Lucent Technologies
Bell Labs Innovations

Lucent Call Center's Little Instruction Book

for advanced administration

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December 1999

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Related resources

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Course Number	Delivery Method	Title
BTC121H	*Instructor Led*	Generic 3 ACD (Automatic Call Distribution) *DEFINITY* Switches
BTC124H	*Instructor Led*	Generic 3 Expert Agent Selection (EAS) *DEFINITY* ECS Administration
BTC138H	*Instructor Led*	*DEFINITY* ECS Generic 3 Automatic Call Distribution with Call Vectoring
BTC154H	*Instructor Led*	*CenterVu* Supervisor Administration
BTC155H	*Instructor Led*	*CenterVu* Supervisor Administration With EAS (Expert Agent Selection)
BTC416M	*CD-ROM*	Generating and Interpreting *CentreVu* Supervisor Reports
BTC429M	*CD-ROM*	*DEFINITY* ACD (Automatic Call Distribution) and Vectoring
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BTC448M	*CD-ROM*	*DEFINITY* BCMS Vu, Release 2
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Welcome **xi**

- Why an advanced book? xi
- We wrote this book for you! xi
- What this book contains xii
- Conventions and terms used in this book xiii
- Trademarks and service marks xiv
- Related books xv
  - *CentreVu* CMS and *CentreVu* Supervisor books xv
  - *CentreVu* Visual Vectors books xvi
  - *CentreVu* Explorer books xvii
  - *DEFINITY* ECS call center books xvii
- Tell us what you think! xviii
- How to get this book on the world wide web xviii
- How to order more copies of this book xix
- How to get help xx
- Notes xxi

Agent administration **1**

- Viewing an agent's skill assignment (EAS only) 2
- Changing an agent's skill assignment (EAS only) 4
  - Helpful tips 4
- Changing a skill for multiple agents (EAS only) 9
  - Helpful tips 9
- Changing an agent's extension split assignment (non-EAS) 12
  - Helpful tips 12

- Moving multiple agents' extensions between splits (non-EAS) 15
  - Helpful tips 15
- Tracing an agent's call activity 17
  - Helpful tips 17
- Listing agent trace data 19
  - Helpful tips 19

Call center administration 21

- Assigning call work codes 22
  - Helpful tips 22
- Changing VDN skill preferences (EAS only) 24
- Defining acceptable service levels 26
- Viewing trunk group members 28
- Changing VDN-to-vector assignments 30
  - Helpful tips 30
- View vector configurations 32

Managing system setup parameters 33

- Changing from multi-user to single-user mode 34
  - Helpful tips 34
- Turning data collection off and on 36
- Modifying data storage capacities 38
  - Early warning signs 38
  - Preparing for modifications 39
- Summarizing data 42
  - Helpful tips 42

- Verifying free space 44
- Viewing storage intervals 45
- Viewing switch information 47
- Notes 48

Managing vectors 49

- What is Call Vectoring? 50
  - What can call vectoring do for my call center? 50
- Where do I start? 52
- How does Call Vectoring work? 54
  - Vector 54
  - Vector Directory Number (VDN) 54
- How do vectors and VDNs work together? 55
  - Sequential flow 55
  - Unconditional branching 55
  - Conditional branching 56
- Redirecting and queuing calls 59
  - Multiple skill queuing 60
  - Call Prompting 62
- Administering Call Vectoring 63
  - Non-EAS 63
  - EAS 64
  - Writing vectors 64
- Performing daily maintenance 68
- Interpreting performance 70

Multi-site applications **73**
- What is Lookahead Interflow? 74
- What is Enhanced Lookahead Interflow? 75
- How ELAI works 76
- Administering multi-site ELAI 78
  - Vector commands 80
  - Using the conditional interflow-qpos command 83
  - FIFO example 84
  - Setting the minimum expected wait time 85
  - Tips on administering multi-site ELAI 86
- Performing daily maintenance 88
  - Interpreting performance 88
- Troubleshooting for ELAI 90
- What is Best Service Routing? 91
- How BSR works 92
  - Call surplus 92
  - Agent surplus 93
- Administering multi-site BSR applications 94
  - Creating a BSR application 94
  - Distributed versus centralized systems 95
  - Defining the purpose of the application 96
  - Selecting or creating the elements of the application 96
  - Creating the application plan 97
  - Linking the application plan to a primary VDN 100
  - Entering an agent selection strategy 101
  - BSR vector commands 102

Sample vectors 104
Primary vector 104
Status poll vector 105
Tips on writing BSR vectors 106
Setting user adjustments 107
- Performing daily maintenance 109
- Interpreting performance 110
- Using BSR and CentreVu Advocate 111

Call and agent selection methods 113
- What is CentreVu Advocate? 114
- How call selection works 115
Call selection measurements 115
Call handling preferences 115
Service Objective 117
Service Level Supervisor 118
- Call selection examples 121
Greatest Need without Service Objective 121
Greatest Need with Service Objective 122
Skill Level without Service Objective 123
Skill Level with Service Objective 123
Percent Allocation 124
- How agent selection works 125
Least occupied agent 125
Most Idle Agent 126

- Agent selection examples 127
  - Expert Agent Distribution - Least Occupied Agent 127
  - Uniform Call Distribution - Least Occupied Agent 128
  - Expert Agent Distribution - Most Idle Agent 129
  - Uniform Call Distribution - Most Idle Agent 130
- Developing your strategy 131
  - Determining your agent selection strategy 131
  - Determining your call and agent selection combinations 131
  - Feature compatibility 133
- Administering call and agent selection features 134
  - Important notes about administration 136
- Where should I start? 137
- Fine-tuning options to consider 138
- Interpreting performance 140
  - Making adjustments 141
  - Cautions 143

Index 145

Customer Self-Service web sites 155

Welcome

Why an advanced book?

You've told us that you want to understand the features that are available to optimize your call center. This is it! This book contains the information you need for advanced call center administration using the *DEFINITY* Enterprise Communication System, *CentreVu* Call Management System (CMS), and *CentreVu* Supervisor. The administrative steps may vary between the different versions of *DEFINITY* systems, *CentreVu* CMS, and *CentreVu* Supervisor, but the information and instructions will help you through most of the operations.

We wrote this book for you!

Use this book if you are a call center system administrator. Use it before you attend training, and take it with you to your class. Mark it up, make notes in it, and use it daily even after you complete training. If you are a new administrator taking over the position from someone else, or your are filling in for your company's regular administrator temporarily, or if you just want to refresh your memory about advanced call center operations, this book is for you.

What this book contains

The *Call Center Little Instruction Book for advanced administration* is divided into sections to help you find information and instructions about advanced call center topics.

Agent administration	Provides information on reconfiguring and displaying information about ACD Agent features that have previously been administered on each of the ACDs.
Call center administration	Provides step-by-step instructions for reconfiguring and displaying information about ACD call center features that have previously been administered on the switch. We recommend that you also refer to the *DEFINITY System's Little Instruction Book for advanced administration* for more information on call centers.
System setup parameters	Provides instructions on how to view the switch setup information as it was assigned during installation and how to view or change *CentreVu* CMS system configurations.
Managing vectors	Provides an overview of how calls can be processed using the call vectoring feature and explains some of your options and related features.
Multi-site applications	A summary of Enhanced Look-Ahead Interflow (ELAI) and Best Service Routing (BSR) with tips for planning and administering multisite applications, using vector commands.
Call and agent selection methods	Describes how to manage call and agent selection methods using *CentreVu* Advocate.

Conventions and terms used in this book

Being familiar with the following terms and conventions will help you to use this book in your call center.

- In this book we use the terms "switch" and "split/skill". Other Lucent Technologies books may refer to the switch as the "PBX", and a split/skill as a "hunt group".
- Operational function keys, fields, text boxes, and menu content items are printed in italics, for example, *Enter.*
- We show screens from the newest *CentreVu* systems and refer to the most current books. Please substitute the appropriate commands for your system and refer to the manuals you have available.
- If you need help completing a field entry, you can either:
  - — Press the F1 key to access context-sensitive HELP or
  - — Select HELP from the menu bar.
- You may see the following symbols in this book:

Tip:
Draws attention to information that you may find helpful in completing the related procedures.

NOTE:
Draws attention to information that is included in the paragraph.

CAUTION:
Calls attentions to a situation that could result in harm to the software, loss of data, or a possible service interruption.

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Related books

The following documents include information related to the Lucent Call Center Release 8.

NOTE:
The Lucent Call Center Release 8 Documentation CD-ROM (585-210-926) includes the on-line version of most of the documents listed in this section.

The *DEFINITY System's Little Instruction Book* series is a good resource for information on basic administration, advanced administration, and basic diagnostics on the *DEFINITY* ECS.

CentreVu CMS and *CentreVu* Supervisor books

- *CentreVu* Call Center Little Instruction Book for basic administration, 585-210-935, Issue 1, Comcode 108502253
- *CentreVu* Call Center Little Instruction Book for advanced administration, 585-210-936, Issue 1, Comcode 108502261
- *CentreVu* Call Management System Release 3 Version 8 Administration, 585-210-910, Issue 1, Comcode 108501743
- *CentreVu* Call Management System Database Items, 585-210-939, Issue 1, Comcode 108502345
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- *CentreVu* Call Management System Switch Connections and Administration, 585-25-876, Issue 2, Comcode 10850958
- *CentreVu* Advocate Release 8 User Guide, 585-210-927, Issue 1, 108502162
- *CentreVu* Supervisor Version 8 Installation and Getting Started, 585-210-928, Issue 1, 108502170
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- *CentreVu* Call Management System Forecast, 585-215-825, Issue 1, Comcode 107876203
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CentreVu Visual Vectors books

- *CentreVu* Visual Vectors Version 8 User Guide, 585-210-932, Issue 1, Comcode 108502220
- *CentreVu* Visual Vectors Version 8 Installation and Getting Started, 585-210-933, Issue 1, Comcode 108502238

CentreVu Explorer books

- *CentreVu* Explorer II User Guide, 585-218-200, Issue 1, Comcode 108456617
- *CentreVu* Explorer II Installation for Windows NT, 585-218-201, Issue 1, Comcode 108456625

DEFINITY ECS call center books

These documents are issued for *DEFINITY* ECS call center applications. The intended audience is *DEFINITY* ECS administrators.

- *DEFINITY* Enterprise Communications Server Release 8 Call Vectoring/EAS Guide, 585-230-521, Issue 4, Comcode 108596545
- *DEFINITY* Enterprise Communications Server Release 8 Guide to ACD Call Centers, 555-233-503, Issue 2, Comcode 108596354
- *DEFINITY* Enterprise Communications Server Basic Call Management System (BCMS) Operations, 555-230-706, Issue 2, Comcode 108485087

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How to get this book on the world wide web

If you have internet access, then you can view and download the latest version of *Call Center Little Instruction Book for advanced administration*. You must have a copy of *Acrobat* Reader to view the book.

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***DEFINITY* Helpline** ...for help with feature administration and system applications	1-800-225-7585
Lucent Technologies National Customer Care Center Support Line ...for help with maintenance and repair	1-800-242-2121
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■ Western Europe/Middle East/South Africa	441-252-391-889
■ Central Eastern Europe	361-270-5160
■ Central/Latin America/Caribbean	1-303-538-4666
■ North America	1-800-248-1111

Notes

Agent administration

This section contains details on reconfiguring and displaying information about ACD agent features that have previously been administered on each of the ACDs, using *CentreVu* Supervisor as the interface to communicate changes to the *DEFINITY.*

Some *CentreVu* CMS Administrators give Split Supervisors access to this feature so they can move agents between splits or change agent skills (EAS only) and activate agent traces.

CAUTION:
To retain consistency in your call center's design and configuration, we recommend you give Split Supervisors limited access to this feature.

Viewing an agent's skill assignment (EAS only)

The Change Agent Skills/Template window is used to view or change the skill assignment for an agent or template.

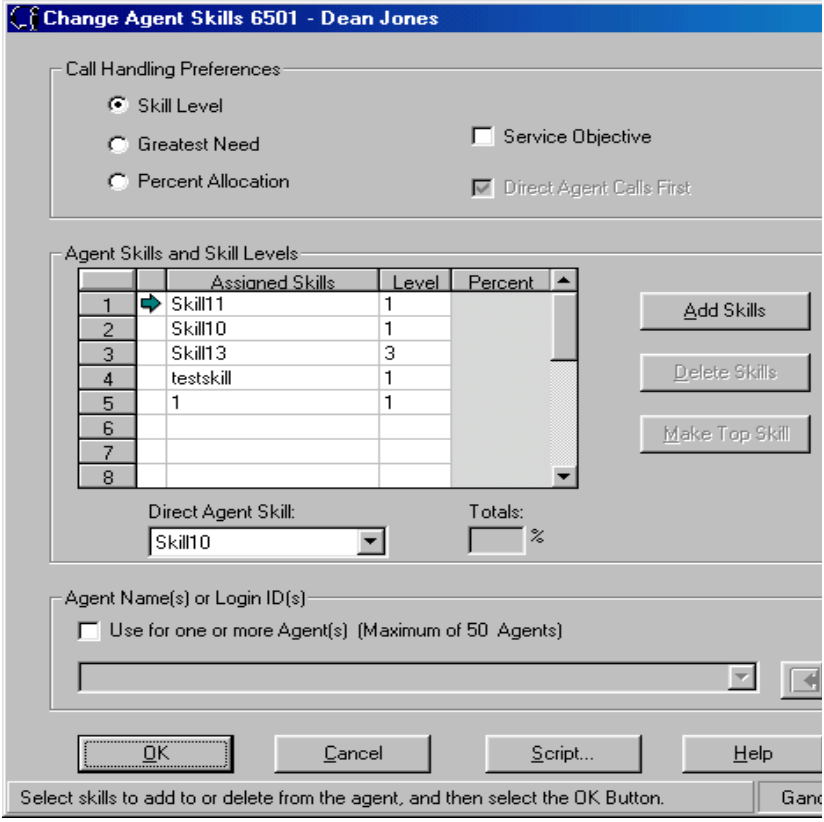
To view the current skill assignment for an agent or template:

1. Access *Agent Administration* from the Commands menu.
2. Select the ACD you want from the drop-down list.
3. Choose *Change Agent Skills* from the Operations tab of the Agent Administration window.
4. Select *OK*.

The Select Agent/Template window appears.

5. To view the skill asignment for an agent, enter the agent's name or login ID. To view the skill assignment for a template, enter the name of the template.
6. Select *OK*.

The Change Agent Skills window appears with the template or agent's name and login ID in the title bar. The skills for the agent or template you named in the previous window, along with the associated skill level, and call handling preferences are displayed in the Assigned Skills box. Skill names are shown for the skills that are named in the Dictionary. Skill numbers are shown for the skills are not named in the Dictionary.


Change Agent Skills 6501 - Dean Jones
Call Handling Preferences
Skill Level
Greatest Need
Percent Allocation
Service Objective
Direct Agent Calls First
Agent Skills and Skill Levels
Assigned Skills
Level
Percent
1 Skill11 1
2 Skill10 1
3 Skill13 3
4 testskill 1
5 1 1
6
7
8
Add Skills
Delete Skills
Make Top Skill
Direct Agent Skill:
Skill10
Totals:
%
Agent Name(s) or Login ID(s)
Use for one or more Agent(s) (Maximum of 50 Agents)
OK
Cancel
Script...
Help
Select skills to add to or delete from the agent, and then select the OK Button.

Changing an agent's skill assignment (EAS only)

The Change Agent Skills window is used to view an agent's or template's current skill assignments or to change one or more skills and the associated skill type or skill level.

Helpful tips

When used to change skill assignments, the Change Agents Skills window:

- Allows you to change which calls an agent gets first through call handling preferences.
- Allows you to change the skill that is used to queue an agent's direct agent calls through the *Direct Agent Skill* field.
- Provides the ability to change the level or type associated with a skill that is already assigned.
- Allows you to change which skills are assigned to this agent or template.
- Provides an opportunity to make an assigned skill the Top Skill for an agent.
- Allows you to select and assign a Percent Allocation (this applies to *CentreVu* Advocate users only).
- With the EAS-PHD feature, allows 20 skills with one of 16 skill levels for each.
- Allows you to select up to 50 agents at a time when applying an agent template.
- Does not allow you to exit until the switch responds to your requested changes.

- Activates requested skill changes immediately for agents who are in the AUX work mode, available, or logged out. For agents who are handling calls (including non-ACD calls, calls on hold, and direct agent calls waiting in queue) or are in the ACW mode, the change is pending until the agent logs out, changes to the AUX work mode, or completes all calls and ACW and becomes available.

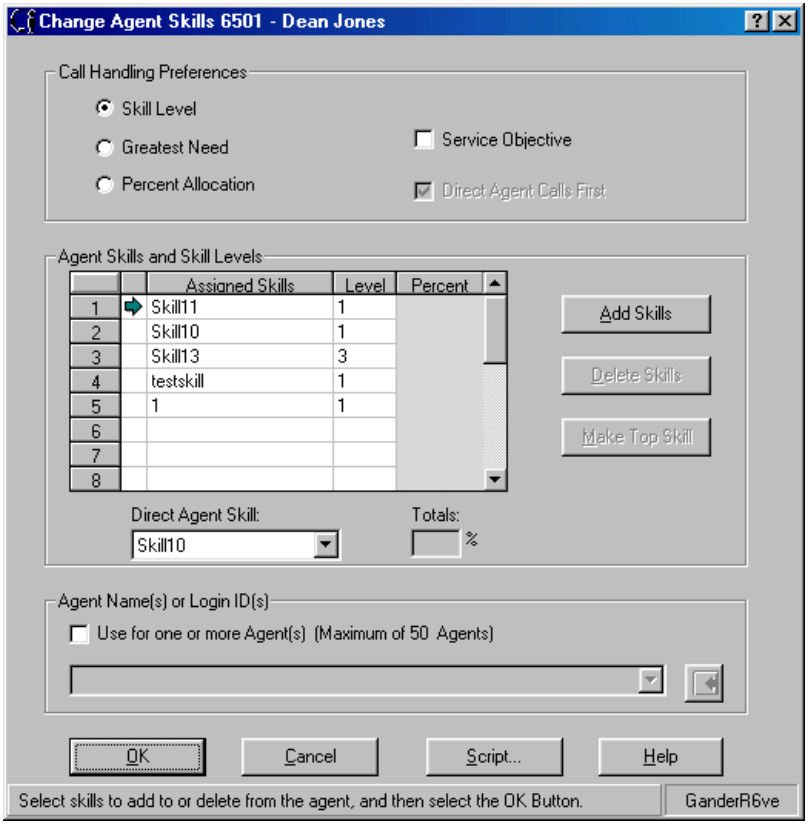
To change an agent's skill:

1. Access *Agent Administration* from the Commands menu.
2. Select the ACD you want from the ACD drop-down list.
3. Select *Change Agent Skills* from the Operations tab of the Agent Administration window.
4. Select *OK*.

The Select Agent/Template window appears.

5. To view the skill asignment for an agent, enter the agent's name or login ID. To view the skill assignment for a template, enter the name of the template.
6. Select *OK*.

The Change Agent Skills window appears with the template name or agent's name and login ID in the title bar. The skills for the agent or template you named in the previous window, along with the associated skill type or level, and call handling preferences are displayed in the Assigned Skills box. Skill names are shown for the skills that are named in the Dictionary. Skill numbers are shown for the skills that are not named in the Dictionary.



7. To add a skill for this agent, select the skill, select the *Add Skills* button, and assign a skill level from the Available Skills window.
8. Select *OK*.

Follow these optional steps from the Change Agents Skills window to:

Select a top skill - select the assigned skill that you want to be the agent's top skill, and select the *Make Top Skill* button.

Change the direct agent skill. Enter the skill name or number in the *Direct Agent Skill* field, or select a new direct agent skill from the drop-down list. (Direct Agent Skills are used to queue Direct Agent calls, that is, those calls that are directed to specific agents rather than to any available ACD agents.)

Delete a skill. Select the *Delete Skill* button, and then select the skill you want to delete from the Available Skills window. Select *OK* from the Delete Agent Skills confirmation window to complete the operation.

Change the agent's call handling preference. Select a preference at the top of this window. Choose between distributing calls to the selected agent based on *Skill Level* (as shown in the Assigned Skill list), *Greatest Need*, or *Percent Allocation* (which applies to users who have purchased and enabled *CentreVu* Advocate on the *DEFINITY* ECS).

Or

Apply skill assignments as a template to a group of up to 50 agents. Using the currently displayed skill assignments, check the *Use for One or More Agents* box at the bottom of the screen, and enter the names or login IDs of the agents you want to be affected by these changes. You can also select agents using the drop-down list or the Browse button.

NOTE:
The *apply skill assignments as a template* field is only available if you have read and write permissions for all of the currently displayed skill assignments.

9. Select *OK* to accept your changes.

   Changes are submitted to the CMS server. If a move is pending, you are notified that the operation will not occur until the pending conditions are resolved. If you are applying a template to a list of up to 50 agents, *CentreVu* Supervisor buffers the change agent skills requests and sends them to the CMS server one at a time. A status box is displayed to indicate the status of each requested agent change. The Operation successful confirmation window appears to confirm when changes are successful.

10. Select *OK* to close the confirmation window.

Changing a skill for multiple agents (EAS only)

The Multi-Agent Skill Change window is used to view current skill assignments or to change a skill for multiple agents.

Helpful tips

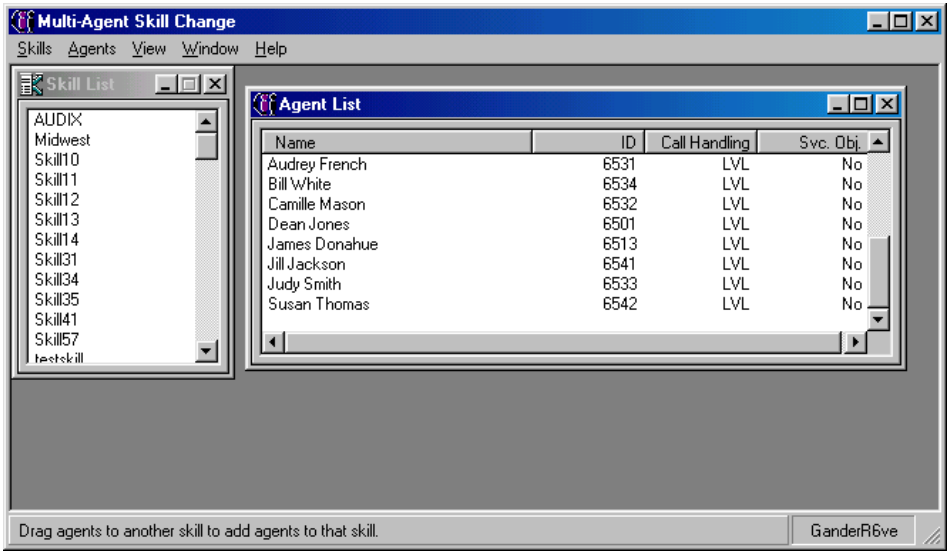
The Multi-Agent Skill Change window:

- Can be used to change a skill for as many as 32 agents.
- Does not allow you to exit until the switch responds to your requested changes.
- Activates requested skill changes immediately for agents who are in the AUX work mode, available, or logged out. For agents who are handling calls (including non-ACD calls, calls on hold, and direct agent calls waiting in queue) or are in the ACW mode, the change is pending until the agent logs out, changes to the AUX work mode, or completes all calls and ACW, and becomes available.

To change a skill for multiple agents:

1. Select *Agent Administration* from the Commands menu.
2. Select the ACD to make changes to from the ACD drop-down list.
3. Select *Multi-Agent Skill Change* from the Operations tab of the Agent Administration window.
4. Select *OK*.

The Multi-Agent Skill Change window opens.



5. To display the agents assigned to a skill, double-click on the skill from the *Skill List* in the left-hand window, or select the skill name and press *Enter.*

6. To move agents from skill to skill, use any of the following methods:

   Click on one agent name or login ID in the right window, drag it to the new skill in the Skill List on the left, and release the mouse button.

   Or

   Hold down the CTRL key and click multiple agent names or numbers (up to 32 agents) in one skill, drag the agents' names to the new skill in the Skill List, and release the mouse button.

   Or

Hold down the SHIFT key and click the first agent's name and the last agent's name within a skill to select the entire range of agents between them, and then drag the agent names to the new skill in the Skill List and release the mouse button.

7. To add agents in one skill to another skill, click on the agent name or names, hold down the CTRL key while dragging the names from the old skill to the new skill, and release the mouse button. Note that this procedure adds instead of moves agents to the new skill.

The Move Agent Between Skills window is displayed, showing the Move From Skill and Move To Skill on the right side of the screen.

8. To make changes to skill levels for the new (Move To) skill, select the Level button and enter a skill level of 1-16 for each agent (with EAS-PHD) or enter a reserve level of 1 or 2 (with *CentreVu* Advocate). If you select *Preserve Original Levels*, the Level field is disabled and you cannot enter a skill or reserve level for the destination skill.
9. Select *OK* to accept your changes.

The Operation successful window is displayed to confirm that changes were successfully made.

10. Select *OK* to close the confirmation window.

Changing an agent's extension split assignment (non-EAS)

The Change Extension Split Assignments window is used to list the currently assigned splits and to change the splits assigned to a specific extension number.

Helpful tips

The Change Extension Split Assignments window:

- Allows you to make changes to extension split assignments for specific extensions.
- Does not allow you to exit until the switch responds to your requested changes.
- Activates requested split changes immediately for agents who are in the AUX work mode, available, or logged out. For agents who are handling calls (including non-ACD calls, calls on hold, and direct agent calls waiting in queue) or are in the ACW mode, the change is pending until the agent logs out, changes to the AUX work mode, or completes all calls and ACW, and becomes available.
- Keeps change-extensions requests pending for agents who frequently have calls on hold.

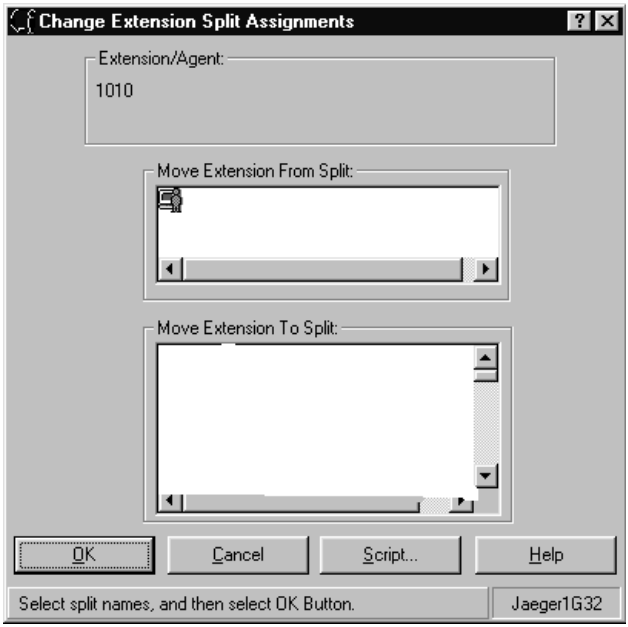
To change the splits assigned to a specific extension number:

1. Select *Agent Administration* from the Commands menu.
2. Select the ACD you want from the ACD drop-down list.
3. Select *Change Extension Split Assignments* from the Operations tab of the Agent Administration window.
4. Select *OK*.

The Select Extension window is displayed.

5. Type in the number of the extension you want to change the splits assignment for, or use the drop-down list to select the extension.
6. Select *OK*.

The Change Extension Split Assignments window is displayed.



NOTE:
The *Move Extension From Split* field shows the split where the extension is currently assigned. The *Move Extension To Split* field lists all of the available split names or numbers for which the user has permission. If the extension is currently logged into the split shown in the Move Extension From Split List, the Logged-In icon is shown, otherwise no icon appears.

7. In the *Move Extension From Split* field, select the split names or numbers you no longer want assigned to this extension.
8. In the *Move Extension To Split* field, select the split names or numbers you want assigned to this extension.
9. Select *OK* to accept changes.

Moving multiple agents' extensions between splits (non-EAS)

The Move Extensions Between Splits window is used to view current extension assignments or to move extensions between measured splits.

Helpful tips

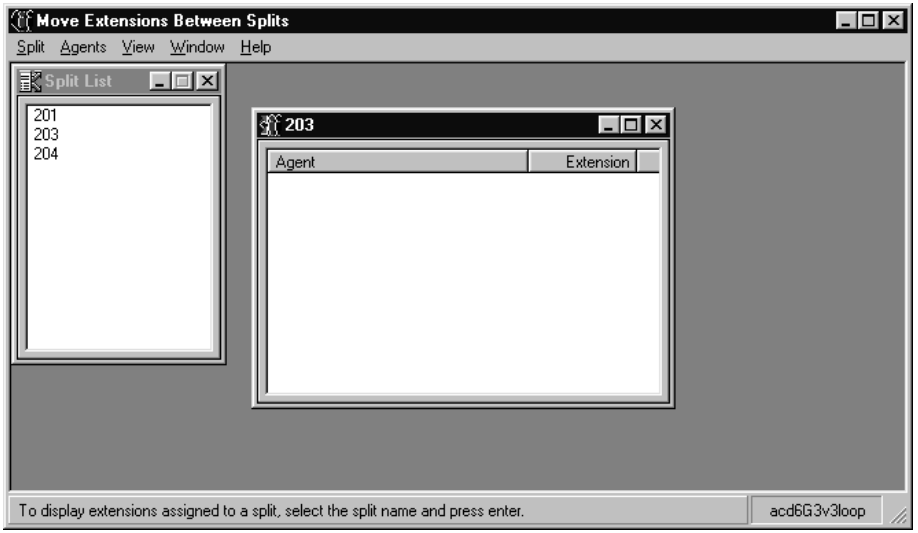
The Move Extensions Between Splits window:

- Allows you to move as many as 32 extensions in a single move.
- Does not allow you to exit until the switch responds to your requested changes.
- Activates requested split changes immediately for agents who are in the AUX work mode, available, or logged out. For agents who are handling calls (including non-ACD calls, calls on hold, and direct agent calls waiting in queue) or are in the ACW mode, the change is pending until the agent logs out, changes to the AUX work mode, or completes all calls and ACW, and becomes available.
- Keeps move-extensions requests pending for agents who frequently have calls on hold.

To move multiple extensions between splits:

1. Select *Agent Administration* from the Commands menu.
2. Select the ACD you want from the ACD drop-down list.
3. Select *Move Extensions Between Splits* from the Operations tab of the Agent Administration window.
4. Select *OK*.

The Move Extensions Between Splits window appears.



5. Double-click the split names or numbers you want to move extensions between from the Split List box.

A window opens displaying the extensions assigned to those splits you selected.

6. To move extensions, use either of the following methods:

   Hold down the CTRL key and click the extension numbers that you want to move, drag the extensions to the new split, and release the mouse button.

   Or

   Hold down the SHIFT key and click the first and last extension numbers in the range of numbers you want to move, drag them to the new split, and release the mouse button.

The Move Extensions Between Splits confirmation window is diplayed. Select *OK* to accept changes.

Tracing an agent's call activity

The Activate Agents Trace window is used to start or stop *CentreVu* CMS tracing of agent activities, including agent state changes.

Helpful tips

The Activate Agents Trace window:

- Allows you to activate traces for up to 250 agents. This limit applies to the number of agents administered to be traced by one *CentreVu* CMS server across all ACDs.

Tip:
To avoid adversely impacting performance, activate only the traces that are needed.

NOTE:
The agent trace file discards the oldest records as new records are written, based on the number of agent trace records allocated in Data Storage Allocation. If you want to keep old agent traces, you should print them.

To start an agent trace:

1. Access *Agent Administration* from the Commands menu.
2. Select the ACD you want from the ACD drop-down list.
3. Choose *Activate Agent Trace* from the Operations tab of the Agent Administration window.
4. Select *OK*.

The Activate Agent Trace window opens.

5. Enter the agent names or login IDs of the agents you want to trace. You can also select agents using the drop-down list or the Browse button, or you can use *List All* from the Actions menu to list all agents in the ACD and their tracing status.
6. Select the *On* button and select *Modify* from the Actions menu to start the trace.

Tip:
You can use the same procedure to turn an Agent Trace off. Turning an Agent Trace off does not delete the records for that agent.

Listing agent trace data

The List Agents Traced window is used to list the agents and the dates for which agent trace data is available on the current ACD.

Helpful tips

The List Agents Traced window:

- Allows you to list all the agents for whom data is available on the current ACD for given dates, all the dates for which data is available for given agents, or all the dates and all the agents for which data is available
- Requires that you have turned on agent trace for some agents at some time in the past, and that those agents must have logged in to produce agent trace records.

To list agent trace data:

1. Access *Agent Administration* from the Commands menu.
2. Select the ACD you want from the ACD drop-down list.
3. Choose *List Agents Traced* from the Operations tab of the Agent Administration window.
4. Select *OK*.

The List Agents Traced window opens.

5. Enter the names or login IDs of the agents you want to list, use the drop-down list, or use the Browse button to select agents to list. (If you leave this field blank, all agents for whom agent trace data is available is displayed.)
6. Enter a list or range of dates, use the drop-down list, or use the Browse button to select the dates. (If you leave this field blank, all dates for which agent trace data is available is displayed.)
7. Select *List All* from the Actions menu.

The List Agents Traced - List All window opens, displaying a list of the agents and the dates of available agent trace data.

Tip:

If you leave all the entry fields blank, you can use List All from the Actions menu to display all available agent trace data.

Once an agent trace is activated and a daily archive has completed for that time period, you can use the Historical Agent Trace report to view a detailed list of each agent activity and the time it occurred. You may find this information useful when evaluating how well agents are using their time.

Call center administration

This section provides step-by-step instructions on reconfiguring and displaying information about ACD call center features that have previously been administered on the switch, using *CentreVu* Supervisor as the interface to communicate changes to the *DEFINITY.*

Refer to the *DEFINITY System's Little Instruction Book for basic* and *advanced administration* for instructions on how to initially administer your call center using the *DEFINITY* system.

Assigning call work codes

In the Managing Features section of the *Call Center Little Instruction Book for basic administration*, we explained how call work codes (CWCs) can be used to track call activity.

The Call Work Codes window is used to add, delete, or list the call work codes *CentreVu* CMS collects data on.

Helpful tips

Here are a few things you'll want to know before using call work codes.

- Call work code 0 is always assigned and is used to collect information on unadministered call work codes.
- We recommend you specify a fixed number of digits for all call work codes. A fixed number of digits makes it easier to add, delete, and search for call work codes.
- Disk space must be allocated for call work codes in the Data Storage Allocation window in System Setup.
- Names can be assigned to call work codes in the Dictionary subsystem.
- Call work codes must be positive integers with 1 to 16 digits. Codes with 1 to 9 digits may be assigned names in the Dictionary subsystem.

To administer call work codes:

1. Access *Call Center Administration* from the Commands menu.
2. Select the ACD you want to administer call work codes on from the ACD drop-down list.
3. Choose *Call Work Codes* from the Operations tab of the Call Center Administration window.
4. Select *OK*.

The Call Work Codes window opens. The total number of call work codes that are saved in the *CentreVu* CMS database and the total number of call work codes currently in use are displayed.

5. Enter the call work codes you want agents to use, or use the drop-down list or Browse button to select the call work codes.
6. Select *Add* from the Actions menu.

Successful is displayed in the status bar to indicate the call work code has been stored in the database.

NOTE:
Once you've established call work codes, you can use the historical call work code reports to track call activities of your call center.

CAUTION:
The agent must press the # sign after entering the call work code digits to successfully transmit call work code data to *CentreVu* CMS for tracking.

Changing VDN skill preferences (EAS only)

The Change VDN Skill Preferences window is used to change the first, second, and third VDN skill preferences for a list of Vector Directory Numbers (VDNs). You can also list the currently assigned skill preferences for VDNS, or list all the VDNs that currently have a specified skill preference assigned.

To change VDN skill preferences:

1. Access *Call Center Administration* from the Commands menu.
2. Select the ACD you want to change VDN skill preferences on, from the ACD drop-down list.
3. Choose *Change VDN Skill Preferences* from the Operations tab of the Call Center Administration window.
4. Select *OK*.

The Change VDN Skill Preferences window opens.

5. Enter the VDNs for the skill preferences you want to change, or use the drop-down list or Browse button to select the VDNs.
6. Enter the first, second and third skill preferences you want to be assigned to the list of VDNs you just entered, or use the drop down list or Browse button to select the skills.

Tip:
To find out which VDNs have a specified skill assigned as their first, second, or third skill preferences, do a List all three times, once for each skill preference.

You can view the skill preferences currently assigned to VDNs on the Vector Configuration report available in Call Center Administration.

7. Select *Modify* from the Actions menu.

Successful is displayed in the status bar to indicate the VDN skill preference has been modified in the database.

CAUTION:
When changing VDN skill preferences, the changes take effect immediately and can affect the processing of any call currently in progress in the VDN at the time of the change.

Defining acceptable service levels

The Split/Skill and VDN Call Profile Setup windows are used to establish an acceptable service level and define service level increments to record the number of calls that are answered or abandoned within each increment. This helps determine how long a caller is willing to wait for an agent before hanging up.

To define service levels:

1. Access *Call Center Administration* from the Commands menu.
2. Select the ACD you want to define service levels for, from the ACD drop-down list.
3. Choose *Split/Skill Call Profile Setup* or *VDN Call Profile Setup* from the Operations tab of the Call Center Administration window.
4. Select *OK*.

The Split/Skill Call Profile Setup or VDN Call Profile Setup window opens.

5. Enter the split or skill numbers or names you want to define service levels and increments for, or use the drop-down list or Browse button to select the split or skill.
6. In the Acceptable service level field, enter the number of seconds that it is acceptable for an ACD call to wait before connecting to an agent.

7. In the *Service level increments* fields, enter a progressively greater number of seconds in each "to" field. The seconds before and after each word "to" define an increment in seconds of wait time.

Tip:
Each of the nine increments can vary in length (for example, 0 to 5, 6 to 10, 11 to 15, 16 to 25, 26 to 40, etc.). Each increment represents a progressively longer wait time for the call and is used for both answered and abandoned calls.

8. Select *Add* from the Actions menu.

Successful is displayed in the status bar to indicate the call profile values have been stored in the database.

NOTE:
Once you've established a call profile, you can use the real-time and historical Split/Skill and VDN Call Profile reports to view the number of calls that are answered or abandoned within each of the increments you established. When the Percent Within Service Level field is calculated on those reports, it is important to remember that there are other types of calls included in the calculation, in addition to ACD calls answered and abandoned.

CAUTION:
Modifications made to existing call profiles will impact the data reported during those time periods on the Split/Skill and VDN Call Profile reports.

Viewing trunk group members

The Trunk Group Members report is used to view selected trunk groups in numerical order, each trunk group's assigned name (if assigned in the Dictionary), and the equipment location of each trunk in the trunk group.

To view trunk group members:

1. Access *Call Center Administration* from the Commands menu.
2. Select the Reports tab from the Call Center Administration window.
3. Select the ACD you want to view trunk group members for, from the ACD drop-down list.
4. Choose *Trunk Group Members* from the *Reports* tab of the Call Center Administration window.
5. Select *OK*.

The Trunk Group Members window opens.

6. Enter the trunk group numbers or names you want to view equipment locations for, or use the drop-down list or Browse button to select the trunk groups.

Tip:
If you leave the Trunk Groups field blank, all Trunk Groups and their assignments will be displayed.

7. Do one of the following to select a report Destination:

   View Report on Screen to view the report on the screen, and select *OK*.

   Or

   Print Report on: and use the Select Printer button to choose the *Windows* printer you want your report to print on. The Print window opens allowing you to proceed using common print functions. Select Cancel or Close to exit the Trunk Group Members window when you are finished printing your reports.

Changing VDN-to-vector assignments

The VDN Assignments window is used to change VDN-to-vector assignments that were initially assigned to vectors on the switch. You might want to do this, for example, on holidays, during emergencies, or after hours.

Helpful tips

Here are a few things you'll find helpful when using the VDN Assignments window.

- Multiple VDNs can be assigned to a single vector, but each VDN cannot be assigned to more than one vector.
- You can schedule VDN assignment changes on a timetable. This is useful if you want the changes to take effect after hours or during holidays.
- When scheduling VDN moves on a timetable, you need to combine all the VDN moves onto one timetable, or schedule each VDN assignment timetable far enough apart so that each move has time to complete before the next move starts.

To change VDN-to-vector assignments:

1. Access *Call Center Administration* from the Commands menu.
2. Select the ACD you want to change VDN assignments for from the ACD drop-down list.
3. Choose *VDN Assignments* from the Operations tab of the Call Center Administration window.
4. Select *OK*.

The VDN Assignments window opens.

5. Enter the VDN numbers or names you want to reassign, or use the drop-down list or Browse button to select the VDN.
6. Enter the number or name of the vector you want to reassign the VDNs to, or use the drop-down list or Browse button to select the vectors.

Tip:
To determine which vectors the VDNs have been assigned, leave the input fields blank and select List All.

7. Select *Modify* from the Actions menu.

Successful is displayed in the status bar to indicate the VDN-to-vector assignments have been stored in the database.

NOTE:
You cannot exit this window until the switch responds to your requested changes.

View vector configurations

The Vector Configuration report is used to view the trunk groups and VDNs that are associated with a given set of vectors and the skill preferences assigned to the VDNs.

To view vector configurations:

1. Access *Call Center Administration* from the Commands menu.
2. Select the Reports tab from the Call Center Administration window.
3. Select the ACD you want to view vector configurations for, from the ACD drop-down list.
4. Choose *Vector Configuration* from the *Reports* tab of the Call Center Administration window.
5. Select *OK*.

The Vector input window opens.

6. Enter the vector numbers or names for which you want to view trunk groups, VDNs, and VDN skill preferences, or use the drop-down list or Browse button to select the trunk groups.
7. Do one of the following to select a report Destination:

   View Report on Screen to view the report on the screen, and select *OK*.

   Or

   Print Report on: and use the Select Printer button to choose the *Windows* printer you want your report to print on. The Print window opens allowing you to proceed using common print functions. Select Cancel or Close to exit the Vector input window when you have finished printing your reports.

Managing system setup parameters

This section provides step-by-step instructions on how to use *CentreVu* Supervisor to view the switch setup information as it was assigned during installation. It also includes instructions on how to view or change *CentreVu* CMS system configurations. This includes the *CentreVu* CMS state, data collection, storage parameters, external applications, and data archiving.

CAUTION:
It is important that the CMS configurations established under each of the menu items listed under the Operations tab in the CMS System Setup window remain stable. You should not be working in the CMS System Setup window daily because any changes you make in CMS System Setup could affect performance, disk space, or data collection.

Changing from multi-user to single-user mode

The CMS State window is used to bring *CentreVu* CMS down to single-user mode and back to multi-user mode. This feature is used in combination with Data Collection, when it is necessary to change values in Data Storage Allocation, Free Space Allocation (for *CentreVu* CMS versions prior to R3V6 that don't have DiskSuite), Storage Intervals, and Restore Data (for System Administration and ACD Administration data).

You can also select the master ACD for clock synchronization from this window.

Tip:
We recommend that you make these changes during off-peak hours to minimize loss of data.

Helpful tips

Here are a few things you'll want to know before changing the CMS state or the master ACD for clock synchronization.

- Single-user mode means only one person can log into *CentreVu* CMS. Data continues to be collected for the ACDs for which data collection is turned on.
- Multi-user mode means any administered *CentreVu* CMS user can log into *CentreVu* CMS. Data continues to be collected for each ACD for which data collection is turned on.
- Data collection must be turned off for all ACDs to change the master ACD for clock synchronization. Use the Data Collection window in CMS System Setup to turn data collection off and on.

To change the CMS state:

1. Access *System Setup* from the *Tools* menu.
2. Select *CMS State* from the Operations tab of the CMS System Setup window.

NOTE:
It is not necessary to select an ACD, since the CMS state is changed regardless of ACD.

3. Select *OK*.

The CMS State window opens.

4. Select either:

   Single-user mode

   Or

   Multi-user mode.

5. Select *Modify* from the Actions menu.

NOTE:
When changing the CMS state to a single-user mode, a message box is displayed to all users indicating that *CentreVu* CMS will be brought down in 1 minute. Users are automatically logged off after 1 minute.

If you log out of *CentreVu* CMS while in single-user mode, you must wait at least 10 seconds before logging in again.

Turning data collection off and on

The Data Collection window is used to turn data collection off and on for real ACDs. This feature is used in combination with the CMS state when it is necessary to change values in Data Storage Allocation, Free Space Allocation (for *CentreVu* CMS versions prior to R3V6 that don't have DiskSuite), Storage Intervals, and Restore Data (for System Administration and ACD Administration data).

Tip:
We recommend that you make these changes during off-peak hours to minimize the loss of data.

To turn data collection off or on:

1. Access *System Setup* from the Tools menu.
2. Select *Data Collection* from the Operations tab of the CMS System Setup window.
3. Select the ACD you want to modify the data collection for from the ACD drop-down list.
4. Select *OK*.

The Data Collection window opens.

5. Enter the ACD name or use the drop-down list to select the ACD you want to modify data collection for.

6. Select either Data Collection:

   On - to turn data collection on.

Tip:
When you turn data collection on, you should monitor the connection status of the link and make sure data is being transferred. See the Connection Status selection on the Maintenance menu.

Or

Off - to turn data collection off.

CAUTION:
When data collection is turned off, calls continue to be processed but you lose any data being recorded by *CentreVu* CMS.

7. Select *Modify* from the Actions menu.

WARNING:
If you are doing a maintenance restore, do not start Data Collection until all system administration data and ACD-specific administration data are restored. You can determine this by viewing the Restore status.

Modifying data storage capacities

The Data Storage Allocation window is used to specify how much data *CentreVu* CMS saves and for how long. The amount of data and the length of time the data is saved affects disk space, and is limited by your specific system configuration.

Early warning signs

Your *CentreVu* CMS system provides the following warning signs when it is running low on space.

- A message is displayed each time you log in to *CentreVu* CMS indicating that your CMS file system is low on space.
- Messages are logged daily in the Error Log Reports. See the Error Log Reports selection under the Maintenance reports tab.
- If the system has less than 2000 blocks of free space remaining, it is automatically placed in single-user mode and data collection is turned off.

WARNING:

If the number of measured items in the switch was increased and Data Storage Allocation in CentreVu CMS was not modified to accommodate the increase, the link to CMS will go down when switch translations occur. The link between the switch and CMS will stay down until either Data Storage Allocation in CMS is modified or the number of measured items in the switch is equal to or less than the capacity Data Storage Allocation shows it will accommodate.

Preparing for modifications

Here are a some steps to take before making changes to the Data Storage Allocation window.

- Print a copy of the Data Storage Allocation window before changing any values. This will help if you need to refer back to previous parameters.
- If DiskSuite is not being used, check Free Space Allocation to determine where space can be used for data storage.
- Make any changes during off-peak hours to minimize the loss of data.
- Turn data collection off for all real ACDs. (See the Data Collection selection under the System Setup menu.)
- Put *CentreVu* CMS into single-user mode. (See the CMS State selection under the System Setup menu.)

To change the data storage values:

1. Access *System Setup* from the Tools menu.
2. Select *Data Storage Allocation* from the Operations tab of the CMS System Setup window.
3. Select the ACD you want to modify the data storage allocation for from the ACD drop-down list.
4. Select *OK*.

The Data Storage Allocation window opens. Current values are displayed for each data item and where applicable, the maximum number available on your system is displayed next to each data item.

5. Enter a new number to change the allocated data storage space in each of your preselected fields:

Field	Storage allocation
# of Items	Should include expected growth.
Days of Intrahour	Maximum 62 days.
Days of Daily	Maximum 5 years (1825 days).
Weeks of Weekly	Maximum 10 years (520 weeks).
Months of Monthly	Maximum 10 years (120 months).
Shift 1 (2, 3, or 4) Times	Used to calculate space reserved for the historical agent table.
Maximum agents logged in	Maximum number of agents logged in during the shift.
Total split/ skill members, summed over all splits/ skills	For *DEFINITY* ECS systems, you need to count extensions in multiple splits/skills for each split/ skill agents are a member of. This represents the maximum number of split/skill members measured or logged in at any one time. For *DEFINITY* ECS systems with EAS this represents the maximum agent/skill pairs (skill members), logged in.
Number of agent login/ logout records	Multiply the number of days for which you want to save this information by the number of agents who log in and out each day, and multiply that by the number of times each agent logs out each day.
Number of agent trace records	The number of agent trace records for this ACD only.

Field	Storage allocation
Number of unmeasured trunk facilities	Set this number high enough to handle the traffic expected over these unmeasured trunk facilities.
Number of exceptions records for all ACDs	The total number of each type of exception (for example: agents, splits/skills, VDNs).
Number of call records	The number of call records for this ACD only.

6. Once you enter your changes, select *Modify* from the Actions menu.

Successful is displayed in the status bar to indicate the data storage allocation changes have been stored in the database.

7. Turn data collection back on for all ACDs and restore *CentreVu* CMS to a multi-user state.

CAUTION:
It is important to monitor the connection status of the link to be sure data is being transferred. See the Connection Status selection on the Maintenance menu.

Summarizing data

The Data Summarizing window is used to archive data into the historical database on demand for daily, weekly, and monthly summaries.

NOTE:
Since data is automatically archived by *CentreVu* CMS based on your entries in the Storage Intervals window and Data Storage Allocation, we recommend that you do not use this tool unless an archive failed or did not occur.

Helpful tips

Here are a few things you'll want to know before running a manual archive.

- Data summarizing results can be viewed from either the Archiving Status window or the Error Log Report under the Maintenance menu.
- Daily summaries must have successfully completed for each day of the week or month before *CentreVu* CMS archives the data for that week or month.
- Partial weekly or monthly data cannot be summarized.
- For weekly archives to summarize, you must enter a date that falls within your predefined week (as specified in the Storage Intervals window) or any date after that week but before the next week's start date.
- For monthly archives to summarize, enter any day during the month for which you want the monthly data summarized.

To run an archive manually:

1. Access *System Setup* from the Tools menu.
2. Select *Data Summarizing* from the Operations tab of the CMS System Setup window.
3. Select the ACD you want to manually run an archive for from the ACD drop-down list.
4. Select *OK*.

The Data Summarizing window opens.

5. Enter the ACD name or number, or use the drop-down list to select the ACD you want to run a manual archive for.
6. Select one of the following data types:

   Daily To summarize intrahour data into daily data.

   Weekly To summarize daily data into weekly data.

   Or

   Monthly To summarize daily data into monthly data.
7. Enter the date you want the data archived for, or use the drop-down list to select the date.
8. Select *Run* from the Actions menu.

An acknowledgement window opens, to warn you that archiving data can take a long time and cannot be canceled once it starts.

9. Select *Yes*.

Archiver Started is displayed on the status line for the first request, and *Archiver request submitted* is displayed if there is already a data summarization in progress.

Verifying free space

The Free Space Allocation window is used to verify the amount of free space available in the *CentreVu* CMS file system.

The available space is calculated by taking the free space currently available and subtracting the space assigned in Data Storage Allocation, but not yet used for *CentreVu* CMS.

To view free space:

1. Access *System Setup* from the Tools menu.
2. Select *Free Space Allocation* from the Operations tab of the CMS System Setup window.

NOTE:
It is not necessary to select an ACD, since the free space displayed is for the entire CMS file system, regardless of ACD.

3. Select *OK*.

The Free Space Allocation window opens. The approximate number of blocks required for each of the data items, the amount of free space (in blocks) currently available, and the percentage of space still available on the file system is displayed.

NOTE:
Even though you may have more than one disk on your system, you will only see one file system in the Free Space Allocation window because of DiskSuite.

WARNING:
Parentheses around any block values indicates an overallocation of space for that value.

Viewing storage intervals

CentreVu CMS automatically archives data based on your entries in the Storage Intervals window. This window is used to specify how often intrahour data is archived, the time when the daily, weekly and monthly summaries are done, and the days of the week that begin and end your call center's week.

Default values were established in the Storage Intervals window during installation of your system and are rarely modified. You may occasionally use this window to view archive intervals that are set in your system.

To view storage intervals:

1. Access *System Setup* from the Tools menu.
2. Select *Storage Intervals* from the Operations tab of the CMS System Setup window.

NOTE:
It is not necessary to select an ACD, since the storage intervals are for the entire CMS file system, regardless of ACD.

3. Select *OK*.

The Storage Intervals window opens indicating the following archive intervals:

- *Intrahour interval* - how often intrahour data is archived.
- *Data summarizing time* - what time the daily, weekly and monthly summaries are done.
- *Switch time zone offset* - ensures that all CMS data and time stamps use the same clock.
- *Week start day* - the day of the week that begins your call center's week. This directly relates to weekly archiving and reports.

- *Week stop day* - the day of the week that ends your call center's week. This directly relates to weekly archiving and reports.
- *Daily start time* - the time of day that data collection starts each day.
- *Daily stop time* - the time of day that data collection stops each day.

Viewing switch information

The Switch Setup window is used to view the *CentreVu* CMS release, version, and load, and the switch type, release, and features available that affect *CentreVu* CMS data for each ACD assigned during installation.

To view switch setup:

1. Access *System Setup* from the Tools menu.
2. Select *Switch Setup* from the Operations tab of the CMS System Setup window.
3. Select the ACD you want to view the switch setup for from the ACD drop-down list.
4. Select *OK*.

The Switch Setup window opens.

5. Enter the ACD names or numbers, or use the drop-down list to select the ACDs you want to view switch setup on.
6. From the Actions menu, select one of the following:
   - *Find one* - for one ACD entry
   - *List all* - for multiple ACD entrie

The Switch Setup window opens displaying all switch setup information as it was assigned during installation.

Notes

Managing vectors

Call Vectoring provides a flexible method for processing your call center's ACD calls, using instructions and conditions you define. The specific manner in which a call is processed with this feature depends on a number of components within the *DEFINITY* ECS and the call vectoring software. These components include the resources you have available to process a call (such as agents, skills, software, and hardware), vector control flow, and commands used within the relevant vectors. This section provides an overview of how calls can be processed using Call Vectoring, explains some of your options with this and related features, provides an introduction to vector commands, and includes sample vectors and tips to help you use Call Vectoring effectively.

NOTE:
This section is intended as an introduction to Call Vectoring. More details and step-by-step instructions can be found in the *DEFINITY Enterprise Communications Server Call Vectoring/Expert Agent Selection (EAS) Guide.*

What is Call Vectoring?

Call Vectoring is software that helps you manage incoming call traffic to the *DEFINITY* ECS. It gives you the flexibility to determine how each of your call center calls will be handled, based on the time of day, the day of week, staffing levels, or other conditions that you define. With Call Vectoring, each call can be treated uniquely, depending on the treatment you plan and program.

What can call vectoring do for my call center?

Call Vectoring can help you effectively process particular types of calls, based on your call center resources and customer needs. Think of Call Vectoring as a tool to help you define the type and level of service your callers will receive. For example, you can use Call Vectoring to:

- Play music or recorded announcements while callers are on hold to encourage them to stay on the line
- Allow callers to select from options for routing their calls or access recorded information using their touch-tone telephones before or after the call is in queue
- Allow callers to leave a message for a call back
- Route calls to other sites based on estimated wait time
- Play after-hours or holiday messages informing customers of your business hours
- Remove selected calls by providing busy signals or disconnecting the calls

- Route calls according to agent availability to reduce hold times for customers and increase productivity for agents
- Queue calls to multiple skills to minimize callers' wait time
- Help agents identify the type of call they receive so they can greet customers appropriately (through VDN names displayed on their terminals).

NOTE:
Some of these capabilities require optional features. For example, Call Prompting is needed to allow customers to select routing options using their touch-tone telephones.

Where do I start?

The success of your call center's use of Call Vectoring begins with planning. Start by establishing specific, measurable objectives that you will use to monitor your call center's performance. These performance standards and the resources available to you (such as staffing levels, number of call center sites, the type and capabilities of your call center's hardware and software, and trunk line capacity) determine how you can use Call Vectoring. While the following is not a complete list of everything you need to consider before using Call Vectoring, it provides some key points to keep in mind as you read about Call Vectoring and related features.

First consider performance issues such as:

- How quickly should calls be answered (Average Speed of Answer/ ASA)?
- What's an acceptable percentage of abandoned calls (Abandonment rate)?
- What's the average amount of time that agents should spend on each call (Talk time)?
- What's the maximum number of calls we should have in queue?
- How many calls should each agent be able to handle per day?

You'll then need to determine how to best use your call center resources to achieve those objectives. Consider resource issues such as:

- How many skills are needed to most effectively serve customers and maximize agent utilization?
- What type of call treatment and routing will give us the results we need for each skill?
- What types of announcements will we play for callers on hold, after hours, etc.?

- Are there any situations in which the center will not accept a call (for example, during certain times of day, on certain days of the week, or if wait times exceed a specified limit)?
- Do we want callers to be able to leave messages?
- Do we want callers to be able to select from routing options (Call Prompting)?
- Which agents will we assign to each skill?
- What skill levels will we assign to each agent (Expert Agent Selection/EAS)?
- Does the center need to adjust service levels or dynamically adjust staffing to take care of bursts of calls (*CentreVu* Advocate)?

How does Call Vectoring work?

The Call Vectoring process is administered through the programming of two key elements: vectors and vector directory numbers (VDNs).

Vector

A call vector is a set of commands that defines the processing of a call. Each vector can contain up to 32 command steps. Any number of calls can use the same vector and process steps independently. Call vectoring allows the "chaining" of vectors to extend processing capabilities. One vector can direct a call to another vector or VDN, which can in turn direct the call to another vector, and so on.

Vector Directory Number (VDN)

A Vector Directory Number (VDN), is a special extension number that provides access to a vector. VDNs are assigned to different vectors for different services or applications that require specific treatments. It's important to note that only one vector can be assigned to a VDN. However, several VDNs can be assigned to the same vector so that, if desired, the same sequence of treatments can be given to calls that reach the system via different numbers or from different locations.

How do vectors and VDNs work together?

When a call is placed to a system for which Call Vectoring is activated, the call is routed to a VDN. The VDN points to a vector, which defines the service desired by the caller. The vector commands (steps) within the vector determine the call's routing and treatment. Three types of control flow can be used to pass vector-processing control from one vector step to another, as described below.

Sequential flow

Sequential flow, as the name implies, passes vector-processing control in a direct sequence, from the current vector step to the following step.

Unconditional branching

Unconditional branching passes control from the current vector step to either a preceding or succeeding vector step, or to another vector, without regard to any conditions. You can use this step, for example, to create a "loop" that repeats until an agent answers the call or the system recognizes that the caller has abandoned the call. The following is an example that contains unconditional branching. The unconditional statement appears in step 6. It establishes a loop between steps 4 and 6, which means that until the call is answered or the caller disconnects, the caller continues to experience a wait with music, followed by an announcement.

```
1.  queue-to skill 3 pri m
2.  wait-time 12 secs hearing ringback
3.  announcement 3001
4.  wait-time 30 secs hearing music
5.  announcement 3002
6.  goto step 4 if unconditionally
7.  busy
```

Conditional branching

Conditional branching means that a vector command specifies a condition that must be met before the command is executed. If the condition is met, vector processing moves from the current vector step to either a preceding or succeeding vector step, or to a different vector, as programmed. If the condition is not met, vector processing skips the command and processes the next vector step. The following are just some of the types of conditions that can be used to achieve the processing results you want:

- Time of day or day of the week that the call is placed
- Customer response to Call Prompting
- Number of staffed agents in a skill
- Number of available agents in a skill
- Number of calls queued at a given priority for a skill
- Amount of time the oldest call has been waiting in a skill.

The following example includes both conditional and unconditional branching. Conditional test statements are used in the first three steps to specify routing conditions based on the time of day, the day of week, and the number of calls in queue. Step 7 employs unconditional branching to loop back to step 5.

```
1.   goto vector 200 if time-of-day is fri 17:00 to mon 8:00
2.   goto vector 100 if time-of-day is all 17:00 to all 8:00
3.   goto step 8 if calls-queued in skill 1 pri l > 5
4.   queue-to skill 1 pri l
5.   announcement 4000
6.   wait-time 60 secs hearing music
7.   goto step 5 if unconditionally
8.   busy
```

Expected Wait Time (expected-wait)

Expected Wait Time (EWT) uses an algorithm to predict the wait time for a skill or a call. Using EWT as a conditional step can help you control your customer's wait time and your agents' productivity. The EWT algorithm takes into consideration and adjusts for priority levels, call handling times, and changes in staffing. It is best suited for medium to high volume environments and is the most accurate Call Vectoring method for predicting wait time. For a call to have an expected wait time, it must be queued to at least one skill. (If it is not queued, or if it is queued to an unstaffed skill, the EWT value is infinite.) In the following example, EWT is used to determine the treatment a call receives.

```
1.  queue-to skill 1 pri m
2.  check skill 2 pri m if expected-wait < 30
3.  goto step 5 if expected-wait for call < 9999
4.  busy
5.  announcement 3001
6.  wait-time 40 secs hearing music
7.  goto step 2 if unconditionally
```

In this example, the call queues to skill 1 and then checks skill 2. If the EWT for skill 2 is met (less than 30 seconds) multiple queuing takes place. If the EWT condition for skill 2 is not met, the call queues only to skill 1.

Rolling Average Speed of Answer (rolling-asa)

Rolling Average Speed of Answer (ASA), when used as a conditional step, allows you to make routing decisions based on the current average time it takes for a call to be answered in a skill or VDN. It is a running calculation that is based on the speed of answer for calls recorded since system start-up. Rolling ASA is recalculated every time a call is answered.

In the following example, if the rolling ASA for the main skill (skill 10) is greater than 30 seconds, then steps 3, 4, and 5 check backup skills 11, 12,

and 13, respectively. The call is queued to any of these skills that have a rolling ASA of 30 seconds or less. (The call can be queued to skill 10 and a maximum of two other skills.) If the call is still not answered by the time vector processing reaches step 8, the backup skills are checked again.

```
1.   queue-to skill 10 pri h
2.   goto step 6 if rolling-asa for skill 10 <= 30
3.   check skill 11 pri h if rolling-asa <= 30
4.   check skill 12 pri h if rolling-asa <= 30
5.   check skill 13 pri h if rolling-asa <= 30
6.   announcement 1000
7.   wait-time 40 secs hearing music
8.   goto step 3 if unconditionally
```

VDN Calls (counted-calls)

VDN Calls allows you to make routing decisions based on the number of incoming trunk calls that are currently active in a VDN. This conditional step can be used to limit the number of simultaneous calls made to a particular VDN. A count of active incoming trunk calls is kept for each VDN. The VDN counter is incremented each time an incoming call is placed to the VDN and decremented each time a call is released. Calls in excess of the number you set can be routed elsewhere, for example, to a busy step. A service agency with a commitment to serve 100 simultaneous client calls, for example, could use the VDN Calls conditional step to maintain that limit by sending all calls over the 100 limit to a busy tone.

In the following example, if more than 100 calls processed by VDN 1234 are active, the caller hears a busy tone and vector processing is terminated. If 100 or fewer calls are active, the call is queued to skill 60.

```
1.   goto step 3 if counted-calls to vdn 1234 <= 100
2.   busy
3.   queue-to skill 60 pri l
4.   wait-time 20 secs hearing ringback
5.   announcement 27000
6.   wait-time 60 secs hearing music
7.   goto step 5 unconditionally
```

Redirecting and queuing calls

Each of the following methods can be used to redirect and queue calls. The selection and administration of these optional features is based on the business needs, resources, and call processing requirements of the individual call center. They are presented here in order of functionality. Multiple Skill Queuing is the most basic routing solution, while *CentreVu* Advocate is the most robust.

- **Multiple Skill Queuing:** Allows a call to queue to up to three skills simultaneously.
- **Look-Ahead Interflow (LAI) and Enhanced Look-Ahead Interflow (ELAI):** Allows a call to interflow only if a remote location is better equipped to handle the call. (See the *Managing Multi-site Application*s section in this book for more about LAI and ELAI.)
- **Best Service Routing (BSR):** Allows the *DEFINITY* ECS to compare specified skills, identify the skill that will provide the best service to a call, and deliver the call to that resource. (See the *Managing Multi-site Applications* section in this book for more about this feature.)
- **Adjunct Routing:** Allows the switch to request a routing destination from an adjunct processor via Adjunct-Switch Application Interface (ASAI). The switch sends the ASAI adjunct a message with information about the calling party. The adjunct uses this information to determine the best place to send the call and passes the routing information back to the switch. (For details on Adjunct Routing, see the "Adjunct Routing" chapter of the *DEFINITY Enterprise Communications Server Call Vectoring/ Expert Agent Selection (EAS) Guide.)*

- **Expert Agent Selection (EAS):** Allows you to match the needs of your callers with the talents or abilities of your agents. You can establish skills to which you assign agents based on such criteria as language-speaking abilities, product knowledge, selling skills, technical expertise, customer service skills, ability to handle irate customers, or any other criteria or customer needs. EAS can help you reduce transfers and call-holding time, and can increase customer satisfaction because calls are answered by the most highly skilled agents for specified caller needs. (Details on using EAS with Call Vectoring can be found in the "Expert Agent Selection" chapter of the *DEFINITY Enterprise Communications Server Call Vectoring/ Expert Agent Selection (EAS) Guide.)*
- ***CentreVu* Advocate:** Automates call and agent selection and simplifies vector design. With *CentreVu* Advocate, you define business rules to determine for each skill which calls are selected and which agents receive them. You can determine whether to assign reserve agents for overload conditions, and you can administer service objectives for particular skills to help meet your call center's goals. (Additional information on *CentreVu* Advocate can be found in the *Managing Call and Agent Selection* section of this book.)

Multiple skill queuing

ACD skills are typically staffed to handle the average amount of call traffic expected for a particular period of time. During periods of unexpectedly heavy call traffic, callers may have to wait too long for service, causing an increase in abandoned calls. One way to overcome this problem is to queue calls to one or more additional skills when callers have to wait for service from the first skill. Multiple Skill Queuing allows you to queue calls to up to three skills simultaneously. The first skill to which the call is queued is called the main skill; the second and third skills, if used, are considered backup skills. In addition to providing better service to callers, Multiple Skill Queuing allows you to achieve better agent utilization by increasing the pool of agents who are available to serve a call.

When Call Vectoring is activated, queued calls can be assigned to one of four priority levels, Top (t), High (h), Medium (m), and Low (l). These prioriy levels allow you to further define how calls are answered. These are Within each priority level, calls are processed sequentially as they arrive (essentially a first in/first out approach). A vector can be administered to queue calls at any of the four priority levels.

The following is an example of a vector that queues calls to another skill if calls wait for approximately 30 seconds in the initial skill's queue.

```
1.   queue-to skill 3 pri m
2.   wait-time 12 secs hearing ringback
3.   announcement 5400
4.   check skill 5 pri m if calls-queued < 3
5.   wait-time 998 secs hearing music
```

In this example, step 4 queues calls to skill 5 if fewer than three calls are in skill 5's queue at the specified priority or higher. That means that if a call waits in skill 3's queue for approximately 30 seconds (the 12-second wait interval plus the announcement play interval) and there are fewer than three calls in skill 5's queue, the call remains queued to skill 3 and is also queued to skill 5. The call remains queued to both skills 3 and 5 until it is answered by an agent or the caller hangs up.

Call Prompting

Call Prompting is an optional feature that allows you to route calls according to the digits collected from the caller. These collected digits can be:

- Treated as a destination for routing to internal extensions (skill/hunt group, station, or announcement), VDNs, attendants, remote access numbers, or external numbers such as a trunk access code
- Used to collect branching information, directing a call to another step or vector
- Used to select options from a menu, so customers can select a service or information, for example, "press 1 for Sales, press 2 for Customer Service"
- Displayed on an agent's display to save them time serving the customer, for example, indicating a customer-entered account number
- Passed to an adjunct, via ASAI, for further processing.

For more detailed information on Call Prompting, see the "Call Prompting" chapter of the *DEFINITY Enterprise Communications Server Call Vectoring/Expert Agent Selection (EAS) Guide*.

Administering Call Vectoring

After you develop your call vectoring strategy, you need to administer your solution so that the *DEFINITY* ECS can implement it. The basic steps to administering a call center with Call Vectoring are outlined below. The steps vary slightly, depending upon whether EAS is enabled for your system.

Non-EAS

To administer call vectoring for systems without EAS:

1. Assign a Hunt Group number and Call Distribution method to each caller need.
2. Assign DNIS (Dialed Number Identification Service) as a VDN.
3. Assign extensions to agents' physical terminal locations.
4. Assign each agent a unique login ID.
5. Assign agent extensions to splits.
6. Assign a vector to each VDN.
7. Write vectors to match your call center objectives.

For more detailed information on administering Call Vectoring for systems without EAS, please refer to the *DEFINITY System's Little Instruction Books for Basic and Advanced Administration.*

EAS

To administer call vectoring for systems with EAS:

1. Assign Hunt Groups.
2. Assign VDN/Skill Preferences.
3. Assign agent skills.
4. Write vectors to meet your call center's objectives.

For specific procedures on administering Call Vectoring with EAS, please refer to the "Expert Agent Selection" chapter of the *DEFINITY Enterprise Communications Server Call Vectoring/Expert Agent Selection (EAS) Guide.*

Writing vectors

There are two basic principles to remember when writing vectors:

- Minimize the amount of call processing, in other words, limit the number of vector steps.
- Avoid vector steps with calls made outside of business hours or queues to groups with less than desirable resources or characteristics.

Vectors can be created, modified, or deleted through the following three methods:

- *DEFINITY* ECS Basic Screen Administration (Call Vector form)
- *CentreVu* Visual Vectors software (Vector Editor)
- *CentreVu* CMS (Call Center Administration: Vector Contents window)

Tip:
It is always a good idea to print each vector before modifying it. It is also recommended that you save translations in the switch after making changes, and print and file the contents for each vector.

While the administration methods and on-line forms or screens are different for each of these methods, they are based on the same programming commands, known as vector commands. As many as 32 steps containing *vector commands* can be used to create a call vector.

Additional information is available for administering vectors through each of these methods. For *DEFINITY* ECS, see *DEFINITY Enterprise Communications Server Call Vectoring/Expert Agent Selection (EAS) Guide*. For Visual Vectors, please refer to the *Visual Vectors User Guide*. For *CentreVu* CMS, see the *CentreVu CMS Administration* Guide.

Tip:
With the complexity of call centers, we recommend keeping and updating a record for traffic configurations used for your call center. This log can be used as a reference to help determine the source of calls to a split or skill and what treatment those calls receive. Below is a table example to use for logging configuration information.

Split/Skill	Vector	VDN	Trunk

The following table provides an overview of the primary vector commands used with Call Vectoring.

Table 1: **Vector Commands**

Command	Description
adjunct routing	Requests adjunct to route call (requires optional CallVisor ASAI capabilities)
announcement	Connects calls to a recorded announcement
busy	Connects caller to a busy tone
check skill	Connects or queues a call to a skill on a conditional basis, for instance, check skill x if available agents
collect digits	Prompts a caller for digits (requires Call Prompting)
consider skill/location	Obtains BSR status data from a local skill or a remote location (requires optional Best Service Routing)
converse-on skill	Delivers a call to a converse skill and activates a voice response unit (VRU)
disconnect	Disconnects the call with optional announcement
goto step	Causes unconditional/conditional branch to another step in the vector
goto vector	Causes unconditional/conditional branch to another vector
messaging skill	Allows caller to leave a message for a call back

Table 1: Vector Commands — ***Continued***

Command	Description
queue-to skill/best	Connects or queues call to the primary skill or to the best resource found by a consider series ("best" resource only when used with BSR)
reply-best	Sends BSR status data to primary vector in a multi-site application (requires BSR)
route-to	Connects call to destination entered via collect digits command, or connects call to internal/external destination
stop	Stops further vector processing
wait-time	Initiates feedback to caller, if needed, and delays processing of the next step

Tip:
Vector design is simplified when *CentreVu* Advocate is used. Such steps as multi-queuing, checking back-ups, and making adjustments to queue priorities are generally eliminated.

More detailed information about vector commands can be found in the "Call Vectoring Commands" chapter in the *DEFINITY Enterprise Communications Server Call Vectoring/Expert Agent Selection (EAS) Guide.*

Performing daily maintenance

The following *DEFINITY* ECS commands can help you review vector performance and determine the cause of problems.

- To trace call flow and verify whether your vectoring is working as you intended, use the following commands, which display or print a real-time list of vector processing events for a single call:
  - Use the list **trace vdn <*vdn extension*>** command to start a trace with the next call that arrives at the specified VDN. This command traces a call through multiple vectors.
  - Use the **list trace vec <*vector number*>** command to start a trace with the next call that arrives at the specified vector. This command does not trace a call through multiple vectors.
- To display information about events that have changed expected wait time, use a **list trace ewt low/high/top/medium <skill number>** command. This command starts a trace with the next call that arrives for the specified skill and displays or prints a real-time list of processing events for all calls until the command is canceled.
- To track unexpected vector events (errors resulting from exhausted resources or faulty vector programming), use the Display Events form and the **display events** command for the appropriate vectors. Vector events identify and indicate the source of common malfunctions and administration errors.

- To see if vectors have been changed, use the **list history** command to generate a History Report.
- To listen to a caller's responses to vector commands and follow the call process to the end of the call, use Service Observe for the VDN. More detailed information about Service Observing can be found in the *Call Center Little Instruction Book for basic administration.*

For additional information on monitoring vector performance and troubleshooting vectors, please refer to the "Troubleshooting Vectors" chapter of the *DEFINITY Enterprise Communications Server Call Vectoring/Expert Agent Selection (EAS) Guide*.

Interpreting performance

You can analyze your call center's use of Call Vectoring by regularly reviewing the following types of *CentreVu* Supervisor reports:

Table 2: *CentreVu* Supervisor Reports

Report	What it measures	What it tells you
Split Skill by Interval report	ASA	Whether ASAs are within target service range and balanced among sites[1]
Split Skill by Interval report	ACD Calls	Whether call volume has significantly increased
Split Skill by Interval report	Number of Agents Staffed	Whether you have adequate staffing
Split Skill by Interval report	% ACD Time	How much time agents are spending handling certain types of ACD calls
Call Profile report	Abandoned Calls	Which calls are abandoning and whether vector modifications should be made
Historical VDN report	Flowouts/Flowins	The number of calls and how many were answered in the primary skill

Table 2: *CentreVu* Supervisor Reports — *Continued*

Report	What it measures	What it tells you
Historical VDN report	Busy/Disconnects	How many callers selected a particular prompt and where it sent the calls
Busy Hour by VDN report	Busy Hour	How many calls were offered and answered by VDN
Daily Multi-ACD Call Flow by VDN report	VDN Activity	Lookahead attempts, interflow completions, and adjunct attempts

1. If ASA is not in balance among sites in a multi-site environment, look at the *Trunk Group Summary by Interval* report to see if all trunks were busy at the time the ASA was out of alignment. If all trunks were busy, consider increasing the number of trunks, increasing user adjustments, or setting up interflow routing patterns to allow traffic to interflow when primary trunks are exhausted.

For more tips on performance, please see the "Considerations for Call Vectoring Features" and "Troubleshooting Vectors" chapters of the *DEFINITY Enterprise Communications Server Call Vectoring/Expert Agent Selection (EAS) Guide*.

Multi-site applications

This section includes information about two *CentreVu* Virtual Routing software features: Enhanced Look-Ahead Interflow (ELAI) and Best Service Routing (BSR). It provides an overview of these features and includes tips for planning and administering multi-site applications, including the use of vector commands. Before reading this section, we recommend that you review the *Managing Vectors* section of this book. To gain the most from this material, you should also have some experience setting up vectors for the *DEFINITY* ECS.

ELAI and BSR are designed to enhance Call Vectoring for call centers with multiple locations. These features allow multiple locations to work together as a single "virtual" call center in a process that is transparent to your customers. Rather than queue calls everywhere, *CentreVu* Virtual Routing continuously monitors and evaluates call and queue status at each call center location to determine the best place to route the call, according to criteria you have defined.

NOTE:
ELAI and BSR work only with *DEFINITY* 6.3 or later systems.

What is Lookahead Interflow?

Lookahead interflow (LAI) allows you to improve your center's call-handling capability and agent productivity by intelligently routing calls among call centers to achieve an improved ACD load balance. Like Call Vectoring, it is enabled through the use of call vectors and their associated commands. With LAI, calls interflow only to those remote locations that can accept the calls.

What is Enhanced Lookahead Interflow?

Enhanced Lookahead Interflow (ELAI) uses the same basic vectoring commands as traditional LAI, but adds a new conditional vectoring command that produces first in/first out (FIFO) or near FIFO call processing and uses fewer computer resources during the Lookahead Interflow process. With a FIFO call queue, ELAI polls all eligible sites and selects and routes the calls at the front of the queue. It ensures that when a split/skill group becomes available, newer calls routed from the network are not placed ahead of a call that is already waiting in queue at the local site. ELAI is available in DEFINITY 6.3 releases and later.

How ELAI works

When an ELAI call attempt is made, Call Vectoring at the sending location checks a potential receiving location to determine whether to send or hold the call. The call remains in queue at the sending location while this process takes place. Call Vectoring at the receiving location then decides whether to accept or refuse the call. If the receiving location gives instructions not to accept the call, the sending location can keep the call, check other locations, or provide some other predetermined treatment for the call. If the call is accepted by the receiving switch, the call is removed from queues at the sending switch and call control is passed to the receiving switch. Any Call Prompting digits collected in the sending switch are passed to the receiving switch during the interflow process.

ELAI can be used in a single queue configuration, in which all calls are routed to only one of the switches in a network, or in a tandem switch configuration, which includes multiple switches.

Conditions for sending, refusing, or receiving a call can include:

- Expected Wait Time (EWT) for a split
- Number of staffed or available agents
- Number of calls in queue
- Queue position
- Number of VDN calls
- Average speed of answer (ASA)
- Number of calls active in a VDN
- Time of day/day of week

ELAI is especially effective at load-balancing for locations with smaller call volumes or in environments with a large discrepancy in agent group sizes.

Tip:
For call centers with high call volumes and multiple sites, BSR is a more effective solution. BSR allows you to determine the "best" network resources to handle the interflowed calls. BSR is explained in detail later in this section.

For more information about single queue and tandem switch configuration, see the "Look-Ahead Interflow" chapter of the *DEFINITY Enterprise Communications Server Call Vectoring/Expert Agent Selection (EAS) Guide.*

Administering multi-site ELAI

ELAI is performed through call vectors and vector commands. These are included in the sending switch (outflow vector) and receiving switch (inflow vector). Vectors are created or edited in the same way as described in the "Managing Vectors" section of this book. Vector commands are particularly important for effectively administering ELAI, so we have included specific commands and sample vectors in the following sections.

Outflow vector

The vector(s) in the sending switch use the **goto** command to test outflow conditions and determine whether the call should be sent to the receiving switch. If the condition is met, a branch is made to the appropriate **route-to** command. The following is an example of a sending switch outflow vector.

```
1.   wait-time 0 secs hearing ringback
2.   goto step 5 if expected-wait for split 3 pri m < 30
3.   route-to number 5000 with cov n if unconditionally
4.   route-to number 95016781234 with cov n if unconditionally
5.   queue to spit 3 pri m
6.   announcement 3001
7.   wait-time 30 secs hearing music
8.   Goto step 6 if unconditionally
```

In this example, step 2 specifies that if split 3 has a wait time of less than 30 seconds, the call queues to split 3 at a medium priority. If the wait time is 30 seconds or more, Look-Ahead Interflow attempts are made, as specified in step 4. If the call is accepted by one of the receiving switches, call control passes to the receiving switch. If the receiving switch denies the call, the call queues to split 3 and announcement 3001 plays. The caller hears music, interrupted by announcement 3001, until the call is answered by an agent in split 3 or the caller chooses to abandon the call.

Inflow vector

When the receiving switch receives the interflow request, the call first routes to a VDN. The VDN maps the call to the receiving switch's inflow vector. Inflow checking is enabled using conditional **goto** commands in the inflow vector. Call acceptance or denial is then executed using one of the vector commands listed in the following tables. The following is an example of a receiving switch inflow vector:

```
1.   goto step 6 if expected-wait in split 1 pri h > 30
2.   queue-to split 1 pri h
3.   announcement 4000
4.   wait-time 2 secs hearing music
5.   stop
6.   busy
```

In this example, if the expected wait time in split 1 is greater than 30 seconds, a busy signal is executed and the call is denied. The sending switch then drops the Look-Ahead Interflow attempt and continues vector processing at the next vector step. If, however, the wait time in split 1 is 30 seconds or less, the receiving switch returns a call acceptance message to the sending switch, call control is passed to the receiving switch, and the call is queued to split 1 in the receiving switch (as indicated in step 2). While in queue, the caller hears announcement 4000 as specified in step 3, followed by music in step 4. The caller continues to hear music until the call is answered by an agent or the caller abandons the call.

NOTE:
If the sending switch does not receive a call acceptance or call denial message within 120 seconds after the Look-Ahead Interflow call request, the Look-Ahead Interflow attempt is dropped and the sending switch continues vector processing at the next step.

Vector commands

ELAI vector commands can be categorized in one of three ways: call acceptance, call denial, or neutral. Each is addressed in one of the following tables.

To accept an interflow call, the receiving switch generates a call acceptance message if at least one of the vector conditions are true, shown in Table 3.

Table 3: Call Acceptance Vector Commands

Command	Conditions
announcement	Announcement available Queued for announcement Retrying announcement
check split	Call terminates to agent Call queued to split
collect digits	Always (except for Call Prompting ced and cdpd digits, which are neutral)
converse-on split	VRU answers the call Call queued to converse split
disconnect	With announcement and announcement available With announcement and queued for announcement With announcement and retrying announcement
messaging split	Command successful Call queued

Table 3: Call Acceptance Vector Commands — *Continued*

Command	Conditions
queue-to split	Call terminates to agent Call queued to split
route-to	Terminates to valid local destination Successfully seizes a non-PRI trunk Results in a Look-Ahead Interflow call attempt, and the call is accepted by the far end switch
wait-time	Always (except **wait-time hearing i-silent**, which is neutral)

If the receiving switch decides it is unable to accept the interflow call, it executes one of the commands shown in Table 4 to deny the call.

Table 4: Call Denial Vector Commands

Command	Conditions
busy	Always
disconnect	With no announcement With announcement but announcement unavailable
reply-best	Always - used with Best Service Routing

The vector commands shown in Table 5 are considered neutral because they generate neither call acceptance nor denial messages.

Table 5: Neutral Vector Commands

Command	Conditions
adjunct routing	Always
announcement	Announcement unavailable
check split	Call neither terminates nor queues
collect ced/cdpd digits	Always
consider	Always - used with Best Service Routing
converse-on split	Call neither terminates nor queues
goto step	Always
goto vector	Always
messaging split	Command failure
queue-to split	Call neither terminates nor queues
route-to	Unsuccessful termination Trunk not seized Look-Ahead Interflow call denied by far end switch
stop	Always
wait-time hearing i-silent	Always (used following an adjunct command in applications where the adjunct decides whether to accept or reject the Look-Ahead calls)

Using the conditional interflow-qpos command

To achieve FIFO results, Enhanced Look-Ahead Interflow adds a conditional vector command to LAI functionality. The **interflow-qpos** conditional command is used in a **route-to** or **goto** command. This conditional command applies interflow processes only to those calls that are not expected to be answered locally during the interflow process, and does not include direct agent calls. You can program this conditional command so that lookahead attempts are placed only on behalf of the call at the head of the queue or on behalf of more than one call if you have a large number of agents at a remote switch.

This conditional uses a comparator in the form of the symbols =, < >,<, <=, >, >= and a position (1 to 9) in the eligible queue to define the conditions under which you want to perform the command. In the following example, the call would be interflowed if the call was at the head of the queue.

```
route-to number 9581234 with cov n if interflow-qpos = 1
```

If you wanted to interflow more than one call, to keep more agents busy, you could change the command as follows:

```
route-to number 9581234 with cov n if interflow-qpos <= 2
```

NOTE:
There are three circumstances in which a call does not interflow: (1) if the conditional is not met; (2) if the call is not in a split/skill queue or in the eligible portion of the queue when the conditional step is executed; and (3) if there is interflow failure or LAI rejection.

FIFO example

The following are sample steps from a FIFO processing vector:

```
 1.   announcement 3501
 2.   wait-time 0 secs hearing music
 3.   queue-to skill 1 pri m
 4.   goto step 7 if interflow-qpos < 9
 5.   wait-time 30 secs hearing music
 6.   goto step 5 if interflow-qpos >= 9
 7.   route-to number 93031234567 with cov n if interflow-qpos = 1
 8.   route-to number 99089876543 with cov n if interflow-qpos = 1
 9.   wait-time 5 secs hearing music
10.   goto step 7 if unconditionally
```

In this example, the rapid lookahead loop is only entered when the call reaches one of the top eight positions in queue, as indicated in step 4. (Vectors should be written so that calls at the head of the queue have advanced to the rapid lookahead loop by the time their turn to interflow is reached.)

Setting the minimum expected wait time

The minimum expected wait time (EWT) threshold is used to help determine which calls you want to be answered locally. Minimum EWT is used when the local agents (in the first split/skill to which the call is queued) are handling a significantly higher number of calls than you would prefer, and you want to interflow some of these calls to remote sites.

The minimum EWT threshold is administered on a field on the Feature-Related System Parameters form. To perform this administration:

1. In the command line, enter **change system-parameters feature** and press *Return*.
2. Go to page 7 of the Feature-Related Parameters form. If Lookahead Interflow is active, you can administer the Interflow-Qpos EWT Threshold field. (Lookahead Interflow is a feature that must be purchased. If this feature is not active on your system, please contact Lucent Technologies to have the feature activated on the Customer-Options form.)
3. In the Interflow-Qpos EWT Threshold field, enter the number of seconds, from 0 to 9, to which you want to set the EWT threshold. (The default of 2 seconds is recommended.)

NOTE:
When the lookahead EWT threshold field is set too low, remote agents may experience phantom calls.

Tips on administering multi-site ELAI

Keep the following in mind as you administer ELAI:

- The Look-Ahead Interflow and Basic Call Vectoring features must be enabled on the System Parameters Customer-Options form.
- Both the sending switch and receiving switch must have the Basic Call Vectoring and the Look-Ahead Interflow features active.
- Use **route-to number with coverage y** *(*or **route-to digits with coverage y***)* on a switch only when you do not want Look-Ahead Interflow call attempts to be made. This command forces the sending switch to assume that the call will always be accepted. This command should only be used when an unconditional interflow is desired, for example, when you have exhausted all local resources.
- Use **route-to number with coverage n** (or **route-to digits with coverage n**) on a switch when you want to ensure that Look-Ahead Interflow attempts are made.
- Never interflow to a remote vector that in turn might interflow back to the same local vector. This can cause a single call to use up all available trunks.
- Do not use **oldest-call wait** with ELAI vectors. This test condition does not give information about the current state of call overload. Use the EWT conditional command instead.
- Be sure the feedback provided by the receiving switch after a successful LAI attempt is consistent with what the caller has already received. (For example, you do not want the caller to hear a repeated greeting announcement, or hear ringing after listening to music.)
- The LAI time-out in the sending switch occurs after 2 minutes. If the sending switch does not receive a call acceptance or denial message within 120 seconds after the LAI request, the LAI attempt is dropped and the sending switch continues vector processing with the next step.

For detailed information on administering ELAI call vectors for multi-site applications, please refer to the "Look-Ahead Interflow" chapter of the *DEFINITY Enterprise Communications Server Call Vectoring/Expert Agent Selection (EAS) Guide.*

Performing daily maintenance

From the *DEFINITY* ECS, you can view or print the following reports to help monitor trunk traffic and performance and determine the cause of problems.

- Regularly use the Display Events form and execute a **display events** command for the appropriate vectors. Vector events will identify and indicate the source of common malfunctions and administration errors.
- A Trunk Group Summary report can provide traffic measurements for all trunk groups except for Personal Central Office Line Groups. You can use it to review such information as trunk usage, calls queued, queue overflows, queue abandons, and percentage all trunks busy (% ATB). To display a Trunk Group Summary report, type **list measurements trunk-group summary <yesterday-peak/ today-peak/last-hour>** and press *Return*.
- A Trunk Group Performance Report can provide a graphical and numerical display of the peak hour blocking for each trunk group. This allows you to see the percentage of calls that arrive when all trunks are busy. You can display this report for the previous or current day. To display a Trunk Group Performance Report, type **list measurements trunk-group <yesterday/today>** and press *Return*.

Interpreting performance

You will want to review the following types of reports regularly to monitor the performance of your call center sites and the effectiveness of your ELAI implementation.

Table 6: *CentreVu* Supervisor Reports

Report	What it measures	What it tells you
CMS Split/Skill or VDN reports	Average speed of answer	If ASA has improved
CMS Split/Skill or VDN reports	Calls handled	If throughput has increased
CMS Split/Skill or VDN reports	Abandonment rate	If the percentage of abandoned calls has decreased
CMS Agent or Agent Occupancy reports	Agent occupancy	If agent utilization has increased as a result of interflowing calls
CMS VDN reports	Lookahead interflow attempts	How many attempts were made to interflow calls
CMS VDN reports	Lookahead interflow completions	How many calls were successfully interflowed

Troubleshooting for ELAI

- If remote agents experience a high volume of phantom calls, the Interflow-Qpos EWT Threshold may be set too low or too high.
- If remote agents are experiencing a delay between becoming available and receiving the call:
  - — Interflow-Qpos EWT Threshold might be set too low.
  - — There may be insufficient LAI attempts from the sending switch. Try changing the conditional, for example change **interflow-qpos = 1** to **interflow qpos = 2.**
  - — There may be an insufficient number of tie trunks.
- If remote agents are receiving no calls, the maximum number of vector steps executed at the sending switch vector may have been reached before calls reached the head of the queue. If this is the case, rewrite the sending switch vector.

See the "Troubleshooting Vectors" chapter of the *DEFINITY Enterprise Communications Server Call Vectoring/Expert Agent Selection (EAS) Guide* for more detailed information, including vector commands and unexpected operations.

What is Best Service Routing?

Best Service Routing (BSR) is a feature that routes ACD calls to the resource best able to service each call. It allows the *DEFINITY* ECS to compare local and remote splits/skills, identify the split/skill that will provide the best service, and deliver the call to that resource. Using your company's business rules and call handling preferences, you are able to determine the "best" routing for your call center's calls. This entire process is transparent to your customers, whose calls are routed according to the strategy you develop.

NOTE:
BSR can be configured for single-site or multi-site operation. This module focuses on the multi-site version, which operates across a network of *DEFINITY* switches.

For information about the single-site version, please refer to the "Best Service Routing" chapter of the *DEFINITY Enterprise Communications Server Call Vectoring/Expert Agent Selection (EAS) Guide.*

How BSR works

BSR determines the best resource to service a call by examining one or all of the following variables:

- The Expected Wait Time (EWT) of the variable
- The availability of agents
- The selection strategy for the active VDN
- Any user adjustments.

BSR is designed to handle two conditions in a call center. The first is a call surplus. A call surplus is experienced when all sites and agents are busy. The second is an agent surplus. An agent surplus is experienced when there are no calls queuing and agents are available.

Call surplus

In a call surplus situation, BSR selects the split/skill with the lowest adjusted EWT as the best resource to service the call. BSR allows you to adjust the EWT value for any split/skill in order to program preferences in vectors. This allows you to make adjustments for agent expertise, if desired. When agents are available in one or more of the specified resources, BSR does not consider EWT adjustments in selecting an agent for a call.

Agent surplus

In an agent surplus situation, BSR delivers calls according to the available agent strategy you specified on the VDN form for the active VDN. Strategy options include:

- **1st found:** Delivers the call to the first available agent. BSR does not consider any other resources once it finds an available agent.
- **Uniform call distribution - most idle agent (UCD-MIA):** Delivers the call to the agent who has been idle the longest. BSR compares all splits/skills specified in the vector before delivering the call.
- **Expert agent distribution - most idle agent (EAD-MIA):** Delivers the call to the agent with the highest skill level who has been idle the longest. BSR compares all the splits/skills specified in the vector before delivering the call.
- **Uniform call distribution - least occupied agent (UCD-LOA):** Delivers the call to the agent who is the least occupied. The occupancy calculation is designed to make call distribution more equitable among agents. It considers an agent's overall work time (e.g., calls ringing, calls active, calls on hold, and after call work) rather than their position in queue to determine whether they should receive the next incoming call. BSR compares all splits/skills specified in the vector before delivering the call.
- **Expert agent distribution - least occupied agent (EAD-LOA):** Delivers the call to the agent with the highest skill level who is the least occupied. BSR compares all splits/skills specified in the vector before delivering the call.

UCD-LOA and EAD-LOA require the optional *CentreVu* Advocate software. See the *Agent and Call Selection* section of this book for more information about *CentreVu* Advocate.

Administering multi-site BSR applications

Multi-site applications require two or more switches for interflowing calls. In this book, "local" or "origin" is used to refer to a switch that is considering or might consider interflowing a call. "Remote" is used to refer to any switch that is polled or might be polled by this first switch.

The following forms are required for administering a BSR multi-site application:

- Best Service Routing Application Plan Form
- Vector Directory Number form
- Call Vector form.

Creating a BSR application

You must create a BSR application in the origin switch to define the remote locations you will use, tell the *DEFINITY* ECS how to contact each one, and set up VDNs and vectors to handle communications between the origin switch and the remote (or receiving) switches. BSR applications must contain the following:

- **Primary VDN:** The active VDN for a call at the origin switch.
- **Primary Vector:** The vector that handles the incoming call on the origin switch. It contacts the specified remote switches, collects and compares information, and delivers or queues the call to the resource that is likely to provide the best service.
- **Application Plan:** The plan that identifies the remote switches you may compare and specifies the information that is used to contact each switch and route calls to it.

- **Status Poll VDN/Vector:** The VDN/vector that compares splits at its location and replies to the origin switch with information on the best of these splits. Each remote switch in a given application must have a dedicated status poll VDN/vector.
- **Interflow VDN/Vector:** The origin switch interflows the call to this VDN/vector on a remote switch when this remote switch is determined to be the best available. Each remote switch in a given application must have a dedicated interflow VDN/vector.

Distributed versus centralized systems

Multi-site BSR can be implemented as either distributed or centralized systems. You must determine which method you want to implement before creating your application plan.

- **Distributed system:** All switches receive incoming calls and query other switches to interflow calls when appropriate.
- **Centralized system:** One switch serves as a hub, meaning that all calls arrive at this switch and are routed from it to the other switches in the network.

Tip:
In a centralized system, only one switch requires application plans and primary VDNs/vectors. In a distributed system, each switch must be set up with application plans and primary VDNs/vectors.

Defining the purpose of the application

Before you can perform BSR administration tasks on your *DEFINITY* ECS, you need to do some planning and decision making about how your BSR application will work. Then make note of your decisions for each of the following so that you can easily set up your BSR application on the switch.

NOTE:
There are several related steps for the BSR application plan, which are covered in the following four sections. The numbering sequence carries through all related sections to ensure that you don't overlook any important tasks when preparing your application plan.

1. Select the group of callers for which you want to create the application.
2. Define the goal of the application, for example, faster average speed of answer.
3. Determine which agent selection strategy (on VDNs) will best achieve your goal.
4. Decide whether you will implement BSR in a distributed or centralized system.

Selecting or creating the elements of the application

1. Select the VDNs on each switch that serve the group of callers you've identified. On each switch these are the primary VDNs for your application. Record the extensions of each VDN that point to a vector with a BSR application.
2. Select the locations you want to include in each application plan. Assign a number from 1 to 255 and a short name (15 characters or less) to each location to uniquely identify it.

3. Record the node number of the switch at each location. (The node identity is the number entered in the UCID Network Node ID field on page 4 of the Feature-Related System Parameters form.)
4. Create Status Poll VDNs on each of the switches in the application plan. Record the full numbers you'll need to route these calls to these VDNs.

Creating the application plan

NOTE:
The following procedures assume that you are using the SAT screen or terminal emulator to access the *DEFINITY* software and perform BSR administration.

The plan for each application is identified by a number (the application number) and a name. It specifies the remote switches that might be polled by the application and identifies each with a number called the location number.

1. At the command prompt, type **add best-service-routing** ### and press *Enter*. (In place of ###, type the number between 1 and 255 that you want to assign to this BSR application.)

NOTE:
A single DEFINITY ECS can have from 1 to 255 application plans, and each application plan can have from 1 to 255 locations. The limitation on a single switch is 1,000 application-location pairs, for example, 100 applications with 10 locations each, or 50 applications with 20 locations each. (If the switches are connected to a CMS, the CMS is limited to eight switches.)

The Best Service Routing Application Form appears, with the number you typed in the command appearing in the Number field.

```
add best-service-routing 1                                    Page  1 of   x
                    BEST SERVICE ROUTING APPLICATION PLAN

Number: 1    Name: All-in-One Software Co   Maximum Suppression Time: 60     Lock? y

  ↓        ↓                ↓                    ↓                  ↓
Num   Location Name      Switch Node        Status Poll VDN    Interflow VDN
 1    Valhalla              14               6795               6777
 2    Chicago               15               7555               7597
 3    Pasadena              75               916268441234       916268447979
 4    Atlanta               80               914047551212       914047553344
___   ____________     ____________       ________________   ________________
___   ____________     ____________       ________________   ________________
___   ____________     ____________       ________________   ________________
___   ____________     ____________       ________________   ________________
___   ____________     ____________       ________________   ________________
___   ____________     ____________       ________________   ________________
___   ____________     ____________       ________________   ________________
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___   ____________     ____________       ________________   ________________
___   ____________     ____________       ________________   ________________
___   ____________     ____________       ________________   ________________
```

2. Assign a short, descriptive name to the plan (15 characters or less).
3. Enter the information required for each remote location. Each row contains the information the BSR application needs to identify and communicate with one of the resources in the plan.

Table 7: Application Plan Fields

Field	Required/Optional	Description
Num	Required	Type the number you assigned to this location.
Location Name	Optional	Type the name you assigned to this location.
Switch Node	Optional	This field is for user reference only (see the node numbers entered in the UCID Network Node ID field on page 4 of the Feature-Related System Parameters form).
Status Poll VDN	Required	This string (up to 16 digits long), is the complete digit string your switch will dial for the status poll call.
Interflow VDN	Required	This string (up to 16 digits long) is the complete digit string your switch will dial to interflow a call to this location.

4. Repeat step 11, completing the application plan fields for each of the locations you want to include in the application plan.
5. Press *Enter* to save your changes.

Linking the application plan to a primary VDN

1. Go to the Vector Directory Number form for the first VDN you identified earlier. If this is a new application, create the VDN.
2. In the *Allow VDN Override?* field, type **y** or **n**. If the call is directed to another VDN during vector processing:
   - **y**: Allows the settings on the subsequent VDN, including its BSR Available Agent Strategy, to replace the settings on this VDN.
   - **n:** Does not allow the settings on the subsequent VDN, including its BSR Available Agent Strategy, to replace the settings on this VDN.
3. In the BSR Application field, type the application number you assigned to the plan.

Entering an agent selection strategy

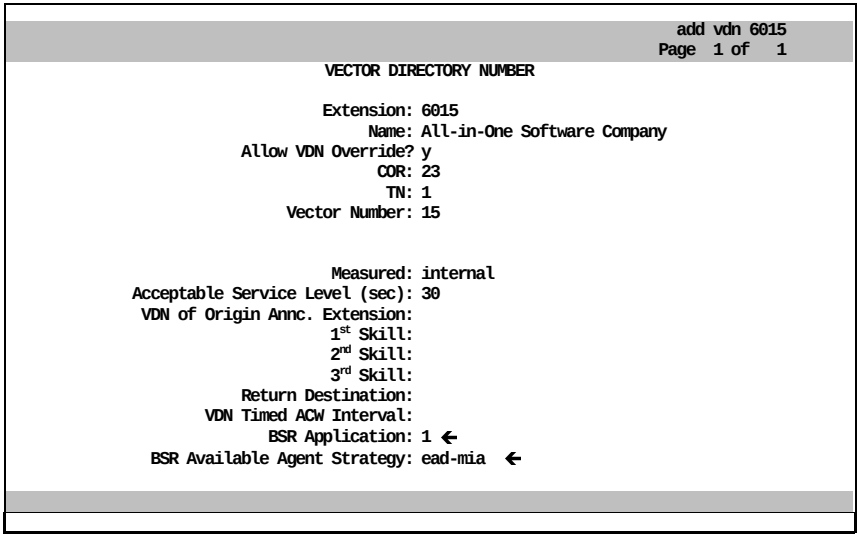
In the BSR Available Agent Strategy field, type the identifier for the agent selection method you want this application to use.

The application selects resources as follows:

- **1st-found:** Resource with the lowest Expected Wait Time (EWT)
- **ucd-mia:** Agent who has been idle the longest
- **ead-mia:** Highest skill level agent who has been idle the longest
- **ucd-loa:** Least occupied agent (requires *CentreVu* Advocate)
- **ead-loa:** Highest skill level agent who is the least occupied (requires *CentreVu* Advocate).

Tip:
In multi-site BSR applications, the 1st-found available agent strategy results in fewer interflows and minimizes the load on interswitch trunking. Additionally, DEFINITY ECS has less processing to perform for each call in BSR vectors, since it may not need to compare as many resources to identify the best. If processing power and tie trunk capacity are issues in your call center, you may want to use this strategy.

The following VDN form shows a VDN that is linked to BSR Application Plan 1. The BSR Available Agent Strategy in this example is EAD-MIA.



1. Press *Enter* to save your changes.
2. Repeat steps 9 through18 on each switch that needs an application plan and a Primary VDN/vector pair.

BSR vector commands

BSR vector commands must be used when programming the vector steps for BSR, whether you are creating new vectors or editing existing ones. These commands, when activated, implement the strategy you enter in your application plan.

The following table provides vector commands used with BSR.

Table 8: BSR Vector Commands

Command	Description
consider split/skill	Used to obtain the EWT or agent data needed to identify the best resource on the local switch. One **consider** step must be written for each split or skill you want to check.
consider location	Used to obtain the EWT and agent data from a remote location needed to identify its best resource. One **consider** step must be written for each location you want to check.
reply-best	Used to return data to another switch in response to a status poll.
queue-to	Used with the **best** keyword to queue or route calls to the best resource identified by the **consider** sequence.
check	Used with the **best** keyword to queue or route calls to the best resource identified by the **consider** sequence if the resource meets certain conditions.
best (keyword)	Used to write **queue-to, check,** and **goto** commands that refer the resource identified as best by a series of **consider** steps. (**Goto best** is for special applications and not used in all BSR vectors.)

Sample vectors

This section contains a brief description and sample vector for each of the VDN/vector pairs required for a BSR application.

For more detailed information about setting up vectors for BSR, please refer to the "Best Service Routing" chapter of the *DEFINITY Enterprise Communications Server Call Vectoring/Expert Agent Selection (EAS) Guide.*

Primary vector

When a call arrives at the origin switch, it is processed by the primary vector. This vector begins the BSR process by considering resources you've specified in your application plan.

```
1.   wait time 0 secs hearing ringback
2.   consider split 1 pri m adjust-by 0
3.   consider location 2 adjust-by 30
4.   queue-to-best
```

In this example, the **consider** commands in steps 2 and 3 collect information to compare local split 1 with one or more splits at location 2. Step 4 queues the call to the best split found. (Details about the **adjust-by** commands are found later in this section.)

Status poll vector

To collect information from a remote switch, the primary vector places an ISDN call, or status poll, to the remote switch. The status poll obtains information and returns it to the origin switch. The call is not connected to the status poll VDN. Below is an example of a status poll vector at a remote switch.

```
1.   consider split 2 pri m adjust-by 0
2.   consider split 11 pri m adjust-by 0
3.   reply-best
```

In this example, the vector considers splits 2 and 11 and sends this information back to the origin switch.

Interflow vector

The interflow vector on a remote switch accepts the interflowed call from the origin switch. It uses the same **consider** series as the status poll vector to identify the best resource, in the event conditions have changed since the status poll.

The following is an example of an interflow vector that contains the same **consider** steps as the status poll example above. The only difference in the vector is the last step, which in this case queues the call to the best split.

```
1.   consider split 2 pri m adjust-by 0
2.   consider split 11 pri m adjust-by 0
3.   queue-to best
```

CAUTION:
BSR will not operate correctly unless the **consider** series in the status poll vector and the interflow vector use the same splits/skills with the same queue priorities.

Tips on writing BSR vectors

BSR vectors are programmed in the same way as other vectors, using your Basic Screen Administration, *CentreVu* Call Management System, or Visual Vectors. Use the BSR vector commands discussed earlier and the following tips when creating or editing vector steps.

NOTE:
The following options must be enabled on the System-Parameters Customer-Options form before programming BSR commands in a vector step: Basic Call Vectoring; "Vectoring (G3V4 Advanced Routing)," "Vectoring (Best Service Routing)," and "Look-Ahead Interflow (LAI)."

- Arrange **consider** steps in order of preference, for example, the consider step that tests the main, or preferred, resource, should be first in the series.
- Do not enter any commands that would cause a delay (other than **goto** commands) between steps of a **consider** series.
- Do not program a **consider** series in vector loops.
- Confirm that calls queue successfully. This check is recommended for all vectors. Since EWT is infinite for a call that hasn't queued, a step that checks EWT after a queue attempt is a good confirmation method. After a **queue-to best** step, for example, use a command such as `goto step x if expected-wait <9999.`
- If only one split or skill on a remote switch can service the call type handled in a BSR application, you do not need to write a **consider** series in the interflow vector. You can just queue the call to the appropriate resource.

Setting user adjustments

You can use **adjust-by** commands to set preferences for splits/skills at the origin switch and/or remote switches. While these adjustments are not required, they can minimize unnecessary interflows for distributed applications, and thus help to control costs and preserve trunk capacity.

NOTE:
In distributed applications, the smaller the adjustment, the closer the load balance across the network, but the greater the percentage of calls redirected between switches (and the greater the demands on inter-switch trunking). Higher adjustments reduce interflows, but allow greater imbalance in the load between switches. For more details about adjustments, refer to the *DEFINITY Enterprise Communications Server Call Vectoring/Expert Agent Selection (EAS) Guide*.

The adjustment is considered by the status poll vector in selecting the best resource on its switch. The adjustment is then returned to the origin switch along with the other data for that resource. When *DEFINITY* ECS receives this adjustment from the remote switch, it adds it to any adjustment that was assigned to that location in the **consider location** step.

You can assign a value of 0 to 100 in user adjustments. The units of this value are supplied by the switch depending on the conditions whenever that **consider** step executes. For example, in the command **consider split 1 pri h adjust-by 20,** *DEFINITY* ECS interprets **adjust-by 20** to mean add 20% to the EWT, but add at least 20 seconds. For actual EWTs of 1 to 100 seconds, an adjustment of 20 adds 20 seconds. For EWTs greater than 100 seconds, the same adjustment adds 20% to the actual EWT for the split/skill specified in the **consider** step. For example, if the actual EWT is 120 seconds and an **adjust-by** value of 20 is assigned, the adjusted EWT would be 144 seconds.

In your first multi-site application, we recommend beginning with a remote adjustment of 30, as shown in the primary vector example below. This can easily be reduced later if inter-switch trunking is under utilized.

```
1.   wait time 0 secs hearing ringback
2.   consider split 1 pri m adjust-by 0
3.   consider location 2 adjust-by 30
4.   queue-to best
```

Tip:
User adjustments are applied to a single split or skill, not to an entire location.

Performing daily maintenance

You can display the following reports from your *DEFINITY* ECS to help you monitor the effectiveness of your BSR multi-site application and determine the cause of problems.

- Regularly use the Display Events form and execute a **display events** command for the appropriate vectors. Vector events will identify and indicate the source of common malfunctions and administration errors.

Tip:
If it appears that tie-trunks are frequently exhausted, review the design of the BSR application. The user adjustments on consider location steps may be set too low.

- Use a **list trace vdn** or **list trace vec** command to observe processing of an individual call to verify that your BSR vectors are operating as intended.
- Use a Trunk Group Summary report for traffic measurements for trunk groups. Review such information as trunk usage, calls queued, queue overflows, queue abandons, and percentage all trunks busy (% ATB). To display a Trunk Group Summary report, type **list measurements trunk-group summary <yesterday-peak/today-peak/last-hour>** and press *Return*.
- Use a Trunk Group Performance Report to view a graphical and numerical display of the peak hour blocking for each trunk group. This allows you to see the percentage of calls that arrive when all trunks are busy, for the previous or current day. To display a Trunk Group Performance Report, type **list measurements trunk-group <yesterday/today>** and press *Return*.

For additional tips and methods for tracking unexpected vector events, please refer to the "Troubleshooting" chapter of the *DEFINITY Enterprise Communications Server Call Vectoring/Expert Agent Selection* guide.

Interpreting performance

The following types of standard reports will help you analyze the effectiveness of your individual sites.

Table 9: *CentreVu* Supervisor Reports

Report	What it measures	What it tells you
CMS Split/Skill or VDN reports	Average speed of answer	If ASAs have improved and become fairly equal among BSR-eligible sites
CMS Split/Skill or VDN reports	Calls handled	If throughput has increased
CMS Split/Skill or VDN Reports	Abandonment rates	If abandonment rates have decreased
CMS Agent Group Report	Agent occupancy distribution	If agent utilization has improved as a result of interflowed calls

Tip:
If you have *CentreVu* Network Reporting software, it can be used to view real time key call center performance statistics from as many as 64 call center sites within your Lucent *DEFINITY* network.

For more detailed information about reports, please refer to the *CentreVu Supervisor Version 8 Reports* guide.

Using BSR and *CentreVu* Advocate

BSR can be paired with *CentreVu* Advocate to make your multi-site routing even more precise and effective. Once BSR delivers a call to the right call center or split/skill, *CentreVu* Advocate can determine the best agent to handle the call based on your callers' needs and their value to your business. *CentreVu* Advocate can prevent a large skill from being overserved to the detriment of smaller skills. It can also prevent a multi-skilled agent from being overworked beyond the workload of single-skilled agents, and can regulate how reserve agents are activated. More detailed information on *CentreVu* Advocate can be found in the *Managing Call and Agent Selection* section of this book.

NOTE:
For help using these features together, contact Lucent's Call Center Professional Services.

Call and agent selection methods

This section explains how to manage call and agent selection methods using *CentreVu* Advocate. Specifically, the section is designed to help you understand the various call and agent selection features that are available for your call center and help you select the *CentreVu* Advocate features that best match your company's business needs.

For more detailed information about *CentreVu* Advocate features and administration, please see the *CentreVu Advocate User Guide*.

What is *CentreVu* Advocate?

CentreVu Advocate is a set of advanced features that provides you with flexibility for routing calls: through call selection methods or through agent selection methods, as determined by queue status and agent availability. When one or more queues contain calls when an agent becomes available, *CentreVu* Advocate employs the call selection methods you have administered. When no calls are in queue and one or more agents become available to accept the incoming call, *CentreVu* Advocate activates the agent selection methods you have administered. Based on your call center's needs, you determine which combination of call and agent selection will give you the best results and administer those methods. (Administration is covered later in this section.) It is important to note that the capabilities of *CentreVu* Advocate often replace the need to use earlier techniques such as queue priorities or multiqueuing to get the results you want.

NOTE:
CentreVu Advocate requires Expert Agent Selection (EAS) on the *DEFINITY* Enterprise Communications Server (ECS) Release 6 and later.

How call selection works

When calls are in queue and an agent becomes available, the *DEFINITY* ECS considers the call selection method administered for the agent for each of the queues they support in order to determine which skill to serve. Once a skill is selected, the selected call will be the call at the head of the queue for that skill. The options for call selection include handling preferences, reserve skills, and an option to include Service Objectives in call selection and reserve skill assignments. Each of these options is described in this section.

Call selection measurements

When administering call selection methods for agents, you must choose from one of two call selection measurements for wait time:

- Current Wait Time (CWT) is a measurement that only considers how long a call has already waited when using the call selection algorithm. This is commonly referred to as Oldest Call Waiting.
- Predicted Wait Time (PWT) is a call selection measurement designed to predict the total wait of incoming calls. It uses an estimation of the time until another agent will become available, in addition to the current time in queue, to determine which call to select when an agent becomes available.

Call handling preferences

Three call handling preferences are available to assist you with call selection: Greatest Need, Skill Level, and Percent Allocation. You must administer one of these preferences for each agent. These preferences determine which skill is selected for an agent when calls are in queue for their skill(s) and they become available to serve a call.

Greatest Need

Greatest Need is an EAS-based call selection method. It selects a skill for an agent based on the call at the highest priority whose PWT or CWT for a skill is the longest or whose PWT or CWT is the furthest over the Service Objective of the skill, on a percentage basis. This method allows you to improve efficiency by lowering the average speed of answer for calls and lowering the maximum delay.

Skill Level

Skill Level is an EAS-based call handling preference based on the agent's expertise in one or more skills. Skill Level selects a call for an agent based on highest skill level, highest priority, and greatest need. You assign a preference level of 1 to16, with level 1 as the highest preference, to determine how you want each agent's time to be spent serving your customers. You may determine, for example, that an agent who is especially good at generating sales should be at a level 1 for the Sales skill, but at a level 4 for handling calls on the Complaints skill. This method can help you improve your customer service by delivering calls to the most qualified agents.

Tip:
Skill Level is most effective when only a few levels are used, with as many skills at each level as possible. We recommend defining only two or three levels per agent, if possible.

Percent Allocation

Percent Allocation allows you to assign a percentage of an agent's time to each of his or her assigned skills, to total 100% of their staffed time. Using this method, calls are selected according to the agent's preassigned Percentage Allocation plan. Percentage Allocation is designed to assist with agent scheduling so that a percentage of an agent's time can be dedicated to each of his or her skills. If you have an agent that is equally qualified to

serve two skills, for example, you could allocate 50% of that agent's time for each skill. It is best used with very targeted applications, for example, helping ensure agents on commission receive a fair portion of calls.

NOTE:
The results of Percent Allocation for each agent are affected by the type and volume of incoming calls. For example, consider an agent whose allocation is set at 50% for skill 1 and 50% for skill 2. Assume that on a given day she has spent 70% of her time serving calls from skill 2, which is especially busy. As long as there are no calls queued in skill 1 and the agent is available, she will continue to receive calls from skill 2, even though she has exceeded her percentage allocation for that skill.

Service Objective

Service Objective can be used in conjunction with the Greatest Need and Skill Level call handling preferences. It allows you to assign different levels of service to different skills. With this feature, you can assign a lower Service Objective for a skill that is more important to your call center. For example, you could assign a service level of 20 seconds for a priority customer skill and 45 seconds for a regular customer skill. This ensures that priority calls receive a higher level of service. For each skill level assigned to an agent, the *DEFINITY* ECS compares the PWT of the call at the head of the queue to the skill's acceptable service level or Service Objective. The skill with a call whose PWT is the highest percentage of the acceptable service level is selected. The ratio used to determine the highest percentage of acceptable service level is Predicted Wait Time/Service Objective (PWT/SO).

Tip:
If all skills are equally important, set all of the Service Objectives the same and set all agents to use Service Objective in call selection. Later, if you want to make adjustments for faster or slower service, you can easily change just the one Service Objective.

Service Level Supervisor

Service Level Supervisor is a feature that can automatically override normal agent call handling preferences when pre-set thresholds are exceeded. Using this feature, you can administer one or two overload thresholds for a skill that will be supported by reserve agents. When the EWT for an arriving call exceeds the threshold, the skill goes into an overload state. When the appropriate overload state exists, agents who have been preassigned to assist during overload periods will be eligible to receive subsequent calls from the overloaded skill. Service Level Supervisor is designed to alleviate the need to move agents from skill to skill during emergencies or unanticipated peaks in call volume. Two key elements of Service Level Supervisor are discussed next: reserve skills and overload thresholds.

Reserve skills

You can assign reserve skills to individual agents so they can assist with skills that might become overloaded during peak times. You can assign these skills in addition to an agent's standard skills or you can assign them to an agent who would not handle any calls unless contingency operations were in effect. Reserve skills are not mandatory, but they are a convenient method for automatically triggering contingency operations for your call center. Two reserve levels can be administered:

- **Reserve Level 1 agents:** Are eligible to receive calls from the overloaded skill when the first or second administered threshold is exceeded
- **Reserve Level 2 agents:** Are eligible to receive calls from the overloaded skill when the second administered threshold is exceeded.

If you determine that you want to administer reserve skills, consider the following questions for each skill:

- Which agents are able to back up that skill?
- Are you willing to have agents work differently in order to serve as reserve agents for the skill? (Agents are typically not as effective at skills that are not their primary assignments.)
- Which reserve levels will you assign for selected agents?

Overload thresholds

When using reserve agents, you need to assign overload thresholds that dictate when contingency operations will go into effect for a skill. Overload thresholds are assigned a wait time that indicates a potential wait time condition at which the call center is willing to have reserve agent become eligible for work on that skill. You can set one or two overload thresholds that determine how long callers should wait in queue for a skill before reserve agents are activated.

Call Selection Override

Call Selection Override determines whether agents will be diverted from their primary (standard) skills when the threshold for a reserve skill is exceeded. Consider the following situations in which agents hold both standard and reserve skills.

- **If Call Selection Override is ON for the reserve skill:** The agent takes the reserve call regardless of whether any standard skills are waiting or how long they have waited. This is a good choice for a skill that is critical in nature.
- **If Call Selection Override is OFF for the reserve skill:** The call selection method administered for the agent affects whether the agent takes the reserve skill call:
  - If the call selection method is Greatest Need, a calculation of the Predicted Wait Time and the Service Objective of the reserve and standard skills is made and compared for the call at the head of each queue. The reserve skill call will be taken if its PWT/SO is the highest. The intent is to make the skill important, but not critical, to back up.
  - If the call selection method is Skill Level, the reserve skill call can be taken only if there are no standard skill calls waiting. (The reserve skill is given an "honorary skill level" of 16.) The intent is to back up the skill only on a convenience basis.
  - If the call selection method is Percentage Allocation, a reserve skill call is taken any time the skill is in overload. (A percentage allocation plan does not include percentage entries for reserve skills.)

Call selection examples

The following examples show how the various types of call selection work for situations in which calls are in queue for three skills that an agent is eligible to serve. Each scenario is based on the same skills and call wait times so that you can more clearly see the effects of call selection methods.

Greatest Need without Service Objective

In the following example, Greatest Need is administered for each of the available agent's skills. Service Objective is not set, and Predicted Wait Time is set at the system level. Which call will be selected first when the agent becomes available?

Skill Number	Predicted Wait Time
1	45 seconds
2	90 seconds
3	50 seconds

Using Greatest Need (without Service Objective), the call in skill 2 is selected. This is because Greatest Need is administered in this situation, and calls are selected according to the longest Predicted Wait Time.

Greatest Need with Service Objective

In the following example, acceptable service levels or Service Objectives have been added for each skill by administering Service Objective. Now which call will be selected first if calls are queued for an agent who is eligible to serve all three skills?

Skill Number	Acceptable Service Level	Predicted Wait Time
1	20 seconds	45 seconds
2	45 seconds	90 seconds
3	20 seconds	50 seconds

In this situation, the call in skill 3 is selected because it is at the highest percentage (250%) of the 20-second acceptable service level for that skill. (Keep in mind that the ratio used with Service Objective is PWT/SO.) The 90-second call, in this case, with a service level of 45 seconds, is only at 200% of the acceptable service level and therefore it is not selected.

Skill Level without Service Objective

In the following example, the Skill Level call handling preference is set for the agent's three skills. Service Objective is not set for this agent. Which call will the agent receive in this situation?

Skill Number	Skill Level	Predicted Wait Time
1	1	45 seconds
2	1	90 seconds
3	4	50 seconds

In this instance, the 90-second call in skill 2 is selected because it is the oldest call in the agent's highest level skills.

Skill Level with Service Objective

In the following example, Service Objective is administered with Skill Level. Which call will be selected for the agent?

Skill Number	Skill Level	Acceptable Service Level	Predicted Wait Time
1	1	20	45 seconds
2	1	45	90 seconds
3	2	20	50 seconds

In this situation, the agent receives the call waiting in skill 1. *CentreVu* Advocate identifies two level-1 calls in queue and selects the call that is at the highest acceptable service level (the call with the greatest ratio of PWT/SO).

Percent Allocation

Consider the following scenario in which Percentage Allocation is administered for each of the agent's three skills. If the agent has already spent 50% of his time serving skill 1, 35% of his time serving skill 2, and 15% of his time serving skill 3, which of the queued calls will be selected for him?

Skill Number	Percent Allocation Plan	Actual	Calls Queued
1	60%	50%	45 seconds
2	30%	35%	90 seconds
3	10%	15%	50 seconds

The agent has spent more time on skills 2 and 3 than the plan calls for, therefore he will receive the skill 1 call. (Note that Predicted Wait Time is not used to select calls when Percentage Allocation is in effect for an agent.)

How agent selection works

Agent selection methods are activated when there are more available agents than incoming calls. They are administered as a Hunt Group method for the skill. *CentreVu* Advocate allows you to select agents according to occupancy, idleness, and individual skill level, as described in the following paragraphs.

Least occupied agent

Least Occupied Agent (LOA) selects agents based upon their occupancy rather than position in an idle agent queue. The occupancy calculation considers such variables as the agent's time with calls ringing, calls active, calls on hold, and logged after call work (ACW). It is designed to spread work time more evenly between agents, reducing the number of "hot seats" (agents who receive the most calls) and idle agents.

There are two types of LOA selections.

- **Expert Agent Distribution - Least Occupied Agent (EAD-LOA):** Takes the skill level of agents into consideration before distributing a call. It selects the highest skill level, least occupied agent in the skill to take the incoming call.
- **Uniform Call Distribution - Least Occupied Agent (UCD-LOA):** Selects the least occupied agent when more than one agent is available to take a call. UCD-LOA does not consider the agent's skill level when distributing the call, but distributes the calls evenly across agents.

Tip:
Occupancy levels can be more fair under UCD-LOA distribution. EAD-LOA results will vary depending on the number of skill levels used in the center for each skill.

Most Idle Agent

Most Idle Agent (MIA) selects the most idle agent with the skill for the incoming call. Unlike LOA, this method does not take occupancy into consideration, but delivers the call to the agent who has been idle the longest in that particular skill.

There are two types of MIA selections.

- **Expert Agent Distribution - Most Idle Agent (EAD-MIA):** Selects the highest skill level, most idle agent in the skill to take the call.
- **Uniform Call Distribution - Most Idle Agent (UCD-MIA):** Selects the most idle agent in a skill, regardless of the agent's skill level.

Agent selection examples

The following examples, each using the same agents and profiles, are designed to demonstrate how agent selection works.

Expert Agent Distribution - Least Occupied Agent

Using Expert Agent Distribution-Least Occupied Agent (EAD-LOA), if the following three agents are available to serve the arriving Sales skill call, which agent will receive the next call?

Agent	Skill Level	Staffed Time	Time Occupied with this Skill
A	1	120 minutes	100 minutes
B	1	90 minutes	80 minutes
C	2	240 minutes	160 minutes

In this situation, Agent A receives the next arriving Sales call because she is the highest level, least occupied agent.

Uniform Call Distribution - Least Occupied Agent

With the same agents available for the arriving Sales skill call, but with Uniform Call Distribution-Least Occupied Agent (UCD-LOA) administered instead of EAD-LOA, which agent will receive the next call?

Agent	Skill Level	Staffed Time	Time Occupied with this Skill
A	1	120 minutes	100 minutes
B	1	90 minutes	80 minutes
C	2	240 minutes	160 minutes

With UCD-LOA administered, Agent C receives the next arriving call for the Sales skill.

Expert Agent Distribution - Most Idle Agent

In the following example, the same three agents are available to serve the next arriving Sales skill call, but Expert Agent Distribution-Most Idle Agent (EAD-MIA) is administered. Which agent will be selected for the call?

Agent	Skill Level	Time since last Sales Call
A	1	5 seconds
B	1	10 seconds
C	2	30 seconds

In this scenario, Agent B is selected because he is the highest skill level who has been idle longest in this skill. Notice that while Agent C has been idle the longest, he cannot be selected due to the EAS component of the decision; he has been assigned a lower skill level.

Uniform Call Distribution - Most Idle Agent

Using the same agents, but administering Uniform Call Distribution (UCD-MIA), who would be selected to receive the next arriving Sales skill call?

Agent	Skill level	Time since last Sales call
A	1	5 seconds
B	1	10 seconds
C	2	30 seconds

In this situation, Agent C receives the next arriving call because calls are distributed evenly across agents according to idle time in queue, without regard to skill level.

Developing your strategy

CentreVu Advocate provides you with many options for call and agent selection. Before you administer any of these features, you should carefully consider your customers and your call center staff.

Determining your agent selection strategy

For each of your skills, you need to consider your call center's priorities. Here are a few examples and the agent selection methods you might want to consider.

If there are several agents available to handle an arriving Sales call, would you consider it more important to:

- Provide as many calls as possible to the most proficient agents? If so, consider using EAD-MIA.
- Evaluate the workload of each agent to keep workloads fair? If so, consider using UCD-LOA.
- Find the agent who has been idle the longest? If so, consider using UCD-MIA.

Determining your call and agent selection combinations

Call and agent selection methods must be paired to work together effectively. The most effective combinations are:

- Skill Level call handling preference with EAD-MIA or EAD-LOA
- Greatest Need call handling preference with UCD-MIA or UCD-LOA
- Percent Allocation call handling preference with UCD-LOA.

The following questions and suggestions will help you to get started on developing your overall strategy for combining call and agent selection methods to achieve the results you want for your call center.

Is a highly resilient operation and achievement of objectives your goal?

Use PWT and Service Objectives for each skill. Administer Greatest Need with Service Objective for agents and use UCD-LOA for the Hunt Group method.

Are some of your callers more important to your business than others? Is it also important that your best agents handle as many of those calls as possible?

Use PWT and set Service Objectives. Administer Skill Level for agents who have higher proficiency in certain areas and Greatest Need for agents without strength in any particular skill. Use EAD-LOA for the Hunt Group method.

Do some of your skills experience peaks in heavy volume?

Use Service Level Supervisor, set overload thresholds, and assign reserve skills.

Do you have some small, more specialized skills?

Beginning with *DEFINITY* Enterprise Communications Server (ECS) Release 8, you can set the *Activate on Oldest Call Waiting* field to "yes" to allow reserve agents to be activated based on the waiting time of the calls in queue in addition to EWT.

Are some agents handling more than their share of calls or feeling overburdened?

Use Percent Allocation and UCD-LOA or EAD-LOA for the Hunt Group method.

For more detailed information about features and matching features to business goals, please see the *CentreVu Advocate User Guide.*

Feature compatibility

CentreVu Advocate features are powerful call distribution tools that often work effectively in combination with each other. There are some features, however, that do not work well together. After determining which features will best meet your needs, consider the following to ensure that you have selected compatible options.

The following should *not* be used together:

- Greatest Need with:
  - EAD-LOA
  - EAD-MIA
- Percent Allocation with:
  - EAD-MIA
  - UCD-MIA
  - Predicted Wait Time
  - Service Objective
- Skill Level with:
  - UCD-LOA
  - UCD-MIA.

Administering call and agent selection features

Once you determine your call and agent selection strategy, you need to administer the appropriate features through *CentreVu* Supervisor or the *DEFINITY* ECS.

NOTE:
CentreVu Supervisor can only be used to administer *CentreVu* Advocate features for existing agent login IDs and hunt groups. New login IDs, new hunt groups, and call selection measurements (CWT or PWT) must administered on *DEFINITY* ECS.

The following table shows where each feature is administered.

Table 10: Administering call and agent selection features on *DEFINITY* ECS

Feature	Where administered
Call Selection Measurement: Current Wait Time, Predicted Wait Time Use of After Call Work (ACW) in LOA calculation	Feature-Related System Parameters Form
Call Selection Methods: Greatest Need, Skill Level, Percent Allocation	Agent LoginID Form
Agent Selection Methods: UCD-LOA, UCD-MIA, EAD-LOA, EAD-MIA	Hunt Group Form

Table 10: Administering call and agent selection features on *DEFINITY* ECS — *Continued*

Feature	Where administered
Service Objective and Acceptable Service Levels "Use Service Objective"	Hunt Group Form Agent LoginID Form
Service Level Supervisor and Call Selection Override (ON/OFF) Overload Thresholds	Feature-Related System Parameters Form and Hunt Group Form Hunt Group Form
Reserve Skills and Reserve Levels	Agent LoginID Form
Activation of Reserve Agents using Time in Queue (beginning with *DEFINITY* ECS Release 8)	Hunt Group Form

Important notes about administration

Call and agent selections are a direct result of how you administer *CentreVu* Advocate. The following are examples of the effect your administration can have on *CentreVu* Advocate features.

Call selection works in different ways, depending upon:

- Whether Current Wait Time (CWT) or Predicted Wait Time (PWT) is selected as a system-level parameter
- How the agents' skills (standard and reserve) are administered on the Agent LoginID form
- Which call selection method (Greatest Need, Skill Level, or Percent Allocation) is administered for the agent on the Agent LoginID form
- Whether "Use Service Objective" is checked on the Agent LoginID form
- What (if any) overload thresholds are administered for the skills and what reserve skills are assigned to agents.

Agent selection works in different ways depending on:

- Whether after call work (ACW) is counted as idle or occupied time on the Feature-Related System Parameters form.
- Which Hunt Group method is administered for the skill (EAD-LOA, EAD-MIA, UCD-LOA, UCD-MIA).

For step-by-step instructions on administration of *CentreVu* Advocate features, please see the *CentreVu Advocate User Guide.*

Where should I start?

As a starting point, you might begin with Greatest Need for call selection, Service Objective to assign service levels, and UCD-LOA for agent selection. This is the most basic and robust plan if your agents work equally well across all of their standard skills. ("Work equally well" means that all agents holding a common skill will perform the same work, in about the same amount of time, with similar results.)

To administer this plan:

- On the Feature-Related System Parameters Form:
  - Select PWT (not CWT) to let the advantages of this predictor help foresee and correct potential problems.
  - If multi-skilled agents tend to have more after call work (ACW), include ACW in occupancy calculations.
- On the Agent LoginID form:
  - Enter Greatest Need for the call selection method.
  - Check "Use Service Objective".
- On the individual Skill Hunt Group form:
  - Administer an acceptable service level or Service Objective for each skill (if all skills should receive the same level of service, each entry should be identical, for example, all acceptable service levels should be 30).
  - Administer a Hunt Group method of UCD-LOA for each skill.

Fine-tuning options to consider

If you determine that Greatest Need, Service Objective, and UCD-LOA (as suggested in the previous section) are not the best fit for your call center, you might want to make one of the adjustments suggested below.

If you have:

- An agent with superior abilities on certain skills, for example, he is very skilled at collecting on overdue accounts, consider moving him to Skill Level for call selection, making the Collections skill a skill level 1 and other skills a level 2.
- An agent with less than average abilities in some skills, you could assign those skills as reserve skills, allowing the agent to work on the skills she is better able to serve until the reserve skills needs extra help.
- A small group of people who handle a small set of skills and are paid commission for their work, change the hunt method for the commissioned skills to UCD-MIA instead of UCD-LOA to ensure that everyone receives a fair share of those calls.
- Supervisors who are normally at their desks and could take incoming calls during peak times, assign them reserve skills and ensure they know the proper procedures for logging in and out, using AUX, etc.
- Only a few people for a particular skill and need to make sure this skill is as well served as possible, change the call selection method to Skill Level, set the agent's unique skill to a higher preference level than the other, more common skills, and evaluate the Hunt Group method to see if EAD would create too much unoccupied time for these unique agents.

- A few skills with a significant difference in agent performance between skills, and you want to keep performance as high as possible (in terms of sales, technical support, customer service, or other needs that might be important for your call center):
  - — Make the Hunt Group method EAD-LOA
  - — Evaluate the agents holding the skill(s):
    - Shift the agent's skills to different levels to take advantage of their performance differences when in agent selection
    - Keep the call handling preference at Greatest Need if there are no performance differences between an individual agent's skills
    - Change the call handling preference to Skill Level if the agent has some high-performance skills and low-performance skills.

Interpreting performance

To determine the effectiveness of the strategy you have developed, you need to review performance through reports. While each call center's goals and operation may vary, there are several measurements that are typically considered important. You will want to review these reported measurements to see if your call and agent selection methods are working as you intended.

Table 11: *CentreVu* Supervisor Reports

Report	What it measures	What it tells you
CMS Split/Skill or VDN reports	Average speed of answer	If ASAs are within target service range
CMS Split/Skill or VDN reports	Calls handled	If throughput has increased
CMS Split/Skill or VDN Call Profile reports	Service level	If target service levels are being met
CMS Split/Skill or VCN Reports	Abandonment rates	If abandonment rates have decreased
CMS Split/Skill Reports	Max Delay	If the "worst" wait time (in the interval) has improved
CMS Agent or Agent Group Occupancy Reports	Agent Occupancy Distribution	If the agent utilization is in balance among similar agents

Table 11: *CentreVu* Supervisor Reports — *Continued*

Report	What it measures	What it tells you
CMS Agent Group Report	Percentage of calls handled in primary skill	If agents are handling calls in their primary or top skills
Graphical Skill Overload report	Time over threshold	How much time is spent in overload thresholds 1 and 2 and whether threshold settings are appropriate

Making adjustments

The following tips can help you determine the types of adjustments you might consider, based on your analysis of key reported measurements.

- If ASA is not spread appropriately between skills, adjust the acceptable service level:
  - For calls that should be answered more quickly, reduce the acceptable service level.
  - For calls that should not be answered as quickly, increase the acceptable service level.
- If reserve agents are being called in too much:
  - Review the threshold settings for a skill and increase thresholds 1 and/or 2.
  - Increase the number of agents who hold the skill as a primary skill.
  - Determine if some agents should be Greatest Need or Skill Level.

- If reserve agents are being called in too little:
  - — Review threshold settings for the skill and decrease thresholds 1 and/or 2.
  - — Decrease the number of agents holding the skill as a primary skill.
  - — Determine if some agents should be Greatest Need or Skill Level.
- If Agent Occupancy reports show that an agent's work time is not in line with the group's, look closely at the reports to get a better idea of how the agent is spending his or her time.
  - — Is there a lot of AUX time for this agent?
  - — Did the agent log in and out during the day?
  - — What is this agent's talk time compared to other agents in the group?
  - — How does this agent's profile differ from that of other agents in the group?

Tip:
If you find that this agent has the same opportunities to serve calls as others in the group, there may be training or supervisory issues involved.

Cautions

The following are a few cautions regarding the effective use of *CentreVu* Advocate:

- Supervisors may receive complaints from agents regarding the fairness of call distribution, which could be due to the agents' defined call selection, for example, Skill Level versus Greatest Need.
- Least Occupied Agent measurements are sampled rather than actual for the fields "active any skill" and "staffed any skill" and this might give a false interpretation on reports.
- Vectors may need to be redesigned to take full advantage of *CentreVu* Advocate features; for example, you may no longer need to queue to multiple skills at different priorities.

Index

Symbols

% ACD Time, 70

Numerics

1st found, 93

A

abandoned calls, 70
abandonment rate, 52
ACD Calls, 70
add best-service-routing, 97
adding
  agents to skills, 11
adjunct routing, 59, 66
Adjunct-Switch Application Interface, 59
adjust-by, 104
administering
  call and agent selection features, 134
  Call Vectoring, 63
  multi-site BSR applications, 94
  multi-site ELAI, 78
administration screens
  agent selection features, 134
  call selection features, 134
Advocate, 60, 114
  administering call and agent selection features, 134
  agent selection examples, 127
Advocate, (continued)
  call handling preferences, 115
  call selection, 115
  call selection examples, 121
  Call Selection Override, 120
  cautions, 143
  feature compatibility, 133
  fine-tuning, 138
  making adjustments, 141
  performance, 140
  reserve skills, 118
  Service Level Supervisor, 118
  Service Objective, 117
  where should I start?, 137
Agent LoginID Form, 134
agent occupancy, 89
Agent Occupancy Reports, 89
agent selection strategy, entering, 101
agent selection, examples, 127
agent surplus, 92
agent template, 8
agent trace
  activating, 17
  listing, 19
  records, 17
  report, 20
  stop, 17
agent's skill
  deleting, 7
  viewing, 2
agent's skill assignment
  changing, 4
allocation, data storage, 40
allow VDN override, 100
announcement, 66
Application Plan, BSR, 94
Application Plan, fields, 99
Archiver, 43
ASA, 52
ASAI, 59
Assigned Skills, 5

assigning call work codes, 22
available agent strategy
  1st found, 93
  EAD-LOA, 93
  EAD-MIA, 93
  UCD-LOA, 93
  UCD-MIA, 93
Average Speed of Answer (ASA), 52

B

best, 103
Best Service Routing, 59
Best Service Routing Application Plan Form, 94
book conventions, xiii
books
  documentation, xv
  how to order more copies, xix
  online, xviii
branching, conditional, 56
branching, unconditional, 55
BSR
  administering, 94
  agent selection strategy, 101
  Application Plan, 94
  Application Plan fields, 99
  creating an Application Plan, 97
  creating elements of the Application Plan, 96
  description, 59
  linking an Application Plan to a primary VDN, 100
  maintenance, 107, 109
  using with CentreVu Advocate, 110, 111
  vector commands, 103
  writing vectors, 106
busy, 66, 81
Busy Hour, 71
Busy Hour by VDN Report, 71
Busy/Disconnects, 71

C

call acceptance vector commands, 80
call and agent selection combinations, 131
call and agent selection features, administering, 134
call denial vector commands, 81
call handling preference, 115
  changing, 7
  Greatest Need, 116
  Percent Allocation, 116
  Skill Level, 116
Call Profile report, 70
call profile setup, 26
Call Prompting, 53
call selection
  description, 115
  examples, 121
  measurements, 115
call surplus, 92
call vector, 54
Call Vector form, 64, 94
Call Vectoring
  administering for EAS, 64
  administering for non-EAS, 63
  description, 50
  interpreting performance, 70
call work codes
  assigning, 22
  reports, 23
call work codes (CWC), 22
cautions, Advocate, 143
centralized system, 95
CentreVu Advocate, 53, 114

CentreVu Network Reporting, 110
CentreVu Virtual Routing, 73
Change Agent Skills window, 4
changing
  agent's skill assignment, 4
  call handling preference, 7
  CMS state, 34
  data storage allocation, 38
  direct agent skill, 7
  extension split assignments, 12
  multi-agent skill, 9
  skill level, 11
  top skill, 6
  VDN skill preferences, 24
  VDN-to vector assignments, 30
check skill, 66
check split, 80
CMS State
  window, 34
CMS state
  multi-user mode, 34
  single-user mode, 34
collect ced/cdpd digits, 82
collect digits, 66, 80
commands, vector, 66
conditional branching, 56
consider, 82
consider location, 107
consider skill/location, 66
converse-on skill, 66
converse-on split, 80
counted-calls, 58
creating a BSR Application Plan, 97
Current Wait Time (CWT), 115
CWC, 22
CWT, 115

D

daily data, 43
Daily Multi-ACD Call Flow by VDN Report, 71
daily start time, 46
daily stop time, 46
data collection, 36
  turning off and on, 36
Data Collection window, 34
data storage
  capacities, 40
  modifying, 38
  warnings, 38
Data Storage Allocation window, 39
data summarizing, 42
  daily, 43
  monthly, 43
  weekly, 43
data summarizing time, 45
defining service levels, 26
deleting
  agent's skill, 7
Dialed Number Identification Service, 63
direct agent skill, changing, 7
disconnect, 66, 80
display events, 68
distributed system, 95
DNIS, 63
download
  books, xviii
downloads
  software, 155

E

EAD-LOA
description, 93
example, 127
EAD-MIA
description, 93
example, 129
EAS, 53
ELAI
administering multi-site, 78
description, 59
maintenance, 88
single queue configuration, 76
tandem switch configuration, 76
troubleshooting, 90
Enhanced Look-Ahead Interflow, 59
Error Log Reports, 38
EWT, 57
Expected Wait Time
list changes, 68
Expected Wait Time (EWT)
description, 57
expected-wait, 57
Expert Agent Distribution - Least Occupied Agent (EAD-LOA), 93
Expert Agent Distribution - Most Idle Agent (EAD-MIA), 93
Expert Agent Selection (EAS), 53
extension assignments, 15
extension split assignment
changing, 12
extensions
moving between splits, 15

F

Feature-Related Parameters form, 85
First in/First out (FIFO), 75
flow, sequential, 55
Flowins, 70
Flowouts, 70
form
Agent LoginID, 134
Best Service Routing Application Plan, 94
Call Vector, 94
Display Events, 109
Feature-Related System Parameters, 97, 134
Hunt Group, 134
Vector Directory Number, 94
Free Space Allocation window, 44

G

goto, 78
goto step, 66
goto vector, 66
Graphical Skill Overload Report, 141
Greatest Need
description, 116
example with Service Objective, 122
example without Service Objective, 121

H

help
accessing, xiii
numbers to call, xx
Historical Agent Trace Report, 20
Historical Call Work Code Report, 23
Hunt Group Form, 134
Hunt Group method, 125

I

inflow vector, 79
Interflow VDN field, 99
Interflow VDN/vector, 95
Interflow, Lookahead, 74
interflow-qpos command, 83
Interflow-Qpos EWT Threshold field, 85
intrahour interval, 45

L

LAI, 59
Least Occupied Agent (LOA), 125
linking an Application Plan to a primary VDN, 100
list history, 69
list trace ewt, 68
list trace vec, 68
listing agent trace data, 19
LOA
  Expert Agent Distribution (EAD-LOA), 125
  overview, 125
  Uniform Call Distribution (UCD-LOA), 125
local, 94
Location Name field, 99
Look-Ahead Interflow, 59
lookahead interflow attempts, 89
lookahead interflow completions, 89

M

maintenance
  BSR, 107, 109
  Call Vectoring, 68
  ELAI, 88
making adjustments
  Advocate, 141
master ACD, 34
messaging skill, 66
messaging split, 80
MIA
  Expert Agent Distribution (EAD-MIA), 126
  overview, 126
  Uniform Call Distribution (UCD-MIA), 126
minimum EWT threshold, 85
minimum expected wait time, setting, 85
Most Idle Agent (MIA), 126
moving
  extensions between splits, 15
multi-agent skill, changing, 9
Multiple Skill Queuing, 59
multi-user mode, 34

N

Num field, 99
Number of Agents Staffed, 70

O

oldest-call wait, 86
online
  books, xviii
origin, 94
outflow vector, 78
overload thresholds, 119

P

Percent Allocation, 4
description, 116
example, 124
phantom call, 90
Predicted Wait Time (PWT), 115
primary VDN, 94
primary vector, 94
PWT, 115

Q

queue-to skill/best, 67
queue-to split, 81, 82
queuing, multiple skill, 59

R

remote switch, 94
reply-best, 67, 81
report
Agent Occupancy, 89
Call Profile, 70
Error Log, 38
Graphical Skill Overload, 141
Multi-ACD Call Flow by VDN, 71
Split Skill by Interval, 70
Split/Skill, 27
Trunk Group Members, 28
Trunk Group Summary by Interval, 71
VDN Call Profile, 27
Vector Configuration, 32
reserve skills
Call Selection Override, 120
description, 118
Rolling Average Speed of Answer, 57
rolling-asa, 57
route-to, 67, 78, 81
route-to digits with coverage, 86
route-to number with coverage, 86
routing
adjunct, 59
Best Service, 59
CentreVu Virtual, 73

S

Select Agent/Template window, 5
selecting elements of BSR Application Plan, 96
sequential flow, 55
service level
defining, 26
reports, 27
Service Level Supervisor
description, 118
overload thresholds, 119
reserve skill, 118
Service Objective, 117
Service Observe, 69
setting the minimum Expected Wait Time, 85
setting user adjustments, 107
single-user mode, 34
Skill Level
description, 116
example with Service Objective, 123
example without Service Objective, 123
skill level, changing, 11
Skill List, 10
skills
assigned, 5
reserve level, 118

Split Skill by Interval Report, 70
Split/Skill Report, 27
Status Poll VDN field, 99
Status Poll VDN/Vector, 95
stop, 67, 82
storage intervals, 45
Storage Intervals window, 45
summarizing data, 42
switch information, viewing, 47
Switch Node field, 99
switch setup, 47
Switch Setup window, 47
switch time zone offset, 45

T

talk time, 52
Template, 5
timetable, 30
top skill, changing, 6
trace vdn, 68
tracing an agent's call activity, 17
training courses, iii
troubleshooting, ELAI, 90
trunk group members, 28
Trunk Group Members Report, 28
Trunk Group Summary by Interval Report, 71
turning data collection off and on, 36

U

UCD-LOA
description, 93
example, 128
UCD-MIA
description, 93
example, 130
unconditional branching, 55
Uniform Call Distribution - Least Occupied Agent (UCD-LOA), 93
Uniform Call Distribution - Most Idle Agent (UCD-MIA), 93

V

VDN, 54
assignments, 30
busy hour report, 71
description, 54
historical report, 70
interflow, 95
multi-ACD Call Flow Report, 71
primary, 94
service observe, 69
skill preferences, changing, 24
status poll, 95
VDN Activity, 71
VDN Call Profile Report, 27
VDN Calls, 58
vector, 54
BSR commands, 103
call acceptance commands, 80
call denial commands, 81
commands, 66
configurations, 32
inflow, 79
interflow, 95
list changes, 69
maintenance, 68
outflow, 78
primary, 94
reports, 69, 70
samples, 104
status poll, 95
trace call flow, 68
tracking events, 68

Vector Configuration Report, 32
Vector Contents window, 64
Vector Directory Number (VDN), 54
Vector Directory Number form, 94
Vector Editor, 64
vector events, 68
vector,call, 54
vectoring, call, 50
vectors, 54
  writing, 64
  writing, BSR, 106
viewing
  agent skill, 2
  free space, 44
  storage intervals, 45
  switch information, 47
  trunk group members, 28
  vector configurations, 32

W

wait-time, 67, 81
wait-time hearing i-silent, 81
warnings,data storage, 38
web sites
  case status, 155
  electronic library, 155
  frequently asked questions, 155
  Lucent Customer Self-Service center, xviii
  self service center, 155
  software downloads, 155
  troubleshooting, 155
week start day, 45
week stop day, 46
weekly data, 43
window
  Activate Agents Trace, 17
  Call Profile Setup, 26
  Call Work Codes, 22
  Change Agents Skills, 4
  Change Extension Split Assignments, 12
  Change VDN Skill Preferences, 24
  CMS State, 34
  Data Collection, 34, 36
  Data Storage Allocation, 38
  Data Summarizing, 42
  Free Space Allocation, 44
  List Agents Traced, 19
  Move Extensions Between Splits, 15
  Multi-Agent Skill Change, 9
  Select Agent/Template, 5
  Storage Intervals, 45
  Switch Setup, 47
  System Setup, 33
  VDN Assignments, 30
  Vector Contents, 64
writing BSR vectors, 106
writing vectors, 64

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