or without ACD data.

Note Instructions on the use of INFORMIX SQL appear in this document as a convenience. These instructions are not intended to substitute for the INFORMIX documentation. Except where noted, the standard rules of INFORMIX SQL apply, as documented in the *INFORMIX-SQL Relational Database Management System User Guide* for INFORMIX SQL Version 2.10.03J. This document is delivered with your CMS software and documents.

Caution CMS does not automatically check the database for disk space used by data in custom tables. As a result, you can inadvertently fill up your disk with custom data. When this happens, you can lose or damage custom data and ACD data. Therefore, if you create custom data tables, be careful to check the amount of disk space available from time to time. See Chapter 11, “System Setup” in the *CMS Administration (585-215-511)* document for more information on disk storage.



If you back up data using the Maintenance: Backup Data window, you will save the data stored in custom INFORMIX tables, but you will not save the custom table definitions (tablenames, column names, data types, and so on). As a result, if you lose the custom table definitions because of a disk crash, power hit, or some other reason, you cannot restore these table definitions via the Backup Data window nor can you restore custom data saved via the Backup Data window.

Therefore, you should periodically back up data using the UNIX system. Then, if you lose INFORMIX table definitions and/or custom data, you can restore the table definitions via UNIX, and then, if necessary, restore the custom data. See Chapter 13, "UNIX System," in the CMS Administration document for procedures on backing up data via the UNIX system.

Step 1: Access the CMS Database in INFORMIX

To access the CMS database in INFORMIX, use the following steps:

- 1a Press the [Commands] SLK. -> *The Commands submenu appears.*
- 1b Select the **UNIX** option. -> *All windows and menus disappear, and the UNIX prompt appears.*
- 1c At the \$ prompt, type the following command: -> *The UNIX prompt reappears.*

```
DBPATH=/cms/db/inf;export
DBPATH
```

 Press [Return].
- 1d At the \$ prompt, type the following pathname: -> *The INFORMIX logo appears, followed by the INFORMIX Main Menu.*

```
/usr/informix/bin/isql
```

 Press [Return].

```
INFORMIX-SQL:>:::Form Report Query-language User-menu Database Table Exit
Create, Alter, or Drop a database table.
----- Press CTRL-W for Help -----
```

Step 2: Build the Table

In INFORMIX, you can select menu items in one of two ways:

- Use the arrow keys (→ or ←) to move the cursor to the menu option. Then, press [Return].
- Type the first character of the menu option.

Note To escape from a step and go back to the previous step, press [DELETE] or [DEL], depending on your keyboard.

2a At the INFORMIX Main Menu, select **Table**. -> *The **SELECT DATABASE** field appears.*

```
SELECT DATABASE >> :::
Choose a database with the Arrow Keys, or enter a name, then press Return.
----- cms ----- Press CTRL W for Help -----
:cms:
```

2b Type *cms*, and press [Return]. -> *The **TABLE** menu appears.*

```
TABLE: ::: :Create:Alter Info Drop Exit
Create a new table.
----- cms ----- Press CTRL W for Help -----
```


- 2f Type a name of up to 18 characters for the column you are adding, and press [Return]. If desired, you can use names of standard CMS database items — **only if** you enter the name in lower-case letters in Dictionary. The Dictionary: Custom Items window will allow only lower-case letters for custom item names that are the same as standard database items. -> *The ADD TYPE field appears.*

```

ADD TYPE workcode : : : :Char: Numeric Serial Date Money
Permits any combination of letters, numbers, and punctuation.
-----Page 1 of 1 ----- cms ----- Press CTRL W for Help -----
Column Name          Type          Length   Index   Nulls
cwc                  : : : : :
    
```

The available data types are as follows:

- CHAR** Character (CHAR) columns store any combination of letters, numbers, and symbols.
- NUMERIC** Numeric columns store numbers. The numbers stored can be one of five types.
 - **DECIMAL.** A decimal is a number that contains a decimal point.
 - **SMALLINT.** A SMALLINT column stores integers from -32,767 to +32,767.
 - **INTEGER.** An INTEGER column stores integers from -2,147,483,647 to +2,147,483,647.
 - **SMALLFLOAT.** A SMALLFLOAT column stores floating point numbers with up to 7 significant digits
 - **FLOAT.** A FLOAT column stores floating point numbers with up to 14 significant digits

SERIAL Serial columns store a unique sequence number in each row of the table.

DATE Date columns store calendar dates with the format **mm/dd/yy**.

Note Though **MONEY** is another option, you **cannot** create **MONEY** columns in a CMS database table. Instead, if your data will be dollars and cents, you should use **DECIMAL**.

- 2g Select the type of data that the field will store. -> *The additional prompts that appear will differ, depending on your selected data type.*

- 2h Complete the definition of the column by responding to the additional prompts that appear. Which prompts appear and what order they appear in will depend on the data type you selected. Table 6-1 lists the possible prompts. -> *When you have responded to all of the prompts for the column, a new highlighted line appears in the table, and the **ADD NAME** field reappears at the top of the screen.*

Table 6-1: Prompts for INFORMIX Data Types

Prompt	What to Do
NUMERIC	Type the first letter of the numeric you want: Integer , Smallint , Decimal , or Float .
LENGTH	Enter the number of digits the column will store for a single piece of data. Length appears for CHAR and DECIMAL types.
SCALE	Enter the number of digits that should appear to the right of the decimal point. The decimal digits, but not the decimal point, will occupy part of the field length you specified in the LENGTH field. SCALE appears after the LENGTH field for DECIMAL .

Table 6-1: Prompts for INFORMIX Data Types (Contd)

Prompt	What to Do
PRECISION	Select either Smallfloat or Float . PRECISION appears for the FLOAT type.
INDEX	<p>Enter y if you want to make the column an index. INDEX appears for all types except SERIAL. A column with the SERIAL data type automatically becomes an index.</p> <p>Make the column an index only if the column will be used for row searches and the table will contain more than 200 rows of data.</p>
DUPLICATES	<p>Enter y if you want to allow the column to contain the same value in different rows. For example, if the column were to contain the last names of people, you would probably want to allow multiple entries (because you might have many different people with the last name of Smith).</p> <p>However, if you were creating a column of social security numbers, you would enter n to prevent multiple entries of the same number. DUPLICATES appears for all types except SERIAL.</p>
NULLS	<p>Enter y if you want to allow the column to have rows with no values (versus requiring values). For example, if your table is a list of customer data and the column you are adding is for the customer's employer, you might want to allow the NULL value for the case where the a person is unemployed. Enter n if you want to require a value in each row. NULLS appears for all types except SERIAL.</p>
ADD STARTING NUMBER	<p>Enter the number that INFORMIX should use as a starting point for numbering rows. INFORMIX will identify the first row in the table with the number you enter. As each new row of data is added to the table, INFORMIX will assign that row the next number in the sequence. ADD STARTING NUMBER appears only for SERIAL.</p>

- 2i Repeat Steps 2f through 2h for each column you want to add.
- 2j Press [**Return**] or [**DELETE**] when you have added all columns. -> *Either the **CREATE TABLE** or the **ALTER TABLE** menu appears.*

```
ALTER TABLE workcode : : : Add Modify Drop Screen Exit
Adds columns to the table above the line with the highlight.
-----Page 1 of 1 ----- cms ----- Press CTRL W for Help -----
Column Name                Type                Length    Index    Nulls
cwc                        Char                16        Unique   No
price                      Decimal             8,2                No
: .....
: .....
```

- 2k Select **Exit**. -> *The Build-new-table prompt appears.*

```
EXIT workcode: : : Build-new-table Discard-new-table
Builds a new table and returns to the Table Menu.
-----Page 1 of 1 ----- cms ----- Press CTRL W for Help -----
Column Name                Type                Length    Index    Nulls
cwc                        Char                16        Unique   No
price                      Decimal             8,2                No
```

- 2l Select **Build-new-table**. -> *The Table menu reappears. Your table has been added.*
- 2m Select **Exit** to return to the Main Menu. -> *The Main Menu appears.*

Step 3: Add Data to the Table

To help you add data, you will first create a data entry form associated with your table. For more information about forms, see Chapter 6 “Creating Your Own Forms” in the *INFORMIX-SQL Relational Database Management System User Guide*. For more information about adding data, see Chapter 3, “Entering Data,” in the same document.

- 3a** On the Main Menu, select **FORM.** -> *The Form menu appears.*

```
FORM: :: Run Modify Generate New Compile Drop Exit
Generate a default form.
----- cms ----- Press CTRL W for Help -----
```

- 3b** Select **GENERATE.** -> *The GENERATE FORM prompt appears.*

```
GENERATE FORM >> ::
Enter the name you want to assign to the form, then press Return.
----- cms ----- Press CTRL W for Help -----
```

3c Enter a name (up to 10 characters) for the form associated with your table, and press [Return]. If possible, use the same name as the table you created.

-> *The CHOOSE TABLE prompt appears.*

```

CHOOSE TABLE >>  ::
Choose the table to be used in the default form.
----- cms ----- Press CTRL W for Help -----
:workcode...
    
```

3d Enter the name of the table you want to enter data for, and press [Return].

-> *The Table-selection-complete prompt appears.*

```

GENERATE FORM:.. Table-selection-complete  Select-more-tables  Exit
Continue creating a default form with the selected tables.
----- cms ----- Press CTRL W for Help -----
    
```

3e Select **Table-selection-complete**.

-> *The message Form was successfully compiled. appears when processing of the form is done. The Form menu appears.*

- 3f Select Run. -> *The RUN FORM field appears.*

```
RUN FORM >>
Choose a form with Arrow keys, or enter a name, and press Return.
----- cms ----- Press CTRL W for Help -----
:workcode .:
```

- 3g Enter the name of the form with which you want to add data, and press [Return]. -> *The PERFORM menu appears.*

```
PERFORM: . . . Query Next Previous Add Update Remove Table Screen . . .
Searches the active database table. ** 1: workcode table**
cwc [ ]
price [ ]
```

- 3h Select Add. -> *The cursor moves to the first column in the table.*
- 3i Enter data for the first column of the table, and press [Return]. -> *The cursor moves to the next column.*

3j Repeat Step 3i for each column.

3k Press [ESC] to save the row of data.

-> *The message Row added. appears. The row of data has been added to the table and saved.*

```

PERFORM: . . . Query Next Previous Add Update Remove Table Screen . . .
Searches the active database table.                               ** 1: workcode table**
cwc          (1223          )
price        (49.50      )

Row added.
    
```

3l Repeat Steps 3h through 3k for each row of data you want to add.

3m Type e (for Exit) three times to exit INFORMIX.

-> *The UNIX prompt appears.*

3n Press [CTRL] d.

-> *The CMS windows and menus that were displayed before you accessed UNIX reappear.*

Note To design a custom report that uses data from the table, you **must** also enter the column names (database items) in the Dictionary: Custom Items window.



CMS does not automatically check the database for disk space used by data in custom tables. As a result, you can inadvertently fill up your disk with custom data. When this happens, you can lose or damage custom data and ACD data. Therefore, if you create custom data tables, be careful to check the amount of disk space available from time to time. See Chapter 11, "System Setup" in the *CMS Administration (585-215-511)* document for more information on disk storage.

Modifying a Table

Use the following steps to add, change, or delete columns in an existing table.

- 1 On the INFORMIX Main Menu, select **Table**. -> *The **TABLE** menu appears.*
- 2 Select **Alter**. -> *The **ALTER TABLE** prompt appears. A list of existing tables also appears.*
- 3 Enter the name of the table you want to change, and press [Return]. -> *The **ALTER TABLE** menu appears.*

Adding a Column

- 4 Select **add** to add a new column. -> *The **ADD NAME** field appears.*
- 5 Complete the fields for the new column.
- 6 Press [DEL] when you have finished adding the column(s), and go to Step 12. -> *The **ALTER TABLE** menu appears.*

Changing a Column

- 7 Select **Modify** to change a column. -> *The **MODIFY NAME** field appears.*
- 8 Use the arrow keys to select a field to change.
- 9 Press [**DEL**] when you have finished changing the column(s), and go to Step 12. -> *The **ALTER TABLE** menu appears.*

Deleting a Column

- 10 To delete a column, use the arrow keys to move the cursor to the column. Select **Drop**. -> *The **REMOVE** prompt appears.*
- 11 Select **YES** to remove the column. -> *The column disappears, and the **ALTER TABLE** menu appears.*
- 12 At the **ALTER TABLE** menu, select **Exit** when you are finished changing the table. -> *The **Build-new-table** prompt appears.*
- 13 Select **Build-new-table** to save your changes. Select **Discard-new-table** to ignore your changes.

Note If you change columns in a table, you may have to rebuild the form assigned to the table.

Changing Data in a Table

Use the following steps to add, change, or delete data in an existing table.

- 1 On the INFORMIX Main Menu, select **Form**. -> *The **FORM** menu appears.*

- 2 Select **Run.** -> *The **RUN FORM** prompt appears. A list of forms also appears.*
- 3 Enter the name of a form, and press [**Return**]. -> *The **PERFORM** menu appears.*

Adding Rows of Data to a Table

- 4 Select **Add** to add rows of data. -> *Fields for the table's columns appear, with the cursor resting in the first field.*
- 5 Enter data in the fields. Use [**Return**] or [**TAB**] to move between fields.
- 6 Press [**ESC**] when you have added a row of data. -> *The **PERFORM** menu reappears. The message **Row added.** also appears.*

Changing Rows of Data in a Table

- 7 To change data in a row, you first should display the data you want to change. To do this, select **Query.** -> *Fields for the table's columns appear, with the cursor resting in the first field.*
- 8 Enter data in a column you want to search on, and press [**ESC**]. -> *The column fields fill with data for that row.*
- 9 Use the arrow keys to move the cursor to the data you want to change. Overtyping the data, and press [**ESC**]. -> *The **PERFORM** menu reappears. The message **This row has been changed.** also appears.*

**Deleting Rows of Data
in a Table**

- | | | |
|-----------|---|--|
| 10 | To delete a row of data, repeat Steps 7 and 8. Select [ESC]. | -> <i>The PERFORM menu reappears.</i> |
| 11 | Select Remove . | -> <i>The REMOVE ROW prompt appears.</i> |
| 12 | Select YES to delete the row. | -> <i>The row of data disappears. The message Row deleted. appears.</i> |

Including Forecast Data in a Custom Report

Note Forecasting is a separately-purchased feature of CMS. If you have not purchased Forecasting, you cannot run forecasts and, therefore, cannot include forecast data in a custom report.

For historical custom reports only, you may design reports that include current day forecast data. Only current day forecast data is available for custom reports because it is the only forecast data saved in the CMS database.

The steps for creating a custom report with forecast data are almost identical to the steps for creating any other custom report. As with any other type of data, you must specify the database item(s), the table(s), the row search conditions, and the report input fields.

However, there are two differences:

1. You **cannot** copy a standard current day forecast report on the Screen Painter. That is, in the Get Copy of Design window, the Current Day Forecast will not appear if you select **List all**.
2. CMS stores current day forecast data in two separate tables:

f_cday	This table primarily contains forecast administrative data entered in the Current Day Configuration window.
f_cdayrep	This table contains the agent positions required and forecast calls carried data, as well as objectives entered in the Call Handling Profiles window.

See Appendix A for a complete list of the database items these tables contain. Also, check the Current Day Forecast Description in Chapter 14, "Forecasting," in the CMS Administration document for a picture of what data you might want.

If you were to design a very abbreviated version of the current day forecast report, the design might look something like that shown in Figure 6-1.

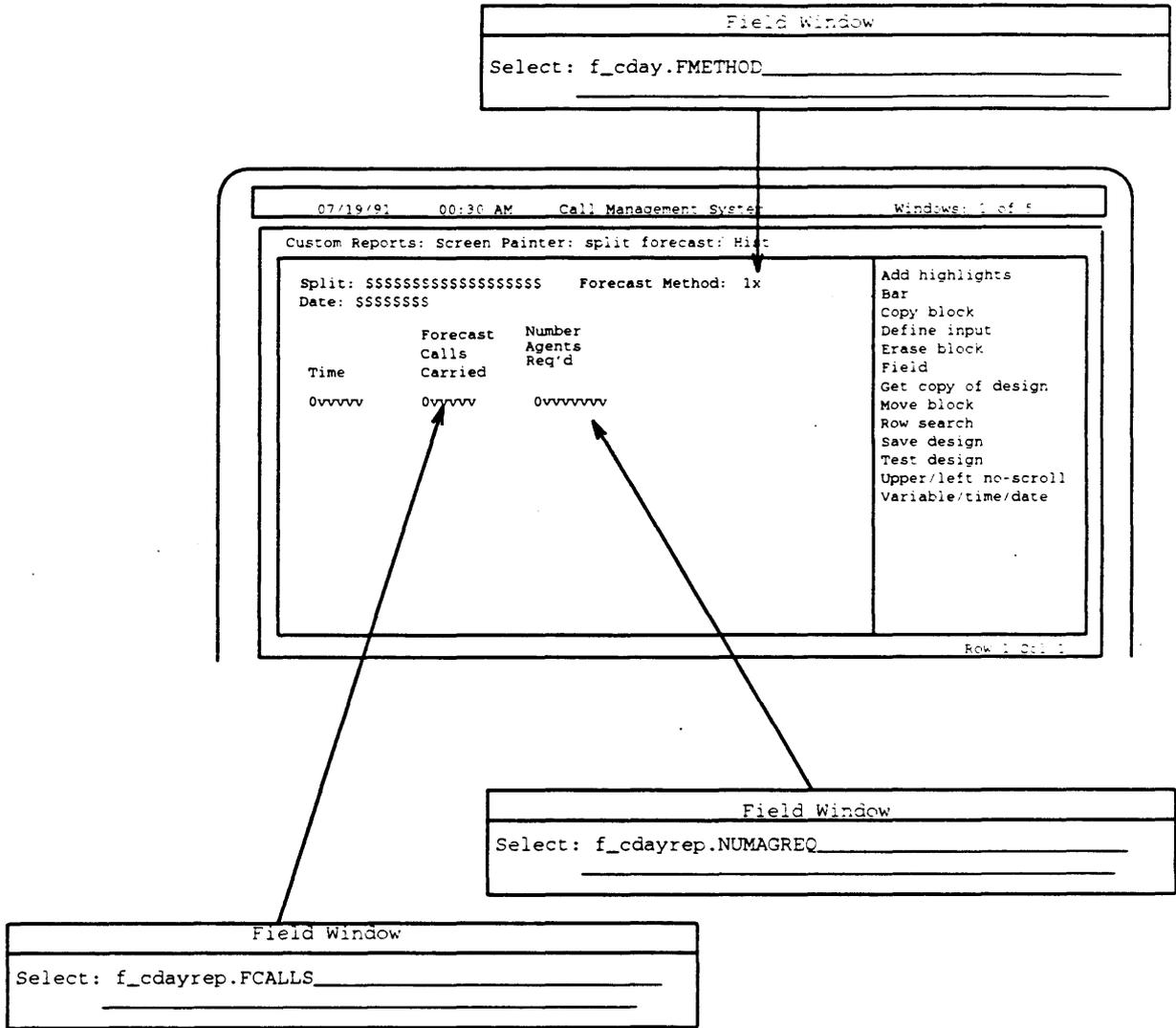


Figure 6-1: Sample Forecast Report Design

In the report in Figure 6-1, Row Search ID 0 is assigned to the Time, Forecast Calls Carried, and Agent Positions Required fields. The conditions for Row Search ID 0 might be as follows:

```

Row Search Window
Row search ID: 0
From table(s): f_cdayrep
Select rows where: ROW_DATE = $i_date and SPLIT = $i_split
                  and STARTTIME = $i_time and ACD = $acd
Field/bar type (Select one):
< > Discrete
<x> Repeated vertically, spacing 1___
    
```

Figure 6-2: Row Search Conditions For Forecast Data — Sample 1

Notice that, as in historical interval reports for splits, the statement in Row Search ID 0 searches for rows based on values for **STARTTIME**, **ROW_DATE**, and **SPLIT**.

In the report in Figure 6-1, Row Search ID 1 is assigned to the Forecast Method field. Notice also that the database item for this field is **FMETHOD**. **FMETHOD** is stored in the **f_cday** table, but is **not** stored in the **f_cdayrep** table. This is an example of how current day forecast data is divided between the two tables.

However, notice that Row Search ID 1 (Figure 6-3) has row search conditions that are almost identical those in Figure 6-2:

```

Row Search Window
Row search ID: 1
From table(s): f_cday
Select rows where: ROW_DATE = $i_date and SPLIT = $i_split
                  and STARTTIME = $i_time and ACD = $acd
Field/bar type (Select one):
<x> Discrete
< > Repeated vertically, spacing 1___
    
```

Figure 6-3: Row Search Conditions For Forecast Data — Sample 2

The only differences between Row Search ID 0 and Row Search ID 1 are the table selections and the field types. In this way, the data in the tables will match.

Note In the standard Current Day Forecast, **FMETHOD** normally displays a character string, either `Seasonal trending`, `Current trending`, or `No trending`. However, the CMS database actually stores a number to represent each method. So, if you include the **FMETHOD** database item in a report, CMS will display a number, not a character string, in the report.

Note You can retrieve data from the Current Day Configuration Forecast (`f_cday`) table only if the appropriate call handling profile has been specified for the particular dates. For retrieval of data from the Current Day Forecast Report (`f_cdayrep`) table, the Forecast Manager must have run for the particular date for which the report is run.

Including Exceptions Data in a Custom Report

For historical custom reports only, you may design reports that include exceptions data. See Appendix A for a description of the exceptions tables and the data they contain.

The steps for creating a custom report with exceptions data is almost identical to the steps for creating any other custom report. As with any other type of data, you must specify the database item(s), the table(s), the row search conditions, and the report input fields. However, you cannot copy any standard exceptions report on the Screen Painter. That is, in the Get Copy of Design window, the exceptions reports will not appear if you select **List all**.

Also, in every exceptions table, the database item **EXTYPE** stores the types of exceptions that occurred. However, exception types are stored as numbers, not character strings. Therefore, if you want your report to list the types of exceptions that occurred, the types will be listed as numbers (see Appendix A for a list of these numbers and what they mean).

For example, look at the standard VDN Exceptions Report that follows.

VDN Exceptions

ACD: burbank Printed: 04/10/92 04:35 PM
Date: 04/09/92

Time	VDN	Vector	Exception	Time	
				Limit	Threshold
09:16AM	Catalog Sales	Weekday Sales	Number calls abandoned in vector		20
09:24AM	Catalog Sales	Weekday Sales	Calls in ACD split queue		10
10:02PM	Catalog Sales	Off-hours Sales	Calls disconnected		50

If you designed a custom exception report to replicate the standard VDN Exceptions Report, the design might appear as shown in Figure 6-4.

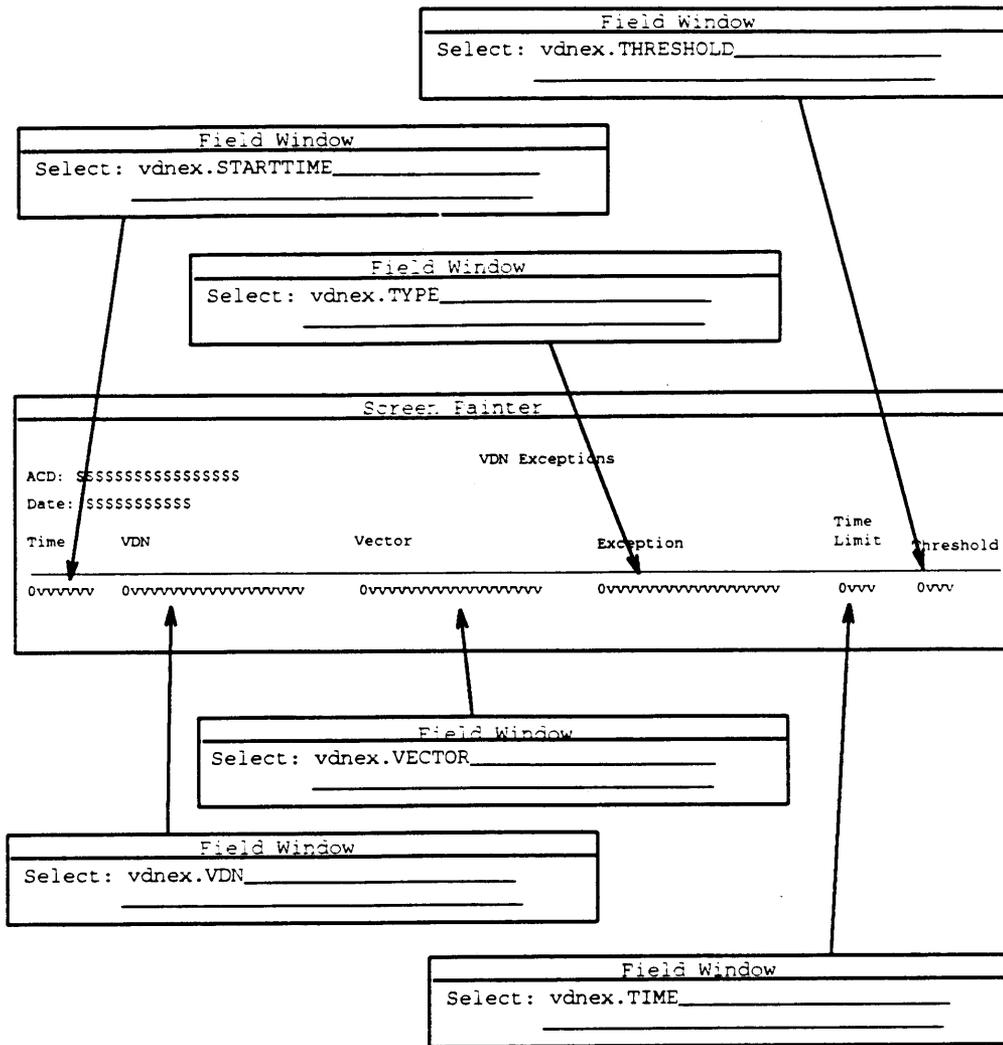


Figure 6-4: Custom Exceptions Report — Sample 1

This design would give you a report that might appear as follows.

ACD: burbank
Date: 04/09/92

Printed: 04/10/92 04:35 PM

Time	VDN	Vector	Exception	Time Limit	Threshold
09:16AM	Catalog Sales	Weekday Sales	32		20
09:24AM	Catalog Sales	Weekday Sales	30		10
10:02PM	Catalog Sales	Off-hours Sales	73		50

The report would appear this way because CMS exceptions tables store the exception types as numbers.

However, another way of designing an exception report would be to use `count(*)` for the exception field. You could then include a specific exception type as part of the row search (Figure 6-5). CMS would then count the rows that had that exception type and display the total in the report.

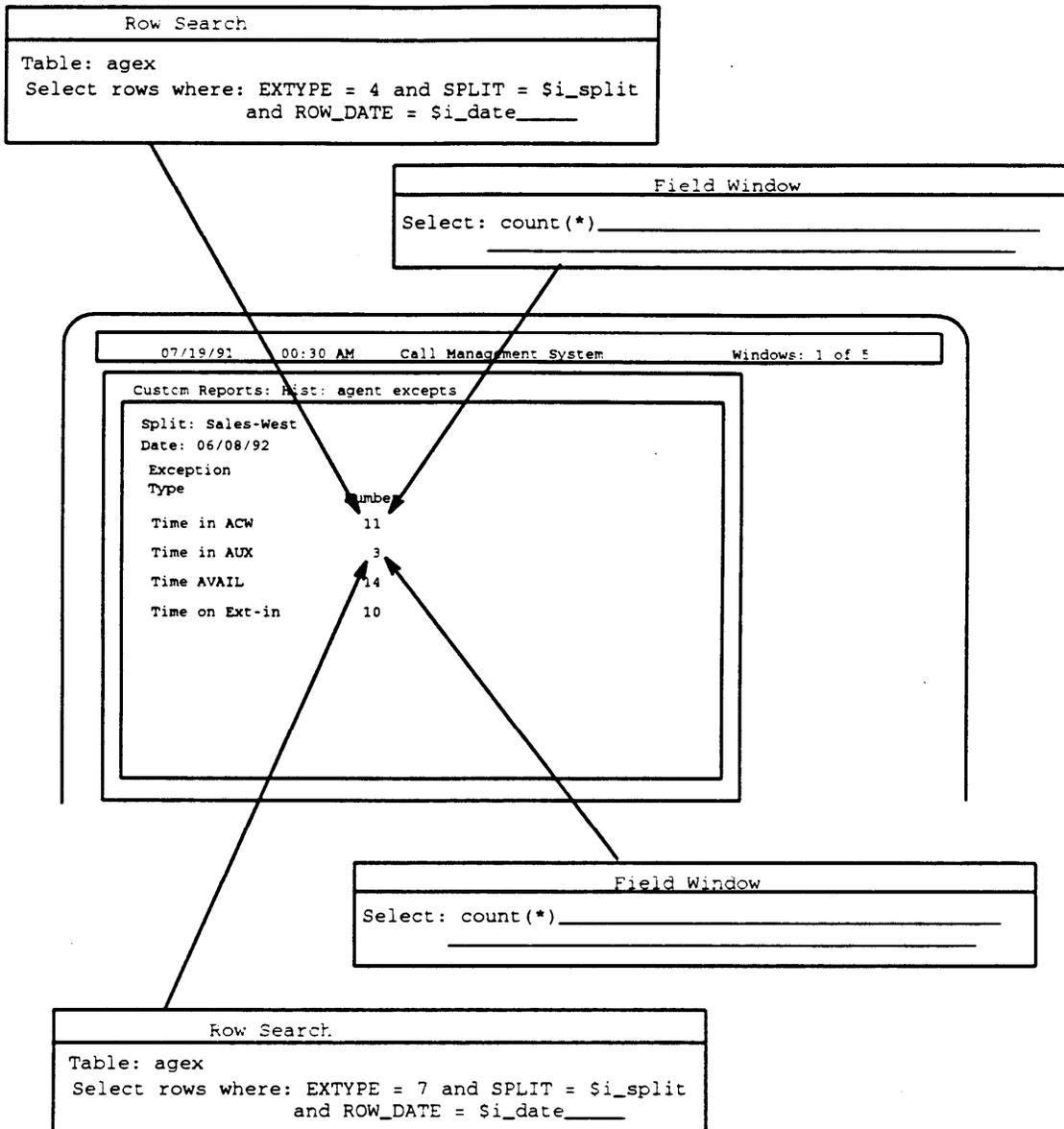


Figure 6-5: Custom Exceptions Report — Sample 2

In the example, the row search statement for the first field searches for exception type # 4 (Time in ACW) for a particular date and split. Because the field is **count***, the field displays the total number of rows that had exception type # 4 for the date and split.

Similarly, the row search statement for the second field searches for exception type # 7 (Time in AUX) for a particular date and split. Again, because the field is **count***, the field displays the total number of rows that had exception type # 7 for the date and split.

Note For retrieval of data from an exceptions table, you can only retrieve data for those exceptions that have been turned on for the particular split, agent, etc., have actually occurred and have not been deleted from the database because they exceeded the storage parameters for exceptions.

Selecting Rows From More Than One Table

For historical reports only, you can merge data from two tables into a single report field. You may, for example, wish to take the number of ACD calls a single agent handled (where data is taken from the `dagent` table) and divide by the total ACD calls handled by the agent's split (where data is taken from the `dsplit` table). Or, you may wish to take the ACD calls a split handled in an intrahour interval (where data is taken from the `hsplit` table) and divide by the total ACD calls the split handled for the day (where data is taken from the `dsplit` table).

To merge data from two tables into a single report field:

- The two tables **must** have at least one database item in common. Typically, the database items in common are indexes.
- Both table names must be entered in the **Table** field of the Row Search ID assigned to the field.
- At least one join clause must appear in the Row Search ID assigned to the field. A **join clause** makes the values that CMS searches on the same in both tables. In this way, the data extracted from the rows in both tables will be related.

A join clause has the following format:

```
tablename1.item1 = tablename2.item1
```

Where `item1` is a database item that the tables have in common.

- You **must** append the table name to each database item included in the **select rows where:** statement. This rule applies to all database items, even those that are not in a join clause.
- A join clause must use a database item that is also included with a regular “where” clause (one that directly assigns a value or variable name to the database item).



The syntax of a join clause is similar to that in standard INFORMIX SQL syntax. See the *INFORMIX-SQL Relational Database Management System User Guide* for INFORMIX SQL Version 2.10.03J.



If you run a report that merges data from two tables (particularly tables with large amounts of data) into a single field and your **select rows where** statement is not specific enough, you may get an error message when you test the design. The specific cause may be that the number of selected rows is very large, and CMS does not have enough space to create temporary files. If this is the case, you should add additional “where” clauses to the row search criteria.

Often, you will need several join clauses in a Row Search ID. For example, if you define a report field that contains the following data expression:

```
hagent.ACDCALLS/hsplit.ACDCALLS
```

You must first specify row search values for either the **hagent** or **hsplit** table. For example, you might enter the following “where” clauses:

```
hsplit.SPLIT = $i_split and hsplit.ROW_DATE = $i_date
and hsplit.STARTTIME = $i_time and hsplit.ACD = $acd
```



Notice that tablenamees are appended to each database item.

You must then specify join clauses so that the rows found in one table are related to the values found in the other table. In this example, you would add join clauses (shown in bold) for every regular “where” clause:

```
hsplit.SPLIT = $i_split and hsplit.ROW_DATE = $i_date
and hsplit.STARTTIME = $i_time and hsplit.ACD = $acd
and hsplit.SPLIT = hagent.SPLIT and hsplit.ROW_DATE =
hagent.ROW_DATE and hsplit.STARTTIME = hagent.STARTTI
ME and hsplit.ACD = hagent.ACD
```

To illustrate how this row search selection would affect data in a report, say the report had the design as shown in Figure 6-6.

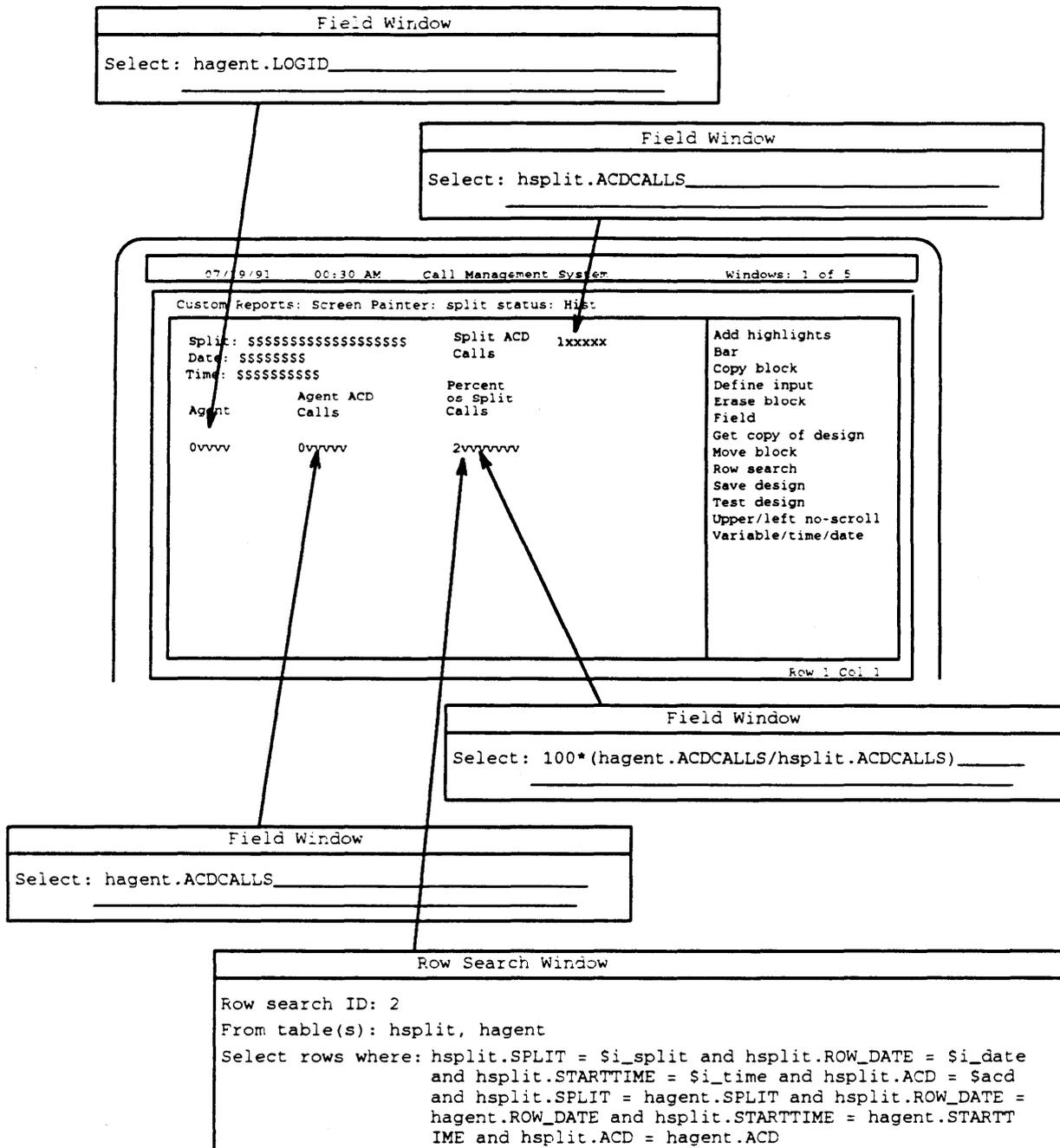


Figure 6-6: Report Design With Data From Two Tables Merged in a Field

Notice that the Percent of Split Calls field merges data as discussed in our example. Also notice that Row Search ID # 2, which is assigned to the Percent of Split Calls field, contains the row search statement as discussed in our example.

To illustrate the effect of join clauses, the report design in Figure 6-6 includes the Agent ACD Calls and Split ACD Calls fields. Notice that each field uses a database item that is also included in the Percent of Split Calls field.

When the report is run, the Percent of Split Calls field will, for each agent in the selected split, divide that agent's ACD calls by the total ACD calls for the split, then multiply by 100 to give a percentage. Thus, as in Figure 6-7, if agent 1000 had 23 ACD calls, and the split Sales-West had 412 ACD calls, the Percent of Split Calls for agent 1000 would be 5.583 ($100 * [23/412]$).

07/19/91 00:30 AM Call Management System Windows: 1 of 5

Custom Reports: Hist: split status

Split: Sales-West Split ACD 412
 Date: 06/08/92 Calls
 Time: 8:00am

Agent	Agent ACD Calls	Percent of Split Calls
1000	23	5.583
1004	18	4.369
1005	18	4.369
1009	21	5.097
1010	24	5.825
1012	23	5.583

Figure 6-7: Sample Report With Merged Data

Other Alternative Row Search Conditions

For your row search conditions, you will most often use the “where” clauses described in Chapter 4. However, several additional “where” clause formats are available. This section describes those formats.

Selecting Rows Based On a Range of Values

If you want a range of splits included in the report, you might use two “where” clauses as in the following example:

```
Select rows where: SPLIT >= 1 and SPLIT <= 5
```

Then, when you run the report, CMS will find rows for Splits 1 through 5, as shown in the following illustration.

SPLIT	ACDCALLS	ABANDONS	ACDTIME	ABNTIME	
1	443	48	36898	988	...
2	234	37	20012	777	...
3	111	20	13111	400	...
4	652	59	53442	1058	...
5	451	32	27635	644	...
6	93	11	15321	245	...
7	509	43	35401	851	...
8	391	31	19768	603	...
9	142	10	9786	203	...
10	480	39	33389	789	...

Note In most cases, the easiest way to specify a range is to define a report input field that will accept a range. See the section, “Selecting Rows With User Inputs” in Chapter 4.

Using Apostrophes For Some Database Item Values

Some database items require that, if you **hardcode** values in a “where” clause, you enclose the values in apostrophes (’), as shown in the following example.

```
Select rows where: ROW_DATE > '07/01/90'
```

Standard database items whose values you must enclose in apostrophes are:

VDN (the value is a VDN number)
EXTENSION (the value is an extension number)
LOGID (the value is an agent login ID)
EQLOC (the value is a 9-digit trunk location number)
ROW_DATE (the value is a date in mm/dd/yy format)
CWC (the value is a call work code of 1 to 16 digits)

Also, any custom database items you define as CHAR or DATE columns in INFORMIX are items whose hardcoded values you must enclose in apostrophes.

For historical reports only, an alternative format for these database items is:

```
Expression matches 'value'
```

In this type of clause, matches is the same as =. However, this type of clause lets you use wildcard searches. That is, within the apostrophes, you can use an asterisk (*) or a question mark (?).

The asterisk (*) matches any and all characters, including blanks and no characters. Look at the following examples:

```
Select rows where: EQLOC matches '01*'
```

This clause finds all rows where the EQLOC value begins with 01, which would mean all trunks for module 01. Thus, 01001202, 01021111, and 01102310 are values that would match.

```
Select rows where: ROW_DATE matches '*/01*'
```

This clause finds all rows where the ROW_DATE value has 01 as its dd (day of the month). That is, the clause searches for the first day of each month. Thus, 01/01/90, 04/01/91, and 10/01/92 are values that would match.

Note Actually, */01* would also find all dates, if they had passed, in the year 2001 (for example, 01/22/01, 08/03/01, and 11/31/01).

The question mark (?) matches any single character. Look at the following examples:

```
Select rows where: EXTENSION matches '444?'
```

This clause finds all rows where the EXTENSION value is four digits and has 444 as the first three characters. Thus, 4441, 4440, and 4449 would match. However, 444 would not match.

```
Select rows where: LOGID matches '?000'
```

This clause finds all rows where the LOGID value is four digits, begins with any number, and ends with "000." Thus, 4000, 5000, and 9000 would match. 000 would not match.

You can use **not** in a "matches" clause to exclude rows. For example, you may want to exclude a range of login IDs from your report with a clause like the following:

```
Select rows where: LOGID not matches '2*'
```

This clause finds all login IDs except those starting with "2." If you have 4-digit login IDs, login IDs from 2000 to 2999 would be excluded.

Using String-value Database Items

String-value database items contain numerical data that the Dictionary translates to display current states or state changes. For example, a report field using the string-value database item **WORKMODE** will display **AVAIL**, **ACD**, **ACW**, and so on, depending on what state the particular agent is currently in. However, tables store states as numbers, not strings. When you run a report, CMS simply substitutes the character strings for the numerical values. This process is identical to the substitution of names for split numbers, trunk group numbers, vectors, and so on.

If you want to use string-value database items in a “where” clause, you must specify numerical values, not string values.

For example, say that you want a current real-time agent report listing data only for agents on extension-in or extension-out calls. You can select the Current Interval Agent table and enter a statement as follows:

```
Select rows where: SPLIT = $splitvar and WORKMODE > 10 and
                    WORKMODE < 60
```

This statement says to find rows for a user-specified split where the agent state is one of the following:

AVAIL (numerical value of 20)
ACD (numerical value of 30)
ACW (numerical value of 40)
AUX (numerical value of 50)

See Table A-29 in Appendix A for a complete list of row search values for string-value database items.

Other Available Formats For “Where” Clauses

For historical reports only, you may specify a list of hardcoded values using the following format:

```
Expression in (list of values)
```

As with a basic “where” clause, the `Expression` can be a database item or calculation. The values you list in the parentheses must be separated by commas. Also, you must use apostrophes for those values that normally require them. For example, the following “where” clause specifies three dates for the report:

```
Select rows where: ROW_DATE in ('07/01/91','07/08/91',
                                '07/15/91')
```

The following “where” clause specifies three splits for the report:

```
Select rows where: SPLIT in (1,7,22)
```

For historical reports only, you can also exclude rows using a list of values by adding `not` to the clause. Using `not` can be extremely useful if you want to exclude, for example, lunch time intrahour intervals from your intrahour historical reports, as shown in the following example:

```
Select rows where: STARTTIME not in (1130, 1200,  
1230).
```

Repeating Aggregate Function Values in Historical Reports

Normally, a field (or bar) that contains an aggregate function (**sum**, **max**, **min**, or **avg**) displays just one value. This is true no matter what your “Select rows where” criteria is. Therefore, you would normally select “discrete” as the field/bar type in the row search ID assigned to aggregate functions.

However, you may at times want CMS to display multiple values for an aggregate function. **In historical reports only**, CMS can display multiple values for an aggregate function. For CMS to do this, the aggregate function **must** share a row search ID with one or more fields that do not have an aggregate function.

For example, you may want a report (Figure 6-8) that shows the maximum (max) ACD calls in an interval for each of a variety of splits.

Date: 07/01/91

	Max ACD Calls-
Split	Morning
1	652
2	491
3	297

Figure 6-8: Sample of Repeated Aggregate Function Report

This report would have the following design.

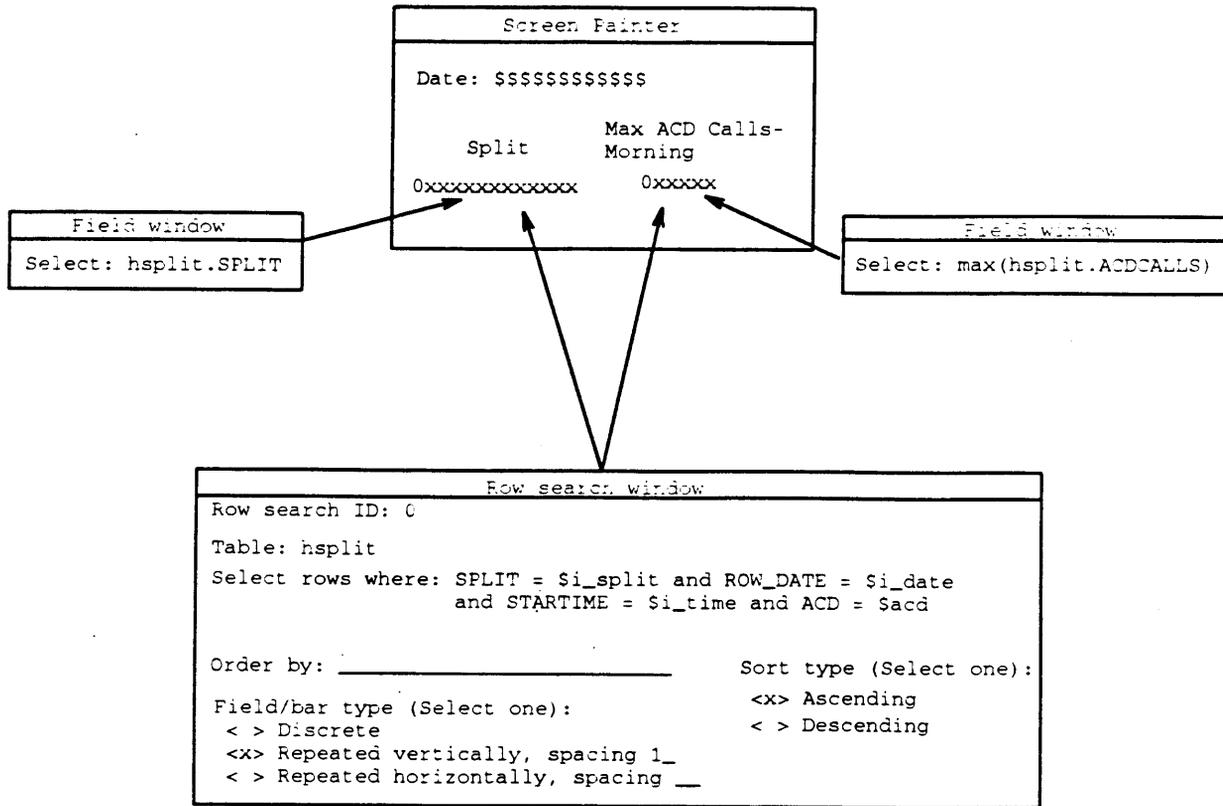


Figure 6-9: Sample Report Design for Repeated Aggregate Functions

According to the design, CMS searches the Intrahour Split table (Figure 6-10) for the splits the user ordered when running the report (Splits 1, 2, and 3 in our example). CMS also searches for date (07/01/91 in our example) and the maximum ACD calls (in boxes) in the selected range of intrahour intervals for each of the selected splits.

DATE	INTERVAL	SPLIT	ACDCALLS	ABANDONS	ACDTIME	ABNTIME
070191	0800	1	443	48	36898	988
070191	0800	2	234	37	20012	777
070191	0800	3	111	20	13111	400
070191	0900	1	652	59	53442	1058
070191	0900	2	451	32	27635	644
070191	0900	3	93	11	15321	245
070191	1000	1	509	43	35401	851
070191	1000	2	391	31	19768	603
070191	1000	3	142	10	9786	203
070191	1100	1	480	39	33389	789
070191	1100	2	491	22	26789	549
070191	1100	3	297	15	12530	402
070291	0800	1	399	36	37651	1452
070291	0800	2	299	20	29602	7616
070291	0800	3	138	13	11523	2569
070291	0900	1	400	46	36178	1745
070291	0900	2	300	33	24303	1109
070291	0900	3	225	12	15628	367
070291	1000	1	394	40	40002	1322
070291	1000	2	323	34	29881	1188
070291	1000	3	105	14	12115	704
070291	1100	1	418	41	34819	1256
070291	1100	2	246	30	21173	980
070291	1100	3	100	18	10281	589
070391	0800	1	417	34	37856	1340
070391	0800	2	247	24	26308	1299
070391	0800	3	141	14	12567	688
070391	0900	1	444	43	39003	1001

Figure 6-10: Sample Row Search of Grouped Aggregate Functions

CMS would then display the values found in the report. However, notice in Figure 6-10 that CMS found four rows with the `SPLIT` value of 1, four rows with `SPLIT` value 2 and four rows with `SPLIT` value 3, but only displayed each value once in the report. This is because the aggregate function `max(hsplit.ACDCALLS)` field shares the same row search ID with the `hsplit.SPLIT` field.

If the `hsplit.SPLIT` field and the `max(hsplit.ACDCALLS)` fields were assigned different row search IDs (with each ID having identical criteria), the report for Splits 1, 2, and 3 would show data as follows:

Date: 07/01/91

	Max ACD Calls-
Split	Morning
1	652
1	
1	
1	
2	
2	
2	
2	
3	
3	
3	
3	

The display of a value once only to represent multiple occurrences of the same value is called **grouping** and can be done only when sum, max, min, or avg values are listed based on the unique values found for other fields. The rules for grouping data are as follows:

- If you assign a row search ID to one or more aggregate function fields, you may assign the same row search ID to a maximum of 8 non-aggregate fields.
- Assigning the same row search ID to both aggregate functions and non-aggregate fields makes sense only if the non-aggregate fields contain identifier data (split numbers, login IDs, dates, interval start times, vector numbers, and so on).
- If you assign the same row search ID to both aggregate functions and a non-aggregate field, the report will display a single value for each unique value found for the non-aggregate field (that also matches the row search criteria). If multiple rows contain the same value, CMS will still list the value only once. For this reason, only identifier fields should have the same row search ID as aggregate functions.
- If you assign the same row search ID to aggregate functions and **more than one** non-aggregate field, the report will display a single row of data for each unique **combination** of values for the non-aggregate fields.

Chapter 7

Dictionary

	Page
General Information	7-1
Dictionary Menu	7-1
Dictionary-Specific Rules	7-2
Calculations	7-3
Purpose	7-3
Things to Know Before You Start	7-3
Prerequisite System Administration	7-3
Relationships to Other Subsystems	7-4
Calculations Window	7-4
Field Descriptions	7-4
Constants	7-6
Purpose	7-6
Things to Know Before You Start	7-6
Prerequisite System Administration	7-6
Constants Window	7-7
Field Descriptions	7-7
Database Items >	7-8
Database Items Submenu	7-8
Agent String Values	7-9
Things to Know Before You Start	7-9
Prerequisite System Administration	7-9
Relationships to Other Subsystems	7-9
Agent String Values Window	7-10
Field/Action List Usage	7-10
Field Descriptions	7-10
Split String Values	7-13
Things to Know Before You Start	7-13
Prerequisite System Administration	7-13
Relationships to Other Subsystems	7-13
Split String Values Window	7-14
Field/Action List Usage	7-14
Field Descriptions	7-14
Trunk String Values	7-16
Things to Know Before You Start	7-16
Prerequisite System Administration	7-16
Relationships to Other Subsystems	7-16
Trunk String Values Window	7-17
Field/Action List Usage	7-17
Field Descriptions	7-17
Standard CMS Items	7-20
Things to Know Before You Start	7-20

Prerequisite System Administration	7-20
Standard CMS Items Window	7-20
Field/Action List Usage	7-21
Field Descriptions	7-21
Custom Items	7-22
Things To Know Before You Start	7-22
Prerequisite System Administration	7-22
Custom Items Window	7-22
Field/Action List Usage	7-23
Field Descriptions	7-23
Global Search	7-24
Purpose	7-24
Things to Know Before You Start	7-24
Prerequisite System Administration	7-24
Global Search Window	7-25
Field Descriptions	7-25
Report	7-26
Purpose	7-26
Prerequisite System Administration	7-26
Report Window	7-26
Field/Action List Usage	7-27
Field Descriptions	7-27

List of Figures

Figure 7-1: Calculations Window Example	7-4
Figure 7-2: Constants Window Example	7-7
Figure 7-3: Database Items Menu	7-8
Figure 7-4: Agent String Values Window Example	7-10
Figure 7-5: Split String Values Window Example	7-14
Figure 7-6: Trunk String Values Window Example	7-17
Figure 7-7: Standard CMS Items Window Example	7-20
Figure 7-8: Custom Items Window Example	7-22
Figure 7-9: Global Search Example	7-25
Figure 7-10: Dictionary Report Input Window	7-26

General Information

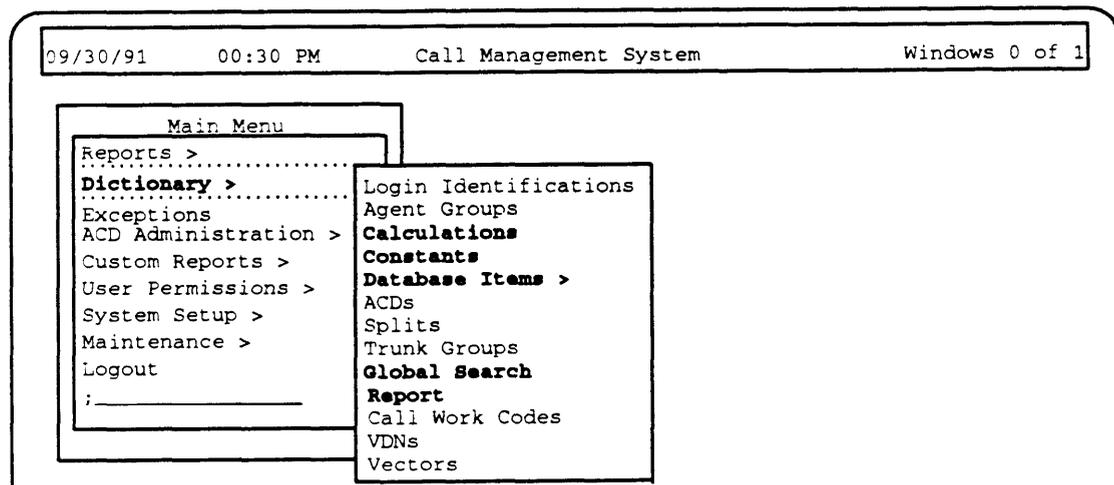
Use the Dictionary subsystem to view, add, and change the following data items that you include in a custom report:

- Standard database items
- Custom database items
- Calculations
- Constants

This chapter describes how to do these things. In addition, this chapter describes how to do searches for existing items and how to get reports that list these items.

Dictionary Menu

The following illustration shows, in bold, the areas of Dictionary most useful to you when designing custom reports.



Dictionary- Specific Rules

- Names (synonyms) must begin with a letter of the alphabet.
- Dictionary names may be from 1 to 20 characters (alphanumerics, underscore, blank, comma, period, apostrophe, and plus accepted).
- Dictionary descriptions will **not** accept the backslash (\), grave accent (`), tilde (~), double quotes ("), pipe symbol (|), asterisk (*), question mark (?), and semicolon (;).
- Names must be unique within each section of the dictionary (that is, you can name trunk group 1 “sales” and split 1 “sales”, but you cannot name split 1 “sales” and split 2 “sales”).
- Pattern searching is allowed for string fields — that is, if you know your field entry begins with the letters “ac”, you can enter “ac*” in the field. The asterisk (*) matches any character that follows the “ac”. You could have several matches, no match, or only one match. If you enter “*” in the field and nothing else or leave the field blank, you will get a list of everything.

Calculations

Purpose

A calculation name is an abbreviated name for a calculation that is used to create report output. You can view or change standard calculations, or create your own custom calculations for use in custom reports. The calculations for standard reports already exist in the Dictionary.

Things to Know Before You Start

- All CMS calculations appear in Appendix A, “Database Items and Calculations.”
 - You cannot delete standard calculations.
 - You should identify your own calculations with an all-lower-case letter format to distinguish them from the standard CMS calculations, which have an all-upper-case letter format.
 - If you change a standard CMS calculation, standard reports could be adversely affected.
 - You cannot embed calculations within calculations to more than three levels deep. Your reports will not run if you do.
 - You cannot create calculations that reference each other in a circular fashion. Your reports will not run if you do.
 - The “Dictionary-Specific Rules” apply.
 - See Chapter 2, “User Basics,” in the CMS Administration (585-215-511) document for the action list procedures, common rules for field entry items, and field editing information.
-

Prerequisite System Administration

- To view calculations, you must have **read** permission for the Dictionary subsystem.
- To change or create a new calculation, you must have **write** permission for the Dictionary subsystem. See Chapter 10, “User Permissions” in the CMS Administration (585-215-511) document for more information.

Relationships to Other Subsystems

Reports

Standard reports use calculations. You should become familiar with the calculations to understand standard reports better.

Calculations Window

To view calculations, standard or custom, and to add, delete, or modify your own calculations, use the Calculations window.

09/30/91 00:30 PM Call Management System Windows 1 of 1

Dictionary: Calculations All ACDs

Calculation name: _____

Calculation: _____

Description: _____

Add
Delete
Find one
List all
Modify
Next
Previous

Figure 7-1: Calculations Window Example

Field Descriptions

Calculation name:

Enter the name of the calculation you want to view, add to the database, modify, or delete.

Calculation:

Enter the calculation as an arithmetic expression. For example, the agent calculation "Average ACD Talk Time" is:

ACDTIME/ACDCALLS



Spaces are allowed in calculations.

Calculations can include:

- Database items (for example, ACDCALLS for ACD calls)
- Constants
- Other calculation(s)
- The following arithmetic operators:
 - + (Add)
 - (subtract)
 - * (multiply)
 - / (divide)
 - () (do first, as in standard mathematical operations).

Note Do not append table names to the database items in the calculation.

Description

Enter a description of the calculation.

Constants

Purpose

A constant is the name you assign to a fixed numerical value. A constant can be useful if you need to use the same numerical value in multiple custom reports. Then, if you need to change the value, you can change it once in Dictionary, and all custom reports that use the constant will reflect the change.

Note No constants are used in standard reports, and no constants exist in CMS when it is first installed.

Things to Know Before You Start

- The “Dictionary-Specific Rules” apply.
- See Chapter 2, “User Basics,” in the CMS Administration document for the action list procedures, common rules for field entry items, and field editing information.

Prerequisite System Administration

- To view a constant, you need **read** permission for the Dictionary subsystem.
- To add, delete, or change a constant, you need **write** permission for the Dictionary subsystem.
- See Chapter 10, “User Permissions,” in the CMS Administration document for more information.

Constants Window

To add, delete, modify, or view constants, use the Constants window.

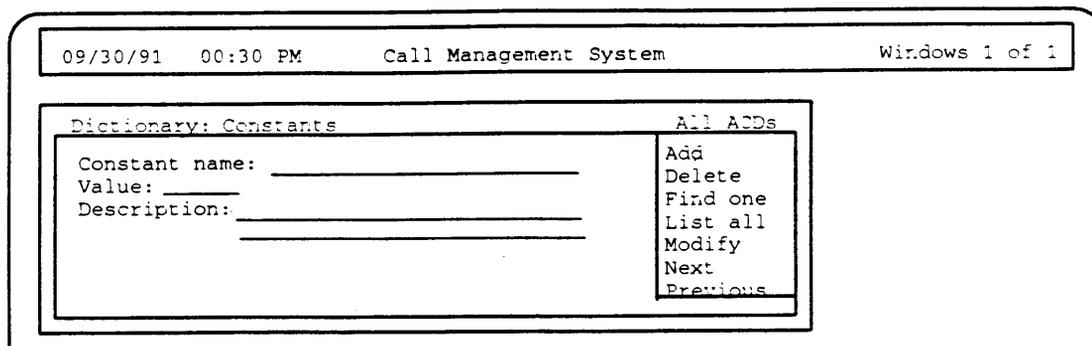


Figure 7-2: Constants Window Example

Field Descriptions

Constant name:

Enter the name of the constant you want to view, add, delete, or modify in the database.

The common rules for entering names applies.

Value:

Enter the numerical value of the constant.

Description:

Enter your description of the constant.

Database Items >

The Database Items subsystem is divided into the following five categories. Descriptions follow for each one.

- Agent String Values
 - Split String Values
 - Trunk String Values
 - Standard CMS Items
 - Custom Items.
-

Database Items Submenu

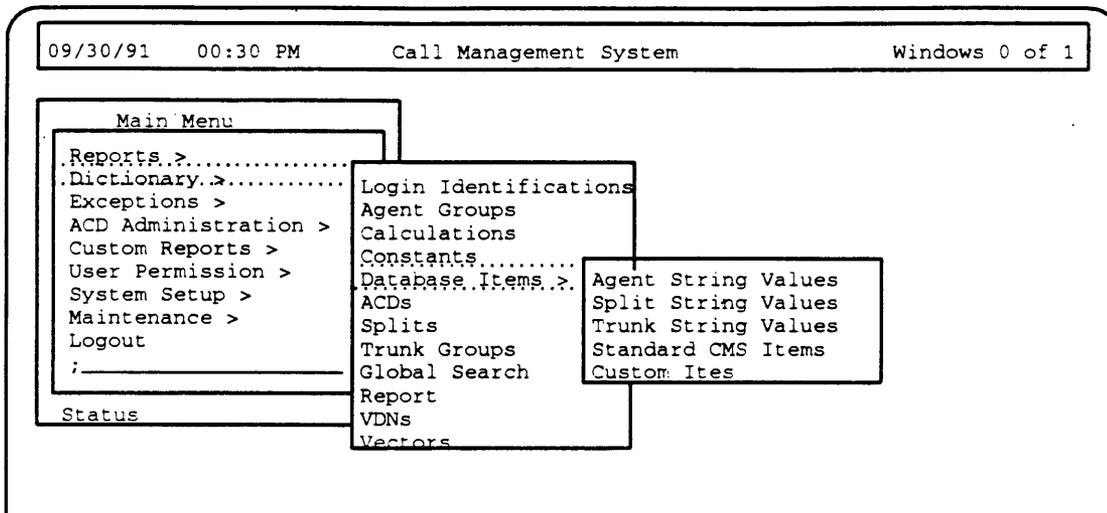


Figure 7-3: Database Items Menu

Agent String Values

Agent string values are the descriptive words that appear on reports dealing with agents. The *word* is used to describe the value of the data. From the Agent String Values window, you can change the CMS default values for these words to correspond to your own requirements.

Things to Know Before You Start

- If you assign values that are longer than the field lengths allowed on standard reports, the values will be truncated on those reports.
- The “Dictionary-Specific Rules” apply.
- See Chapter 2, “User Basics,” in the CMS Administration document for the action list procedures, common rules for field entry items, and field editing information.

Prerequisite System Administration

- To view agent string values, you need **read** permission for the Dictionary subsystem.
- To change any value, you need **write** permission for the Dictionary subsystem.
- See Chapter 10, “User Permissions” in the CMS Administration document for more information.

Relationships to Other Subsystems

Reports

Any change you make here affects what you see in the descriptive data (word) fields on your standard agent reports.

Agent String Values Window

Use the Agent String Values Window to change an agent string value.

01/30/92 00:30 PM Call Management System Windows 1 of 4

Dictionary: Database Items: Agent String Values All ACDs

Work Mode		Call Direction	Modify
ACD:	ACD	IN:	IN
ACW:	ACW	OUT:	OUT
AUX:	AUX	Call Origination	
AVAIL:	AVAIL	PHONE:	PHONE
DACD:	DACD	ADJUNCT:	ADJUNCT
DACW:	DACW	Call Destination	
OTHER:	OTHER	PBX:	PBX
RINGING:	RINGING	OFF:	OFF
UNKNOWN:	UNKNOWN	Agent Trace Work Mode	
UNSTAFF:	UNSTAFF	LOGON:	LOGON
		LOGOFF:	LOGOFF

Figure 7-4: Agent String Values Window Example

Field/Action List Usage

This window is displayed with the default values for each agent state. If you clear a field and do a *Modify*, that state field is “blanked out.”

Field Descriptions

Agent Work Mode

If you want to modify any of the agent work mode names, enter your descriptive word in the appropriate work mode field. Agents can be in any one of the following work states:

- ACD: — The agent is on an ACD call.
- ACW: — The agent is in the after call work state.
- AUX: — The agent is in the auxiliary work state.
- AVAIL: — The agent is available to take an ACD call.
- DACD: — The agent is on a direct agent ACD call.
- DACW: — The agent is in the after call work state for a direct agent ACD call.
- OTHER: — The agent is working on a direct agent call, working on a call for another split, or has put a call on hold and has not chosen another work mode.

- **RINGING:** — An ACD call is ringing at the agent's voice terminal.
- **UNKNOWN:** — CMS does not recognize the current state (for example, when the link first comes up and before the switch sends data, CMS cannot recognize the state).
- **UNSTAFF:** — The agent is not staffed (logged into CMS).

The associated database item is **WORKMODE**.

Agent Trace Work Mode

If you want to modify the default agent trace work modes, enter your change next to **LOGON** or **LOGOFF**.

- **LOGON:** — An agent is logged in and available to take ACD calls.
- **LOGOFF:** — An agent is logged out and not available to take ACD calls.

The associated database item is **WORKMODE**.

Call Direction

If you want to modify the default call direction names, enter the change next to **IN** or **OUT**.

- **IN:** — The agent is currently on an incoming call.
- **OUT:** — The agent is currently on an outbound call.

The associated database item is **DIRECTION**.

Call Origination

Note Call origination is used only with the OCM (Outbound Call Management) feature. For more information on OCM, see the documentation shipped with your OCM software package.

If you want to change the default call origination names, enter your change next to **PHONE** or **ADJUNCT**. Agents can be on three different types of outbound calls:

- **PHONE:** — The agent dials an outbound call using the voice terminal (telephone) dialing pad.
- **ADJUNCT:** — The agent is on an outbound ACD call initiated by a separate adjunct processor.

The associated database item is **ORIGIN**.

Call Destination

If you want to modify the default call destination names, enter your change next to `PBX` or `OFF`.

Note Call destination is used only with the OCM (Outbound Call Management) feature. For more information on OCM, see the documentation shipped with your OCM software package.)

- `PBX`: — Internal to the switch.
- `OFF`: — To an outside switch location.

The associated database item is **DESTINATION**.

Split String Values

Split string values are the descriptive words that appear on the Split Call Profile reports. The *word* is used to describe the value of the data. From the Split String Values window, you can change the CMS default string values to correspond to your own requirements.

Things to Know Before You Start

- If you assign values that are longer than the field lengths allowed on standard reports, the values will be truncated to fit on those reports.
- The “Dictionary-Specific Rules” apply.
- See Chapter 2, “User Basics,” in CMS Administration document for the action list procedures, common rules for field entry items, and field editing information.

Prerequisite System Administration

- To view any of the split string values, you need **read** permission for the Dictionary subsystem.
- To change any split string values, you need **write** permission for the Dictionary subsystem.
- See Chapter 10, “User Permissions,” in the CMS Administration document for more information.

Relationships to Other Subsystems

Reports

Any change you make here affects what you see in the descriptive data (word) fields on the Split Call Profile report.

Use the Split String Values Window to change a split string value.

Split String Values Window

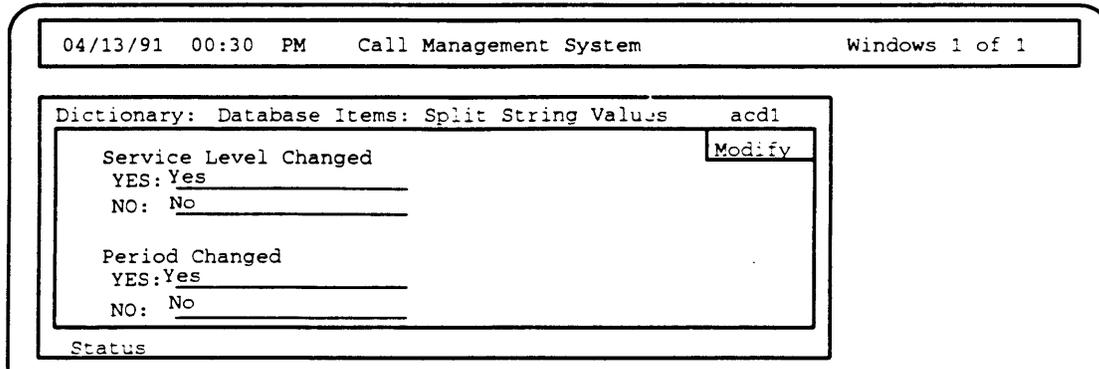


Figure 7-5: Split String Values Window Example

Field/Action List Usage

This window is displayed with the default values for each agent state. If you clear a field and do a `Modify`, that state field is “blanked out.”

Field Descriptions

Service Level Changed

On the Split Call Profile window (see Chapter 9, “ACD Administration” in the CMS Administration document), you can change the service levels at any time. From the Split - String Values window, you can modify the following *service level changed* default values that appear on the Split Call Profile report:

- **YES:** — If you do not want **YES** to appear when you have changed your service level on the Split Call Profile window, enter your descriptive word.
- **NO:** — If want something other than **NO** to appear if you have not changed your service level, enter your descriptive word here.

The associated database item is **SVCLEVELCHG**.

Period Changed

On the Split Call Profile report (both real-time and historical), there are ten time periods of administrable length. You can modify the following *period changed* default values that appear on the Split Call Profile report:

- **YES:** — Appears if you change the time periods on the Split Call Profile report. If you want to change **YES**, enter your descriptive word.

- NO: — Appears if you have not changed the time periods on the Split Call Profile report. If you want to change NO, enter your descriptive word.

The associated database item is **PERIODCHG**.

Trunk String Values

Trunk string values are descriptive words that you see on trunk reports (for example, IDLE, HOLD, QUEUED, etc). A *word* is used to describe the value of the data. From the Trunk String Values window, you can change the CMS default values that appear on these reports to anything that fits your particular needs.

Things to Know Before You Start

- If you assign values that are longer than the field lengths allowed on standard reports, the values will be truncated to fit on those reports.
- If you do **not** assign different values to the Trunk String Values, the default value will be used.
- The “Dictionary-Specific Rules” apply.
- See Chapter 2, “User Basics,” in CMS Administration document for the action list procedures, common rules for field entry items, and field editing information.

Prerequisite System Administration

- To view any trunk string values, you need **read** permission for the Dictionary subsystem.
- To make any changes to trunk string values, you need **write** permission for the Dictionary subsystem.
- See Chapter 10, “User Permissions,” in the CMS Administration document for more information.

Relationships to Other Subsystems

Reports

Any changes you make to the trunk string values affect what you see in the descriptive data (word) fields on any of the standard trunk reports.

Trunk String Values Window

Use the Trunk String Values Window to change a trunk string value.

04/13/91 00:30 PM Call Management System Windows 1 of 1

Dictionary: Database Items: Trunk String Values All ACDs

Trunk State	Call Priority (Non-vectoring)	Modify
IDLE: IDLE	YES: YES	
SEIZED: SEIZED	NO: NO	
QUEUED: QUEUED	Call Priority (Vectoring)	
CONN: CONN	LOW: LOW	
DABN: DABN	MED: MED	
FBUSY: FBUSY	HIGH: HIGH	
FDISC: FDISC	TOP: TOP	
HOLD: HOLD	Call Direction	
MBUSY: MBUSY	IN: IN	
RINGING: RINGING	OUT: OUT	
UNKNOWN: UNKNOWN	All Trunks Busy	
Queue Type	YES: YES	
MAIN: MAIN	NO: NO	
BACKUP: BACKUP		

Figure 7-6: Trunk String Values Window Example

Field/Action List Usage

This window is displayed with the default values for each agent state. If you clear a field and do a *Modify*, that state field is “blanked out.”

Field Descriptions

Trunk State

If you want to modify any of the trunk states, enter your descriptive word next to any of the following trunk states. Trunks can be in any of the following states:

- **IDLE:** — The trunk is waiting for a call.
- **SEIZED:** — A call is holding the trunk, either incoming or outgoing.
- **QUEUED:** — An ACD call has seized a trunk and is queued to a split waiting for an agent to become available.
- **CONN:** — The caller and an agent are connected on an ACD call.
- **DABN:** — The queued caller abandoned the call.

- **FBUSY:** — The caller receives forced busy signal if you have a Generic 1, Generic 3i, Generic 3r, or Generic 2/System 85 with Call Vectoring.
- **FDISC:** — The caller receives a forced disconnect. This appears only if you have the Vectoring feature.
- **HOLD:** — The agent has put the caller on hold.
- **MBUSY:** — The trunk is out of service for maintenance purposes.
- **RINGING:** — The call is ringing at an agent's voice terminal.
- **UNKNOWN:** — CMS cannot recognize the trunk state.

The associated database item is **TKSTATE**.

Queue Type

To replace the default value for queue type, enter your descriptive name next to any of the following. The name you enter here will appear instead of the default in any real-time reports containing the trunk database item queue type. (No standard reports contain this item.)

- **MAIN:** — The call seizing the trunk is queued to a split as a result of a "queue to main split" vector command.
- **BACKUP:** — The call seizing the trunk is queued to a split as a result of a "check backup split" vector command.

The associated database item is **QUETYPE**.

Call Priority (Non-vectoring)

To replace the call priority default values, enter your descriptive name next to any of the following.

- **YES:** — The call seizing the trunk has priority entering the split.
- **NO:** — The call seizing the trunk does not have priority entering the split.

The associated database item is **PRIORITY**.

Call Priority (Vectoring)

To replace the call priority with vectoring default values, enter your descriptive name next to any of the following. The priority level at which calls on a trunk will queue to a split is specified using either the “queue to main split” or “check backup split” command in the vector associated with the trunk. The name you enter here will appear instead of the default in real-time reports containing the trunk database item `priority`. (No standard reports contain this item.)

- **LOW:** — The call seizing the trunk is queued to a split at the lowest priority level.
- **MED:** — The call seizing the trunk is queued to a split at the second lowest priority level.
- **HIGH:** — The call seizing the trunk is queued to a split at the second highest priority level.
- **TOP:** — The call seizing the trunk is queued to a split at the highest priority level.

The associated database item is **PRIORITY**.

Call Direction

If you want to modify the call direction items, enter the change next to **IN** or **OUT**.

- **IN:** — The trunk is currently carrying an incoming call.
- **OUT:** — The trunk is currently carrying an outgoing call.

The associated database item is **DIRECTION**.

All Trunks Busy

To change your all trunks busy default values, enter your change next to any of the following.

- **YES:** — All trunks are currently busy (in use or **MBUSY**).
- **NO:** — Not all trunks are busy.

The associated database item is **ALLINUSE**.

Standard CMS Items

Standard CMS items (database items) are names of columns in CMS database tables. CMS uses these tables to collect, store, and retrieve ACD data.

Things to Know Before You Start

- You cannot modify or delete standard database items.
- You can only view information about each database item. This section of the Dictionary is **read** only.
- The “Dictionary-Specific Rules” apply.
See Chapter 2, “User Basics,” in the CMS Administration document for the action list procedures, common rules for field entry items, and field editing information.

Prerequisite System Administration

- You need **read** permission for the Dictionary subsystem to view the database items.

Standard CMS Items Window

Use the Standard CMS Items Window to view standard database items in Dictionary.

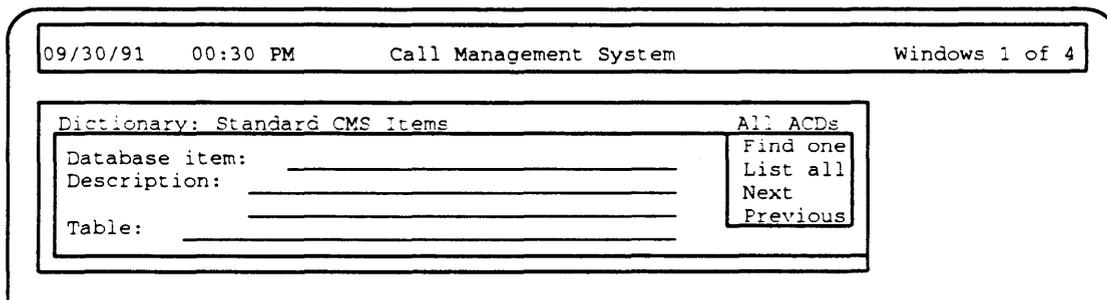


Figure 7-7: Standard CMS Items Window Example

Field/Action List Usage

- You may use pattern searching in any of the fields on the Standard CMS Items window.
- `List all` displays the database item name, the table in which the item occurs, and a description of the database item.

Field Descriptions

Database item:

Enter the name of the database item you want to look up.

Description:

This is a display-only field that describes the database item.

Table:

This is a display-only field that lists all the tables (one table at a time) that contain this particular database item (real-time and historical).

Custom Items

From the Custom Items window, you define database items which appear in the tables you created in INFORMIX. This allows you to combine your own data with CMS data on custom reports. You will also be able to add, change, or delete your own database items.

Things To Know Before You Start

- The custom table(s) you create in INFORMIX **must** begin with `c_` (lower-case “c” and an underscore). This prefix is required so that CMS can identify the table as a custom data table.
- You should enter custom items in lower-case letters so that you can readily distinguish custom items from standard database items.
- You can enter names for custom items that are the same as those for standard database items. However, to do so, you **must** enter the custom item name in lower-case letters.
- When you are working in the Screen Painter, you must always enter the custom item name in the case (upper- or lower-) that you used when you defined the item in the Custom Item window.

Prerequisite System Administration

- You need **write** permission for the Dictionary subsystem.
- You should first create the table in INFORMIX and the column for which you are entering a custom database item.

Custom Items Window

Use the Custom Items Window to define custom database items in Dictionary.

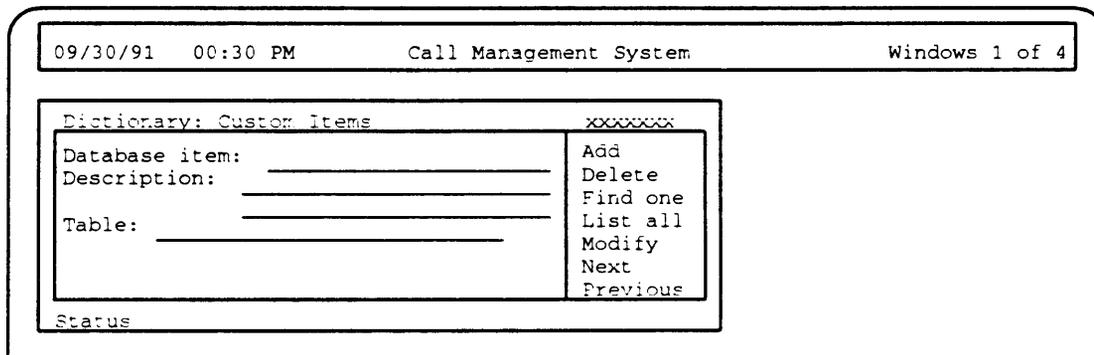


Figure 7-8: Custom Items Window Example

Field/Action List Usage List all displays the database item name, the table in which it occurs, and a description of the database item.

Field Descriptions**Database item:**

Enter the custom database item you want to add, modify, delete, or view. The custom database item must be unique with the table you specify in the table field.

Description:

Enter a description of your database item. You can add, modify, or delete this description.

Table:

Enter the name of the table in which this particular database item appears. You should first create and define the table in INFORMIX.

Global Search

Purpose

From Global Search, you can search for anything in the Dictionary. This might be a login ID or a group of login IDs; split, trunk, or ACD names; database items; calculations; agent names; etc.

Things to Know Before You Start

- You can search on any pattern of characters.
- You can also search on any pattern that includes an asterisk (*) or question mark (?). For example, `sales*` might find `sales1`, `sales-Phoenix`, `Sales Agents`.



If you enter an asterisk (*) by itself, you will get **everything** in the Dictionary subsystem. This will take a very long time and use a lot of processor time.

- Searching is case-sensitive.
 - The “Dictionary-Specific Rules” apply.
 - See Chapter 2, “User Basics,” in the CMS Administration document for the action list procedures, common rules for field entry items, and field editing information.
-

Prerequisite System Administration

- To search for anything in the Dictionary, you must have **read** permission for the Dictionary subsystem.

Global Search Window

Use the Global Search Window to find items (of any kind) stored in Dictionary.

09/30/91 00:30 PM Call Management System Windows 1 of 2

Dictionary: Global Search Input All ACDs

Search for: Sales Run

Status

Dictionary: Global Search All ACDs

Value matched	Field matched	In submenu	Name
Sales	Split name	Splits	Sales
Sales	Agent group name	Agent Groups	Sales

Figure 7-9: Global Search Example

Field Descriptions

Search for:
Enter your search pattern.

Value matched (Display only field)
The match for your search pattern.

Field matched (Display only field)
The name of the field in which your search pattern was found.

In submenu (Display only field)
The Dictionary submenu where your search pattern was found.

Name (Display only field)
The name that corresponds to the Value matched field.

Report

Purpose

From the Report window, you may select any section of the Dictionary listed on the Report window to be printed or displayed in a set of reports (one report for each section of the Dictionary), or you can have a report on all the Dictionary sections listed.

Prerequisite System Administration

- You need **read** permission for the Dictionary subsystem to obtain a report.

Report Window

Use the Report Window to run a report on part or all sections of Dictionary.

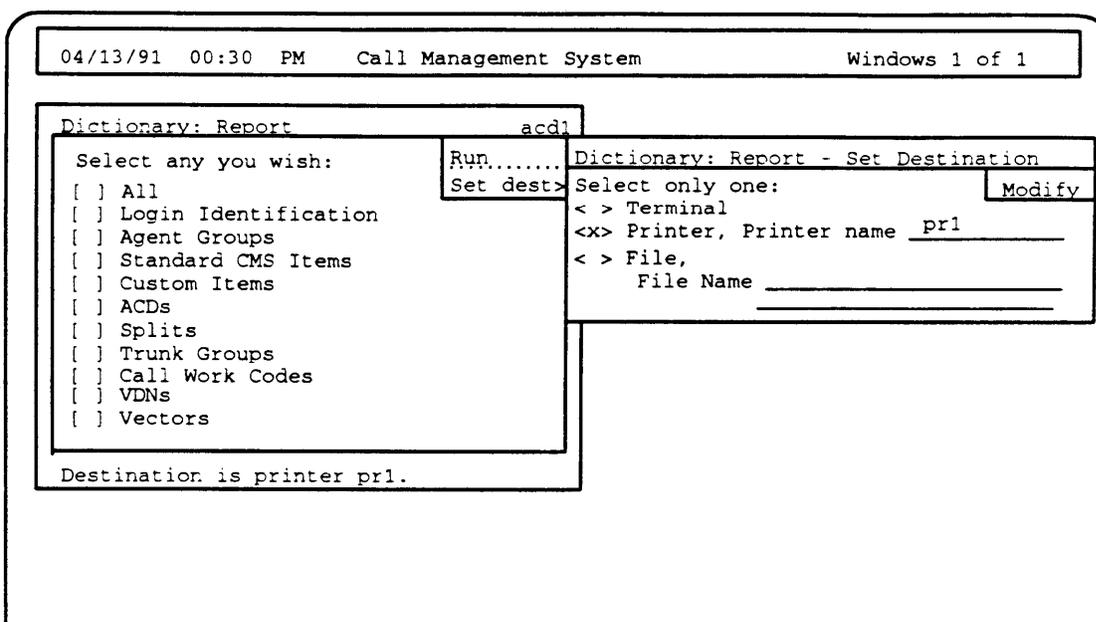


Figure 7-10: Dictionary Report Input Window

**Field/Action List
Usage**

- `Run` generates the report.
- `Set dest` brings up a secondary window that allows you to select your report destination. You select one of three destination options — terminal, printer, or file.

Field Descriptions**Select any you wish:**

From the list, enter an `x` next to only those sections of the Dictionary you would like printed or displayed in a report. If you want all the Dictionary sections listed, select `All`.

Note The `All` selection takes a long time to run. You may want to schedule this selection for off-peak hours.

Appendix A

Database Items and Calculations

	Page
General Information	A-1
Database Rules	A-2
 Database Table Names	 A-6
 Real-Time Database Items	 A-8
Split Real-Time Database Items	A-8
Agent Real-Time Database Items	A-17
Trunk Group Real-Time Database Items	A-25
Trunk Real-Time Database Items	A-29
Vector Real-Time Database Items	A-32
VDN Real-Time Database Items	A-35
Call Work Codes Real-Time Database Items	A-39
 Historical Database Items	 A-40
Split Historical Database Items	A-40
Agent Historical Database Items	A-46
Agent Login/Logout Historical Database Items	A-52
Agent Trace Historical Database Items	A-53
Trunk Group Historical Database Items	A-55
Trunk Historical Database Items	A-59
Vector Historical Database Items	A-61
VDN Historical Database Items	A-64
Call Work Codes Historical Database Items	A-68
Current Day Forecast Configuration Database Items	A-69
Current Day Forecast Report Database Items	A-70
Exceptions Historical Database Items	A-71
Agent Historical Exception Database Items	A-72
Split Historical Exception Database Items	A-74
Trunk Group Historical Exception Database Items	A-75
VDN Historical Exception Database Items	A-76
Vector Historical Exception Database Items	A-77
Malicious Call Trace Historical Exception Database Items	A-78
Data Collection Historical Exception Database Items	A-79
State Names and Row Search Values Cross-Reference	A-80
 Standard Dictionary Calculations	 A-81

List of Tables

Table A-1: Real-Time Table Names	A-6
---	------------

Table A-2:	Historical Table Names	A-7
Table A-3:	Split Real-Time Database Items	A-8
Table A-4:	Agent Real-Time Database Items	A-17
Table A-5:	Trunk Group Real-Time Database Items	A-25
Table A-6:	Trunk Real-Time Database Items	A-29
Table A-7:	Vector Real-Time Database Items	A-32
Table A-8:	VDN Real-Time Database Items	A-35
Table A-9:	Call Work Codes Real-Time Database Items	A-39
Table A-10:	Split Historical Database Items	A-40
Table A-11:	Agent Historical Database Items	A-46
Table A-12:	Agent Login/Logout Historical Database Items	A-52
Table A-13:	Agent Trace Historical Database Items	A-53
Table A-14:	Trunk Group Historical Database Items	A-55
Table A-15:	Trunk Historical Database Items	A-59
Table A-16:	Vector Historical Database Items	A-61
Table A-17:	VDN Historical Database Items	A-64
Table A-18:	Call Work Codes Historical Database Items	A-68
Table A-19:	Current Day Configuration Database Items	A-69
Table A-20:	Current Day Report Database Items	A-70
Table A-21:	Agent Exception Database Items	A-72
Table A-22:	Split Exception Database Items	A-74
Table A-23:	Trunk Group Exception Database Items	A-75
Table A-24:	VDN Exception Database Items	A-76
Table A-25:	Vector Exception Database Items	A-77
Table A-26:	Malicious Exception Database Items	A-78
Table A-27:	Data Collection Exception Database Items	A-79

General Information

This appendix describes the CMS database tables, the items in the database tables, and the standard dictionary calculations that use the database items.

Database items are grouped by report type (real time and historical) and ACD element (split, agent, trunk group, trunk, vector, VDN, etc.) and are listed alphabetically. Many database items appear in more than one database table. Database items that appear in the description of other database items are presented in bold-face type.

The **indexes** in each table are marked. Indexes add structure to table rows so that CMS can retrieve data faster. The row search criteria you define for custom reports should be based on indexes whenever possible. For historical custom reports, always include a “where” clause based on the ROW_DATE database item.

Each real-time database item contains one of the following types of data:

- C = **Cumulative data.** This type of data accumulates throughout the collection interval. Most real-time database items contain cumulative data.
- A = **Administrative data.** This type of data is administered on the switch or on CMS. For example, the database item **POSITIONS** in the split real-time table contains the number of agent extensions that are currently assigned to the specified split on the switch.
- S = **Status data.** This type of data gives the current status, that is a snapshot, of a particular ACD element. For example, the database item **INQUEUE** in the split real-time table contains the number of split calls currently waiting in queue.

The letter C, A, or S appears in the Type column for each real-time database item.

In addition to the types of data described above, items in the CMS database can be either call-based or interval-based. Most CMS database items are call-based. **Call-based data** is committed to the database after a call completes. Therefore, if a call starts and ends in different collection intervals, all of the data is recorded in the interval in which the call and any after call work are completed.

Interval-based data represents the amount of time during a collection interval spent doing a particular activity. Interval-based items are updated throughout the collection interval and timing is restarted at the end of the interval. Most interval-based items start with **I_** or **TI_**. The database items ALLINUSETIME (trunk-group tables) and MBUSYTIME (trunk and trunk-group tables) are also interval-based.

Interval-based items should only be used to calculate percentages such as percentage of time staffed or in AUX work. Interval-based items should not be used, for example, to calculate average talk time; use call-based items for this type of calculation. Furthermore, because call-based and interval-based items may not track the same events, a calculation should use only one type of item and comparisons of call-based calculations and interval-based calculations may not be relevant or meaningful. For example, the call-based ACD time and interval-based ACD time for an agent will not be equal if the agent handled one or more ACD calls that crossed over interval boundaries.

Database Rules

Abandoned Calls

In split and agent tables, abandoned calls are split calls that were abandoned while waiting in queue or ringing an agent voice terminal.

In trunk and trunk-group tables, abandoned calls include split and direct agent calls that were abandoned while ringing, calls that were abandoned while being processed by a vector, calls that were abandoned while being carried by a VDN (System 85 R2V4, Generic 2, and Generic 3), and non-ACD calls that were abandoned (Generic 2.2 and Generic 3).

In vector tables, abandoned calls include split, direct agent, and non-ACD calls that were abandoned while being processed by a vector.

In VDN tables, abandoned calls include calls that were abandoned while being processed by the associated vector and, for Generic 2.2 and Generic 3, calls that were abandoned while being carried by the VDN (for example, “route to” extension calls that were abandoned).

Adjunct-Placed and Adjunct-Routed Calls

For Generic 2.2 with the ASAI Gateway Interface feature and Generic 3 with the ASAI feature, CMS tracks outbound calls placed by an adjunct processor or host computer on behalf of an agent and adjunct-routed calls (Generic 3 only). Database items that start with **O_** track outbound split calls and database items that contain **ADJ** track adjunct-routed calls.

Adjunct-placed outbound split calls are also included as part of ACD database items such as **ACDCALLS**, **ACDTIME**, and **ACWTIME**. Inbound split calls can be calculated as **ACDCALLS - O_ACDCALLS**.

Agents in Multiple Splits

For Generic 1 and Generic 3, agents can be logged into as many as three splits. Agents logged into multiple splits are tracked as a single agent and must use the same login ID to log into each split. Database items that start with **TI_** track the time an agent spends in the various work modes independent of the split in which the agent is working. An agent must be in AUX (Auxiliary work) in all splits to accumulate AUX time. If an agent is available or handling a call for another split, **OTHER** time accumulates for the split in which the agent is in AUX. While an agent is in AUX or available, personal calls are pegged to the first split the agent logs into.

Direct Agent Calls

In agent tables, database items that start with **DA_** track direct agent calls. Direct agent calls are not included in ACD, RING, or ACW database items (since they are calls to the agent, not to the split).

In split tables, the database item **I_OTHERTIME** tracks agents handling direct agent calls.

In trunk, trunk group, vector, and VDN tables, direct agent calls are included in ACD, RING, and ACW database items.

Hold Tracking

For System 85 R2V4 and Generic 2, CMS tracks split calls that are put on hold. For Generic 3, CMS tracks all calls that are put on hold. For Generic 1, CMS tracks hold time for ACD calls as talk time. For System 85 R2V4, Generic 2.1, and Generic 1, calls that are placed or received while a call is on hold are not tracked.

The CMS split tables only track hold time for split calls.

Look-Ahead Interflow Calls

For Generic 2.2 and Generic 3, CMS tracks look-ahead interflow calls separately (database items that start with **LOOK**) and as part of interflow calls. For System 85 R2V4 and Generic 2.1, CMS tracks look-ahead interflow calls as part of interflow calls.

Multiple-Split Queuing

For Generic 1 and Generic 3, calls can be queued to as many as three splits simultaneously. For the first split to which a call is queued (called the primary split), CMS pegs an answer, outflow (leaves vector processing or is answered by an agent in another split), or abandon. For the second or third split to which a call is queued, CMS pegs an answer and an inflow if the call is answered in that split. If the call is answered in another split, the call outflows, or the caller abandons, CMS pegs a dequeued call for the second and third splits.

Personal-Call Tracking

For Generic 3, CMS tracks hold time, transfers, and conferences for personal calls (extension calls). For Generic 2.2 and Generic 3, ACD and non-ACD calls and time and abandoned calls and time for “route to extension” calls are tracked in the VDN database tables. For Generic 2.2 and Generic 3, picked-up calls (using the Call Pickup feature) are tracked as personal calls, even if an ACD call is picked up by an agent in the same split.

Ring Tracking

For System 85 R2V4, Generic 2, and Generic 3, CMS has real-time database items that track the current number of agents with split and direct agent calls ringing at their voice terminals, and historical database items that track the amount of time agents let split and direct agent calls ring at their voice terminals.

**Transfer and
Conference
Tracking**

For Generic 2.2, CMS tracks transfers and conferences for ACD calls. For Generic 3, transfers and conferences for all calls made by measured agents are tracked. For System 85 R2V4 and Generic 2.1, transfers to a VDN are tracked in the VDN tables.

Database Table Names

To select data for custom reports, you must use the names listed in Tables A-1 and A-2. The database items are described in later sections of this appendix.

Table A-1: Real-Time Table Names

Name	Data Stored
csplit	Split data for the current interval.
psplit	Split data for the previous interval.
cagent	Agent data for the current interval.
pagent	Agent data for the previous interval.
ctkgrp	Trunk group data for the current interval.
ptkgrp	Trunk group data for the previous interval.
ctrunk	Trunk data for the current interval.
ptrunk	Trunk data for the previous interval.
cvector	Vector data for the current interval.
pvector	Vector data for the previous interval.
cvdn	VDN data for the current interval.
pvdn	VDN data for the previous interval.
ccwc	Call Work Codes (CWC) data for the current interval.
pcwc	CWC data for the previous interval.

Table A-2: Historical Table Names

Name	Data Stored
hsplit	Split data for each intrahour interval.
dsplit	Split data summarized by day.
wsplit	Split data summarized by week.
msplit	Split data summarized by month.
hagent	Agent data for each intrahour interval.
dagent	Agent data summarized by day.
wagent	Agent data summarized by week.
magent	Agent data summarized by month.
htkgrp	Trunk group data for each intrahour interval.
dtkgrp	Trunk group data summarized by day.
wtkgrp	Trunk group data summarized by week.
mtkgrp	Trunk group data summarized by month.
htrunk	Trunk data for each intrahour interval.
dtrunk	Trunk data summarized by day.
wtrunk	Trunk data summarized by week.
mtrunk	Trunk data summarized by month.
hvector	Vector data for each intrahour interval.
dvector	Vector data summarized by day.
wvector	Vector data summarized by week.
mvector	Vector data summarized by month.
hvdn	VDN data for each intrahour interval.
dvdn	VDN data summarized by day.
wvdn	VDN data summarized by week.
mvdn	VDN data summarized by month.
hcwc	Call Work Codes (CWC) data for each intrahour interval.
dcwc	CWC data summarized by day.
wcwc	CWC data summarized by week.
mcwc	CWC data summarized by month.
agex	Agent exceptions.
spex	Split exceptions.
tgex	Trunk group exceptions.
vecex	Vector exceptions.
vdnex	VDN exceptions.
linkex	Link down exceptions.
mctex	Malicious call trace exceptions.
f_cday	Forecast current day configuration data — by split.
f_cdayrep	Current day forecast data — by split.

Real-Time Database Items

Except status items, the following descriptions apply to both the current interval and the previous interval real-time tables. Status items only apply to current interval real-time tables.

Split Real-Time Database Items

Split real-time database items apply to the Current Interval Split (`csplit`) and Previous Interval Split (`psplit`) tables.

Table A-3: Split Real-Time Database Items

Database Item	Description	Type
ABNCALLS	Number of CALLSOFFERED that were abandoned while in queue or ringing at an agent position. When a call is queued to multiple splits (Generic 3 only), an abandon is only pegged for the primary split (the first split to which a call is queued).	C
ABNCALLS1-10	Number of ABNCALLS during the collection interval in each of the service level increments PERIOD1 through PERIOD9 (as defined on the ACD Administration: Call Profile window). ABNCALLS10 counts calls that abandoned after PERIOD9 .	C
ABNRINGCALLS	Number of ABNCALLS that were abandoned while ringing at an agent position. This database item is only available with Generic 2 and Generic 3.	C
ABNTIME	Time callers waited in queue or ringing before abandoning.	C
ACCEPTABLE	Number of ACDCALLS answered within the acceptable service level (as defined on the ACD Administration: Call Profile window).	C
ACD	The ACD for which data was collected.	A
ACDCALLS	Number of CALLSOFFERED that were answered by an agent in the split	C
ACDCALLS1-10	Number of ACDCALLS during the collection interval that were answered (ANSTIME) in each of the service level increments PERIOD1 through PERIOD9 (as defined on the ACD Administration: Call Profile window). ACDCALLS10 is the number of calls answered after the last increment PERIOD9 .	C

Table A-3: Split Real-Time Database Items (Contd)

Database Item	Description	Type
ACDTIME	Time agents spent talking on ACDCALLS (does not include HOLDTIME).	C
ACWINCALLS	Number of inbound extension calls (split and direct agent calls) received by agents while in ACW (after call work).	C
ACWINTIME	Time agents spent talking on ACWINCALLS (does not include hold time on Generic 3).	C
ACWOUTADJCALLS	Number of ACWOUTCALLS an adjunct processor or host computer placed on behalf of an agent. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
ACWOUTCALLS	Number of outbound extension calls (split and direct agent calls) made by agents while in ACW.	C
ACWOUTOFFCALLS	Number of ACWOUTCALLS that were made to a destination outside the switch. This database item is only available with Generic 2.2 and Generic 3.	C
ACWOUTOFFTIME	Time agents spent talking on ACWOUTOFFCALLS (does not include hold time). This database item is only available with Generic 2.2 and Generic 3.	C
ACWOUTTIME	Time agents spent talking on ACWOUTCALLS (does not include hold time on Generic 3).	C
ACWTIME	Duration of after call work associated with ACDCALLS .	C
AGINRING	Current number of POSITIONS at which split calls are ringing.	S
ANSTIME	Time ACDCALLS waited in queue or ringing before an agent answered.	C
ASSISTS	Number of times agents requested assistance from the split supervisor by pressing the ASSIST button or dialing the supervisor's extension. The agent must be handling an ACD call or in after call work for this item to be recorded.	C
AUXINCALLS	Number of inbound extension calls received by agents while in AUX (auxiliary work) or AVAILABLE.	C
AUXINTIME	Time agents spent talking on AUXINCALLS (does not include hold time on Generic 3).	C

Table A-3: Split Real-Time Database Items (Contd)

Database Item	Description	Type
AUXOUTADJCALLS	Number of AUXOUTCALLS an adjunct processor or host computer placed on behalf of an agent. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
AUXOUTCALLS	Number of outbound extension calls made by agents while in AUX (auxiliary work) or AVAILABLE.	C
AUXOUTOFFCALLS	Number of AUXOUTCALLS that were made to a destination outside the switch. This database item is only available with Generic 2.2 and Generic 3.	C
AUXOUTOFFTIME	Time agents spent talking on AUXOUTOFFCALLS (does not include hold time). This database item is only available with Generic 2.2 and Generic 3.	C
AUXOUTTIME	Time agents spent talking on AUXOUTCALLS (does not include hold time on Generic 3).	C
AVAILABLE	Current number of POSITIONS that are available in this split.	S
BACKUPCALLS	Number of ACDCALLS that were delivered to the split by a vector command other than a "queue to main split" command. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.	C
BUSYCALLS	Number of CALLSOFFERED that were given a busy signal by the switch.	C
BUSYTIME	Time the call spent in queue before a busy signal was given.	C
CALLSOFFERED	Number of calls offered to the split. CALLSOFFERED = ACDCALLS + ABNCALLS + BUSYCALLS + DISCCALLS + OUTFLOWCALLS + DEQUECALLS	C
CONFERENCE	Number of ACDCALLS that were conferenced (Generic 2.2, Generic 3).	C

Table A-3: Split Real-Time Database Items (Contd)

Database Item	Description	Type
DA_INACW	Current number of POSITIONS that are in after call work associated with direct agent calls. Total number of agents in after call work = INACW + DA_INACW . DA_INACW is a subset of OTHER . This database item is only available with Generic 3 switches that have the ASAI feature.	S
DA_INQUEUE	Current number of direct agent calls waiting in this split's queue. This database item is only available with Generic 3 switches that have the ASAI feature.	S
DA_OLDESTCALL	Number of seconds that the oldest direct agent call has been waiting in queue or ringing at an agent position. This database item is only available with Generic 3 switches that have the ASAI feature.	S
DA_ONACD	Current number of POSITIONS that are handling direct agent calls. Total number of agents on ACD calls = ONACD + DA_ONACD . DA_ONACD is a subset of OTHER . This database item is only available with Generic 3 switches that have the ASAI feature.	S
DEQUECALLS	Number of calls that queued to this split and other splits, but were pegged in another split as answered, abandoned, outflowed, busy, or forced disconnect. This database item is only available with Generic 3.	C
DEQUETIME	Time DEQUECALLS waited in this split's queue before dequeuing. This database item is only available with Generic 3.	C
DISCCALLS	Number of CALLSOFFERED that were disconnected by the switch. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.	C
DISCTIME	Duration of DISCCALLS (from the time the call entered the vector until the end of the announcement, if any). This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.	C

Table A-3: Split Real-Time Database Items (Contd)

Database Item	Description	Type
EVENT1-9	Number of times agents pressed a particular stroke count button (buttons 1 to 9) during the collection interval. The agent must be handling an ACD call or in after call work for this item to be recorded. This database item is only available with System 85, Generic 2, and Generic 3 switches.	C
HIGHCALLS	Number of ACDCALLS that queued with high priority and were answered by agents in this split. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.	C
HOLDABNCALLS	Number of split calls that were abandoned while on hold. This database item is only available with System 85 R2V4, Generic 2, and Generic 3.	C
HOLDCALLS	Number of split calls that were placed on hold. This database item is only available with System 85 R2V4, Generic 2, and Generic 3.	C
HOLDTIME	Time split callers spent on hold. This database item is only available with System 85 R2V4, Generic 2, and Generic 3.	C
I_ACDDTIME	Time during the collection interval that POSITIONS were on ACD calls.	C
I_ACWINTIME	Time during the collection interval that POSITIONS were in ACW associated with split or direct agent calls <i>and</i> on inbound extension calls. This database item does not include hold time on Generic 3.	C
I_ACWOUTTIME	Time during the collection interval that POSITIONS were in ACW associated with split or direct agent calls <i>and</i> on outbound extension calls. This database item does not include hold time on Generic 3.	C
I_ACWTIME	Time during the collection interval that POSITIONS were in ACW for split calls.	C
I_AUXINTIME	Time during the collection interval that POSITIONS were in AUX or AVAILABLE <i>and</i> on inbound extension calls. This database item does not include hold time on Generic 3.	C
I_AUXOUTTIME	Time during the collection interval that POSITIONS were in AUX or AVAILABLE <i>and</i> on outbound extension calls. This database item does not include hold time on Generic 3.	C

Table A-3: Split Real-Time Database Items (Contd)

Database Item	Description	Type
I_AUXTIME	Time during the collection interval that POSITIONS were in AUX. For Generic 1, agents in multiple splits doing work in a split other than this split.	C
I_AVAILTIME	Time during the collection interval that POSITIONS were available for split calls.	C
I_OTHERTIME	Time during the collection interval that POSITIONS were doing other work. For Generic 3, other work includes: while in Auto-In or Manual-In mode, an agent put a call on hold and performed no further action, was on a personal call and this split is not the OLDEST_LOGON , dialed to place a call or activate a feature, or a personal call is ringing with no further activity. For Generic 1, and Generic 3, an agent logged into multiple splits and did work for a split other than this one. For Generic 1, Generic 2, and Generic 3, after pumpup or after an agent logged in, an ASTATE message was not received (the agent is in the UNKNOWN state).	C
I_RINGTIME	Time during the collection interval that POSITIONS had split calls ringing. If an agent changes work modes or makes or answers a personal call, I_RINGTIME stops accumulating. This database item is only available with Generic 2 and Generic 3.	C
I_STAFFTIME	Time during the collection interval that POSITIONS were staffed (logged in).	C
INACW	Current number of POSITIONS that are in ACW associated with split calls (this includes agents on extension calls).	S
INAUX	Current number of POSITIONS that are in AUX for all splits (this includes agents on extension calls).	S
INCOMPLETE	Indicates whether the data for this collection interval is complete or not.	C
INFLOWCALLS	Number of calls that were redirected to the split's queue from another queue. For Generic 3 with Call Vectoring, this includes calls answered by a split other than the first split to which a call queued in a vector. When a call leaves vector processing, the next split to which it queues is not credited with an inflow.	C
INQUEUE	Current number of split calls waiting in queue.	S

Table A-3: Split Real-Time Database Items (Contd)

Database Item	Description	Type
INRING	Current number of ACD calls ringing at agent positions.	S
INTERFLOWCALLS	Number of OUTFLOWCALLS that were redirected to a destination outside the switch.	C
LOWCALLS	Number of ACDCALLS that queued to the split with low (vectoring) or no (non-vectoring) priority.	C
MAXINQUEUE	The largest number of split calls in queue at any time during the collection interval.	C
MAXOCWTIME	The longest time during the collection interval that a split call waited before an agent answered, the caller abandoned, or the call was redirected, received a busy signal, or was disconnected.	C
MAXSTAFFED	The largest number of POSITIONS that were staffed at any time during the collection interval.	C
MEDCALLS	Number of ACDCALLS that queued to the split with medium or higher priority (on Generic 2/System 85, by way of priority trunks or, with vectoring, medium priority assignments; on Generic 3, by way of Priority Queuing on Intraflow assignment or, with vectoring, medium priority assignments). This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches with the Call Vectoring feature.	C
O_ACDCALLS	Number of outbound calls an adjunct processor or host computer placed on behalf of the split. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
O_ACDTIME	Time agents spent talking on O_ACDCALLS (does not include HOLDTIME). This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
O_ACWTIME	Duration of all after call work associated with O_ACDCALLS . This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
OLDESTCALL	Number of seconds the oldest split call has been waiting in queue or ringing at an agent position.	S

Table A-3: Split Real-Time Database Items (Contd)

Database Item	Description	Type
ONACD	Current number of POSITIONS handling inbound and outbound split calls.	S
ONACDOUT	Current number of POSITIONS handling outbound split calls.	S
ONACWIN	Current number of POSITIONS that are in ACW associated with split or direct agent calls <i>and</i> on inbound extension calls.	S
ONACWOUT	Current number of POSITIONS that are in ACW associated with split or direct agent calls <i>and</i> on outbound extension calls.	S
ON AUXIN	Current number of POSITIONS that are in AUX or AVAILABLE <i>and</i> on inbound extension calls.	S
ON AUXOUT	Current number of POSITIONS that are in AUX or AVAILABLE <i>and</i> on outbound extension calls.	S
ONHOLD	Current number of split calls on hold at agent positions. This database item is only available with System 85 R2V4, Generic 2, and Generic 3.	S
OTHER	Current number of POSITIONS doing other work. For Generic 3, other work includes: while in Auto-In or Manual-In mode, an agent put a call on hold and performed no further action, is on a direct agent call or in ACW associated with a direct agent call, dialed to place a call or activate a feature, or a personal call is ringing with no further activity. For Generic 1, and Generic 3, an agent logged into multiple splits and did work for a split other than this one. For Generic 1, Generic 2, and Generic 3, after pumpup or after an agent logged in, an ASTATE message was not received (the agent is in the UNKNOWN state).	S
OUTFLOWCALLS	Number of CALLSOFFERED that were redirected to another destination. For Generic 3 with Call Vectoring and multiple split queuing, this includes calls queued to the primary split and answered in another split.	C
OUTFLOWTIME	Time OUTFLOWCALLS waited in queue or ringing before being redirected.	C

Table A-3: Split Real-Time Database Items (Contd)

Database Item	Description	Type
PERIOD1-9	The length, in seconds, of each service level increment as defined in the ACD Administration: Call Profile window. Each increment represents a progressively longer wait time. CMS counts calls that wait beyond the last increment (PERIOD9) in either ACDCALLS10 or ABNCALLS10 .	A
PERIODCHG	Indicates whether service level increments PERIOD1-9 (as defined on the ACD Administration: Call Profile window) changed during the collection interval or not.	A
POSITIONS	Number of agent extensions that are currently assigned to SPLIT .	A
RINGCALLS	Number of split calls that rang at POSITIONS . This database item is only available with Generic 2 and Generic 3.	C
RINGTIME	Time split calls spent ringing at agent voice terminals. This database item is only available with Generic 2 and Generic 3.	C
SERVICLEVEL	Number of seconds within which calls must be answered to be considered acceptable (as defined on the ACD Administration: Call Profile window).	A
SPLIT (index)	The split number for which data was collected.	A
STAFFED	Current number of POSITIONS that are staffed (logged in). STAFFED = AVAILABLE + AGINRING + ONACD + INACW + INAUX + OTHER	S
SVCLEVELCHG	Indicates whether the service level was changed during the collection interval or not.	A
TOPCALLS	Number of ACDCALLS that queued with top priority and were answered by agents in this split. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.	C
TRANSFERRED	Number of ACDCALLS that were transferred to another destination (Generic 1 = transfers to a measured split or transfers from a measured trunk to a measured trunk, System 85 R2V4 and Generic 2.1 = transfers to a VDN or a split, Generic 2.2 and Generic 3 = all split calls transferred).	C

Agent Real-Time Database Items

Agent real-time database items apply to the Current Interval Agent (`cagent`) and Previous Interval Agent (`pagent`) tables. The indexes are `ACD`, `LOGID`, `POSITION`, and `SPLIT`.

Table A-4: Agent Real-Time Database Items

Database Item	Description	Type
ABNCALLS	Number of split calls that were abandoned while ringing the agent's voice terminal.	C
ABNTIME	Time split calls spent ringing before being abandoned.	C
ACD (index)	The ACD for which data was collected.	A
ACDCALLS	Number of split calls the agent answered (includes O_ACDCALLS)	C
ACDTIME	Time the agent spent talking on ACDCALLS (does not include HOLDTIME).	C
ACWINCALLS	Number of inbound extension calls received by the agent while in ACW (after call work) (for split and direct agent calls).	C
ACWINTIME	Time the agent spent talking on ACWINCALLS (does not include HOLDTIME).	C
ACWOUTADJCALLS	Number of ACWOUTCALLS an adjunct processor or host computer placed on behalf of the agent. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
ACWOUTCALLS	Number of outbound extension calls made by the agent while in ACW (for split and direct agent calls).	C
ACWOUTOFFCALLS	Number of ACWOUTCALLS that the agent made to a destination outside the switch. This database item is only available with Generic 2.2 and Generic 3.	C
ACWOUTOFFTIME	Time the agent spent talking on ACWOUTOFFCALLS (does not include HOLDTIME). This database item is only available with Generic 2.2 and Generic 3.	C
ACWOUTTIME	Time the agent spent talking on ACWOUTCALLS (does not include HOLDTIME).	C
ACWTIME	Time the agent was in ACW associated with ACDCALLS .	C

Table A4: Agent Real-Time Database Items (Contd)

Database Item	Description	Type
AGSTATE	Current WORKMODE and call DIRECTION , for example, AUXOUT .	S
AGTIME	Time since the last agent state change for any split.	S
ANSRINGTIME	Time answered split and direct agent calls were ringing at the agent's voice terminal. This database item is only available with Generic 2.2 and Generic 3.	C
ASSIST	Indicates whether supervisor assistance is currently active for the agent.	S
ASSISTS	Number of times the agent requested assistance from the split supervisor by pressing the ASSIST button or dialing the supervisor's extension. The agent must be handling an ACD call or in after call work for this item to be recorded.	C
AUXINCALLS	Number of inbound extension calls the agent received while in AUX (auxiliary work) or AVAILABLE .	C
AUXINTIME	Time the agent spent talking on AUXINCALLS (does not include HOLDTIME).	C
AUXOUTADJCALLS	Number of AUXOUTCALLS an adjunct processor or host computer placed on behalf of the agent. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
AUXOUTCALLS	Number of outbound extension calls the agent made while in AUX or AVAILABLE .	C
AUXOUTOFFCALLS	Number of AUXOUTCALLS the agent made to a destination outside the switch. This database item is only available with Generic 2.2 and Generic 3.	C
AUXOUTOFFTIME	Time the agent spent talking on AUXOUTOFFCALLS (does not include HOLDTIME). This database item is only available with Generic 2.2 and Generic 3.	C
AUXOUTTIME	Time the agent spent talking on AUXOUTCALLS (does not include HOLDTIME).	C
CHANGED	Time of day that AGSTATE changed.	S
CONFERENCE	Number of times the agent completed a conference call (Generic 3 = all calls, Generic 2.2 = split calls).	C

Table A-4: Agent Real-Time Database Items (Contd)

Database Item	Description	Type
DA_ABNCALLS	Number of direct agent calls that were abandoned while in queue or ringing the agent's voice terminal. This database item is only available with Generic 3 switches that have the ASAI feature.	C
DA_ABNTIME	Time direct agent calls waited in queue or ringing before being abandoned. This database item is only available with Generic 3 switches that have the ASAI feature.	C
DA_ACDCALLS	Number of direct agent calls that the agent answered. This database item is only available with Generic 3 switches that have the ASAI feature.	C
DA_ACDTIME	Time the agent spent talking on DA_ACDCALLS (does not include HOLDTIME). This database item is only available with Generic 3 switches that have the ASAI feature.	C
DA_ACWTIME	Time the agent was in ACW associated with direct agent calls. This database item is only available with Generic 3 switches that have the ASAI feature.	C
DA_ANSTIME	Time that DA_ACDCALLS waited before the agent answered. This database item is only available with Generic 3 switches that have the ASAI feature.	C
DA_INQUEUE	Current number of direct agent calls waiting in queue for this agent. This database item is only available with Generic 3 switches that have the ASAI feature.	S
DA_OLDESTCALL	Time the oldest direct agent call has been waiting for this agent. This database item is only available with Generic 3 switches that have the ASAI feature.	S
DA_OTHERCALLS	Number of direct agent calls that were redirected to other destinations. This database item is only available with Generic 3 switches that have the ASAI feature.	C
DA_OTHERTIME	Time DA_OTHERCALLS waited in queue or ringing before being redirected. This database item is only available with Generic 3 switches that have the ASAI feature.	C
DESTINATION	The destination (PBX, OFF, or as defined in Dictionary) of the outbound call the agent is currently handling, if any. If the agent is not handling an outbound call, the value is blank.	S
DIRECTION	The direction of the call the agent is currently handling — IN or OUT, or as defined in Dictionary. If the agent is not on a call, the value is blank.	S

Table A-4: Agent Real-Time Database Items (Contd)

Database Item	Description	Type
DURATION	Time in the current AGSTATE for the split.	S
EVENT1-9	Number of times the agent pressed a particular stroke count button (buttons 1 to 9). The agent must be handling an ACD call or in after call work for this item to be recorded. This database item is only available with System 85, Generic 2, and Generic 3 switches.	C
EXTENSION	The extension number at which the agent has been working.	A
HOLDABNCALLS	Number of calls that were abandoned from hold (Generic 3 = all callers, System 85 R2V4 and Generic 2 = split callers).	C
HOLDCALLS	Number of calls that were placed on hold at least once (Generic 3 = all calls, System 85 R2V4 and Generic 2 = split calls).	C
HOLDTIME	Time calls spent on hold at the agent's voice terminal (Generic 3 = all calls, System 85 R2V4 and Generic 2 = split calls).	C
I_ACDTIME	Time during the collection interval that the agent was handling split calls (does not include HOLDTIME).	C
I_ACWINTIME	Time during the collection interval that the agent was in ACW associated with split or direct agent calls <i>and</i> on inbound extension calls (does not include HOLDTIME).	C
I_ACWOUTTIME	Time during the collection interval that the agent was in ACW associated with split or direct agent calls <i>and</i> on outbound extension calls (does not include HOLDTIME).	C
I_ACWTIME	Time during the collection interval that the agent was in ACW associated with split calls.	C
I_AUXINTIME	Time during the collection interval that the agent was in AUX or AVAILABLE <i>and</i> on inbound extension calls and SPLIT was OLDEST_LOGON (does not include HOLDTIME).	C
I_AUXOUTTIME	Time during the collection interval that the agent was in AUX or AVAILABLE <i>and</i> on outbound extension calls and SPLIT was OLDEST_LOGON (does not include HOLDTIME).	C

Table A-4: Agent Real-Time Database Items (Contd)

Database Item	Description	Type
I_AVAILTIME	Time during the collection interval that the agent was available for ACD calls in this split.	C
I_DA_ACDTIME	Time during the collection interval that the agent spent talking on direct agent calls (does not include HOLDTIME). This database item is only available with Generic 3 switches that have the ASAI feature.	C
I_DA_ACWTIME	Time during the collection interval that the agent was doing after call work associated with direct agent calls. This database item is only available with Generic 3 switches that have the ASAI feature.	C
I_OTHERTIME	Time during the collection interval that the agent was doing other work. For Generic 3, other work includes: while in Auto-In or Manual-In mode, the agent put a call on hold and performed no further action, dialed to place a call or activate a feature, or a personal call is ringing with no further activity. For Generic 1, and Generic 3, the agent logged into multiple splits and did work for a split other than this one. For Generic 1, Generic 2, and Generic 3, after pumpup or after an agent logged in, an ASTATE message was not received (the agent is in the UNKNOWN state).	C
I_RINGTIME	Time during the collection interval that the agent had split and direct agent calls ringing. If the agent changes work modes or makes or receives a call, I_RINGTIME stops accumulating. This database item is only available with Generic 2 and Generic 3.	C
I_STAFFTIME	Time during the collection interval that the agent was staffed (logged in) in this split.	C
INCOMPLETE	Indicates whether the data for this collection interval is complete or not.	C
INTERVAL	Number of minutes in the intrahour interval (15, 30, 60).	A
LOGID	The login ID used to staff the EXTENSION .	S
LOGONSTART	Time of day that the logon session started for this SPLIT . If the agent has not logged in during the collection interval, the value will be blank.	S
MALICIOUS	Indicates whether the agent has initiated a malicious call trace for the current call or not. This database item is only available with Generic 2 and Generic 3r switches.	S

Table A-4: Agent Real-Time Database Items (Contd)

Database Item	Description	Type
O_ACDCALLS	Number of outbound ACDCALLS that an adjunct processor or host computer placed on behalf of the split. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
O_ACDTIME	Time the agent spent talking on O_ACDCALLS (does not include HOLDTIME). This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
O_ACWTIME	Time the agent was in after call work associated with O_ACDCALLS . This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
OLDEST_LOGON	For agents in multiple splits, the split the agent has been logged into the longest. This database item is used by CMS to identify a split for which to credit personal calls and TI_ database items.	S
ONHOLD	Current number of calls for any split on hold at the agent's voice terminal (Generic 3 = all calls, System 85 R2V4 and Generic 2 = split calls).	S
ORIGIN	How the outbound call the agent is currently handling, if any, originated — PHONE or KEYBOARD (adjunct dialed)	S
POSITION (index)	The position number associated with EXTENSION . Agents in multiple splits have multiple POSITIONS .	A
RINGCALLS	Number of split and direct agent (G3) calls that rang at the agent's voice terminal. This database item is only available with Generic 2 and Generic 3.	C
RINGTIME	Time split and direct agent (G3) calls were ringing at the agent's voice terminal. This database item is only available with Generic 2 and Generic 3.	C
SPLIT (index)	The split number that EXTENSION is assigned to or split number that agent is logged into.	A
STARTED	Time of day that WORKMODE began.	S

Table A-4: Agent Real-Time Database Items (Contd)

Database Item	Description	Type
TI_AUXTIME	Time during the collection interval that the agent was in AUX for all splits or handling AUXINCALLS or AUXOUTCALLS and SPLIT was OLDEST_LOGON (Generic 1 and Generic 3, agents in multiple splits). Time is only stored for the split the agent has been logged into the longest.	C
TI_AVAILTIME	Time during the collection interval that the agent was available for split or direct agent calls for any split and SPLIT was OLDEST_LOGON (Generic 1 and Generic 3, agents in multiple splits). Time is only stored for the split the agent has been logged into the longest.	C
TI_OTHERTIME	Time during the collection interval that the agent was doing other work. For Generic 3, other work includes: while in Auto-In or Manual-In mode, the agent put a call on hold and performed no further action, dialed to place a call or activate a feature, or a personal call is ringing with no further activity. For Generic 1, Generic 2, and Generic 3, after pumpup or after an agent logged in, an ASTATE message was not received (the agent is in the UNKNOWN state). Time is only stored for the split the agent has been logged into the longest.	C
TI_STAFFTIME	Time during the collection interval that the agent was staffed in any split and SPLIT was OLDEST_LOGON (Generic 1 and Generic 3, agents in multiple splits). Time is only stored for the split the agent has been logged into the longest.	C
TRANSFERRED	Number of times the agent completed a transfer (Generic 1 = measured call to measured split or measured trunk to measured trunk, Generic 3 = all inbound calls, System 85 R2V4 and Generic 2.1 = transfers to a VDN, Generic 2.2 = split calls being transferred and transfers to a VDN or split).	C
VDN	Vector directory number associated with the ACDCALL the agent is currently handling. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.	S

Table A-4: Agent Real-Time Database Items (Contd)

Database Item	Description	Type
WORKMODE	The current work mode of the agent. Agent work modes include: AVAIL, ACD, ACW, AUX, DACD, DACW, RING, UNKNOWN, OTHER, and UNSTAFF. If the agent has not been logged in during the collection interval, the value will be blank.	S
WORKSPLIT	When the agent is handling a split or direct agent call or in ACW, this is the split associated with the call or the ACW. When the agent is on an AUXIN or AUXOUT call, this is OLDEST_LOGON . When the agent is available, this is the last split in which the agent was available. This database item is only available with Generic 1 and Generic 3.	S
WORKSPLIT2 WORKSPLIT3	For agents available in multiple splits, another split in which the agent is available. This database item is only available with Generic 1 and Generic 3.	S

Trunk Group Real-Time Database Items

Trunk group real-time database items apply to the Current Interval Trunk Group (`ctkgrp`) and Previous Interval Agent (`ptkgrp`) tables. The indexes are `ACD` and `TKGRP`.

Table A-5: Trunk Group Real-Time Database Items

Database Item	Description	Type
ABNCALLS	Number of split and direct agent INCALLS carried on this trunk group that were abandoned.	C
ABNQUECALLS	Number of ABNCALLS that were abandoned while in queue.	C
ABNRINGCALLS	Number of ACDCALLS that were abandoned while ringing at an agent position. This database item is only available with Generic 2 and Generic 3.	C
ABNVECCALLS	Number of ABNCALLS that abandoned while in vector processing. This includes calls that were abandoned while in queue or ringing at an agent position. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches with the Call Vectoring feature.	C
ACD (index)	ACD number for which data was collected.	A
ACDCALLS	Number of split and direct agent INCALLS that were answered by an agent.	C
ADJUNCTOUT	Current number of OUTBOUND calls an adjunct processor or host computer placed on behalf of an agent. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	S
ALLINUSE	All trunks in the trunk group are currently in use.	S
ALLINUSETIME	Duration of all all-trunks-busy periods (includes trunks that are maintenance busy).	C
AUDIO	Number of audio difficulty problems reported.	C
BACKUPCALLS	Number of ACDCALLS that were delivered to the split by a vector command other than a "queue to main split" command. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches with the Call Vectoring feature.	C

Table A-5: Trunk Group Real-Time Database Items (Contd)

Database Item	Description	Type
BLOCKAGE	Number of outbound call attempts that were blocked because all trunks were busy. This database item is only available with System 85 and Generic 2.	C
BUSYCALLS	Number of INCALLS that were given a busy signal by the switch.	C
COMPLETED	Number of OUTCALLS that were completed (far-end answered). This database item is only available with Generic 1.1 and Generic 3.	C
CONNECTCALLS	Number of INCALLS that were not split or direct agent calls and were answered at a station (connected to a non-ACD destination).	C
DISCCALLS	Number of INCALLS that were disconnected by the switch.	C
FAILURES	Number of trunk failures for this TKGRP . Trunk failures can be due to trunk sequencing failures (usually hardware problems on the trunk or incompatible trunk types on either end of a call) or due to internal switch errors (such as errors in call processing or vectoring translations). This database item is only available with System 85 and Generic 2.	C
INBOUND	Current number of NUMINUSE trunks busy on inbound calls.	S
INCALLS	Number of inbound calls that were carried by this TKGRP . INCALLS = ACDCALLS + ABNCALLS + OTHERCALLS	C
INCOMPLETE	Indicates whether the data for this collection interval is complete or not.	C
INTIME	Duration of INCALLS (from the time the trunk is seized until the trunk is dropped).	C
MBUSY	Current number of NUMINUSE trunks that are maintenance busy.	S
MBUSYTIME	Total time during the collection interval that each trunk was maintenance busy.	C
NUMINUSE	Current number of TRUNKS that are busy (on calls or maintenance busy). NUMINUSE = INBOUND + OUTBOUND + MBUSY	S

Table A-5: Trunk Group Real-Time Database Items (Contd)

Database Item	Description	Type
O_ABNCALLS	Number of OUTCALLS that were abandoned by the receiving end while waiting for an available agent. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
O_ACDCALLS	Number of OUTCALLS that were answered by an agent. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
O_OTHERCALLS	Number of outbound split or direct agent calls that were forced busy or had unknown dispositions, for example, calls that were abandoned before reaching split processing. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
OTHERCALLS	Number of INCALLS that were neither answered nor abandoned. OTHERCALLS = INCALLS - ACDCALLS - ABNCALLS	C
OUTBOUND	Current number of NUMINUSE trunks busy on outbound calls.	S
OUTCALLS	Number of outbound calls that were carried by this TKGRP . OUTCALLS = O_ACDCALLS + O_ABNCALLS + O_OTHERCALLS	C
OUTTIME	Duration of OUTCALLS (from the time the trunk is seized until the trunk is dropped).	C
SETUPTIME	Amount of time until OUTCALLS completed (from the time the trunk is seized until answer supervision or SMDR answer time out). This database item is only available with Generic 1 and Generic 3.	C
SHORTCALLS	Number of calls that occupied a trunk in the trunk group for less than 2 seconds.	C
SPLIT	Split to which this TKGRP is currently assigned.	A
TKGRP (index)	Trunk group number for which data was collected.	A

Table A-5: Trunk Group Real-Time Database Items (Contd)

Database Item	Description	Type
TRANSFERRED	Number of calls that were transferred to another destination (Generic 1 = measured call to measured split and measured trunk to measured trunk, Generic 3 = all calls, System 85 R2V4 and Generic 2.1 = transfers to VDNs and splits, Generic 2.2 = split calls being transferred and transfers to VDNs and splits).	C
TRUNKS	Number of trunks currently assigned to this TKGRP .	A
VDN	VDN to which this TKGRP is currently assigned. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.	A
VECTOR	Vector to which the trunk group's VDN is currently assigned. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.	A

Trunk Real-Time Database Items

Trunk real-time database items apply to the Current Interval Trunk (`ctrunk`) and Previous Interval Agent (`ptrunk`) tables. The indexes are **ACD**, **ITN**, and **TKGRP**.

Table A-6: Trunk Real-Time Database Items

Database Item	Description	Type
ABNCALLS	Number of split and direct agent INCALLS on the trunk that were abandoned. If the switch has the Call Vectoring feature, this includes calls that were abandoned from vector processing. For Generic 2.2, this includes calls that were abandoned from the VDN. For Generic 3, this includes all calls that were abandoned.	C
ACD (index)	ACD number for which data was collected.	A
ACDCALLS	Number of split or direct agent INCALLS that were answered by an agent.	C
AUDIO	Number of audio difficulty problems reported for the trunk.	C
DIRECTION	Direction of trunk seizure (call direction) — IN, OUT, or as defined in Dictionary. The value is blank if the trunk is not seized (trunk idle).	S
DURATION	Length of time the trunk has been in TKSTATE .	S
EQLOC	Physical equipment location (trunk number) for which data was collected.	A
EXTENSION	Extension currently associated with the trunk. That is, a call on the trunk is queued to the extension (direct agent), ringing, or connected to the extension.	S
FAILURES	Number of trunk failures. Trunk failures can be due to trunk sequencing failures (usually hardware problems on the trunk or incompatible trunk types on either end of a call) or due to internal switch errors (such as errors in call processing or vectoring translations). This database item is only available with System 85 and Generic 2.	C
INCALLS	Number of inbound calls carried by the trunk. This includes calls with short holding times, but does not include calls that involved a trunk failure.	C
INCOMPLETE	Indicates whether the data for this collection interval is complete or not.	C

Table A-6: Trunk Real-Time Database Items (Contd)

Database Item	Description	Type
INTIME	Duration of INCALLS (from the time the trunk is seized until the trunk is dropped).	C
ITN (index)	Internal trunk number of the trunk.	A
LOGID	Login ID of the agent who is currently handling a call on the trunk.	S
MBUSYTIME	Time during the collection interval that the trunk was maintenance busy.	C
O_ABNCALLS	Number of outbound split calls that were abandoned at the receiving end. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
O_ACDCALLS	Number of OUTCALLS that were answered by an agent. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
O_OTHERCALLS	Number of outbound split calls on the trunk that were forced busy or had unknown dispositions, for example, calls that were abandoned before reaching ACD processing. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.	C
OTHERCALLS	Number of inbound split and direct agent calls on the trunk that were not answered or abandoned. This includes calls given forced busy, disconnected, connected to a non-ACD destination, and calls with unknown dispositions.	C
OUTCALLS	Number of outbound calls that were carried by the trunk. OUTCALLS = O_ACDCALLS + O_ABNCALLS + O_OTHERCALLS	C
OUTTIME	Duration of OUTCALLS (from the time the trunk is seized until the trunk is dropped).	C
PRIORITY	Priority at which call on the trunk is queued to a split. Without Call Vectoring, the values are: YES, NO, or as defined in Dictionary. With Call Vectoring, the values are: LOW, MED, HIGH, TOP, or as defined in Dictionary.	C
PRIORITY2-3	Priority at which call on the trunk is queued to a second or third split. Without Call Vectoring, the values are: YES, NO, or as defined in Dictionary. With Call Vectoring, the values are: LOW, MED, HIGH, TOP, or as defined in Dictionary. This database item is only available with Generic 3 switches that have the Call Vectoring feature.	C

Table A-6: Trunk Real-Time Database Items (Contd)

Database Item	Description	Type
QUEECOUNT	Number of splits a call on the trunk is currently queued to.	C
QUETYPE	Type of split a call on the trunk is currently queued to. Indicates whether a call was queued by way of a “queue to main split” command or some other vector command. The values are: MAIN, BACKUP, or as defined in Dictionary. This database item is only available with Generic 3 switches that have the Call Vectoring feature.	C
QUETYPE2-3	Split types for the second and third splits to which a call on the trunk is currently queued to. The values are: MAIN, BACKUP, or as defined in Dictionary. This database item is only available with Generic 3 switches that have the Call Vectoring feature.	C
SHORTCALLS	Number of calls that occupied the trunk for less than 2 seconds.	C
SPLIT	The first split number to which the call on the trunk is currently queued or the split number in which the call was answered.	S
SPLIT2-3	Split numbers of second and third splits to which the call on the trunk is currently queued. This database item is only available with Generic 3 switches that have the Call Vectoring feature.	S
STARTED	Time of day that the trunk’s current state TKSTATE started.	S
TKGRP (index)	Trunk group number to which the trunk is assigned.	A
TKSTATE	Current state of the trunk. Trunk states include: IDLE, SEIZED, QUEUED, CONN, RING, DABN, FBUSY, FDISC, HOLD, MBUSY, UNKNOWN, or as defined in Dictionary.	S
VDN	VDN that is associated with the call currently on the trunk. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.	C
VECTOR	Vector that is associated with the call currently on the trunk. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.	C

Vector Real-Time Database Items

Vector database items are available only with the Vectoring feature. They apply to the Current Interval Vector (*cvector*) and Previous Interval Vector (*pvector*) tables. The indexes are **ACD** and **VECTOR**.

Table A-7: Vector Real-Time Database Items

Database Item	Description	Type
ABNCALLS	Number of INCALLS that were abandoned while being processed by the vector.	C
ABNQUECALLS	Number of split or direct agent calls that were abandoned while in queue.	C
ABNRINGCALLS	Number of split or direct agent calls that were abandoned while ringing at an agent position. This database item is only available with Generic 2 and Generic 3.	C
ABNTIME	Time ABNCALLS waited in the vector or ringing before being abandoned.	C
ACD (index)	ACD number for which data was collected.	A
ACDCALLS	Number of split and direct agent calls that were answered by an agent. Includes split and direct agent calls from "queue to main split," "check backup split," "messaging split," and "adjunct routing" to split or direct agent commands.	C
ADJATTEMPTS	Number of adjunct-routing attempts for calls processed by the vector. This database item is only available with Generic 3 switches that have the ASAI feature.	C
ADJROUTED	Number of adjunct-routing calls that were redirected by an adjunct processor or host computer. This database item is only available with Generic 3 switches that have the ASAI feature.	C
ANSTIME	Time split and direct agent calls waited in the vector or ringing before an agent answered.	C
BACKUPCALLS	Number of ACDCALLS that were delivered to the split by a vector command other than a "queue to main split" command. MAINCALLS = ACDCALLS – BACKUPCALLS This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches with the Call Vectoring feature.	C

Table A-7: Vector Real-Time Database Items (Contd)

Database Item	Description	Type
BUSYCALLS	Number of INCALLS that were given a busy signal by the switch.	C
BUSYTIME	Duration of BUSYCALLS (from the time the call entered the vector until a busy signal was given).	C
DISCCALLS	Number of INCALLS that were disconnected by the switch.	C
DISCTIME	Duration of DISCCALLS (from the time the call entered the vector until the end of the announcement, if any). This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.	C
GOTOCALLS	Number of OUTFLOWCALLS that were redirected to another vector by way of a "go to vector" command.	C
GOTOTIME	Time GOTOCALLS spent in the vector before being redirected to another vector.	C
INCALLS	Number of inbound calls that were processed by the vector (this includes INFLOWCALLS). INCALLS = ACDCALLS + ABNCALLS + OTHERCALLS	C
INCOMPLETE	Indicates whether the data for this collection interval is complete or not.	C
INFLOWCALLS	Number of calls that were redirected to the vector by way of a "go to vector" or "route to" VDN command.	C
INPROGRESS	Current number of inbound calls that the vector is processing.	S
INQUEUE	Current number of INPROGRESS calls that are queued.	S
INRING	Current number of INPROGRESS split and direct agent calls that are ringing at an agent position. This database item is only available with Generic 2 and Generic 3.	S
INTERFLOWCALLS	Number of OUTFLOWCALLS that were redirected to a destination outside the switch.	C
INTIME	Time spent in the vector executing steps.	C
LOOKATTEMPTS	Number of look-ahead interflow attempts for calls processed by the vector. This database item is only available with DEFINITY Generic 2.2 and Generic 3 switches that have the Look-Ahead Interflow feature.	C

Table A-7: Vector Real-Time Database Items (Contd)

Database Item	Description	Type
LOOKFLOWCALLS	Number of INTERFLOWCALLS that were redirected to another switch by way of the Look-Ahead Interflow feature. This database item is only available with DEFINITY Generic 2.2 and Generic 3 switches that have the Look-Ahead Interflow feature.	C
NUMVDNS	Current number of VDNs assigned to the vector.	A
OTHERCALLS	Number of INCALLS that connected to a non-ACD destination, were redirected out of the vector, were given a busy signal, or were disconnected. OTHERCALLS = INCALLS - ACDCALLS - ABNCALLS	C
OTHERTIME	Duration of OTHERCALLS (from the time the call entered the vector until the call's disposition was known).	C
OUTFLOWCALLS	Number of INCALLS that were redirected to another destination by way of a "route to," "adjunct routing," or "go to vector" command. Does not include calls that route to a split (G3).	C
OUTFLOWTIME	Time OUTFLOWCALLS spent in the vector before being redirected.	C
RINGCALLS	Number of split and direct agent calls that rang at agent positions. This database item is only available with Generic 2 and Generic 3.	C
RINGTIME	Time split and direct agent calls spent ringing at agent positions independent of final disposition. This database item is only available with Generic 2 and Generic 3.	C
VECTOR (index)	Number of the Vector.	A

VDN Real-Time Database Items

VDN database items are available only with the Vectoring feature. They apply to the Current Interval VDN (*cvdn*) and Previous Interval VDN (*pvdn*) tables. The indexes are **ACD**, **VDN**, and **VECTOR**.

Table A-8: VDN Real-Time Database Items

Database Item	Description	Type
ABNCALLS1-10	Number of INCALLS that were abandoned in each of the service level increments PERIOD1 through PERIOD9 (as defined on the ACD Administration: Call Profile window). ABNCALLS10 counts calls that abandoned after PERIOD9 .	C
ABNCALLS	Number of INCALLS that were abandoned while carried by the VDN.	C
ABNQUECALLS	Number of ABNCALLS that were abandoned while in a split or direct agent queue.	C
ABNRINGCALLS	Number of split and direct agent ABNCALLS that were abandoned while ringing at an agent position. This database item is only available with Generic 2 and Generic 3.	C
ABNTIME	Time caller waited before abandoning.	C
ACCEPTABLE	Number of ACDCALLS and CONNECTCALLS that were answered within the acceptable service level (as defined on the ACD Administration: VDN Call Profile window).	C
ACD (index)	ACD number for which data was collected.	A
ACDCALLS	Number of split and direct agent calls that were answered by an agent. This includes calls from “queue to main split,” “check backup split,” “messaging split,” “route to” split, and “adjunct routing” to a split or direct agent commands.	C
ACDTIME	Time ACDCALLS were connected to an agent (does not include HOLDTIME).	C
ACWTIME	Time that agents spent in after call work associated with ACDCALLS .	C
ADJATTEMPTS	Number of adjunct-routing attempts for calls carried by this VDN. This database item is only available with Generic 3 switches that have the ASAI feature.	C

Table A-8: VDN Real-Time Database Items (Contd)

Database Item	Description	Type
ADJROUTED	Number of calls that were routed by an adjunct processor or host computer. This database item is only available with Generic 3 switches that have the ASAI feature.	C
ANSCONNCALLS1-10	Number of calls that were answered in each of the service level increments PERIOD1 through PERIOD9 (as defined on the ACD Administration: VDN Call Profile window). ANSCONNCALLS10 is the number of calls connected after the last increment PERIOD9 . This includes ACD and extension calls (by way of a "route to" command). For System 85 R2V4 and Generic 2.1, this is the time before ringing starts on extension calls.	C
ANSTIME	Time split and direct agent calls waited in the associated vector or ringing before being answered.	C
ATAGENT	Current number of INPROGRESS calls (ACD and non-ACD) that have been answered by a station.	S
BACKUPCALLS	Number of ACDCALLS that were delivered to the split by a vector command other than a "queue to main split" command. This includes calls from "messaging split," "check backup split," and "route to" split command, but does not include direct agent calls. MAINCALLS = ACDCALLS – BACKUPCALLS This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches with the Call Vectoring feature.	C
BUSYCALLS	Number of INCALLS that were given a busy signal by the switch.	C
BUSYTIME	Duration of BUSYCALLS (from the time the call entered the vector until the trunk goes idle).	C
CONNECTCALLS	Number of non-ACD INCALLS that were delivered to a station by way of a "route to" or "adjunct routing" command and were not abandoned. For System 85 R2V4 and Generic 2.1, non-ACD abandons are not tracked, so all calls that route to a station are included in CONNECTCALLS .	C
CONNECTTIME	For Generic 2.2 and Generic 3, time CONNECTCALLS waited before being answered. For System 85 R2V4 and Generic 2.1, this is the time before ringing starts.	C
DISCCALLS	Number of INCALLS that were disconnected by the switch while carried by the VDN.	C

Table A-8: VDN Real-Time Database Items (Contd)

Database Item	Description	Type
DISCTIME	Duration of DISCCALLS (from the time the call entered the vector until the end of the announcement, if any). This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.	C
ILN (index)	Internal line number of the VDN.	A
INCALLS	Number of inbound calls that were directed to this VDN. INCALLS = ACDCALLS + ABNCALLS + OTHERCALLS	C
INCOMPLETE	Indicates whether the data for this collection interval is complete or not.	C
INFLOWCALLS	Number of calls that were redirected into the VDN by way of a "route to" VDN command.	C
INPROGRESS	Current number of inbound calls that the VDN is carrying.	S
INQUEUE	Current number of INPROGRESS calls that are queued.	S
INRING	Number of split and direct agent INPROGRESS calls that are currently ringing at an agent position. This database item is only available with Generic 2 and Generic 3.	C
INTERFLOWCALLS	Number of OUTFLOWCALLS that were redirected to a destination outside the switch.	C
INTIME	Duration of INCALLS . INTIME = ACDDTIME + ABNTIME + OTHERTIME + ANSTIME + HOLDTIME	C
INVECTOR	Current number of INPROGRESS calls that are being processed by the VDN's vector.	S
LOOKATTEMPTS	Number of look-ahead interflow attempts for calls that this VDN carried (Generic 2.2 and Generic 3).	C
LOOKFLOWCALLS	Number of INTERFLOWCALLS that were redirected by way of the Look-Ahead Interflow feature (Generic 2.2 and Generic 3).	C
NUMTGS	Number of trunk groups that are currently assigned to this VDN.	A
OTHERCALLS	Number of INCALLS that connected to a non-ACD destination, were redirected out of the VDN, were given a busy signal, or were disconnected. OTHERCALLS = INCALLS - ACDCALLS - ABNCALLS	C

Table A-8: VDN Real-Time Database Items (Contd)

Database Item	Description	Type
OTHERTIME	Duration of OTHERCALLS (from the time the call entered the associated vector until the the call left the VDN).	C
OUTFLOWCALLS	Number of INCALLS that were redirected to another VDN or to a destination outside the switch by way of a "route to" or "adjunct routing" command.	C
OUTFLOWTIME	Time OUTFLOWCALLS were carried by the VDN before being redirected (from the time the call entered the associated vector until the the call was redirected).	C
PERIOD1-9	Time periods defining the way answers/connects and abandons are collected for the call profiles.	A
PERIODCHG	Indicates whether the periods for call profiles were changed during the collection interval or not.	A
RINGCALLS	Number of split and direct agent calls that rang at agent positions. This database item is only available with Generic 2 and Generic 3.	C
RINGTIME	Time split and direct agent calls spent ringing at agent positions. This database item is only available with Generic 2 and Generic 3.	C
SERVICELEVEL	Number of seconds in which calls must be answered/connected to be considered acceptable.	A
SVCLEVELCHG	Indicates whether the service level was changed during the collection interval or not.	A
TRANSFERRED	Number of calls that were transferred to another destination (Generic 3 = all VDN calls, System 85 R2V4 and Generic 2.1 = transfers to a VDN or split, Generic 2.2 = split calls and transfers to a VDN).	C
VDN (index)	Number (extension) of the VDN.	A
VECTOR (index)	Number of the vector to which the VDN is assigned.	A

Call Work Codes Real-Time Database Items

Call work codes are only available with Generic 3i, Generic 3r, and Generic 2.2 switches. Real-time database items for call work codes apply to the `ccwc` and `pcwc` tables. The indexes are `acd` and `cwc`.

Table A-9: Call Work Codes Real-Time Database Items

Database Item	Description	Type
ACD (index)	ACD number for which data was collected.	A
ACDCALLS	Number of split and direct agent calls that were assigned the associated call work code.	C
ACDTIME	Time agents spent talking on ACDCALLS associated with the call work code (does not include HOLDTIME).	C
ACWTIME	Time that agents spent in after call work for ACDCALLS that were associated with the call work code.	C
CWC (index)	Call work code for which data was collected.	A
INCOMPLETE	Indicates whether the data for this collection interval is complete or not.	C

Historical Database Items

Split Historical Database Items

Split historical database items apply to the Intrahour Split (`hsplit`), Daily Split (`dsplit`), Weekly Split (`wsplit`), and Monthly Split (`msplit`) tables, except as noted. The indexes are `SPLIT` and `ROW_DATE`.

Table A-10: Split Historical Database Items

Database Item	Description
ABNCALLS	Number of CALLSOFFERED calls that were abandoned by the caller while in queue or ringing an agent position. When a call is queued to multiple splits (Generic 3 only), an abandon is only pegged for the first split to which the call queued.
ABNCALLS1-10	Each item contains the number of times that callers abandoned during each period (PERIOD1-9).
ABNRINGCALLS	Number of ABNCALLS that abandoned while ringing at an agent position. This database item is only available with Generic 2 and Generic 3.
ABNTIME	Time callers waited in queue or ringing before abandoning.
ACCEPTABLE	Number of ACDCALLS that were connected to an agent within the predefined acceptable service level.
ACD	ACD number for which data was collected.
ACDCALLS	Number of CALLSOFFERED calls that were answered by an agent.
ACDCALLS1-10	Number of ACDCALLS during the collection interval that were answered (ANSTIME) in each of the service level increments PERIOD1 through PERIOD9 . ACDCALLS10 is the number of calls answered after the last increment PERIOD9 .
ACDTIME	Time agents spent talking on ACDCALLS (does not include HOLDTIME).
ACWINCALLS	Number of inbound extension calls (split and direct agent calls) received by agents while in ACW.
ACWINTIME	Time agents spent talking on ACWINCALLS (does not include hold time on Generic 3).
ACWOUTADJCALLS	Number of ACWOUTCALLS that were placed by an adjunct on behalf of an agent (keyboard-dialed). This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.

Table A-10: Split Historical Database Items (Contd)

Database Item	Description
ACWOUTCALLS	Number of outbound extension calls (split and direct agent calls) made by agents while in ACW.
ACWOUTOFFCALLS	Number of ACWOUTCALLS that were made to an off-premises location. This database item is only available with Generic 2.2 and Generic 3.
ACWOUTOFFTIME	Time agents spent talking on ACWOUTOFFCALLS (does not include hold time). This database item is only available with Generic 2.2 and Generic 3.
ACWOUTTIME	Time agents spent talking on ACWOUTCALLS (does not include hold time on Generic 3).
ACWTIME	Duration of all after call work associated with the ACDCALLS .
ANSTIME	Time calls spent in queue or ringing before connecting to an agent.
ASSISTS	Number of times agents requested assistance from the split supervisor by pressing the ASSIST button or dialing the supervisor's extension. The agent must be handling an ACD call or in after call work for this item to be recorded.
AUXINCALLS	Number of inbound extension calls received by agents while in AUX or AVAILABLE.
AUXINTIME	Time agents spent talking on AUXINCALLS (does not include hold time on Generic 3).
AUXOUTADJCALLS	Number of AUXOUTCALLS that were placed by an adjunct on behalf of an agent (keyboard-dialed). This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.
AUXOUTCALLS	Number of outbound extension calls made by agents while in AUX or AVAILABLE.
AUXOUTOFFCALLS	Number of AUXOUTCALLS that were made to an off-premises location. This database item is only available with Generic 2.2 and Generic 3.
AUXOUTOFFTIME	Time agents spent talking on AUXOUTOFFCALLS (does not include hold time). This database item is only available with Generic 2.2 and Generic 3.
AUXOUTTIME	Time agents spent talking on AUXOUTCALLS (does not include hold time on Generic 3).

Table A-10: Split Historical Database Items (Contd)

Database Item	Description
BACKUPCALLS	Number of ACDCALLS that were delivered to the split by a vector command other than a “queue to main split” command. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches with the Call Vectoring feature.
BUSYCALLS	Number of CALLSOFFERED that were given a busy signal by the switch.
BUSYTIME	Time the call spent in queue before a busy signal was given.
CALLSOFFERED	Number of calls offered to the split. CALLSOFFERED = ACDCALLS + ABNCALLS + BUSYCALLS + DISCCALLS + OUTFLOWCALLS + DEQUECALLS
CONFERENCE	Number of ACDCALLS that were conference. This database item is only available with Generic 2.2 and Generic 3.
DEQUECALLS	Number of calls queued to this SPLIT but pegged in another split (as answered, abandoned, outflowed, busy, or forced disconnect). This database item is only available with Generic 3.
DEQUETIME	Amount of time DEQUEUCALLS spent in this SPLIT's queue before dequeuing. This database item is only available with Generic 3.
DISCCALLS	Number of CALLSOFFERED calls that were disconnected by the switch. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches with the Call Vectoring feature.
DISCTIME	Duration of DISCCALLS (from the time the call entered the vector until the end of the announcement, if any). This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches with the Call Vectoring feature.
EVENT1-9	Number of times each event (stroke count) button was pressed. The agent must be handling an ACD call or in after call work for this item to be recorded. This database item is only available with System 85, Generic 2, and Generic 3 switches.
HIGHCALLS	Number of ACDCALLS with high priority that were answered by this split. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches with the Call Vectoring feature.
HOLDABNCALLS	Number of split calls that were abandoned while on hold. This database item is only available with System 85 R2V4, Generic 2, and Generic 3.
HOLDCALLS	Number of split calls that were placed on hold. This database item is only available with System 85 R2V4, Generic 2, and Generic 3.

Table A-10: Split Historical Database Items (Contd)

Database Item	Description
HOLDTIME	Time callers spent on hold (split calls only). This database item is only available with System 85 R2V4, Generic 2, and Generic 3.
I_ACDTIME	Time during the collection interval that agents were on split calls.
I_ACWINTIME	Time during the collection interval that agents were in ACW (for split or direct agent calls) <i>and</i> on inbound extension calls (does not include hold time on Generic 3).
I_ACWOUTTIME	Time during the collection interval that agents were in ACW (for split or direct agent calls) <i>and</i> on outbound extension calls (does not include hold time on Generic 3).
I_ACWTIME	Time during the collection interval that agents were in ACW independent of call activity.
I_AUXINTIME	Time during the collection interval that agents were in AUX or AVAILABLE <i>and</i> on inbound extension calls (does not include hold time on Generic 3).
I_AUXOUTTIME	Time during the collection interval that agents were in AUX or AVAILABLE <i>and</i> on outbound extension calls (does not include hold time on Generic 3).
I_AUXTIME	Time during the collection interval that agents were in AUX. For Generic 1, agents in multiple splits doing work in a split other than this split.
I_AVAILTIME	Time during the collection interval that agents were available for split calls.
I_OTHERTIME	Time during the collection interval that agents were doing other work. For Generic 3, other work includes: while in Auto-In or Manual-In mode, an agent put a call on hold and performed no further action, was on a personal call and this split is not the OLDEST_LOGON , dialed to place a call or activate a feature, or a personal call is ringing with no further activity. For Generic 1, and Generic 3, an agent logged into multiple splits and did work for a split other than this one. For Generic 1, Generic 2, and Generic 3, after pumpup or after an agent logged in, an ASTATE message was not received (the agent is in the UNKNOWN state).
I_RINGTIME	Time during the collection interval that agents had split calls ringing. If an agent changes work modes or makes or answers a personal call, I_RINGTIME stops accumulating. This database item is only available with Generic 2 and Generic 3.

Table A-10: Split Historical Database Items (Contd)

Database Item	Description
I_STAFFTIME	Time during the collection interval that agents were staffed (logged in).
INCOMPLETE	Indicates whether the data for this collection interval is complete or not.
INFLOWCALLS	Number of calls that were redirected to the split's queue from another queue. For Generic 3 with Call Vectoring, this includes calls answered by a split other than the first split to which a call queued in a vector. When a call leaves vector processing, the next split to which the call queues will not be credited with an inflow.
INTERFLOWCALLS	Number of OUTFLOWCALLS that were redirected to an off-premises destination.
INTERVAL	Length of the intrahour interval (Intrahour table only).
LOWCALLS	Number of ACDCALLS that queued to the split with low (vectoring) or no (non-vectoring) priority.
MAXINQUEUE	Maximum number of split calls in queue during the collection interval (that is, the high-water mark for calls in queue during the interval).
MAXOCWTIME	The longest time during the collection interval that a split call waited before an agent answered, the caller abandoned, or the call was redirected, received a busy signal, or was disconnected.
MAXSTAFFED	Maximum number of agents that were staffed during the collection interval.
MEDCALLS	Number of ACDCALLS that queued to the split with medium or higher priority. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches with the Call Vectoring feature.
O_ACDCALLS	Number of ACDCALLS that were placed by an adjunct (predictive dialing). This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.
O_ACDTIME	Time agents spent talking on O_ACDCALLS (does not include HOLDTIME). This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.
O_ACWTIME	Duration of all after call work associated with the O_ACDCALLS . This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.

Table A-10: Split Historical Database Items (Contd)

Database Item	Description
OUTFLOWCALLS	Number of CALLSOFFERED calls that were redirected to another destination. For Generic 3 with Call Vectoring and multiple split queuing, this includes calls queued to the primary split and answered in another split.
OUTFLOWTIME	Time OUTFLOWCALLS spent in queue or ringing before being redirected.
PERIOD1-9	ANSTIME is divided into 10 variable-length periods along a time continuum. Each item contains the length of each period. (The tenth period is anything greater than the value in PERIOD9.)
PERIODCHG	Indicates whether the periods for call profiles were changed during the collection interval or not.
RINGCALLS	Number of calls that rang at agent positions.
RINGTIME	Time this split's calls spent ringing at agent positions independent of their final disposition or agent activity.
ROW_DATE (index)	Date on which data was collected.
SERVICELEVEL	Number of seconds within which calls must be handled in order to be considered acceptable.
SPLIT (index)	Split number for which data was collected.
STARTTIME	Start time for the interval for which data was collected (Intrahour table only).
SVCLEVELCHG	Indicates whether the service level was changed during the collection interval or not.
TOPCALLS	Number of ACDCALLS with top priority that were answered by this split. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches with the Call Vectoring feature.
TRANSFERRED	Number of ACDCALLS or DA_ACDCALLS that were transferred to another destination (Generic 1 = transfers to a measured split and transfers from a measured trunk to a measured trunk, System 85 R2V4 and Generic 2.1 = transfers to a VDN or split, Generic 2.2 and Generic 3 = all split calls transferred).

Agent Historical Database Items

Agent historical database items apply to the Intrahour Agent (`hagent`), Daily Agent (`dagent`), Weekly Agent (`wagent`), and Monthly Agent (`magent`) tables, except as noted. The indexes are `LOGID`, `SPLIT` and `ROW_DATE`.

Table A-11: Agent Historical Database Items

Database Item	Description
ABNCALLS	Number of split calls that were abandoned while ringing at the agent station (after being directed to the agent station, before being answered).
ABNTIME	Time split calls spent ringing before being abandoned.
ACD	The ACD number for which data was collected.
ACDCALLS	Number of split calls the agent answered (includes O_ACDCALLS).
ACDTIME	Time the agent spent talking on ACDCALLS (does not include HOLDTIME).
ACWINCALLS	Number of inbound extension calls the agent received while in ACW (for split and direct agent calls).
ACWINTIME	Time the agent spent talking on ACWINCALLS (does not include HOLDTIME).
ACWOUTADJCALLS	Number of ACWOUTCALLS that were placed by an adjunct on behalf of an agent (keyboard-dialed). This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.
ACWOUTCALLS	Number of outbound extension calls made by the agent while in ACW (for split and direct agent calls).
ACWOUTOFFCALLS	Number of ACWOUTCALLS that were made to an off-premises location. This database item is only available with Generic 2.2 and Generic 3.
ACWOUTOFFTIME	Time the agent spent talking on ACWOUTOFFCALLS (does not include HOLDTIME). This database item is only available with Generic 2.2 and Generic 3.
ACWOUTTIME	Time the agent spent talking on ACWOUTCALLS (does not include HOLDTIME).
ACWTIME	Duration of all after call work associated with ACDCALLS .

Table A-11: Agent Historical Database Items (Contd)

Database Item	Description
ANSRINGTIME	Time answered split and direct agent calls were ringing at the agent's voice terminal. This database item is only available with Generic 2.2 and Generic 3.
ASSISTS	Number of times agents requested assistance from the split supervisor by pressing the ASSIST button or dialing the supervisor's extension. The agent must be handling an ACD call or in after call work for this item to be recorded.
AUXINCALLS	Number of inbound extension calls the agent received while in AUX (auxiliary work) or AVAILABLE.
AUXINTIME	Time the agent spent talking on AUXINCALLS (does not include HOLDTIME).
AUXOUTADJCALLS	Number of AUXOUTCALLS that were placed by an adjunct on behalf of the agent (keyboard-dialed). This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.
AUXOUTCALLS	Number of outbound extension calls the agent made while in AUX or AVAILABLE.
AUXOUTOFFCALLS	Number of AUXOUTCALLS that were made to an off-premises location. This database item is only available with Generic 2.2 and Generic 3.
AUXOUTOFFTIME	Time the agent spent talking on AUXOUTOFFCALLS (does not include HOLDTIME). This database item is only available with Generic 2.2 and Generic 3.
AUXOUTTIME	Time the agent spent talking on AUXOUTCALLS (does not include HOLDTIME).
CONFERENCE	Number of times the agent completed a conference call (Generic 3 = all calls, Generic 2.2 = split calls).
DA_ABNCALLS	Number of direct agent calls that were abandoned by the caller while queued or ringing. This database item is only available with Generic 3 switches that have the ASAI feature.
DA_ABNTIME	Time DA_ABNCALLS waited in queue or ringing before being abandoned. This database item is only available with Generic 3 switches that have the ASAI feature.
DA_ACDCALLS	Number of direct agent calls that were answered by the agent. This database item is only available with Generic 3 switches that have the ASAI feature.

Table A-11: Agent Historical Database Items (Contd)

Database Item	Description
DA_ACDTIME	Time the agent spent talking on DA_ACDCALLS (does not include HOLDTIME). This database item is only available with Generic 3 switches that have the ASAI feature.
DA_ACWTIME	Duration of after call work associated with DA_ACDCALLS . This database item is only available with Generic 3 switches that have the ASAI feature.
DA_ANSTIME	Time direct agent calls waited before the agent answered. This database item is only available with Generic 3 switches that have the ASAI feature.
DA_OTHERCALLS	Number of direct agent calls that were redirected to another destination. This database item is only available with Generic 3 switches that have the ASAI feature.
DA_OTHERTIME	Time DA_OTHERCALLS waited in queue or ringing before being redirected. This database item is only available with Generic 3 switches that have the ASAI feature.
EVENT1-9	Number of times each event (stroke count) button was pressed. The agent must be handling an ACD call or in after call work for this item to be recorded. This database item is only available with System 85, Generic 2, and Generic 3 switches.
EXTENSION	Extension number at which the agent has been working.
HOLDABNCALLS	Number of calls that were abandoned from hold (Generic 3 = all callers, System 85 R2V4 and Generic 2 = split callers).
HOLDCALLS	Number of calls that were placed on hold at least once (Generic 3 = all calls, System 85 R2V4 and Generic 2 = split calls).
HOLDTIME	Time callers spent on hold (Generic 3 = all callers, System 85 R2V4 and Generic 2 = split callers).
I_ACDTIME	Time during the collection interval that the agent was talking on split calls (does not include HOLDTIME).
I_ACWINTIME	Time during the collection interval that the agent was in ACW (for split or direct agent calls) <i>and</i> on inbound extension calls (does not include HOLDTIME).
I_ACWOUTTIME	Time during the collection interval that the agent was in ACW (for split or direct agent calls) <i>and</i> on outbound extension calls (does not include HOLDTIME).
I_ACWTIME	Time during the collection interval that the agent was in ACW independent of call activity.

Table A-11: Agent Historical Database Items (Contd)

Database Item	Description
I_AUXINTIME	Time during the collection interval that the agent was in AUX or AVAILABLE <i>and</i> on inbound extension calls and SPLIT was the split this agent was logged into the longest (for Generic 3, agents in multiple splits). This database item does not include HOLDTIME .
I_AUXOUTIME	Time during the collection interval that the agent was in AUX or AVAILABLE <i>and</i> on outbound extension calls and SPLIT was the split this agent was logged into the longest (for Generic 3, agents in multiple splits). This database item does not include HOLDTIME .
I_AVAILTIME	Time during the collection interval that the agent was available for split calls.
I_DA_ACDTIME	Time during the collection interval that the agent spent talking on direct agent calls (does not include HOLDTIME). This database item is only available with Generic 3 switches that have the ASAI feature.
I_DA_ACWTIME	Time during the collection interval that the agent was doing after call work associated direct agent calls. This database item is only available with Generic 3 switches that have the ASAI feature.
I_OTHERTIME	Time during the collection interval that the agent was doing other work. For Generic 3, other work includes: while in Auto-In or Manual-In mode, the agent put a call on hold and performed no further action, dialed to place a call or activate a feature, or a personal call is ringing with no further activity. For Generic 1, and Generic 3, the agent logged into multiple splits and did work for a split other than this one. For Generic 1, Generic 2, and Generic 3, after pumpup or after an agent logged in, an ASTATE message was not received (the agent is in the UNKNOWN state).
I_RINGTIME	Time during the collection interval that the agent had split and direct agent calls ringing. If an agent changes work modes or makes or answers a personal call, I_RINGTIME stops accumulating. This database item is only available with Generic 2 and Generic 3.
I_STAFFTIME	Time during the collection interval that the agent was staffed (logged in) in this split.
INCOMPLETE	Indicates whether the data for this collection interval is complete or not.
INTERVAL	Length of the intrahour interval (for the <code>hagent</code> table only).
LOGID	Login ID that was used to staff the EXTENSION . Agents in multiple splits (Generic 1 and Generic 3) have one LOGID .

Table A-11: Agent Historical Database Items (Contd)

Database Item	Description
O_ACDCALLS	Number of ACDCALLS that were placed by an adjunct (predictive dialing). This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.
O_ACDTIME	Time the agent spent talking on O_ACDCALLS (does not include HOLDTIME). This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.
O_ACWTIME	Duration of all after call work associated with the O_ACDCALLS . This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.
RINGCALLS	Number of split and direct agent calls (G3) that rang at the agent's voice terminal. This database item is only available with Generic 2 and Generic 3.
RINGTIME	Time split and direct agent calls (G3) that rang at the agent's voice terminal independent of call disposition or agent activity. This database item is only available with Generic 2 and Generic 3.
ROW_DATE (index)	Date on which data was collected.
SPLIT (index)	Split number that EXTENSION is assigned to or split number that agent logged into.
STARTTIME	Start time for the interval for which data was collected (for the hagent table only).
TI_AUXTIME	<p>Time during the collection interval that the agent was in AUX in all splits or on AUXINCALLS or AUXOUTCALLS and SPLIT was the split the agent was logged into the longest (Generic 1 and Generic 3, agents in multiple splits).</p> <p>Time is only stored for the split the agent has been logged into the longest.</p>
TI_AVAILTIME	<p>Time during the collection interval that the agent was available for split or direct agent calls for any split and SPLIT was the split the agent was logged into the longest (Generic 1 and Generic 3, agents in multiple splits).</p> <p>Time is only stored for the split the agent has been logged into the longest.</p>

Table A-11: Agent Historical Database Items (Contd)

Database Item	Description
TI_OTHERTIME	<p>Time during the collection interval that the agent was doing other work. For Generic 3, other work includes: while in Auto-In or Manual-In mode, the agent put a call on hold and performed no further action, dialed to place a call or activate a feature, or a personal call is ringing with no further activity. For Generic 1, Generic 2, and Generic 3, after pumpup or after an agent logged in, an ASTATE message was not received (the agent is in the UNKNOWN state).</p> <p>Time is only stored for the split the agent has been logged into the longest.</p>
TI_STAFFTIME	<p>Time during the collection interval that the agent was staffed in any split and SPLIT was the split this agent was logged into the longest (for Generic 1 and Generic 3, agents in multiple splits).</p> <p>Time is only stored for the split the agent has been logged into the longest.</p>
TRANSFERRED	<p>Number of times that the agent completed a transfer (Generic 1 = measured call to measured split and measured trunk to measured trunk, Generic 3 = all inbound calls, System 85 R2V4 and Generic 2.1 = transfers to a VDN, Generic 2.2 = split calls being transferred and transfers to a VDN or a split).</p>

**Agent
Login/Logout
Historical
Database Items**

Agent Login/Logout historical database items apply to the Agent Login/Logout (haglog) table. The indexes are **SPLIT** and **ROW_DATE**.

Table A-12: Agent Login/Logout Historical Database Items

Database Item	Description
ACD	The ACD number for which data was collected.
EXTN	Extension number of the station that the agent staffed.
INFLAG	If not null, indicates that agent was already logged in when link came up. Values: NULL, "<".
LOGID	Login ID that was used to staff the EXTN .
LOGIN	Time at which the agent logged into this extension and split with the given login ID.
LOGOUT	Time at which the agent logged out.
OUTFLAG	If not null, indicates that agent logged out while link was down. Values: NULL, ">".
ROW_DATE (index)	The date the agent logged in or out.
SPLIT (index)	Split number that this EXTN is assigned to or split number that the agent logged into.

Agent Trace Historical Database Items

Agent Trace historical database items apply to the Agent Trace (`ag_actv`) table. **Optional** database items collect data only when those items are selected in the System Setup: Agent Trace Record Contents window. To receive a report containing optional Agent Trace historical database items, a custom report must be created. The index is `LOGID`.

Table A-13: Agent Trace Historical Database Items

Database Item	Description
ACD	The ACD number for which data was collected.
DIRECTION	Direction of the call — IN or OUT.
DURATION	Time in the given work state (work mode and direction).
EVENT_TIME	Time of day (hour, minute, and second) the work mode or direction changed.
LOGID (index)	Login ID that was used to staff the extension.
RECONNECT	This event represents the agent reconnecting to the call after putting it on hold.
ROW_DATE	The date of the agent's work mode or direction change.
SPLIT	Split number that the extension is assigned to or split number that the agent logged into.
STARTTIME	Time of day (hour and minute) for which the Agent Trace is being ordered. This is the time of day you enter to request the report.
WORKMODE	Work mode the agent was in — AVAIL, ACD, ACW, AUX, DACD, DACW, RING, UNKNOWN, OTHER, or UNSTAFF.
WMODE_SEQ	A number associated with each event (change of work mode or direction). If more than one event occurs in the same second, this number denotes the order of events.
Optional Database Items	
ASSIST_ACTV	The agent requested supervisor assistance (pressed the ASSIST button).
CALLER_HOLD	The call was put on hold.
CALLING_PTY	The calling party identification.
CONFERENCE	The agent activated a conference.
DIGITS_DIALED	Digits the agent dialed.
EXT_CALL_ORIG	The agent originated an external call. This database item is only available with Generic 2.2, and Generic 3.

Table A-13: Agent Trace Historical Database Items (Contd)

Database Item	Description
KEYBD_DIALED	The call was keyboard-dialed. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.
MCT	The agent activated a malicious call trace. This database item is only available with System 85 R2V4, Generic 2, and Generic 3r.
TRANSFERRED	The agent transferred the call.
WORKCODE	The call work code entered for the call. This database item is only available with Generic 3 and Generic 2.2 switches that have the Call Work Codes feature.

Trunk Group Historical Database Items

Trunk Group historical database items apply to the Intrahour Trunk Group (*htkgrp*), Daily Trunk Group (*dtkgrp*), Weekly Trunk Group (*wtkgrp*), and Monthly Trunk Group (*mtkgrp*) tables, except as noted. The indexes are **ROW_DATE** and **TKGRP**.

Table A-14: Trunk Group Historical Database Items

Database Item	Description
ABNCALLS	Number of split and direct agent INCALLS that were abandoned by the caller. If the switch has the Call Vectoring feature, this includes calls that were abandoned from vector processing. For Generic 2.2, this includes calls that were abandoned from the VDN. For Generic 3, this includes all calls that were abandoned.
ABNQUECALLS	Number of ABNCALLS that were abandoned while in queue.
ABNRINGCALLS	Number of ACDCALLS that were abandoned while ringing at an agent position. This database item is only available with Generic 2 and Generic 3.
ABNVECCALLS	Number of ABNCALLS that were abandoned while in vector processing. This includes calls that were abandoned while in queue or ringing at an agent position. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.
ACD	ACD number for which data was collected.
ACDCALLS	Number of split or direct agent INCALLS that were answered by an agent.
ALLINUSETIME	Duration of all all-trunks-busy periods during the collection interval (includes trunks that are maintenance busy).
AUDIO	Number of audio difficulty problems reported.
BACKUPCALLS	Number of ACDCALLS that were delivered to the split by a vector command other than a “queue to main split” command. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.
BH_ABNCALLS	Busy hour incoming calls abandoned (Daily table only).
BH_ACDCALLS	Busy hour incoming calls answered (Daily table only).
BH_ALLINUSETIME	Busy hour length of time all trunks were in use (Daily table only).
BH_BUSYCALLS	Busy hour incoming calls forced busy (Daily table only).
BH_DISCCALLS	Busy hour incoming calls disconnected (Daily table only).

Table A-14: Trunk Group Historical Database Items (Contd)

Database Item	Description
BH_INCALLS	Busy hour incoming calls (Daily table only).
BH_INTIME	Duration of busy hour incoming calls (Daily table only).
BH_OABNCALLS	Busy hour outgoing calls abandoned (Daily table only).
BH_OACDCALLS	Busy hour outgoing calls answered (Daily table only).
BH_OOTHERCALLS	Busy hour outgoing other calls. This includes forced busy calls, forced disconnect calls, and calls connected to non-ACD destinations (Daily table only).
BH_OTHERCALLS	Busy hour incoming other calls. This includes forced busy calls, forced disconnect calls, and calls connected to non-ACD destinations (Daily table only).
BH_OUTCALLS	Busy hour outgoing calls (Daily table only).
BH_OUTTIME	Duration of busy hour outgoing calls (Daily table only).
BH_STARTTIME	Hour for which data was collected (Daily table only).
BLOCKAGE	Number of outbound call attempts that were blocked because all trunks were busy. This database item is only available with System 85 R2V4 and Generic 2.
BUSYCALLS	Number of INCALLS that were given a busy signal by the switch.
COMPLETED	Number of OUTCALLS that were completed (far-end answers). This database item is only available with Generic 1.1 and Generic 3.
CONNECTCALLS	Number of INCALLS that were answered at a station that were not split or direct agent calls.
DISCCALLS	Number of INCALLS that were disconnected by the switch.
FAILURES	Number of trunk failures for this TKGRP . Trunk failures can be due to trunk sequencing failures (usually hardware problems on the trunk or incompatible trunk types on either end of a call) or due to internal switch errors (such as errors in call processing or vectoring translations). This database item is only available with System 85 and Generic 2.
INCALLS	Number of inbound calls that were carried by this TKGRP . INCALLS = ACDCALLS + ABNCALLS + OTHERCALLS
INCOMPLETE	Indicates whether the data for this collection interval is complete or not.
INTERVAL	Length of the intrahour interval (Intrahour table only).
INTIME	Duration of INCALLS (from the time the trunk is seized until the trunk is dropped).

Table A-14: Trunk Group Historical Database Items (Contd)

Database Item	Description
MBUSYTIME	Duration of all maintenance-busy periods for this TKGRP during the collection interval.
O_ABNCALLS	Number of OUTCALLS that were abandoned by the receiving end while waiting for an available agent. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.
O_ACDCALLS	Number of OUTCALLS that were offered to one or more splits and answered by an agent in one of those splits. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.
O_OTHERCALLS	Number of outbound split or direct agent calls on the trunk group that were forced busy or had an unknown dispositions, for example, calls that were abandoned before reaching ACD processing. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.
OTHERCALLS	Number of INCALLS that were neither answered nor abandoned. OTHERCALLS = INCALLS - ACDCALL - ABNCALLS
OUTCALLS	Number of outbound calls that were carried by this TKGRP . OUTCALLS = O_ACDCALLS + O_ABNCALLS + O_OTHERCALLS
OUTTIME	Duration of OUTCALLS (from the time the trunk is seized until the trunk is dropped).
ROW_DATE (index)	Date on which data was collected.
SETUPTIME	Amount of time until OUTCALLS completed. (from the time the trunk is seized until answer supervision or SMDR answer time out). This database item is only available with Generic 1 and Generic 3.
SHORTCALLS	Number of calls that occupied a trunk in the trunk group for less than two seconds.
SPLIT	Split this TKGRP terminates to.
STARTTIME	Start time for the interval for which data was collected (Intrahour table only).
TKGRP (index)	Trunk group number for which data was collected.

Table A-14: Trunk Group Historical Database Items (Contd)

Database Item	Description
TRANSFERRED	Number of calls that were transferred to another destination. (Generic 1 = measured calls to a measured split and measured trunk to measured trunk, Generic 3 = all calls, System 85 R2V4 and Generic 2.1 = transfers to VDNs and splits, Generic 2.2 = split calls being transferred and transfers to VDNs and splits)
TRUNKS	Current number of trunks assigned to this TKGRP .
VDN	VDN this TKGRP terminates to. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.
VECTOR	Vector the VDN terminates to. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.

Trunk Historical Database Items

Trunk historical database items apply to the Intrahour Trunk (`htrunk`), Daily Trunk (`dtrunk`), Weekly Trunk Group (`wtrunk`), and Monthly Trunk Group (`mtrunk`) tables, except as noted. The indexes are `EQLOC`, `ROW_DATE` and `TKGRP`.

Table A-15: Trunk Historical Database Items

Database Item	Description
ABNCALLS	Number of split INCALLS that were abandoned by the caller. If the switch has the Call Vectoring feature, this includes calls that were abandoned from vector processing. For Generic 2.2, this includes calls that were abandoned from the VDN. For Generic 3, this includes all calls that were abandoned.
ACD	ACD number for which data was collected.
ACDCALLS	Number of split and direct agent INCALLS answered by an agent.
AUDIO	Number of audio difficulty problems reported.
EQLOC (index)	Trunk number (physical equipment location) for which data was collected.
FAILURES	Number of trunk failures. Trunk failures can be due to trunk sequencing failures (usually hardware problems on the trunk or incompatible trunk types on either end of a call) or due to internal switch errors (such as errors in call processing or vectoring translations). This database item is only available with System 85 and Generic 2.
INCALLS	Number of inbound calls that were carried by the trunk. This includes calls with short holding times, but does not include calls that had a trunk failure.
INCOMPLETE	Indicates whether the data for this collection interval is complete or not.
INTERVAL	Length of the intrahour interval (Intrahour table only).
INTIME	Duration of INCALLS (from the time the trunk is seized until the trunk is dropped).
MBUSYTIME	Duration of all maintenance-busy periods for the trunk during the collection interval.

Table A-15: Trunk Historical Database Items (Contd)

Database Item	Description
O_ABNCALLS	Number of OUTCALLS that were abandoned by the receiving end while waiting for an available agent. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.
O_ACDCALLS	Number of OUTCALLS that were answered by an agent. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.
O_OTHERCALLS	Number of outbound split or direct agent calls on the trunk that were forced busy or had an unknown dispositions, for example, calls that were abandoned before reaching ACD processing. This database item is only available with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.
OTHERCALLS	Number of inbound split and direct agent calls on the trunk that were not answered or abandoned. This includes forced busy calls, forced disconnect calls, and calls with unknown dispositions.
OUTCALLS	Number of outbound calls that were carried by the trunk. OUTCALLS = O_ACDCALLS + O_ABNCALLS + O_OTHERCALLS
OUTTIME	Duration of OUTCALLS (from the time the trunk is seized until the trunk is dropped).
SHORTCALLS	Number of inbound and outbound calls that occupied the trunk for less than two seconds.
STARTTIME	Start time for the interval for which data was collected (Intrahour table only).
ROW_DATE (index)	Date on which data was collected.
TKGRP (index)	Trunk group number that the trunk is assigned to.

Vector Historical Database Items

Vector historical database items apply to the Intrahour Vector (hvector), Daily Vector (dvector), Weekly Vector (wvector), and Monthly Vector (mvector) tables, except as noted. The indexes are ROW_DATE and VECTOR.

Table A-16: Vector Historical Database Items

Database Item	Description
ABNCALLS	Number of INCALLS that were abandoned by the caller while in vector processing.
ABNQUECALLS	Number of ABNCALLS that were abandoned while in queue.
ABNRINGCALLS	Number of ABNCALLS that were abandoned while ringing at an agent position. This database item is only available with Generic 2 and Generic 3.
ABNTIME	Time ABNCALLS waited in the vector or ringing before being abandoned.
ACD	ACD number for which data was collected.
ACDCALLS	Number of split and direct agent calls that were answered by an agent. This includes calls from “queue to main split,” “check backup split,” “messaging split,” “route to” split, and “adjunct routing” commands.
ADJATTEMPTS	Number of adjunct routing attempts for calls processed by this VECTOR . This database item is only available with Generic 3 switches that have the ASAI feature.
ADJROUTED	Number of adjunct routing calls redirected by an adjunct. This database item is only available with Generic 3 switches that have the ASAI feature.
ANSTIME	Time split and direct agent calls waited in the vector or ringing before an agent answered.
BACKUPCALLS	Number of ACDCALLS that were delivered to the split by a vector command other than a “queue to main split” command. MAINCALLS = ACDCALLS – BACKUPCALLS This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches with the Call Vectoring feature.
BUSYCALLS	Number of INCALLS that were given a busy signal by the switch.
BUSYTIME	Duration of BUSYCALLS (from the time the call entered the vector until a busy signal was given).

Table A-16: Vector Historical Database Items (Contd)

Database Item	Description
DISCCALLS	Number of INCALLS that were disconnected by the switch.
DISCTIME	Duration of DISCCALLS (from the time the call entered the vector until the end of the announcement, if any). This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.
GOTOCALLS	Number of OUTFLOWCALLS that were redirected to another vector by way of a “go to vector” command.
GOTOTIME	Time all GOTOCALLS spent in this VECTOR before being redirected.
INCALLS	Number of inbound calls that were processed by this VECTOR (this includes INFLOWCALLS). INCALLS = ACDCALLS + ABNCALLS + OTHERCALLS
INCOMPLETE	Indicates whether the data for this collection interval is complete or not.
INFLOWCALLS	Number of calls that were redirected into this VECTOR by way of a “go to vector” or “route to” VDN command.
INTERFLOWCALLS	Number of OUTFLOWCALLS that were redirected to an off-premises destination.
INTERVAL	Length of the intrahour interval (Intrahour table only).
INTIME	Time spent in the vector executing steps.
LOOKATTEMPTS	Number of look-ahead interflow attempts for calls processed by this VECTOR. This database item is only available with Generic 2.2, and Generic 3 switches that have the Look-Ahead Interflow feature.
LOOKFLOWCALLS	Number of INTERFLOWCALLS that were redirected by way of the Look-Ahead Interflow feature. This database item is only available with Generic 2.2, and Generic 3 switches that have the Look-Ahead Interflow feature.
OTHERCALLS	OTHERCALLS = INCALLS - ACDCALLS - ABNCALLS This includes forced busy calls, forced disconnect calls, and outflow calls.
OTHERTIME	Time OTHERCALLS spent in the vector until the disposition was known.
OUTFLOWCALLS	Number of INCALLS that were redirected to another destination by way of a “route to,” “adjunct routing,” or “go to vector” command. Does not include calls that route to a split (G3).

Table A-16: Vector Historical Database Items (Contd)

Database Item	Description
OUTFLOWTIME	Duration of OUTFLOWCALLS (time spent in this VECTOR before being redirected).
RINGCALLS	Number of split and direct agent calls that rang at agent positions. This database item is only available with Generic 2 and Generic 3.
RINGTIME	Time split and direct agent calls spent ringing at agent positions independent of final disposition. This database item is only available with Generic 2 and Generic 3.
ROW_DATE (index)	Date on which data was collected.
STARTTIME	Start time for the interval for which data was collected (Intrahour table only).
VECTOR (index)	Vector number that this row represents.

VDN Historical Database Items

VDN historical database items apply to the Intrahour VDN (hvdn), Daily VDN (dvdn), Weekly VDN (wvdn), and Monthly VDN (mvdn) tables, except as noted. The indexes are **ROW_DATE** and **VDN**.

Table A-17: VDN Historical Database Items

Database Item	Description
ABNCALLS1-10	Number of abandons in each of the time periods administered for the call profiles.
ABNCALLS	Number of INCALLS that were abandoned by the caller while carried by the VDN.
ABNQUECALLS	Number of ABNCALLS (split or direct agent calls) that were abandoned while in a split or direct agent queue.
ABNRINGCALLS	Number of ABNCALLS (split or direct agent calls) that were abandoned by the caller while ringing at the agent position. This database item is only available with Generic 2 and Generic 3.
ABNTIME	Time caller waited before abandoning.
ACCEPTABLE	Number of ACDCALLS and CONNECTCALLS that were connected within the predefined acceptable service level. In the case of ACDCALLS , this means "answered by an agent."
ACD	ACD number for which data was collected.
ACDCALLS	Number of split and direct agent calls that were answered by an agent. This includes calls from "queue to main split," "check backup split," "messaging split," "route to" split, and "adjunct routing" to a split or direct agent commands.
ACDTIME	Talk time of all ACDCALLS including hold time.
ACWTIME	Time agent spent in ACW associated with split or direct agent calls.
ADJATTEMPTS	Number of adjunct routing attempts for calls carried by this VDN . This database item is only available with Generic 3 switches that have the ASAI feature.
ADJROUTED	Number of calls that were routed by an adjunct. This database item is only available with Generic 3 switches that have the ASAI feature.
ANSCONNCALLS1-10	Number of times callers were answered by agents or connected to non-ACD destinations during each of the time periods set up for call profiles. This includes ACD and extension calls (by way of a "route to" command). For System 85 R2V4 and Generic 2.1, this is the time before ringing starts on extension calls.

Table A-17: VDN Historical Database Items (Contd)

Database Item	Description
ANSTIME	Time split and direct agent calls waited in the associated vector or ringing before being answered.
BACKUPCALLS	Number of ACDCALLS that were delivered to the split by a vector command other than a "queue to main split" command. MAINCALLS = ACDCALLS – BACKUPCALLS This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches with the Call Vectoring feature.
BH_ABNCALLS	Busy hour calls abandoned (Daily table only).
BH_ACDCALLS	Busy hour incoming calls answered (Daily table only).
BH_ACDTIME	Duration of busy hour answered calls (Daily table only).
BH_BUSYCALLS	Busy hour calls forced busy (Daily table only).
BH_DISCCALLS	Busy hour calls disconnected (Daily table only).
BH_OTHERCALLS	Busy hour other calls. This includes forced busy and disconnected calls, calls that outflowed from the VDN and calls that connected to a non-ACD destination (Daily table only).
BH_STARTTIME	Hour for which data was collected (Daily table only).
BH_VDNCALLS	Busy hour calls offered to the VDN (Daily table only).
BUSYCALLS	Number of INCALLS that were given a busy signal by the switch.
BUSYTIME	Duration of BUSYCALLS (from the time the call entered the vector until the trunk goes idle).
CONNECTCALLS	Number of non-ACD INCALLS that were delivered to a station by way of a "route to" or "adjunct routing" command and were not abandoned. For System 85 R2V4 and Generic 2.1, non-ACD abandons are not tracked, so all calls that route to a station are included in CONNECTCALLS .
CONNECTTIME	For Generic 2.2 and Generic 3, time CONNECTCALLS waited before being answered. For System 85 R2V4 and Generic 2.1, this is the time before ringing starts.
DISCCALLS	Number of INCALLS that were disconnected by the switch.
DISCTIME	Duration of DISCCALLS (from the time the call entered the vector until the end of the announcement, if any). This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.
ILN	Internal line number of the VDN .
INCALLS	Number of inbound calls that were directed to the VDN . INCALLS = ACDCALLS + ABNCALLS + OTHERCALLS

Table A-17: VDN Historical Database Items (Contd)

Database Item	Description
INCOMPLETE	Indicates whether the data for this collection interval is complete or not.
INFLOWCALLS	Number of calls that were redirected by way of a “route to” VDN command into the VDN .
INTERFLOWCALLS	Number of OUTFLOWCALLS that were redirected to an off-premises destination.
INTERVAL	Length of the intrahour interval (Intrahour table only).
INTIME	Duration of INCALLS . INTIME = ACDTIME + ABNTIME + OTHERTIME + ANSTIME + HOLDTIME
LOOKATTEMPTS	Number of look-ahead interflow attempts for calls carried by the VDN . This database item is only available with Generic 2.2, and Generic 3 switches that have the Look-Ahead Interflow feature.
LOOKFLOWCALLS	Number of INTERFLOWCALLS that were redirected by way of the Look-Ahead Interflow feature. This database item is only available with Generic 2.2, and Generic 3 switches that have the Look-Ahead Interflow feature.
OTHERCALLS	OTHERCALLS = INCALLS - ACDCALLS - ABNCALLS This includes forced busy calls, forced disconnect calls, and non-ACD calls that were answered.
OTHERTIME	Duration of OTHERCALLS (from the time the call entered the associated vector until the call left the VDN).
OUTFLOWCALLS	Number of INCALLS that were redirected to another VDN or to a destination outside the switch by way of a “route to” or “adjunct routing” command.
OUTFLOWTIME	Time OUTFLOWCALLS were carried by the VDN before being redirected (from the time the call entered the associated vector until the call’s disposition was known).
PERIOD1-9	Time periods defining the way answers, connects, and abandons are collected for the call profiles.
PERIODCHG	Indicates whether the periods for call profiles were changed during the collection interval or not.
RINGCALLS	Number of split or direct agent calls that rang at agent positions. This database item is only available with Generic 2 and Generic 3.
RINGTIME	Time split or direct agent calls spent ringing at agent positions. This database item is only available with Generic 2 and Generic 3.

Table A-17: VDN Historical Database Items (Contd)

Database Item	Description
ROW_DATE (index)	Date on which data was collected.
SERVICELEVEL	Number of seconds in which calls must be handled to be considered acceptable.
STARTTIME	Start time for the interval for which data was collected (Intrahour table only).
SVCLEVELCHG	Indicates whether the service level was changed during the collection interval or not.
TRANSFERRED	Number of calls that were transferred to another destination (Generic 3 = all VDN calls, System 85 R2V4 and Generic 2.1 = transfers to a VDN or split, Generic 2.2 = split calls and transfers to a VDN).
VDN (index)	Vector directory number (extension) that this row represents.
VECTOR	Vector number that this VDN is assigned to.

**Call Work Codes
Historical
Database Items**

Call Work Codes historical database items apply to the Intrahour Call Work Codes (*hcwc*), Daily Call Work Codes (*dcwc*), Weekly Call Work Codes (*wcwc*), and Monthly Call Work Codes (*mcwc*) tables, except as noted. The indexes are **ROW_DATE** and **CWC**.

Table A-18: Call Work Codes Historical Database Items

Database Item	Description
ACD	ACD number for this data.
ACDCALLS	Number of split and direct agent calls that were answered by an agent who entered this call work code.
ACDTIME	Talk time of ACDCALLS with this call work code (does not include hold time).
ACWTIME	Time an agent spent in ACW (after call work) associated with this call work code. This only includes call-related ACW time.
CWC (index)	Call work code that this data row represents.
INCOMPLETE	Indicates whether the data for this collection interval is complete or not.
INTERVAL	Length of the intrahour interval (Intrahour table only).
ROW_DATE (index)	Date on which data was collected.
STARTTIME	Start time for the interval for which data was collected (Intrahour table only).

**Current Day
Forecast
Configuration
Database Items**

The Current Day Forecast Configuration database items collect values entered in the Current Day Configuration window, and apply only to the Current Day Configuration (f_cday) table. The indexes are **ACD**, **ROW_DATE** and **SPLIT**.

Table A-19: Current Day Configuration Database Items

Database Item	Description
ACD (index)	ACD number for this data.
CHANGE	Additional change factor (percent).
CHPROF	Number of the call handling profile to use.
FMETHOD	Type of trending to use for forecast. Values: 0 = none, 1 = seasonal, 2 = current trending.
HDATE1	Date of first day of historical data to be used.
HDATE2	Date of second day of historical data to be used.
HDATE3	Date of third day of historical data to be used.
HDATE4	Date of fourth day of historical data to be used.
ROW_DATE (index)	The date of the forecast.
SPLIT (index)	Split number.
TRENDBASE	Base date for seasonal trending.
WT1	Weight given to date 1.
WT2	Weight given to date 2.
WT3	Weight given to date 3.
WT4	Weight given to date 4.

Current Day Forecast Report Database Items

The Current Day Forecast Report database items collect data for Current Day forecasts, and apply only to the Current Day Report (`f_cdayrep`) table. Forecast data for a split is automatically generated when the Forecast Manager runs (if you have also completed a Current Day Configuration for the split). The indexes are `ACD`, `ROW_DATE` and `SPLIT`.

Table A-20: Current Day Report Database Items

Database Item	Description
ACD (index)	ACD number for this current day data.
AGOCC	The objective maximum percentage of time that an agent will be on ACD calls (agent occupancy).
AVGAGSERV	The objective average number of seconds for an agent to service a call.
AVGSPEEDANS	The objective average speed of answer in seconds for this time of call.
FCALLS	Number of forecast calls carried.
INTERVAL	Length of intrahour interval.
NUMAGREQ	Number of agents required to handle FCALLS .
RAGOCC	The resulting maximum percentage of time that an agent will be on ACD calls.
RAVGSPEEDANS	The resulting average speed of answer in seconds for this type of call.
ROW_DATE (index)	Date of the forecast.
RSERVLEVELP	The resulting percentage of calls to be handled within SERVLEVELT seconds.
SERVLEVELP	The objective percentage of calls to be handled within SERVLEVELT seconds.
SERVLEVELT	The number of seconds within which SERVLEVELP percent of calls are to be answered (service level time).
SPLIT (index)	Split number.
STARTTIME	Start of intrahour interval (on 24-hour clock).

Exceptions Historical Database Items

In the following tables, the database item **EXTYPE** (or **REASON** for data collection exceptions table) list numerical values associated with exception types. These values are listed because CMS stores exception types with numerical values. CMS then translates these numbers into the text you see in your standard exception reports. To select specific exception types for a custom report, you must enter the numerical value(s) in your **select rows where:** statement.

**Agent Historical
Exception Database
Items**

The Agent Historical Exception table name is *agex*.

Table A-21: Agent Exception Database Items

Database Item	Description																																																																		
ACD	The ACD the agent was logged into.																																																																		
EXTYPE	The type of exception that occurred: <table border="0"> <thead> <tr> <th colspan="2">Numerical</th> </tr> <tr> <th>Value</th> <th>Type</th> </tr> </thead> <tbody> <tr><td>1</td><td>Time Available</td></tr> <tr><td>2</td><td>Time on inbound ACD call (min)</td></tr> <tr><td>3</td><td>Time on inbound ACD call (max)</td></tr> <tr><td>4</td><td>Time in after call work</td></tr> <tr><td>5</td><td>Time on outbound ACW call</td></tr> <tr><td>6</td><td>Time on inbound ACW call</td></tr> <tr><td>7</td><td>Time in AUX work</td></tr> <tr><td>8</td><td>Time on outbound AUX call</td></tr> <tr><td>9</td><td>Time on inbound AUX call</td></tr> <tr><td>10</td><td>Number of outbound ACW calls/agent</td></tr> <tr><td>11</td><td>Number of inbound ACW calls/agent</td></tr> <tr><td>12</td><td>Number of outbound AUX calls/agent</td></tr> <tr><td>13</td><td>Number of inbound AUX calls/agent</td></tr> <tr><td>14</td><td>Login identification</td></tr> <tr><td>15</td><td>Time ACD call spent on hold*</td></tr> <tr><td>16</td><td>Number ACD calls placed on hold*</td></tr> <tr><td>17</td><td>Number ACD calls abandoned while on hold*</td></tr> <tr><td>18</td><td>Time on outbound ACD call (min)†</td></tr> <tr><td>19</td><td>Time on outbound ACD call (max)†</td></tr> <tr><td>20</td><td>Number calls transferred**</td></tr> <tr><td>21</td><td>Time on external outbound ACW calls**</td></tr> <tr><td>22</td><td>Time on external outbound AUX call**</td></tr> <tr><td>23</td><td>Time on direct agent call‡</td></tr> <tr><td>24</td><td>Number of external outbound ACW calls/agent**</td></tr> <tr><td>25</td><td>Number external outbound AUX calls/agent**</td></tr> <tr><td>26</td><td>Time ACD call spends ringing**</td></tr> <tr><td>27</td><td>Multiple logons</td></tr> <tr><td>30</td><td>Number calls in direct agent queue‡</td></tr> <tr><td>31</td><td>Time call waited in direct agent queue‡</td></tr> <tr><td>32</td><td>Number calls abandoned from direct agent queue‡</td></tr> <tr><td>34</td><td>Number calls outflowed from direct agent queue‡</td></tr> </tbody> </table>	Numerical		Value	Type	1	Time Available	2	Time on inbound ACD call (min)	3	Time on inbound ACD call (max)	4	Time in after call work	5	Time on outbound ACW call	6	Time on inbound ACW call	7	Time in AUX work	8	Time on outbound AUX call	9	Time on inbound AUX call	10	Number of outbound ACW calls/agent	11	Number of inbound ACW calls/agent	12	Number of outbound AUX calls/agent	13	Number of inbound AUX calls/agent	14	Login identification	15	Time ACD call spent on hold*	16	Number ACD calls placed on hold*	17	Number ACD calls abandoned while on hold*	18	Time on outbound ACD call (min)†	19	Time on outbound ACD call (max)†	20	Number calls transferred**	21	Time on external outbound ACW calls**	22	Time on external outbound AUX call**	23	Time on direct agent call‡	24	Number of external outbound ACW calls/agent**	25	Number external outbound AUX calls/agent**	26	Time ACD call spends ringing**	27	Multiple logons	30	Number calls in direct agent queue‡	31	Time call waited in direct agent queue‡	32	Number calls abandoned from direct agent queue‡	34	Number calls outflowed from direct agent queue‡
Numerical																																																																			
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34	Number calls outflowed from direct agent queue‡																																																																		

* Available only on System 85 R2V4, Generic 2, and Generic 3.

† Available only with Generic 2.2 switches that have the ASAI Gateway Interface feature and Generic 3 switches that have the ASAI feature.

** Available only with Generic 2.1 or later and Generic 3.

‡ Available only with Generic 3 switches that have the ASAI feature.

Table A-21: Agent Exception Database Items (Contd)

Database Item	Description
LOGID	The login ID of the agent who had the exception.
ROW_DATE	The date on which the exception occurred.
ROW_TIME	The time at which the exception occurred.
SPLIT	The split in which the agent was doing work when the exception occurred.
THRESHOLD	The limit, as a number of occurrences, administered for the exception type. An exception occurs when the agent's activity falls outside of that limit.
TIME	The limit, as a number of seconds, administered for timed exceptions types. An occurrence is logged against the threshold when the agent's activity falls outside of that limit.

**Split Historical
Exception Database
Items**

The Split Historical Exception table name is `spex`.

Table A-22: Split Exception Database Items

Database Item	Description																						
ACD	The ACD of the split.																						
EXTYPE	The type of exception that occurred: <table border="0"> <thead> <tr> <th>Numerical Value</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>30</td> <td>Number calls waiting</td> </tr> <tr> <td>31</td> <td>Time call has waited in queue</td> </tr> <tr> <td>32</td> <td>Number calls abandoned</td> </tr> <tr> <td>33</td> <td>Number intraflowed-in calls</td> </tr> <tr> <td>34</td> <td>Number intraflowed-out calls</td> </tr> <tr> <td>35</td> <td>Number interflowed-out calls</td> </tr> <tr> <td>36</td> <td>Number calls offered while queue full*</td> </tr> <tr> <td>37</td> <td>Number calls handled as backup†</td> </tr> <tr> <td>38</td> <td>Number calls transferred**</td> </tr> <tr> <td>39</td> <td>Average speed of answer (seconds)</td> </tr> </tbody> </table>	Numerical Value	Type	30	Number calls waiting	31	Time call has waited in queue	32	Number calls abandoned	33	Number intraflowed-in calls	34	Number intraflowed-out calls	35	Number interflowed-out calls	36	Number calls offered while queue full*	37	Number calls handled as backup†	38	Number calls transferred**	39	Average speed of answer (seconds)
Numerical Value	Type																						
30	Number calls waiting																						
31	Time call has waited in queue																						
32	Number calls abandoned																						
33	Number intraflowed-in calls																						
34	Number intraflowed-out calls																						
35	Number interflowed-out calls																						
36	Number calls offered while queue full*																						
37	Number calls handled as backup†																						
38	Number calls transferred**																						
39	Average speed of answer (seconds)																						
ROW_DATE	The date on which the exception occurred.																						
ROW_TIME	The time at which the exception occurred.																						
SPLIT	The split in which the exception occurred.																						
THRESHOLD	The limit, as a number of occurrences, administered for the exception type. An exception occurs when the split's activity falls outside of that limit.																						
TIME	The limit, as a number of seconds, administered for timed exceptions types. An occurrence is logged against the threshold when the split's activity falls outside of that limit.																						

* Available only with Generic 1.

† Available only with the Call Vectoring feature.

** Available only with Generic 3.

Trunk Group Historical Exception Database Items The Trunk Group Historical Exception table name is `tgex`.

Table A-23: Trunk Group Exception Database Items

Database Item	Description																				
ACD	The ACD of the trunk group.																				
EXTYPE	The type of exception that occurred: <table border="0"> <thead> <tr> <th>Numerical Value</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>Time trunk in use (min)</td> </tr> <tr> <td>51</td> <td>Time trunk in use (max)</td> </tr> <tr> <td>52</td> <td>Number of trunks in use</td> </tr> <tr> <td>53</td> <td>Time any trunk maintenance busy</td> </tr> <tr> <td>54</td> <td>Number of trunks maintenance busy</td> </tr> <tr> <td>55</td> <td>Length of time all trunks busy</td> </tr> <tr> <td>56</td> <td>Number of trunk failures in group</td> </tr> <tr> <td>57</td> <td>Number of failures on a single trunk</td> </tr> <tr> <td>58</td> <td>Audio difficulty on a trunk</td> </tr> </tbody> </table>	Numerical Value	Type	50	Time trunk in use (min)	51	Time trunk in use (max)	52	Number of trunks in use	53	Time any trunk maintenance busy	54	Number of trunks maintenance busy	55	Length of time all trunks busy	56	Number of trunk failures in group	57	Number of failures on a single trunk	58	Audio difficulty on a trunk
Numerical Value	Type																				
50	Time trunk in use (min)																				
51	Time trunk in use (max)																				
52	Number of trunks in use																				
53	Time any trunk maintenance busy																				
54	Number of trunks maintenance busy																				
55	Length of time all trunks busy																				
56	Number of trunk failures in group																				
57	Number of failures on a single trunk																				
58	Audio difficulty on a trunk																				
EQLOC	The trunk location where the exception occurred.																				
LOGID	The login ID of the agent reporting audio difficulty.																				
ROW_DATE	The date on which the exception occurred.																				
ROW_TIME	The time at which the exception occurred.																				
THRESHOLD	The limit, as a number of occurrences, administered for the exception type. An exception occurs when the trunk group's activity falls outside of that limit.																				
TIME	The limit, as a number of seconds, administered for timed exceptions types. An occurrence is logged against the threshold when the trunk group's activity falls outside of that limit.																				
TRKGRP	The number of the trunk group where the exception occurred.																				

VDN Historical Exception Database Items

The VDN Historical Exception table name is `vdnex`. VDN exceptions are available only with the Vectoring feature.

Table A-24: VDN Exception Database Items

Database Item	Description																												
ACD	The ACD of the VDN.																												
EXTYPE	<p>The type of exception that occurred:</p> <table border="1"> <thead> <tr> <th>Numerical Value</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>Time at agent (min)</td> </tr> <tr> <td>3</td> <td>Time at agent (max)</td> </tr> <tr> <td>30</td> <td>Number calls in an ACD split queue</td> </tr> <tr> <td>32</td> <td>Number calls abandoned while in vector</td> </tr> <tr> <td>33</td> <td>Number calls that flowed into VDN</td> </tr> <tr> <td>34</td> <td>Number calls that flowed out of VDN</td> </tr> <tr> <td>35</td> <td>Number calls interflowed out of VDN</td> </tr> <tr> <td>37</td> <td>Number calls handled by backup split</td> </tr> <tr> <td>71</td> <td>Time in vector (max)</td> </tr> <tr> <td>72</td> <td>Number calls forced busy</td> </tr> <tr> <td>73</td> <td>Number calls disconnected</td> </tr> <tr> <td>74</td> <td>Number unsuccessful look-ahead interflow attempts</td> </tr> <tr> <td>75</td> <td>Adjunct routing</td> </tr> </tbody> </table>	Numerical Value	Type	2	Time at agent (min)	3	Time at agent (max)	30	Number calls in an ACD split queue	32	Number calls abandoned while in vector	33	Number calls that flowed into VDN	34	Number calls that flowed out of VDN	35	Number calls interflowed out of VDN	37	Number calls handled by backup split	71	Time in vector (max)	72	Number calls forced busy	73	Number calls disconnected	74	Number unsuccessful look-ahead interflow attempts	75	Adjunct routing
Numerical Value	Type																												
2	Time at agent (min)																												
3	Time at agent (max)																												
30	Number calls in an ACD split queue																												
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33	Number calls that flowed into VDN																												
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35	Number calls interflowed out of VDN																												
37	Number calls handled by backup split																												
71	Time in vector (max)																												
72	Number calls forced busy																												
73	Number calls disconnected																												
74	Number unsuccessful look-ahead interflow attempts																												
75	Adjunct routing																												
ROW_DATE	The date on which the exception occurred.																												
ROW_TIME	The time at which the exception occurred.																												
THRESHOLD	The limit, as a number of occurrences, administered for the exception type. An exception occurs when the trunk group's activity falls outside of that limit.																												
TIME	The limit, as a number of seconds, administered for timed exceptions types. An occurrence is logged against the threshold when the trunk group's activity falls outside of that limit.																												
VDN	The VDN for which the exception occurred.																												
VECTOR	The vector number associated with the exception.																												

Vector Historical Exception Database Items

The Vector Historical Exception table name is `vecex`. Vector exceptions are available only with the Vectoring feature.

Table A-25: Vector Exception Database Items

Database Item	Description														
ACD	The ACD of the vector.														
EXTYPE	The type of exception that occurred: <table border="0"> <thead> <tr> <th>Numerical Value</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>30</td> <td>Number calls in an ACD split queue</td> </tr> <tr> <td>72</td> <td>Number calls forced busy</td> </tr> <tr> <td>73</td> <td>Number calls disconnected</td> </tr> <tr> <td>74</td> <td>Number unsuccessful look-ahead interflow attempts</td> </tr> <tr> <td>80</td> <td>Time in vector (min)</td> </tr> <tr> <td>81</td> <td>Time in vector (max)</td> </tr> </tbody> </table>	Numerical Value	Type	30	Number calls in an ACD split queue	72	Number calls forced busy	73	Number calls disconnected	74	Number unsuccessful look-ahead interflow attempts	80	Time in vector (min)	81	Time in vector (max)
Numerical Value	Type														
30	Number calls in an ACD split queue														
72	Number calls forced busy														
73	Number calls disconnected														
74	Number unsuccessful look-ahead interflow attempts														
80	Time in vector (min)														
81	Time in vector (max)														
ROW_DATE	The date on which the exception occurred.														
ROW_TIME	The time at which the exception occurred.														
THRESHOLD	The limit, as a number of occurrences, administered for the exception type. An exception occurs when the trunk group's activity falls outside of that limit.														
TIME	The limit, as a number of seconds, administered for timed exceptions types. An occurrence is logged against the threshold when the trunk group's activity falls outside of that limit.														
VECTOR	The vector number on which the exception occurred.														

**Malicious Call Trace
Historical Exception
Database Items**

The Malicious Call Trace Historical Exception table name is `mctex`.

Table A-26: Malicious Exception Database Items

Database Item	Description				
ACD	The ACD on which the malicious call was recorded.				
ANI_SID	The billing number or phone number from which the malicious call originated (available only if the switch has ANI/SID service).				
EQLOC	The location of the trunk that carried the malicious call.				
EXTYPE	The type of exception that occurred: <table border="0"> <tr> <td>Numerical Value</td> <td>Type</td> </tr> <tr> <td>90</td> <td>Malicious call</td> </tr> </table>	Numerical Value	Type	90	Malicious call
Numerical Value	Type				
90	Malicious call				
LOGID	The login ID of the agent reporting the malicious call.				
ROW_DATE	The date on which the malicious call was reported.				
ROW_TIME	The time at which the malicious call was reported.				
SPLIT	The split of the agent reporting the malicious call.				
TKGRP	The number of the trunk group that carried the malicious call.				
VDN	The VDN that carried the malicious call. This database item is only available with System 85 R2V4, Generic 2, and Generic 3 switches that have the Call Vectoring feature.				

**Data Collection
Historical Exception
Database Items**

The Data Collection Historical Exception table name is linkex.

Table A-27: Data Collection Exception Database Items

Database Item	Description																
ACD	The ACD for which data collection was interrupted.																
DURATION	The length of time for which data collection was off.																
REASON	<p>The reason for the interruption of data collection. The reasons may be as follows:</p> <table border="1"> <thead> <tr> <th>Numerical Value</th> <th>Reason</th> </tr> </thead> <tbody> <tr> <td>91</td> <td>Data collection started</td> </tr> <tr> <td>92</td> <td>Data collection of new translations started</td> </tr> <tr> <td>93</td> <td>Data collection turned off</td> </tr> <tr> <td>94</td> <td>Data collection busied out</td> </tr> <tr> <td>95</td> <td>Data collection timed out</td> </tr> <tr> <td>96</td> <td>Data collection clock was reset</td> </tr> <tr> <td>97</td> <td>Data collection session down</td> </tr> </tbody> </table>	Numerical Value	Reason	91	Data collection started	92	Data collection of new translations started	93	Data collection turned off	94	Data collection busied out	95	Data collection timed out	96	Data collection clock was reset	97	Data collection session down
Numerical Value	Reason																
91	Data collection started																
92	Data collection of new translations started																
93	Data collection turned off																
94	Data collection busied out																
95	Data collection timed out																
96	Data collection clock was reset																
97	Data collection session down																
ROW_DATE	The date on which data collection was interrupted.																
ROW_TIME	The time at which data collection was interrupted.																

State Names and Row Search Values Cross-Reference

Table A-28: State Names and Row Search Values Cross-Reference

Status Database Items	State Names	Numerical Values For Row Search
WORKMODE	UNSTAF	0
	AVAIL	1
	ACD	2
	ACW	3
	AUX	4
	ACWO (<i>ACW outgoing call</i>)	5
	ACWI (<i>ACW incoming call</i>)	6
	AUXO (<i>AUX outgoing call</i>)	7
	AUXI (<i>AUX incoming call</i>)	8
	RING	18
TSTATE	IDLE	0
	SEIZED	1
	QUEUED	2
	CONN	3
	ABAN	4
	FWRD	5
	MBUSY	6
	HOLD	15
EXTCALL	(none)	0
	ACWOUT	1
	ACWIN	2
	AUXOUT	3
	AUXIN	4
DIRECTION	OUT	0
	IN	1
LOGMODE	UNSTAF	0
	LOGIN	1
EVENT	(none)	0
	MCT	1
	ASSIST	2
PRILEVEL	LOW	0
	MED	1
	HIGH	2
	TOP	3

Standard Dictionary Calculations

Calculation Name	Calculation	Description
AGENTS_ON_EXT_CALLS	$(ONACWIN + ONAUXIN + ONACWOUT + ONAUXOUT)$	Agents on extension calls
AVG_ABANDON_TIME	$ABNTIME / ABNCALLS$	Average time to abandon
AVG_ABANDON_TIME_SUM	$sum(ABNTIME) / sum(ABNCALLS)$	Total average time to abandon
AVG_ACD_TALK_TIME	$ACDTIME / ACDCALLS$	Average ACD talk time
AVG_ACD_TALK_TIM_SUM	$sum(ACDTIME) / sum(ACDCALLS)$	Total average ACD talk time
AVG_ACW_TIME	$ACWTIME / ACDCALLS$	Average after call work time
AVG_ACW_TIME_SUM	$sum(ACWTIME) / sum(ACDCALLS)$	Total average after call work time
AVG_AGENT_ACW_SUM	$sum(TOTAL_ACWTIME) / sum(TOTAL_ACDCALLS)$	Average after call work time
AVG_AGENT_ACW_TIME	$TOTAL_ACWTIME / TOTAL_ACDCALLS$	Average after call work time
AVG_AGENT_TALK_SUM	$sum(TOTAL_ACDTIME) / sum(TOTAL_ACDCALLS)$	Average ACD talk time
AVG_AGENT_TALK_TIME	$TOTAL_ACDTIME / TOTAL_ACDCALLS$	Average ACD talk time
AVG_ANSWER_SPEED	$ANSTIME / ACDCALLS$	Average speed of answer
AVG_ANSWER_SPEED_SUM	$sum(ANSTIME) / sum(ACDCALLS)$	Average speed of answer
AVG_CONNECT_TIME	$CONNECTTIME / CONNECTCALLS$	Average amount of time for call to connect to agent
AVG_CONNECT_TIME_SUM	$sum(CONNECTTIME) / sum(CONNECTCALLS)$	Total average amount of time for call to connect to agent
AVG_HOLD_TIME	$HOLDTIME / HOLDCALLS$	Average hold time
AVG_HOLD_TIME_SUM	$sum(HOLDTIME) / sum(HOLDCALLS)$	Average hold time

Standard Dictionary Calculations

Calculation Name	Calculation	Description
AVG_INB_ACD_TIME_SUM	$\text{sum}(\text{ACD}\text{TIME} - \text{O_ACD}\text{TIME}) / \text{INBOUND_ACD}\text{CALLS}$	Average inbound ACD talk time
AVG_INB_ACW_TIME_SUM	$\text{sum}(\text{ACW}\text{TIME} - \text{O_ACW}\text{TIME}) / \text{INBOUND_ACD}\text{CALLS}$	Average inbound ACW time
AVG_OUTB_ACD_SUM	$\text{sum}(\text{O_ACD}\text{TIME}) / \text{sum}(\text{O_ACD}\text{CALLS})$	Total outbound average ACD talk time
AVG_OUTB_ACD_TIME	$\text{O_ACD}\text{TIME} / \text{O_ACD}\text{CALLS}$	Outbound average ACD talk time
AVG_OUTB_ACW_SUM	$\text{sum}(\text{O_ACW}\text{TIME}) / \text{sum}(\text{O_ACW}\text{CALLS})$	Total outbound average after call work talk time
AVG_OUTB_ACW_TIME	$\text{O_ACW}\text{TIME} / \text{O_ACD}\text{CALLS}$	Outbound average after call work talk time
AVG_POS_STAFF	$\text{I_STAFF}\text{TIME} / (\text{INTERVAL} * 60)$	Average positions staffed
AVG_POS_STAFF_SUM	$\text{sum}(\text{I_STAFF}\text{TIME}) / \text{sum}(\text{INTERVAL} * 60)$	Total average positions staffed
AVG_TALK_TIME_IN	$(\text{ACW}\text{INTIME} + \text{AUX}\text{INTIME}) / (\text{ACW}\text{INCALLS} + \text{AUX}\text{INCALLS})$	Average extension-in talk time
AVG_TALK_TIME_IN_SUM	$\text{sum}(\text{ACW}\text{INTIME} + \text{AUX}\text{INTIME}) / \text{sum}(\text{ACW}\text{INCALLS} + \text{AUX}\text{INCALLS})$	Total average extension-in talk time
AVG_TALK_TIME_OUT	$(\text{ACW}\text{OUTTIME} + \text{AUX}\text{OUTTIME}) / (\text{ACW}\text{OUTCALLS} + \text{AUX}\text{OUTCALLS})$	Average extension-out talk time
AVG_TALK_TIM_OUT_SUM	$\text{sum}(\text{ACW}\text{OUTTIME} + \text{AUX}\text{OUTTIME}) / \text{sum}(\text{ACW}\text{OUTCALLS} + \text{AUX}\text{OUTCALLS})$	Average extension-out talk time
AVG_TRK_HOLD_IN_SUM	$\text{sum}(\text{INTIME}) / \text{sum}(\text{INCALLS})$	Average inbound trunk holding time
AVG_TRK_HOLD_OUT_SUM	$\text{sum}(\text{OUTTIME}) / \text{sum}(\text{OUTCALLS})$	Average outbound trunk holding time
AVG_TRK_HOLD_TIME	$(\text{INTIME} + \text{OUTTIME}) / (\text{INCALLS} + \text{OUTCALLS})$	Average trunk holding time

Calculation Name	Calculation	Description
AVG_TRK_HOLD_TIME_IN	INTIME / INCALLS	Average inbound trunk holding time
AVG_TRK_HOLD_TIM_OUT	OUTTIME / OUTCALLS	Average outbound trunk holding time
AVG_VDN_TIME	(INTIME / INCALLS)	Average time in VDN
AVG_VDN_TIME_SUM	sum(INTIME) / sum(INCALLS)	Total average time in VDN
AVG_VEC_TIME	INTIME / INCALLS	Average time in vector
AVG_VEC_TIME_SUM	sum(INTIME) / sum(INCALLS)	Total average time in vector
BUSY_DISCONNECT	(BUSYCALLS + DISCCALLS)	Number of split calls that were given a busy signal or disconnected
CALLS_PER_POS	(60 * INTERVAL * ACDCALLS) / I_STAFFTIME)	Calls per position staffed
CALLS_PER_POS_SUM	(sum(60 * INTERVAL * ACDCALLS)) / sum(I_STAFFTIME)	Total calls per position staffed
EXT_CALL_IN	(ACWINCALLS + AUXINCALLS)	Incoming extension calls
EXT_CALL_OUT	(ACWOUTCALLS + AUXOUTCALLS)	Outgoing extension calls
EXT_IN_TIME	(ACWINTIME + AUXINTIME)	Time on incoming extension calls
EXT_OUT_TIME	(ACWOUTTIME + AUXOUTTIME)	Time on outgoing extension calls
INBOUND_ACDCALLS	(sum(ACDCALLS - O_ACDCALLS))	Total inbound ACD calls
PERCENT_ACD_TIME	100 * ((I_ACDDTIME + I_ACWTIME) / I_STAFFTIME)	Percent ACD time
PERCENT_ACD_TIME_SUM	100 * (sum(I_ACDDTIME + I_ACWTIME)) / sum(I_STAFFTIME)	Percent ACD time totaled
PERCENT_ALL_BUSY	100 * (ALLINUSETIME / SECS_PER_DAY)	Percentage of time all trunks in use
PERCENT_ALL_BUSY_SUM	100 * (sum(ALLINUSETIME) / sum(SECS_PER_DAY))	Percentage of time all trunks in use
PERCENT_AUX_WORK	100 * (I_AUXTIME / I_STAFFTIME)	Percent AUX time

Standard Dictionary Calculations

Calculation Name	Calculation	Description
PERCENT_AUX_WORK_SUM	$100 * (\text{sum}(\text{I_AUXTIME}) / \text{sum}(\text{I_STAFFTIME}))$	Total percent AUX time
PERCENT_CALL_ABAN	$100 * (\text{ABNCALLS} / (\text{CALLSOFFERED}))$	Percentage of calls abandoned
PERCENT_CALL_ANS	$100 * (\text{ACDCALLS} / \text{CALLSOFFERED})$	Percentage of calls answered in service level
PERCENT_CALL_ANS_SUM	$100 * (\text{sum}(\text{ACDCALLS}) / \text{sum}(\text{CALLSOFFERED}))$	Total percent of calls answered in service level
PERCENT_MBUSY	$100 * (\text{MBUSYTIME} / (\text{SECS_PER_DAY} * \text{TRUNKS}))$	Percent time a trunk was maintenance busy
PERCENT_MBUSY_SUM	$100 * (\text{sum}(\text{MBUSYTIME}) / (\text{avg}(\text{SECS_PER_DAY}) * \text{sum}(\text{TRUNKS})))$	Percent time all trunks were maintenance busy
PERCENT_SERV_LVL_SPL	$100 * (\text{ACCEPTABLE} / \text{CALLSOFFERED})$	Percent of split calls answered within service level
PERCENT_SERV_LVL_VDN	$100 * (\text{sum}(\text{ACCEPTABLE}) / \text{sum}(\text{INCALLS}))$	Percent of VDN calls answered within service level
PERCENT_VDN_ABAN	$100 * (\text{sum}(\text{ABNCALLS}) / \text{sum}(\text{INCALLS}))$	Percent of VDN calls abandoned
PERCENT_VDN_ANSCONN	$100 * (\text{sum}(\text{ACDCALLS} + \text{CONNECTCALLS}) / \text{sum}(\text{INCALLS}))$	Percent of VDN calls answered/connected within service level
SECS_PER_DAY	$(24 * 60 * 60)$	Seconds per day
TOTAL_ACDCALLS	$\text{ACDCALLS} + \text{DA_ACDCALLS}$	Total ACD calls
TOTAL_ACDTIME	$\text{ACDTIME} + \text{DA_ACDTIME}$	Total ACD time
TOTAL_ACWTIME	$\text{ACWTIME} + \text{DA_ACWTIME}$	Total ACW time
TOTAL_I_ACDTIME	$\text{I_ACDTIME} + \text{DA_I_ACDTIME}$	Total interval-based ACD time
TOTAL_I_ACWTIME	$\text{I_ACWTIME} + \text{DA_I_ACWTIME}$	Total interval-based ACW time

Glossary

Access	For Custom Reports, the type of permissions users will have to run a custom report or to copy, change, and/or delete a custom report design. Access can be private or global.
Administrator, CMS	A CMS user who has permissions for most or all parts of CMS. In Custom Reports, a CMS administrator can access the designs of all custom reports, even those of which the administrator is not the owner.
Aggregate function	A prefix (avg, max, min, or sum) attached to a database item, calculation, parts of a calculation, or a calculation name. An aggregate function normally displays a single value that is determined from a group of selected values.
Ascending	Listed with the lowest values first and the highest values last. With time and dates, the oldest values are listed first.
Associated ACD	The ACD associated (or assigned to) an input field, as defined in the Define Input window. When an input field is associated with an ACD, the values the user enters into the field will apply to that ACD only. For example, if an input field requiring a split number also has associated ACD # 1, the selected split number will be a split in ACD # 1.
Bar	A representation of data in the form of a bar that gets longer or shorter as values go up or down. A horizontal bar grows and shrinks horizontally. A vertical bar grows and shrinks vertically.
Block	A rectangular area on the Screen Painter that you define and use to quickly rearrange report fields, bars, and text.
Block editing	Defining and using a block to copy, move, or delete fields, bars, and text in a report design.

Calculation	A formula consisting of database items, numbers, and arithmetic operators (+, -, /, *, and ()). A calculation can also include constants.
Calculation name	A name for a calculation, either a standard CMS calculation name or a name that you define in Dictionary. A calculation name can be useful if you need to use the same calculation for field/bar definitions in multiple custom reports. Then, if you need to change the calculation, you can change it once in Dictionary, and all custom reports that use the calculation name will reflect the change.
Column	A column is a part of a table that stores a particular type of data (a number of events of a certain type, a length of time spent on a certain type of event, the time an event happened, a numerical identifier of an ACD entity, or the current status of an ACD entity). Database items are the names of columns. Examples are ACDCALLS , ACDTIME , LOGID , SPLIT , STARTTIME , WORKMODE , and so on.
Constant	A name you assign in Dictionary to a fixed numerical value. A constant can be useful if you need to use the same numerical value for field/bar definitions in multiple custom reports. Then, if you need to change the value, you can change it once in Dictionary, and all custom reports that use the constant will reflect the change.
Count(*)	An expression you can enter in the select field in the Field or Bar Window. count(*) tells CMS to count the number of rows in a table that match certain row search conditions (as defined for the assigned Row Search ID) and display the total in the field/bar.
Custom database item	A database item (column name) which you have included in a custom INFORMIX table and which you have identified to CMS in Dictionary.
Custom report	A report that you create and design using the Custom Reports subsystem.

Data expression	An expression you enter in the <code>select</code> field of the Field or Bar window to define the data and manipulation of that data for display in a field or bar.
Database	The system of storage for your ACD data. The CMS database stores data in real-time and historical tables.
Database item	The name of a column in a database table. A database item may store data as a number of events of certain type, a length of time spent on a certain type of event, the time an event happened, a numerical identifier of an ACD entity, or the current status of an ACD entity. Examples are <code>ACDCALLS</code> , <code>ACDTIME</code> , <code>LOGID</code> , <code>SPLIT</code> , <code>STARTTIME</code> , <code>WORKMODE</code> , and so on.
Define Input Window	The secondary window you access on the Screen Painter to define fields for the report's Report Input window.
Descending	Listed with the highest values first and the lowest values last. With time and dates, the most recent values are listed first.
Design	The physical layout of a custom report, as well as the definition of the report's fields, bars, input window, and row search criteria.
Direction (Bar)	The direction in which a bar grows and shrinks — either horizontally or vertically.
Discrete field/bar	A field or bar for which a single value will be found and displayed.
Field	A space designated in a custom report to display a specifically-defined piece of ACD data. Data is displayed in a field as characters in specific format (that is, as time with am/pm, as a decimal, as a date, and so on).

First threshold	The threshold that is normally associated with notification of a caution condition, such that if the value for the bar is at or above the threshold, the bar will change from a normal color to a caution color. If thresholds are reversed, however, the bar will be a caution color when the value is above the first threshold, but will change to a warning color when the value drops below the threshold.
Global access	The ability for other CMS users to run a custom report and to copy its design on the Screen Painter.
Historical	Pertaining to data that is at least one intrahour interval old and has been stored on disk for later retrieval in reports.
INFORMIX	The relational database software that works with CMS to manage the database. You can create custom historical data tables in INFORMIX and retrieve data from them for display in custom reports.
Index	A column (database item) that causes the values in a row to be related. For example, in the Current Interval Split table, SPLIT is an index. An index adds structure to the data in a table.
Input field (for a report)	A field that appears on a report input window so the user can specify what data the report will display. You can define input fields for a custom report via the Define Input Window, which is a secondary window accessed on the Screen Painter.
Input window	The window that appears when you are running a report so you can specify what data (what split, what agent(s), what times, what date(s), and so on) the report will display.
Justification	The lining up of data for a field such that in the report, the data is always centered, lined up on the left, or lined up on the right.

Maximum graph value	The value that a bar will represent when it is at its maximum length or height.
Normal user	A user that normally has access to a limited number of subsystems within CMS. A normal user cannot access a custom report design created by another user and can neither run nor copy the private reports of another user.
Owner	The CMS user who created the design of a custom report.
Pattern matching	Searching the database for data that partly or totally matches a set of characters (letters, numbers, and symbols) entered by a user. For example, the user may enter *01* , and CMS might find the following types of matching data: 0001 , split01 , 22010 , or 01444 .
Private access	The restriction that only the owner of a custom report can run the report. Also, no other normal user can copy the report's design. Private access does not restrict CMS administrators from running a private report or accessing its design.
Prompt	The text that appears in a report input window to tell the user what type of data to type in an input field.
Real-time	Pertaining to data that is stored in real-time memory. Real-time data is data that applies to the current intrahour interval or the previous intrahour interval. Data for the previous intrahour interval is stored in real-time memory so that you can include it with current real-time data in a custom report.
Repeated horizontally	The specification that multiple values will be found for a field/bar and that the values will be displayed in a vertical series of fields or bars.

Repeated vertically	The specification that multiple values will be found for a field/bar and that the values will be displayed in a horizontal series of fields or bars.
Report type	The specification of a custom report as either a real-time or historical report.
Reversed thresholds	The reversal of thresholds so that the bar has the color of normal conditions when it is at its longest. With reversed thresholds, the bar will change from normal to caution to warning as the bar shrinks in length.
Row	A single horizontal line of data in a table. The data is related by the value(s) of one or more columns. For example, each row of current real-time agent data contains data for a specific agent login ID.
Row search ID	The identification number of a set of row search conditions defined in the Row Search Window. This number is assigned to fields/bars that will use the associated set of row search conditions. You can define up to 10 different sets of row search conditions. Therefore, the available row search IDs are 0 to 9.
Row search window	The secondary window accessed on the Screen Painter that you use to define row search criteria and assign row search criteria to fields/bars.
Scale	A line, with or without tick marks, that appears in a custom report to provide a reference point for the approximate value of a bar as it changes length.
Screen Painter	The window that you use to design custom reports. The Screen Painter has special properties that make its operation different from that of other windows.

Second threshold	The threshold that is normally associated with notification of a warning condition, such that if the value for the bar is at or above the threshold, the bar will change from a caution color to a warning color. If thresholds are reversed, however, the bar will be a normal color when the value is above the second threshold, but will change to a caution color when the value drops below the threshold.
Secondary window	An administration window that pops up when you select an action list option on another window. The purpose of a secondary window is always related to the purpose of the original (or primary) window. The Screen Painter has many secondary windows that can pop up.
Select	The name of the first field in the Field and Bar windows. You enter the data expression you want for a report field/bar in the select field.
Select rows where statement	The row search criteria CMS uses to retrieve data from the database. select rows where statements typically consist of several “where” clauses.
Sort order	The order in which you want data to appear in a custom report. The sort order is always based on the values of one or more database items. Real-time reports allow the use of only one database item for sorting.
Sort type	The order, ascending or descending, in which data should be displayed.
Standard database item	A database item (column name) for a column in a standard CMS table. Standard database items are listed in Dictionary (and Appendix A). They cannot be changed or removed from Dictionary.
String (Data format)	A report field that displays data from a CHAR column. CHAR columns, which store data as character strings, include LOGID, VDN, and CWC.

String (Input field)	An input field type that allows users to type character strings and pattern searches when running the report. Any input field that has the “string” field type must be associated in the Row Search Window with a database item or table column that is a CHAR column. This includes LOGID, VDN, CWC, and other database items.
Synonym	A name defined in Dictionary that appears in reports instead of numbers (which are actually stored in the database). Split names, agent names, VDN names, names of agent states (ACD, ACW, AUX), and so on are synonyms. synonym is one field type you can select when defining report fields. This type tells CMS to substitute names for numbers in the report after it finds the appropriate data in the database.
Table	An array of columns and rows that stores data for a type of ACD element (split, agent, trunk, and so on) and for a specific time frame (for the current intrahour interval, for past intrahour intervals, for past days, and so on).
Text	The words, numbers, and other characters you type directly onto the Screen Painter to provide report titles, column headers, row identifiers, and other labels.
Threshold	A value at or above which CMS indicates a change in condition — either to a caution (first threshold) or a warning (second threshold) condition. Thresholds only apply to bars in a report.
Tick marks	The marks on a scale defined for a bar in a report. Tick marks break a scale into segments to indicate increments of the bar’s length relative to the maximum graph value.
Type (Input field)	The specification of how CMS is to validate a user’s input values and format when ordering the report. That is, you can tell CMS to check for numbers, character strings (names), times, dates, specific ACD configuration values (split numbers, login IDs, and so on), etc.

Type (Report)	The specification of whether a report is a real-time or historical report. You specify the type on the Report Select Window.
User ID	The identification that a user must enter to log into CMS. CMS links custom report designs to a user's user ID. That is, the owner of a report design is the user (identified by user ID) who created the design.
Variable name	The name assigned to a report input field that will allow the user to enter values and have those values used to find data for the report. The variable name links the row search criteria to the report input fields so that the user's input values become the basis of the search for data.
Where clause	An expression in the <code>select rows where</code> field that specifies values for a single database item or calculation. A "where" clause has the format <code>Expression Relational operator Value</code> . A row search criteria statement can consist of multiple "where" clauses.

Index

A

Agent String Values	7-9
Agent String Values Window	7-10
Agent Trace Data	2-6
Aggregate Functions	4-20
And/Or, Using in Clauses	4-45
Apostrophes, Using for Database Items	6-31
Arithmetic Operators	4-17
Associated ACD	4-9

B

Bars	4-30
Changing a Definition	4-38
Data Expressions for	4-32
Defining	4-30, 4-32, 4-35, 4-36
Direction of	4-32
Discrete	4-49
First Threshold	4-35
Maximum Graph Value	4-34
Position and Length	4-31
Repeated	4-49
Reversing Threshold	
Colors	4-36
Saving a Definition	4-37
Scales for	4-33
Second Threshold	4-36
Table for Calculation	
Names	4-32
Basic Tasks of Designing a Custom Report	1-13
Block Editing	3-10
Copying	3-15
Erasing	3-10
Moving	3-13

C

Calculation Names	4-17
Calculations Window	7-4
Defining in Dictionary	7-3
Defining Tables for	4-23, 4-32
Calculations	4-17
Calculations, Standard	
Dictionary	A-84
Call work code Data	2-6
Changing	
a Bar Definition	4-38
a Field Definition	4-29

Changing (Contd)	
No-Scroll Area	5-6
Reports Name, Access, and Type	2-7
CHAR Columns	
Definition	6-6
Checklist of Design Tasks	1-13
Clauses	4-43
Column	
Changing	6-15
Deleting	6-15
Column Names, Custom Tables	
Adding	6-6
Column Types	6-6
Columns in a Table	
Adding	6-14
Changing	6-14
Deleting	6-14
Constants	4-16
Constants Window	7-7
Defining in Dictionary	7-6
Copying an Existing Report	3-6
count(*)	4-22
Custom Items Window	7-22
Custom Tables	6-1
Adding Data	6-16
Backing Up	6-2
Changing a Column	6-15
Changing Data	6-16
Deleting a Column	6-15
Deleting Data	6-17

D

Data	
Adding Data in a Custom Table	6-16
Changing Data in a Custom Table	6-16
Deleting Data in a Custom Table	6-17
Data Expressions	4-15
Aggregate Functions	4-20
Calculation Names	4-17
Calculations	4-17
Constants	4-16
count (*)	4-22
Data From More Than One Table	4-23
Database Items	4-15
for Bars	4-32
Data in a Table	6-10, 6-15
Adding	6-15
Changing	6-15

Data in a Table (Contd)		Database Items (Contd)	
Deleting	6-15	Real Time, Trunk Group	A-25
Data Retrieval		Real Time, VDN	A-35
How CMS Retrieves		Real Time, Vector	A-32
Data	1-6	Rules	A-2
Data Storage		Split String Values in	
How CMS Stores Data	1-3	Dictionary	7-13
Data Types	6-8	Standard	4-15
Database		Standard Items in	
How CMS Retrieves		Dictionary	7-20
Data	1-6	State Names and Row Search	
How CMS Stores Data	1-3	Values	A-80
What is a Database Item	1-5	Table Names	A-6
What is a Row	1-5	Trunk String Values in	
What is a Table	1-3	Dictionary	7-16
Database Item		Database Items Window, Custom	
What is It	1-5	Items	7-22
Database Items		Database Items Window, Standard	
Agent String Values in		Items	7-20
Dictionary	7-9	Default Value for Input Field	4-5
Custom	4-16	Defining	
Custom Items in		a Report	2-2
Dictionary	7-22	Bars	4-30
Historical Exceptions,		Fields	4-13
Agent	A-72	Input Fields	4-1
Historical Exceptions, Data		No-Scroll Areas	5-4
Collection	A-79	Rows	4-39
Historical Exceptions, Malicious		Variable Names	4-2
Call Trace	A-78	Description, Entering for a	
Historical Exceptions,		Report	2-4
Split	A-74	Design Options	1-1
Historical Exceptions, Trunk		Designing Reports	
Group	A-75	Basic Tasks	1-13
Historical Exceptions,		Dictionary	
VDN	A-76	Agent String Value Database	
Historical Exceptions,		Items	7-9
Vector	A-77	Agent String Values	
Historical, Agent	A-46	Window	7-10
Historical, Agent		Calculation Names	7-3
Login/Logout	A-52	Calculations Window	7-4
Historical, Agent Trace	A-53	Constants	7-6
Historical, Call Work		Constants Window	7-7
Codes	A-68	Custom Items Window	7-22
Historical, Current Day Forecast		Database Items, Custom	7-22
Configuration	A-69	Database Items,	
Historical, Current Day Forecast		Standard	7-20
Report	A-70	Reports	7-26
Historical, Split	A-40	Rules for Input	7-2
Historical, Trunk	A-59	Split String Value Database	
Historical, Trunk Group	A-55	Items	7-13
Historical, VDN	A-64	Split String Values	
Historical, Vector	A-61	Window	7-14
Real Time, Agent	A-17	Standard Database Items	
Real Time, Call Work		Window	7-20
Codes	A-39	Trunk String Values Database	
Real Time, Split	A-8	Items	7-16
Real Time, Trunk	A-29	Trunk String Values	
		Window	7-17

Dictionary Global Search Window	7-25
Dictionary Report Window	7-26
Dictionary Reports	7-26
Display Options	5-1

E

Editing Keys on the Screen	
Painter	3-5
Editing With Blocks	3-10
Error Messages	5-11
Phase One Error	
Messages	5-11
Phase Two Error	
Messages	5-15
Exceptions Data	2-6
Including in Report	6-22
Existing Reports, Copying	3-6

F

Field With Data From More Than One Table	6-26
Fields	4-13
Assigning Row Search ID	4-51
Changing Definition	4-29
Changing Row Search ID	4-56
Data Expressions for	4-15
Defining	4-13, 4-15 — 4-17, 4-20, 4-21, 4-23 — 4-28
Discrete	4-49
Formats for	4-24
Highlighting	5-1
Justifying Data in	4-24
Position and Length	4-14
Repeated	4-49
Saving Definition	4-28
Showing Run Time/Date and User	
Inputs	4-58
Forecast Data	2-6
Including in Report	6-18
Formats for Fields	4-24
From Tables	4-41
Functions, Aggregate	4-20

G

Global Access	2-5
Graphs	4-30

H

Hardcoded Values	4-45
Highlighting	
Fields	5-1
Options	5-2, 5-3
Historical, Defining Report as	2-6

I

Index	
What is It	1-5
INFORMIX	
Accessing	6-3
Adding Data to the Table	6-10
Backing Up Custom	
Tables	6-2
Building Tables	6-4
Column Types	6-6
Columns in a Table,	
Adding	6-14
Columns in a Table,	
Changing	6-14
Columns in a Table,	
Deleting	6-14
Creating Tables	6-1
Data in a Table, Adding	6-15
Data in a Table,	
Changing	6-15
Data in a Table, Deleting	6-15
Data Types	6-8
Documentation	6-1
Input Fields	4-1
Accessing Define Input	
Window	4-1
Associating an ACD With the	
Variable Field	4-9
Changing	4-11
Default Value	4-5
Defining	4-1, 4-4, 4-5, 4-9, 4-10
Length	4-4
Order of	4-10
Prompt	4-4
Saving a Variable Field	4-10
Single Value or Range	4-4
Type	4-5
Variable Names for	4-2

J

Justifying Data	4-24
-----------------	------

M			
Matches Operator		6-31, 6-32	
Movement Keys on the Screen Painter		3-2	
Multiple Clauses		4-45	
N			
No-Scroll Areas		5-4	
Changing		5-6	
Not Matches Operator		6-32	
O			
Operators			
And/Or		4-45	
Arithmetic		4-17	
Matches		6-31, 6-32	
Not Matches		6-32	
Relational		4-43	
Order			
for Input Window Prompts		4-10	
for Sorting		4-47	
Overview of CMS Database		1-3	
P			
Permissions		2-5	
Private Access		2-5	
R			
Real-time, Defining Report as		2-6	
Relational Operators		4-43	
Reports			
Access to		2-5	
Accessing the Report Select Window		2-2	
Changing Input Fields for		4-11	
Changing Name, Access, and Type		2-7	
Changing No-Scroll Areas		5-6	
Copying an Existing Report		3-6	
Description, Entering for		2-4	
Reports (Contd)			
Fields in		4-13	
Highlighting Fields		5-1	
Input Fields for Naming		2-3	
No-Scroll Areas		5-4	
Running		5-23	
Saving a Design		5-7	
Saving the Name		2-6	
Showing Run Time/Date and User Inputs		4-58	
Testing a Design		5-8	
Text in		3-16	
Type of		2-6	
Row			
What is It		1-5	
Rows			
Accessing the Row Search Window		4-39	
Assigning Search ID		4-51	
Changing Search Conditions		4-56	
Changing Search ID		4-56	
Defining		4-39, 4-41 — 4-43, 4-46 — 4-49, 4-51, 6-30 — 6-33	
Field/Bar Types for From Tables		4-49	
Range of Values		6-30	
Saving Search Conditions		4-51	
Selecting from a Table		4-43	
Selecting Search ID		4-41	
Sort Types		4-48	
Sorting Data		4-47	
With User Inputs		4-45	
Running a Report		5-23	
Running Custom Reports		5-23	
S			
Saving			
a Bar Definition		4-37	
a Field Definition		4-28	
a Report Deign		5-7	
Row Search Conditions		4-51	
Screen Painter			
Accessing		3-1	
Editing Keys		3-5	
Entering Text		3-16	
Movement Keys		3-2	
Scrolling the		3-4	
Secondary Windows in Size		3-5	
Search ID		3-3	
Assigning		4-51	
Changing		4-56	
Selecting		4-41	

Searching for Database Items	4-39
Changing Search	
Conditions	4-56
Sorting Data	4-47
in Ascending or Descending	
Order	4-48
Split String Values	7-13
Split String Values Window	7-14
Standard Database Items	
Window	7-20
String-value Database Items	6-32

T

Table	
Definition	1-3
Table Names	4-42
Tables	
Building	6-4
Creating Custom	6-1
for Calculation Names	4-23,
4-32	
Selecting Rows from	4-41
Testing a Report Design	5-8
Text, Entering	3-16
Threshold	
First	4-35
Reversing Colors	4-36
Second	4-36
Trunk String Values	7-16
Trunk String Values Window	7-17
Types of Reports	2-6

V

Variable Name	4-45
Defining	4-2
Variable/Time/Date	4-58

W

Wildcard Searches	6-31, 6-32
“Where” Clauses	
Basic	4-43
Exclusions	4-46
Multiples	4-45
Other Formats for	6-33
Selecting Rows From An	
ACD	4-46
Using String-value Items	6-32
Using to Select a Range of	
Values	6-30