AVAYA
communication

Call Center

Little
Instruction
Book

for advanced administration

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BTC187R2 or BTC287R2	Bit Room	CentreVu Supervisor Administration
		CentreVu Supervisor Administration with EAS
BTC154H or BTC155H	Instructor Led	CentreVu Supervisor Administration
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BTC416M	CD-ROM	Generating and Interpreting CentreVu Supervisor Reports
BTC447M	CD-ROM	CentreVu Supervisor Administration
BTC448M	CD-ROM	DEFINITY BCMS Vu, Release 2
BTC450M	CD-ROM	CentreVu Advocate: Breakthrough Solutions
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Credits

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       Comcode 108869082, April 2001

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Low Voltage Directive 73/23/EEC

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Acknowledgment

This document was prepared by Global Learning Solutions, Avaya, Denver, CO USA

Contents

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.
Managing 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 Avaya 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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When used in this book, these trademark and registered trademark product names are shown in italics. If the name is used in a block of text that already incorporates italics, then the appropriate symbol is included in the call-out.

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Related books

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Related books

The following documents include information related to the Avaya Call Center Release 9.

⇒ NOTE:
The Avaya Call Center Release 9 Documentation CD-ROM (585-215-926) 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

- Call Center Little Instruction Book for Basic Administration, 585-215-954, Issue 1, Comcode 108869074

- Call Center Little Instruction Book for Advanced Administration, 585-215-955, Issue 1, Comcode 108869082

- CentreVu Call Management System Release 3 Version 9 Administration, 585-214-015, Issue 1, Comcode 108868944

- CentreVu Call Management System Database Items, 585-210-945, Issue 1, Comcode 108844259

- CentreVu Call Management System Release 3 Version 9 External Call History Interface, 585-215-952, Issue 1, Comcode 108868969

- CentreVu Release 3 Version 9 Sun Enterprise 3000 Mirrored System Computer CentreVu Upgrade Express Instruction , 585-210-913, Issue 1, Comcode 108740333

- CentreVu Call Management System Release 3 Version 9 Software Installation and Setup, 585-215-956, Issue 1, Comcode 108869090

- CentreVu Sun Enterprise 3000/SPARCserver Maintenance and Troubleshooting, 585-214-016, Issue 1, Comcode 108868977

- CentreVu Call Management System Switch Connectivity, 585-215-876, Issue 2, Comcode 108501958

- CentreVu Advocate Release 9 User Guide, 585-215-953, Issue 1, 108869025

- CentreVu Supervisor Version 9 Installation and Getting Started, 585-210-928, Issue 2, 108869033

- CentreVu Supervisor Version 9 Reports, 585-210-929, Issue 2, Comcode 108844465

- CentreVu Report Designer Version 9 User Guide, 585-210-930, Issue 2, Comcode 108869041

- CentreVu Call Management System Forecast, 585-215-825, Issue 1, Comcode 107876203

- CentreVu Call Management System Custom Reports, 585-215-822, Issue 2, Comcode 108501867

CentreVu Visual Vectors books

- CentreVu Visual Vectors Version 9 User Guide, 585-210-944, Issue 1, Comcode 108844655

- CentreVu Visual Vectors Version 9 Installation and Getting Started, 585-210-947, Issue 1, Comcode 108869058

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 9 Call Vectoring/EAS Guide, 555-230-521, Issue 5, Comcode 108868928

- *DEFINITY* Enterprise Communications Server Release 9 Guide to ACD Call Centers, 555-233-503, Issue 3, Comcode 108868936

- *DEFINITY* Enterprise Communications Server Basic Call Management System (BCMS) Operations, 555-230-706, Issue 2, Comcode 108485087

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	Product Documentation Group
	11900 North Pecos Street
	Denver, Colorado 80234 USA
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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.

To access the latest version of this book, complete these steps:

1. Access the Customer Self-Service Center web site at
   http://support.avaya.com/

2. Select the **Call Center** drop down list.

3. Select **CentreVu** from the drop down list to expand the selection.

4. Select **CMS**.

5. Select **Documentation** from the list of options in left hand side of the window.

6. Select **Recent Documents**.

7. Under Call Center, select **Little Instruction Books**.

8. Select **Call Center Little Instruction Books for Advanced Administration**.

9. Select one of the following:

Option	Action
Open it	Opens the file and displays it on your PC.
Save it to disk	Saves the file in the directory you specify.

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          Comcode 108869082, Issue 1, December 2000

➡ NOTE:

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How to get help

If you need additional help, the following services are available. You may need to purchase an extended service agreement to use some of these services. See your Avaya representative for more information.

CentreVu CMS Helpline ...for help with feature administration, system applications, and reports	1-800-242-2121
DEFINITY Helpline ...for help with feature administration and system applications	1-800-225-7585
Avaya National Customer Care Center Support Line ...for help with maintenance and repair	1-800-242-2121
Avaya Centers of Excellence	
■ Asia/Pacific	65-872-8686
■ 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

Before you contact Avaya for support

> **Tip:**
> You can visit our web site at **http://support.avaya.com/** to check
> status on service maintenance requests by individual case or location,
> order replacement of defective or damaged equipment on-line and
> download available software.

If after checking the status of your maintenance request at the website you
need to call Avaya for additional support, have the following information
ready. This will help the person you contact to locate your account quickly
and be on the road to finding solutions to the reason you called.

- Your installation location ID (commonly referred to as your IL) or
  main listed telephone number

  _____

  (Write your IL and main telephone number here for easy reference)

- A call-back number (in case we need to call you later)

- The reason for your call, including any background details or history
  that may have contributed to your call for additional support (for
  example, vector changes, hardware changes, modifications to system
  configurations, specific reports, dates and times, and so on.)

- For *BCMS Vu* calls, be sure *PC Anywhere* is installed on the PC
  you're calling about and that a modem is connected to it.

Once you gather the information you need, refer to "How to get help" for a
list of Avaya support organizations and their telephone numbers.

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. CentreVu Supervisor is used as the interface to communicate changes to the DEFINITY.

The topics included in this section are:

- Viewing a agent's skill assignment (EAS only)
- Changing an agent's skill assignment (EAS only)
- Changing a skill for multiple agents (EAS only)
- Changing an agent's extension split assignment (non-EAS)
- Moving multiple agents' extensions between splits (non-EAS)
- Tracing an agent's call activity
- Listing agent trace data

Some CentreVu CMS Administrators give Split Supervisors access to the Agent Administration 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.

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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. Select *Agent Administration* from the Commands menu.

2. Select *Change Agent Skills* from the Operations tab of the Agent Administration window.

3. Select the ACD for which you want to view an agent's skill assignment.

4. Select *OK*.

The Select Agent/Template window displays.

5. To view the skill assignment 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 displays with the template or agent's name and login ID in the title bar. The call handling preference for the agent or template is displayed, along with the agents assigned skills, skill levels and direct agent skill. Skill names are shown for the skills that are named in the Dictionary. The agent's top skill is the first skill in the list and is identified by an arrow pointing to the assigned skill.

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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. | Canc

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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.

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■ 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 assignment:

1. Select *Agent Administration* from the Commands menu.

2. Select *Change Agent Skills* from the Operations tab of the Agent Administration window.

3. Select the ACD for which you want to view an agent's skill assignment.

4. Select *OK*.

The Select Agent/Template window displays.

5. To view the skill assignment 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 displays with the template or agent's name and login ID in the title bar. The call handling preference for the agent or template is displayed, along with the agents assigned skills, skill levels and direct agent skill. Skill names are shown for the skills that are named in the Dictionary. The agent's top skill is the first skill in the list and is identified by an arrow pointing to the assigned skill.

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7. To add a skill for this agent, select the *Add Skills* button.

The Add Agent Skills window displays.

8. Select a skill from the list of available skills.

9. Select a skill level to be assigned to the selected skill.

10. Select *OK*.

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The Change Agent Skills window displays for the agent with the new skill and skill level displayed.

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. Select a new direct agent skill from the *Direct Agent Skill* drop-down list. (Direct Agent Skills are used to queue Direct Agent calls, or calls that are directed to specific agents rather than to any available ACD agents.)

Delete a skill. Select the skill(s) you want to delete from the Assigned Skills list and select the *Delete Skills* button. Select the skill(s) you want to delete and select *OK* from the *Delete Agent Skills* window.

Change the agent's call handling preference. Select a call handling preference from the top of the Change Agent Skills window. Choose between distributing calls to the selected agent based on *Skill Level* (as shown), *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 Change Agent Skills window. Enter the names or login IDs of the agents you want to apply these skill assignments to or select agents using the drop-down list or the Browse button.

➡ NOTE:

The *Agent Name(s) or Login ID(s)* field is enabled only if you have read and write permissions for all of the currently displayed skill assignments on the Change Agent Skills window.

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9. Select *OK* from the Change Agent Skills window 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 displays to confirm when changes successfully completed.

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

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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 *Multi-Agent Skill Change* from the Operations tab of the Agent Administration window.

3. Select the ACD for which you want to make changes to from the ACD drop-down list.

4. Select *OK*.

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The Multi-Agent Skill Change window displays.
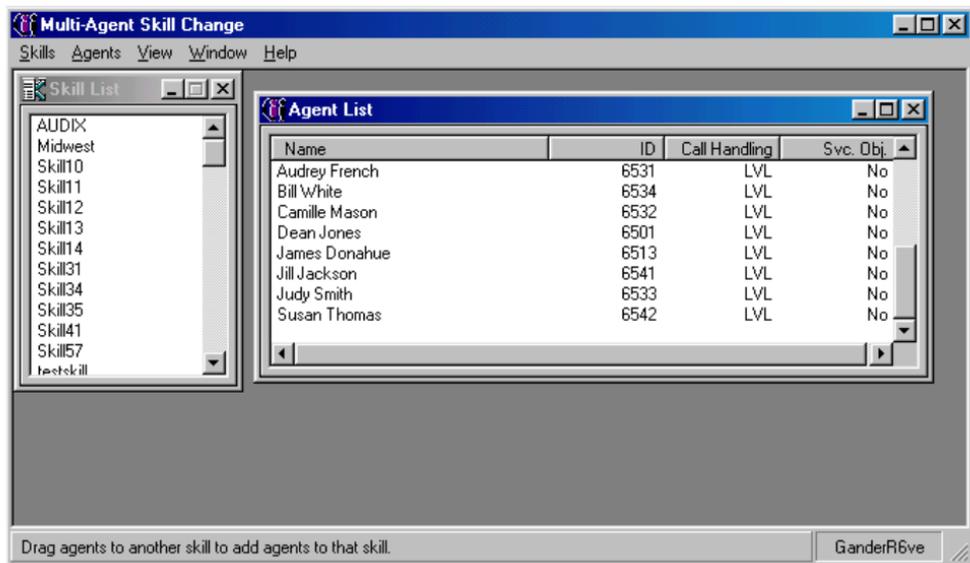
5. To display the agents assigned to a skill, double-click on the skill from the *Skill List* or select the skill name and press *Enter*.

The Agent List for that skill displays.

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

Select one agent name or login ID from the *Agent List*, drag the selected agent to the desired skill in the *Skill List*.

Or

Hold down the CTRL key and select multiple agents (up to 32 agents) from one *Agent List*, drag the selected agents to the desired skill in the *Skill List*.

Or

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Hold down the SHIFT key and select the first and last agent within a skill to select a range of agents, drag the selected agents to the desired skill in the *Skill List*.

7. To add agents in one skill to another skill, select the agent(s), hold down the CTRL key and drag the agent(s) from the old skill to the desired skill. This procedure adds instead of moves agents to the desired skill.

After each move, the Move Agent Between Skills window displays, indicating the Move From Skill and Move To Skill.
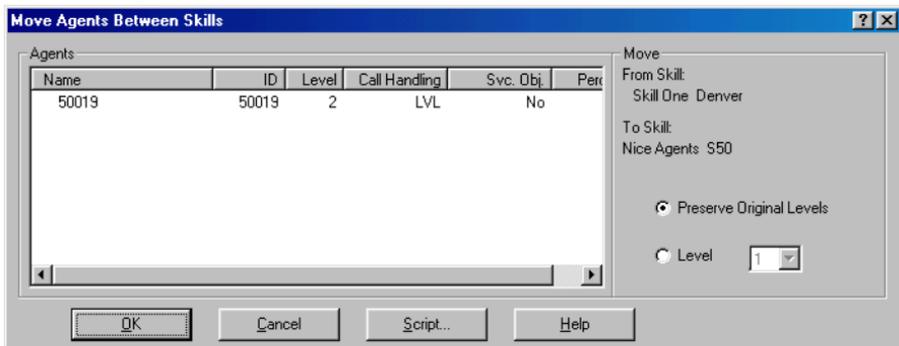
8. To make changes to skill levels for the new (Move To) skill, select the Level button and enter a skill level of 1-16 for each agent (with EAS-PHD) or enter a reserve level of 1 or 2 (with CentreVu Advocate). If you select *Preserve Original Levels*, the Level field is disabled and you cannot enter 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.

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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 *Change Extension Split Assignments* from the Operations tab of the Agent Administration window.

3. Select the ACD for which you want to make changes to from the ACD drop-down list.

4. Select *OK*.

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The Select Extension window is displayed.

> 5. Enter the extension number for which you want to change the split assignment, or use the drop-down list to select an extension number.
>
> 6. Select *OK*.

The Change Extension Split Assignments window is displayed.
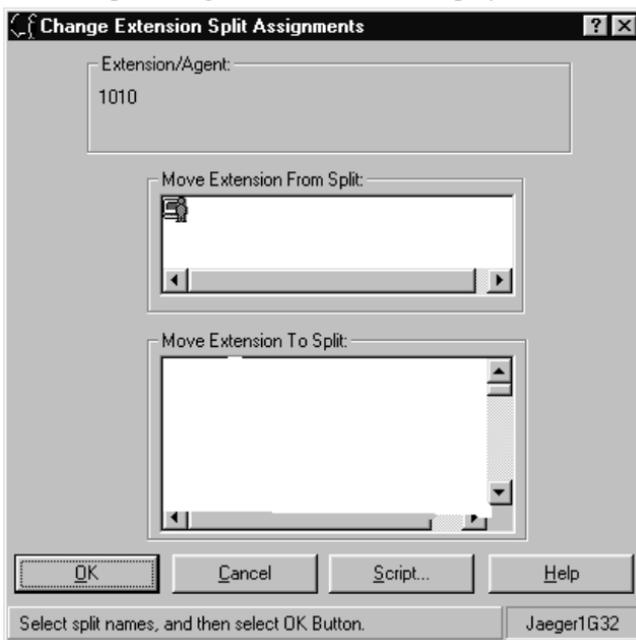
NOTE:

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 ID has permissions. If the extension is currently logged into the split shown in the *Move Extension From Split* list, the logged-in icon displays.

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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 *Move Extensions Between Splits* from the Operations tab of the Agent Administration window.

3. Select the ACD for which you want to make changes to from the ACD drop-down list.

4. Select *OK*.

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The Move Extensions Between Splits window displays.
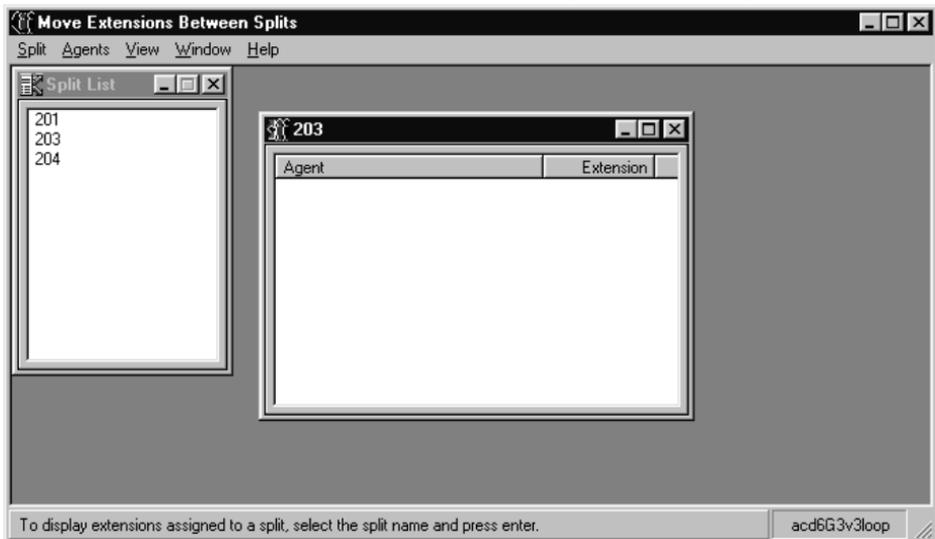
5. To display the extensions assigned to a split, double-click on the split from the *Split List*, or select the split name and press *Enter*.

The Agent List for that split displays.

6. To move extensions from split to split, use any of the following methods:

Select one agent name or login ID from the *Agent List*, drag the selected agent to the desired split in the *Split List*.

Or

Hold down the CTRL key and select multiple agents (up to 32 agents) from one *Agent List*, drag the selected agents to the desired split in the *Split List*.

Or

Hold down the SHIFT key and select the first and last agent within a split to select a range of agents, drag the selected agents to the desired split in the *Skill List*.

7. To add agents in one split to another split, select the agent(s), hold down the CTRL key and drag the agent(s) from the old split to the desired skill. This procedure adds instead of moves agents to the desired split.

After each move, the Move Extensions Between Splits confirmation window displays, indicating the Move From Split and Move To Split. Select *OK* to accept changes.

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Tracing an agent's call activity 18

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 400 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. Select *Agent Administration* from the Commands menu.

2. Select *Activate Agent Trace* from the Operations tab of the Agent Administration window.

3. Select the ACD for which you want to make changes to from the ACD drop-down list.

4. Select *OK*.

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The Activate Agent Trace window displays.

> 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.

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Listing agent trace data   20

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. Select *Agent Administration* from the Commands menu.

2. Select *List Agents Traced* from the Operations tab of the Agent Administration window.

3. Select the ACD for which you want to make changes to from the ACD drop-down list.

4. Select *OK*.

The List Agents Traced window displays.

5. Enter the names or login IDs of the agents, use the drop-down list, or use the Browse button to select agents on which to list traces. (If you leave this field blank, all agents for whom agent trace data is available is displayed.)

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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 displays with 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.

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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.

The topics included in this section are:

- Assigning call work codes
- Changing VDN skill preferences (EAS only)
- Defining acceptable service levels
- Viewing trunk group members
- Changing VDN-to-vector assignments
- View vector configurations

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Assigning call work codes   24

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.

⚠ CAUTION:
Once call work codes are administered, 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.

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Assigning call work codes   25

To administer call work codes:

1. Access *Call Center Administration* from the Commands menu.

2. Select *Call Work Codes* from the Operations tab of the Call Center Administration window.

3. Select the ACD for which you want to view an agent's skill assignment, from the ACD drop-down list.

4. Select *OK*.

The Call Work Codes window displays. The total number of call work codes that are allocated in the CentreVu CMS database and the total number of call work codes currently administered are shown.

5. Enter the call work code(s), or use the drop-down list or Browse button to select the call work codes you want agents to use.

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 have established call work codes, you can use the historical call work code report to track call activities in your call center.

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Changing VDN skill preferences (EAS only)   26

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.

Helpful tips

Here are a few things you'll want to know before changing VDN skill preferences.

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

- 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.

⚠️ 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.

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Changing VDN skill preferences (EAS only) 27

To change VDN skill preferences:

1. Access *Call Center Administration* from the Commands menu.

2. Select *Change VDN Skill Preferences* from the Operations tab of the Call Center Administration window.

3. Select the ACD for which you want to change VDN skill preferences from the ACD drop-down list.

4. Select *OK*.

The Change VDN Skill Preferences window displays.

5. Enter the VDN(s), or use the drop-down list or Browse button to select the VDNs for the skill preferences you want to change, .

✑ **Tip:**

You can display which VDNs have a specified skill assigned as their first, second, or third skill preferences, by selecting the List all button on the toolbar three times, once for each skill preference.

6. Enter the first, second and third skill preferences, or use the drop down list or Browse button to select the skill preferences you want to be assigned to the list of VDN(s) you just entered.

7. Select *Modify* from the Actions menu.

Successful is displayed in the status bar to indicate the VDN skill preferences have been modified in the database.

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Defining acceptable service levels   28

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.

➡ **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.

To define service levels:

1. Access *Call Center Administration* from the Commands menu.

2. Select *Split/Skill Call Profile Setup* or *VDN Call Profile Setup* from the Operations tab of the Call Center Administration window.

3. Select the ACD for which you want to define service levels, from the ACD drop-down list.

4. Select *OK*.

The Split/Skill Call Profile Setup or VDN Call Profile Setup window displays.
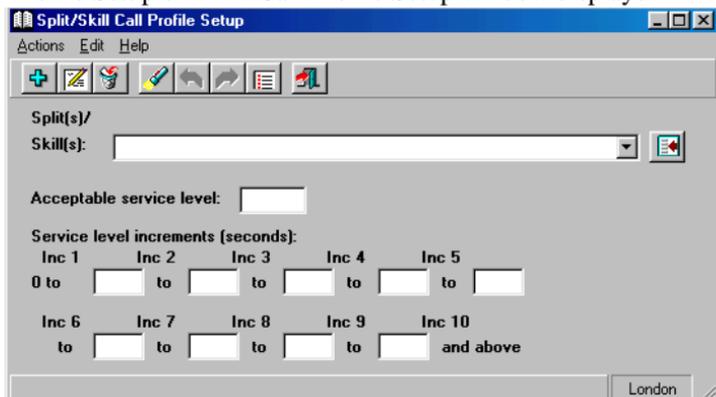
5. For the Split/Skill Call Profile Setup, enter the split or skill number or name, or use the drop-down list or Browse button to select the split or skill for which you want to define service levels and service level increments.

   For the VDN Call Profile Setup, enter the VDN number or name, or use the drop-down list or Browse button to select the VDN for which you want to define service levels and service level increments.

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.

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Defining acceptable service levels   30

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.

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Viewing trunk group members 31

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 *Trunk Group Members* from the *Reports* tab of the Call Center Administration window.

3. Select the ACD for which you want to view trunk group members, from the ACD drop-down list.

4. Select *OK*.

The Trunk Group Members window displays.

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

🖢 **Tip:**

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

6. Select one of the following report destinations:

View Report on Screen to view the report on the screen.

Or

Print Report on: to print the report to your default printer. Use the *Select Printer* button to select optional available *Windows* printers.

7. Select *OK*.

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Changing VDN-to-vector assignments 32

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. Some examples of when you would do this are for 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.

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Changing VDN-to-vector assignments 33

To change VDN-to-vector assignments:

1. Access *Call Center Administration* from the Commands menu.

2. Select *VDN Assignments* from the Operations tab of the Call Center Administration window.

3. Select the ACD for which you want to change VDN assignments, from the ACD drop-down list.

4. Select *OK*.

The VDN Assignments window displays.

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 vector number or name, or use the drop-down list or Browse button to select the vector for which you want to reassign the VDNs to.

🏷 **Tip:**

To determine which vectors the VDNs have been assigned, leave the input fields blank and select List All from the *Actions* menu or the *List All* button on the Toolbar.

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.

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View vector configurations   34

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 *Vector Configuration* from the Reports tab of the Call Center Administration window.

3. Select the ACD for which you want to view vector configurations, from the ACD drop-down list.

4. Select *OK*.

The Vector input window displays.

5. Enter the vector numbers or names, or use the drop-down list or Browse button to select the vectors for which you want to view trunk groups, VDNs, and VDN skill preferences.

6. Select one of the following report destinations:

   View Report on Screen to view the report on the screen.

   Or

   Print Report on: to print the report to your default printer. Use the *Select Printer* button to select optional available *Windows* printers. The Print window displays allowing you to proceed using common print functions.

7. Select *OK*.

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.

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

The topics included in this section are:

- Changing from multi-user to single-user mode
- Turning data collection off and on
- Modifying data storage capacities
- Summarizing data
- Verifying free space
- Viewing storage intervals
- Viewing switch information

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Changing from multi-user to single-user mode   36

Changing from multi-user to single-user mode

The CMS State window is used to change CentreVu CMS between a multi-user mode and a single-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 in order to change the master ACD for clock synchronization. Use the Data Collection window in CMS System Setup to turn data collection off and on.

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Changing from multi-user to single-user mode   37

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 displays.

4. Select either:

    Single-user mode - a message will be displayed to all users indicating CentreVu CMS will be brought down in 1 minute. Users are automatically logged off after 1 minute.

    Or

    Multi-user mode - CentreVu CMS will be brought up to a multi-user mode.

5. Select *Modify* from the Actions menu.

⇒ NOTE:

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

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Turning data collection off and on   38

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 do not 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.

⟹ **NOTE:**

It is not necessary to select an ACD from the CMS System Setup window, as you will select an ACD from the Data Collection window that displays next.

3. Select *OK*.

The Data Collection window displays.

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Turning data collection off and on   39

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

5. 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.

6. 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 details located on the Restore Data window, which can be found on the Operations tab of the Maintenance menu.

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Modifying data storage capacities   40

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 configurations.

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 CentreVu CMS will go down when switch translations occur. The link between the switch and CentreVu CMS will stay down until either Data Storage Allocation in CentreVu 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.

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Modifying data storage capacities   41

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 for which you want to modify data storage allocation, from the ACD drop-down list.

4. Select *OK*.

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Modifying data storage capacities   42

The Data Storage Allocation window displays. 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.

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Modifying data storage capacities   43

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

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Modifying data storage capacities   44

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.

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Summarizing data 45

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 and Data Storage Allocation windows, 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 which are available from 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.

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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.

➯ NOTE:

It is not necessary to select an ACD from the CMS System Setup window, as you will select an ACD from the Data Summarizing window that displays next.

3. Select *OK*.

The Data Summarizing window displays.

4. Enter the ACD name, or use the drop-down list to select the ACD for which you want to run a manual archive

5. 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.

6. Enter the date, or use the drop-down list to select the date for which you want data archived.

7. Select *Run* from the Actions menu.

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

8. Select *Yes*.

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

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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.

$\Longrightarrow$ 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 displays.

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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.*

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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*.

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The Storage Intervals window displays.
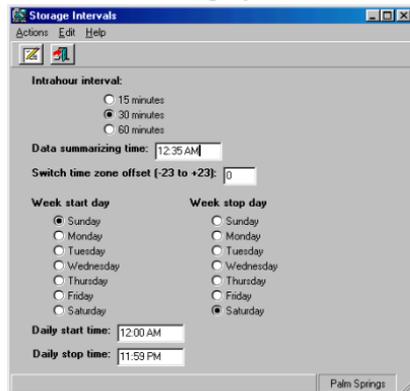
The following archive intervals are indicated:

- *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 summarizing and reports.

- *Week stop day* - the day of the week that ends your call center's week. This directly relates to weekly summarizing 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.

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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.

⇒ NOTE:

It is not necessary to select an ACD from the CMS System Setup window, as you will select an ACD from the Switch Setup window that displays next.

3. Select *OK*.

The Switch Setup window displays.

4. Select the ACD for which you want to view the switch setup, from the ACD drop-down list.

5. From the Actions menu, select one of the following:

- *Find one* - for one ACD entry

- *List all* - for multiple ACD entries

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The Switch Setup window displays.
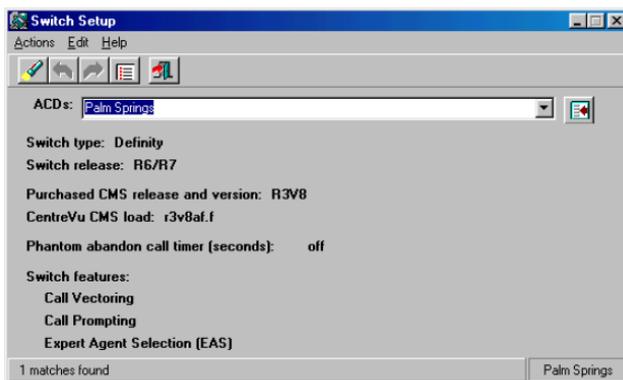
Switch setup information that was assigned during installation is displayed.

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.*

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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

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- 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.

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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.?

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- 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)?

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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. A maximum of 1,000 vector steps can be executed per call.

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.

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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
```

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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
```

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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.

Holiday Vectoring

Holiday Vectoring, when used as a conditional step, simplifies the vector-writing process when you need to re-route or provide special handling for date-related calls on a regular basis. It provides you with the capability to administer ten different holiday tables, then use those tables to make vectoring decisions. Holiday Vectoring can be turned on in the System Parameters Customer-Options Form, if the DEFINITY ECS is version 9.1 or greater, and either Vectoring (Basic) or Attendant Vectoring is enabled.

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In the following example, if the date and time that the call is made occurs within the dates and times administered in Holiday Table 1, the condition is met. Vector processing will branch to step 13, the call will receive announcement 7452 and then disconnect. If the date and time does not occur within the dates and times administered in Holiday Table 1, the condition fails and vector processing will advance the call to step 2.

```
1.   goto step 13 if holiday is in table 1
2.   goto step 12 if time-of-day is all 18:00 to all 06:59
3.   goto step 12 if time-of-day is fri 18:00 to sat 07:59
4.   goto step 12 if time-of-day is sat 12:00 to mon 06:59
5.   goto step 12 if time-of-day is sat 08:00 to sat 11:59
6.   queue-to skill 5 pri l
7.   wait-time 6 secs hearing ringback
8.   announcement 7449
9.   wait-time 30 secs hearing music
10.  announcement 7450
11.  goto step 8 if unconditionally
12.  disconnect after announcement 7448
13.  disconnect after announcement 7452
14.  busy
15.  stop
```

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

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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
```

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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.

- **Holiday Vectoring:** 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.)*

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- **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.)

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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 priority levels allow you to further define how calls are answered. 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.

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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.*

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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.*

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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.

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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.

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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

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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.*

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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.*

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The ACD Administration Log in CentreVu Supervisor can be used to monitor changes made to vectors or VDNs. The ACD Administration Log provides an audit trail of changes made by CMS User Login IDs. This information can help you determine when vectors and VDNs administration changes occurred and who initiated the changes.

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.*

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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

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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

To help you maximize productivity across a network of call centers, DEFINITY ECS gives you three ways to route calls between centers:

- **Interflow**–DEFINITY ECS gives you simple ways to unconditionally route—or interflow—calls from one switch to another. For information on interflowed calls, see the *DEFINITY ECS Guide to ACD Call Centers*.

- **Look–Ahead Interflow (LAI)**–LAI gives you more control over the interflow process. You can set conditions on a switch to specify when calls should be interflowed to other locations. You can also set conditions on a switch to specify when interflow attempts from other switches will be accepted and when they won't be.

- **Network Call Redirection (NCR)**–NCR offers a call transfer method between sites on a public network that creates a Virtual Private Network (VPN) and cuts public network costs. NCR is a DEFINITY ECS feature available with DEFINITY ECS R8.3 and newer releases.

  Call redirection using NCR is accomplished by using either the public network's Explicit Network Call Transfer (ENCT) or Network Call Deflection (NCD) options. For NCD, there are two operations that can be used for call redirection: "retain call until alerting/connect" or "clear call upon invocation." Options will be limited based on what the local PSTN service provider allows. For example, in the United States, only ENCT is allowed, whereas in

Western Europe, only the NCD "clear call upon invocation" option is available. Currently, the NCD "retain call until alerting/connect" option is not available.

The topics included in this section include information on:

- CentreVu Virtual Routing software features
- Enhanced Look-Ahead Interflow (ELAI)
- Best Service Routing (BSR)
- Network Call Redirection

The information provided on each of these features includes tips for planning and administering multi-site applications and 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.

CentreVu Virtual Routing software is 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 newer systems. NCR works with DEFINITY 8.3 and newer systems.

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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.

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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 the oldest call waiting will be answered by the first available resource, either locally or remotely.. ELAI is available in DEFINITY 6.3 releases and later.

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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

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ELAI is especially effective at load-balancing for locations with lower call volumes, small staffing or in environments with a large discrepancy in agent group sizes from site to site.

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.*

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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 (where the call is queued) outflow vector.

```
 1.    queue-to skill 401 pri m
 2.    goto step 4 if expected-wait for call < 9999
 3.    route-to number 40959 with cov y if unconditionally
 4.    wait-time 0 secs hearing ringback
 5.    announcement 63600
 6.    wait-time 30 secs hearing music
 7.    goto step 10 if interflow-qpos < 5
 8.    wait-time 60 secs hearing music
 9.    goto step 8 if interflow-qpos >= 5
10.    route-to number 40950 with cov n if interflow-qpos = 1
11.    wait-time 10 secs hearing music
12.    goto step 10 if unconditionally
```

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In this example, step 2 is checking the success of the queuing operation. If wait time is greater than 9999 seconds it recognized by the system as infinite EWT, meaning that skill 401 has no free queue slots or has no working agents, then the call is sent to VDN 40959, where the call is given an alternative treatment (queue to a different skill, disconnect after announcement, etc.). Step 4 is a precautionary step. This step is executed if EWT is not infinite. If announcement 63600 is unavailable (the announcement board is down), the caller will hear ringing instead of silence. Step 7 allows the call to enter the rapid (10 second wait between lookahead interflow attempts - steps 10-12) lookahead loop if the call has reached one of the top 4 positions in queue. When call waiting times are long, this approach reduces the number of executed vector steps dramatically. If the call does not reach the top 4 positions, it will stay in the slow (60 second wait between lookahead interflow attempts - step 8) loop. Analysis is required to set the values for the rapid loop and the accompanying slow loop. Available agents at the remote site may not receive any calls if the calls can be serviced in the slow loop, therefore adjustments must be made to the loop timing. Step 9 is checking to see if calls reach the top 4 positions after waiting 60 seconds. If the call does not reach the top 4 positions, it will loop to step 8. In step 10, the system will make a lookahead interflow attempt for the oldest call waiting in queue when the call reaches the top 4 positions.

➡ NOTE:

If you are using Network Call Redirection, step 10 on the outflow vector example above would be substituted for:

```
route-to number ~r15016781234 with cov n if interflow-qpos=1
```

For more information on Network Call Redirection, refer to the *DEFINITY Enterprise Communications Server Call Vectoring/Expert Agent Selection Guide* (585-230-521).

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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.   check skill 1st pri m if available-agents > 0
2.   busy
```

In this example, if the available agents in skill 1 are greater than 0, the receiving switch returns a call acceptance message to the sending switch, call control is passed to the receiving switch, and the call is connected to an agent in the receiving switch. All treatments for that call are discontinued in the sending switch. If an agent is not available, the call will advance to step 2, a busy signal is sent to the sending switch and the call is denied. The sending switch then drops the Look-Ahead Interflow attempt and continues vector processing at the next vector step.

$\Longrightarrow$ 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 on the following pages.

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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
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)

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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. All signaling is done in the background over the D channel. The caller in queue never hears the busy tone, etc.

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

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Table 5: Neutral Vector Commands — *Continued*

Command	Conditions
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)

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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 position of the queue when the conditional step is executed; and (3) if there is interflow failure or LAI rejection.

A queue position (**qpos**) number is assigned to a call when a call is processed by a vector step with a **queue-to** command. Subsequent calls entering the queue will be assigned incremental queue position numbers. Queue position numbers decline accordingly as calls are serviced.

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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 10 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 a feature that interacts
with the **interflow-qpos** condition to reduce unnecessary overflow and
eliminate phantom calls. When a call meets the criteria in a **route-to**
command that uses an **interflow-qpos** condition, the local EWT is checked
before the call is routed. If the call meets or is less than the EWT threshold
that has been set, the **route-to** vector step fails and the call will not be
overflowed. The call advances to the next vector step, while waiting to be
serviced locally.

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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 *Enter*.

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 Avaya 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.)

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Interflow-qpos and EWT interactions

The following tables provide a reference of how the **interflow-qpos** condition interacts with the local **EWT** feature.

Table 6: Interflow-qpos queries

If a query is made to the remote location and	**Then**
the call meets the **interflow-qpos** condition and is eligible for routing,	local EWT is checked before the call is routed.
the call does not meet the **interflow-qpos** condition and is eligible for routing,	1. The **route-to** vector step fails and the call is not overflowed. 2. The call advances to the next vector step and continues vector processing locally, until its queue position number meets the **interflow-qpos** condition.

Table 7: Checking local EWT

If the call being queried	**Then**
meets or is less than the local EWT threshold,	1. The route-to vector step fails and the call will not be overflowed 2. The call advances to the next vector step and continues vector processing, while waiting to be serviced locally.
exceeds the local EWT threshold,	the call is routed to the remote location.

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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.

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- 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.*

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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 *Enter*.

- 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 *Enter*.

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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 8: 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

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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.** By doing this, you expand the window of eligibility for interflow calls.

— 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.

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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.*

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How BSR works

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

- the EWT of the resource
- any user adjustments
- the availability of agents
- the selection strategy for the active VDN[1]

Call surplus situations

Every BSR application compares a set of predetermined resources (splits/skills) and selects the "best" resource to service the call. In a call surplus situation (no agents available), the best resource is the split/skill with the lowest Expected Wait Time (EWT). For purposes of calculating the best resource in a call surplus situation, BSR allows you to adjust the EWT figure for any split/skill. The actual EWT for calls in queue isn't changed, of course; only the figure used in the calculations performed by the BSR feature is changed. You don't have to enter adjustments, but the ability to adjust the EWT for splits/skills allows you to program preferences in vectors. Because of agent expertise, for example, or the availability or cost of tie trunks, you might prefer that some resources *not* service a call unless doing so significantly decreases the call's time in queue.

Effective with DEFINITY ECS Release 9, it is possible for you to make adjustments to agent availability using the *consider* step. See the Agent selection adjustments - Release 9 and newer section that follows for more information.

---

1. The BSR Available Agent Strategy that applies to a given call is the strategy assigned to the active VDN for that call, as determined by VDN override.

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Agent surplus situations

In an agent surplus situation (one or more agents available to take incoming calls), BSR will deliver a new call according to the BSR Available Agent Strategy specified on the VDN form. The "best" resource will be the split/skill that meets the criteria defined by the strategy you've chosen for that VDN. BSR can use any of the five strategies shown in the table below to select an agent when agents are available.

Table 9: BSR available agent strategies

If BSR Available Agent Strategy is set to…	The call will be delivered to…
1st-found	the first available agent. BSR will not consider any other resources as soon as it finds an available agent.
ucd-mia	the resource with an agent who has been idle the longest. BSR will compare all the splits/skills specified in the vector before delivering the call.
ead-mia	the resource with an agent with the highest skill level relevant to the call who has been idle the longest. BSR will compare all the splits/skills specified in the vector before delivering the call.
ucd-loa	the resource with an least-occupied agent. BSR will compare all the splits/skills specified in the vector before delivering the call.
ead-loa	the resource with an agent with the highest skill level relevant to the call who is the least occupied. BSR will compare all the splits/skills specified in the vector before delivering the call.

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For more information on LOA, see the *DEFINITY ECS Guide to ACD Call Centers* (555-233-503) or the *CentreVu Advocate User Guide* (585-215-953). LOA is available with the Release 9 (and newer) Call Center Elite package. Prior to DEFINITY ECS R9, LOA is available only with CentreVu Advocate.

When agents are available in one or more of the specified resources, BSR does not consider resources (local or remote) that return an EWT (call queue/call surplus situation) in selecting the best place to send the call.

NOTE:

The BSR Available Agent Strategy assigned to a VDN should match the agent selection method used in the splits/skills considered by a BSR application.

Agent selection adjustments - Release 9 and newer

With the DEFINITY ECS Release 9 and newer releases, an option has been provided to have the BSR adjust-by value apply in the agent surplus (agents available) situation. This adjustment provides the ability to use the *consider* step adjustment value to prioritize (handicap) agent resources when agents are available.

When the adjustment is used, the *consider* step uses the following syntax:

consider split/location adjust-by x

DEFINITY applies the agent adjustment in the same manner as the calls in queue/call surplus (lowest EWT) situation.

To select an adjustment, think in terms of reducing the importance of a resource/site and in relative percentage — the higher the adjustment, the less desirable it is to pick that agent/site. So, if $x = 30$, then the agent/site is 30% less desirable.

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The available agent adjustment applies to the UCD-MIA, UCD-LOA, EAD-MIA, and EAD-LOA call distribution methods. For the most idle agent distribution methods, the adjust-by lowers the idle time value returned by the agent/site. For the least occupied agent distribution methods, the adjust-by raises the returned occupancy level of the agent/site. In either case, with EAD, the MIA or LOA is used as a tie breaker if more than one site has an agent available with the same highest skill level.

The same adjust-by value in the *consider* step applies to both agent surplus and call surplus situations.

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Multi-site BSR can compare local splits/skills, remote splits/skills, or both, and route calls to the resource that provides the best service. In addition, multi-site BSR has special features that work to ensure efficient use of processor power and network resources in your BSR applications.

Throughout the rest of this chapter, the words "local," "origin," and "remote" are used to label different switches in multi-site applications. These words may seem to suggest that only one switch (the "local" or "origin" switch) in a network is receiving calls, polling other ("remote") switches, and interflow calls. While such a centralized system may sometimes be useful, in most networks with BSR every switch in the network will be interflow calls to other switches and receiving interflowed calls from other switches. For clarity in the following discussions, "local" or "origin" simply means a switch that is considering whether to interflow a call. "Remote" means any switch that may be polled by this first switch and thus might receive the interflowed call. More generally, these terms are relative to the BSR applications you design. In terms of a given application, the "local" or "origin" switch is the switch on which the Application Plan form for this application resides, and the "remote" switches are the switches identified at the locations listed on the form.

You can implement BSR at a single location just by using the new BSR commands in vectors. Using BSR across a network is more complex and requires additional administration.

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Since a series of *consider location* steps in a multi-site BSR vector will contact one or more remote locations, you need to define these locations, 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. The BSR application should support some larger application in your call center that handles calls of a particular type.

⇒ **NOTE:**
Any mixture of split/skill numbers, VDN numbers, and vector numbers can be used to support a single customer application or call type across a network. It is recommended that the BSR Application Plan number and the location numbers for a given application be the same on all switches for clarity and simplicity.

You also need to set up ISDN trunk groups, set the parameters for information forwarding (UUI Transport), and administer numbering plans and AAR/ARS tables.

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

Best Service Routing Application Plan form	■ define the group of remote sites that will be polled by a specific application ■ assign a unique name and number to each application ■ assign routing numbers for the status poll and interflow VDNs
Vector Directory Number form	■ link a VDN to a BSR application via its application number ■ link the VDN to a BSR vector ■ set the agent selection strategy that will be used for all calls to that VDN
Call Vector form	confirm that BSR is optioned and program the vector steps for BSR
ISDN Trunk forms	tell the DEFINITY ECS whether to forward user information via Shared UUI or QSIG MSI
List Best Service Routing Applications form	display a list of all the BSR applications by name and number
System Capacity	monitor the number of BSR application- location pairs assigned in your system

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Creating a BSR application

Multi-site BSR starts with the active VDN for a call, as determined by VDN override. If you want any specific VDN/vector pair to interflow calls via multi-site BSR, you create a specific *application* for it. A multi-site application must contain the following elements:

Table 10: The necessary elements of multi-site BSR applications

A BSR application consists of…	Which serves this purpose…
the Primary VDN	The Primary VDN is the active VDN for a call at the origin switch, as defined by VDN override. Therefore, the Primary VDN in a BSR application need not be the VDN that originally received the incoming call. The primary VDN links its assigned vector to a BSR application plan and sets the BSR Available Agent Strategy.
the Primary vector that handles the incoming call on the origin switch	The Primary vector contacts the specified remote switches, collects information, compares the information, and delivers or queues the call to the resource that is likely to provide the best service.

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Table 10: The necessary elements of multi-site BSR applications — *Continued*

A BSR application consists of…	Which serves this purpose…
an application plan	The application plan identifies the remote switches you may compare and specifies the information that will be used to contact each switch and to route calls to it.
two VDN/vector pairs on each remote switch	**Status poll VDN/vector** The status poll vector 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 has to have a dedicated status poll VDN/vector.
	Interflow VDN/vector When a given remote switch is the best available, the origin switch interflows the call to this VDN/vector on the remote switch. Each remote switch in a given application has to have a dedicated interflow VDN/ vector. The steps in this vector deliver or queue the call, as appropriate, to the best resource found by the status poll vector.

To create a multi-site BSR application, you start by creating an application plan on the origin switch.

$\Longrightarrow$ NOTE:

Remember that the terms "local," "origin," and "remote" are relative terms. In most networks using multi-site BSR, every switch may interflow calls to other switches and receive interflowed calls from other switches. Therefore, every switch in the network may have all the elements described above. For clarity in the following discussions, "local" or "origin" simply means a switch that is considering or might consider whether to interflow a call. "Remote" means any switch that is polled or might be polled by this first switch.

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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.

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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.

   a. Create interflow VDNs on each of the switches in the application.

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Defining 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 displays, with the number you typed in the command appearing in the Number field.

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```
   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
    ___    _____    _____        _____   _____
    ___    _____    _____        _____   _____
    ___    _____    _____        _____   _____
    ___    _____    _____        _____   _____
    ___    _____    _____        _____   _____
    ___    _____    _____        _____   _____
    ___    _____    _____        _____   _____
    ___    _____    _____        _____   _____
    ___    _____    _____        _____   _____
    ___    _____    _____        _____   _____
    ___    _____    _____        _____   _____
```

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.

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Table 11: 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.

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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.

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Entering an agent selection strategy

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

If you enter…	**The application will select the resource with…**
1st-found	the lowest Expected Wait Time. If the application finds an available agent before it has compared all the locations in the plan, the application will route the call to that agent without contacting any other locations.
ucd-mia	the agent who has been idle the longest. The application will compare all the locations in the plan.
ead-mia	the agent with the highest skill level (lowest number) who has been idle the longest
ucd-loa	the least-occupied agent
ead-loa	the agent with the highest skill level (lowest number) who is the least occupied

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.

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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.

```
add vdn 6015                                             Page   1 of   2
                         VECTOR DIRECTORY NUMBER

                          Extension: 6015
                               Name: All-in-One Software Company
                      Vector Number: 15

                  Allow VDN Override? y
                                COR: 23
                                 TN: 1
                           Measured: internal
       Acceptable Service Level (sec): 30
               Service Objective (sec): 20
       VDN of Origin Annc. Extension: ____
                          1st Skill: __
                          2nd Skill: __
                          3rd Skill: █
                  Return Destination: ____
              VDN Timed ACW Interval: ___
                    BSR Application: 1
        BSR Available Agent Strategy: EAD-MIA

               Observe on Agent Answer? n
```

6. Press *Enter* to save your changes.

7. Repeat steps 9 through 18 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.

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Table 12: Multi-Site BSR Vector Commands

Commands and command elements		Use this…
Commands	*consider split/skill*	to obtain the Expected Wait Time or agent data needed to identify the best local resource. One *consider* step must be written for each split/skill you want to check.[a]
	consider location	to obtain the Expected Wait Time or agent data needed to identify the best resource at a remote switch. One *consider* step must be written for each location you want to check. Routing information is obtained from the BSR Application plan for the active VDN.
	reply-best	to return data to another switch in response to a status poll
	queue-to	with the *best* keyword to queue calls to the best resource identified by the consider sequence.
	check	with the *best* keyword to queue calls to the best resource identified by the consider sequence if the resource meets certain conditions.

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Table 12: Multi-Site BSR Vector Commands — *Continued*

Key word	*best*	in *queue-to, check,* and *goto* commands that refer to the resource identified as best by a series of consider steps
Conditional	*wait-improved*	to prevent calls from being queued to an additional split/skill—local or remote—when the reduction in Expected Wait Time isn't enough to be useful. "Wait improved" means that a call's EWT must be improved by a specific amount (a figure you specify in seconds) over its current EWT or DEFINITY ECS won't queue it to the additional split/skill.
User adjustment	*adjust-by*	to control long-distance costs and limit trunk usage, reflecting factors such as availability of the trunks or agent expertise at remote locations. When a vector polls a local or remote resource, you can make the selection of that site less desirable. The higher the setting, the less chance that resource will be selected over another with a lower setting. With EWT returned, the setting increases the returned expected wait time for comparison with other returned EWTs. Optionally, the adjust-by setting applies in the available agent case. If you are using the UCD-MIA or EAD-LOA available agent strategy, the setting increases the returned agent idle time. If you are using the UCD-LOA or EAD-LOA available agent strategy, the setting decreases the returned agent occupancy.

---

a.   Since the *consider* command is designed to compare two or more resources, *consider* commands are typically written in sequences of two or more with the sequence terminating in a *queue-to best* step. This set of *consider* commands and a *queue-to best* step is called a consider series.

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Sample vectors

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

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.*

⇒ NOTE:
This example assumes knowledge of multi-site BSR applications.

The Catalog company has three call centers, two in the United States and one in France. BSR was implemented across the sites when the DEFINITY ECS R6.3 was installed. The Catalog company uses the UCD-MIA call distribution method at each site and uses the UCD-MIA available agent strategy for the VDN that is active for the call. The Catalog company will use the *adjust-by* option in the *consider* vector step to select the best agent at any site to receive a call.

Prior to DEFINITY ECS R9, the Catalog company was only able to use the *adjust-by* option to select the queue for delivery based on expected wait time (EWT). With the DEFINITY ECS R9, the Catalog company will use the *adjust-by* to consider delivery of calls based on adjusted idle times for the agents. This will make it so that a remote site is not selected when there is a small difference in agent idle time.

To activate the BSR Available Agent Adjustment option, the Catalog company DEFINITY Administrator sets the "BSR Available Agent Adjustments" field on the Feature-Related System Parameters form to **y**.

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To use the option, the DEFINITY Administrator changes the *adjust-by* value in the *consider* vector steps to include the percentage adjustment that is appropriate for each call center, which has been defined as 0 for the first call center, 20% for the second call center, and 20% for the third call center. If there is an agent surplus at two or more of the call centers, then the adjustment will apply. The adjustment makes sites more or less desirable, based on decreasing the idle time of available agents by the percentage assigned for the site.

NOTE:
If the actual agent idle time is 100 or more seconds, then the idle time is decreased by the assigned percentage. If the actual agent idle time is less than 100 seconds, then the idle time is decreased by the adjustment in seconds.

The following table outlines how the above adjustment can affect the idle times for each site.

Table 13: Idle time adjustment using *adjust-by*

	Agent idle time	Adjust by xx%	Calculation	Adjusted idle time
incoming split 1 at Site 1	40	0[a]	0	40
Site 2	50	20	50 - 20 secs	30
Site 3	100	20	100 - 20 secs (20% of 100)	80

a. Since the *adjust-by* value in this *consider* step is set to zero, no adjustment is made.

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Primary Vector

An incoming call arrives at Site 1 and is processed by the primary vector. This vector begins the BSR process by considering the specified resources. The primary vector for incoming call processing at Site 1 looks like this:

```
1.    wait time 0 secs hearing ringback
2.    consider split 1 pri m    adjust-by 0
3.    consider location 2       adjust-by 20
4.    consider location 3       adjust-by 20
5.    queue-to-best
```

In this example, the *consider* commands in steps 2, 3, and 4 collect information to compare local split 1 with Site 2 and Site 3. In each case, an available agent is found and an agent idle time returned. The *adjust-by* in steps 3 and 4 adjusts the value of the agent idle time as shown in Table 13. Step 5 queues the call to the best location found.

Status poll vector

To collect information from the remote switch, the command *consider location 2 adjust-by 20* in the primary vector places an ISDN call—a *status poll*—to the status poll vector on the switch at Site 2. The status poll vector at Site 2 looks like this:

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

The status poll only obtains information and returns it to the origin switch; the call is not connected to the status poll VDN.

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This vector compares splits 2 and 11, identifies the better of the two, and sends this information back to switch 1 with the *reply-best* command. Notice that the *adjust-by* command could be used on the remote switch to adjust the EWT or agent idle time that is returned by either of the splits. When adjustments are applied at both the origin and remote switches, the two adjustments are added at the origin switch.

The *consider* command is ISDN-neutral and does not return answer supervision. The status poll call is dropped when the *reply-best* step executes, but the ISDN DISCONNect message returned to switch 1 contains the information from the best split considered at location 2. Once the remote switch has returned the necessary information, the *consider* series in the primary vector on switch 1 can continue at the next vector step.

Interflow Vector

Using Table 13 for the idle time at each site, Site 2 is the best site based on the adjusted agent idle time. The *queue-to best* command in the primary vector interflows the call to the *interflow vector* at Site 2. The interflow vector looks like this:

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

The interflow vector reconsiders the status of both splits to get the most current information and queues or delivers the call to the best split. Notice that the *consider* sequences in the interflow vector and the status poll vector are identical aside from their last step.

When the call is interflowed, it is removed from any queues at the origin switch and any audible feedback at the origin switch is terminated.

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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.

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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.

$\Longrightarrow$ 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.

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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 in status poll vectors are applied to a single split or skill, not to an entire location.

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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 *Enter*.

■ 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 *Enter*.

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.

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Interpreting performance

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

Table 14: 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 Avaya DEFINITY network.

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

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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 Avaya's Call Center Professional Services.

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What is Network Call Redirection?

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What is Network Call Redirection?

Call centers are looking for many ways to reduce costs. One of these ways is to employ Virtual Private Networks (VPNs) to eliminate as much private network cost as possible. These cost reductions are particularly valuable in enterprises or multi-site call-center environments and especially to Enterprise call centers where network costs are typically high. Network Call Redirection (NCR) offers an optional call redirection method between sites on a public network or a Virtual Private Network and to reduce trunking costs.

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How NCR works

Call redirection using NCR is accomplished by using either the public network's NCD or NCT options. NCD "clear call upon invocation" is only offered outside of the United States. In the United States, only NCT is offered. In the future, the NCD "retain call until alerting/connect" option may be provided by public networks outside of the United States, but it is not currently available. NCR supports Information Forwarding via UUI transport to the redirected-to location.

Network Call Transfer

NCT occurs after the incoming call is initially answered. With NCT, the DEFINITY is required to set up the second leg of the call and then wait for the second site to acknowledge before requesting the PSTN to transfer the first leg of the call to the second leg, and before the PSTN drops the trunks to the DEFINITY. The benefit is that the DEFINITY retains control over the call and can redirect the call using the trunk-to-trunk method should the NCT invocation fail.

After the second leg of the call is initiated and acknowledged by the public switch, the public network joins the original ISDN caller to the redirected-to endpoint and then drops both the original ISDN call and the second leg of the call at the redirecting DEFINITY ECS.

Network Call Deflection

NCD occurs before the incoming call is initially answered. With NCD, the public network sets up the second leg of the call to the redirected-to location when the DEFINITY deflects the call. There are two PSTN options for NCD, per the ETSI standards: "retain call until alerting/connect" and "clear call upon invocation." This is commonly referred to as a partial call reroute.

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With the "clear call on invocation," which is the only NCD operation currently available, the DEFINITY loses control of the call once the call has been transferred to the public network for redirection. The DEFINITY does not retain control of the call until it has been acknowledged by the network, so there is no alternative transfer possible if the public switch cannot transfer the call to the second location.

The "retain call until alerting/connect" option is not widely available (no known PTSN offers it at this time). With this option, the PSTN sets up the second leg of the call and waits until an alerting message is received before the first leg of the call is dropped. In this case, if the second leg of the call fails, then the DEFINITY can redirect the call through another method (such as trunk-to-trunk connection) and not lose the call.

$\Longrightarrow$ **NOTE:**

There may be limits placed on the number of times a call may be redirected over the public network. These limits are imposed by the public network service provider. For example, in the United States, MCI currently allows only one redirection per call. In the United Kingdom, there is a limit of 20 call deflections per call. In addition, there may be additional charges associated with redirected calls.

Additionally, some public network service providers do not support forwarding of User-to-User Information (UUI), including ASAI User data, collected digits, VDN name, the VDN in-time (as reflected by the NETINTIME database items), and the UCID. This means that Information Forwarding will be lost and the second leg of the redirected call will look like an entirely new call to the redirected-to DEFINITY at the second location. One of the data items lost is the VDN name, which is rerouted to the originally called service (DNIS) information. The indication that the call has been forwarded can be achieved by using dedicated VDNs for call forwarding, but it does reduce the benefits of Information Forwarding inherent with NCR. Also, this option limits CTI applications as there is no ASAI information or UCID forwarded.

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➡ **NOTE:**
At this time, no PSTNs are offering the Network Call Deflection "retain call until alerting/connect" operation. Therefore, only the Network Call Deflection "clear call upon invocation" offer is available from PSTNs. Both methods are described in this document. It is advised that you negotiate with your PSTN as the NCR feature will work on either platform. NCR is limited by which PSTN platform is available to you.

Implementing and Administering NCR

The NCR feature uses either the Network Call Transfer (NCT) or Network Call Deflection (NCD) operations provided by the PSTN to redirect an incoming ISDN call from a DEFINITY Enterprise Communications System (ECS) to another PSTN endpoint. In the call center environment, NCR is intended for multi-site configurations where ISDN calls are interflowed between DEFINITY ECSs over the PSTN by the Best Service Routing (BSR) feature's queue-to-best vector step, which provides the best approach for balancing loads across a multi-site environment and is more cost effective and accurate than pre-delivery routers.

The NCR feature can also be used to redirect an incoming ISDN call by either of the following methods:

- as a substitute for the interflow over trunk-to-trunk tandem connections or other non-attendant call vectoring applications using the ~r route-to-number vector step

- attendant call vectoring, by using the ~r route-to-number vector step

- ASAI Third-Party Merge/Call Transfer Operation (Network Call Transfer only)

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- station transfer by DCP set Transfer button/hangup or analog station switch hook flash transfer by hangup

- station transfer by DCP set Conference button, in which the conferencing (middle) party connects the two calls and then hangs up

The NCR feature is designed to optimize the rerouting of ISDN calls over the public network since no DEFINITY ECS trunks are retained at the redirecting DEFINITY after the call is rerouted.

Additionally, NCR may be activated and tracked with ASAI/CTI. The ASAI event reporting capabilities allow tracking of the NCR-redirected calls by their Universal Call ID or ASAI User-to-User Information.

Platform

Network Call Redirection is an optional DEFINITY ECS feature available with Release 8.3 and newer switches. Full administration support of the feature is provided with the DEFINITY ECS R8.3 and newer releases SAT. In addition, route-to-number support for ~r vector administration is available with CentreVu CMS R3V9 and CentreVu Visual Vectors Version 9.0. Existing R3V6 or later CMS and Visual Vectors administration support for BSR will support NCR. NCR is not supported on Category B switches - DEFINITY BCS and GuestWorks.

NCR may only be invoked for incoming ISDN trunk calls where the associated trunk group has been enabled by the public network service provider to use Network Call Transfer or Network Call Deflection features.

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NCR uses the DEFINITY Best Service Routing feature's `queue-to-best` vector step.

⟹ **NOTE:**

Network Call Transfer (NCT) currently works with only the MCI WorldCom DMS-250 network switches. NCT is not currently offered on MCI DEX600 switches.

Until NCR has been tested on specific PSTNs, performance is not guaranteed. To verify operability, contact your CRM Regional Offer Manager.

NCR activation by BSR vector call processing

Network Call Redirection of ISDN calls is attempted if the following vector administration has occurred within Best Service Routing. Network Call Redirection on the Customer Options form must have been set to Y for this installation to be able to administer NCR:

1. An incoming ISDN call has entered DEFINITY vector processing.

2. The call may or may not encounter a vector step, such as an announcement, that causes an "answer" ISDN message (the ISDN CONNect message) to be returned to the trunk associated with the call.

3. The call has encountered one or more `consider location` BSR vector steps that returned valid data (such as Expected Wait Time) and then executed a `queue-to-best` BSR vector step.

4. DEFINITY BSR call processing has determined that the call should be interflowed to one of the remote BSR locations previously considered as the best location.

5. The interflow VDN number in the BSR Application Table associated with the best location has been administered with the `Net Redir?` field set to `Y`.

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6. The administered interflow number is the public network phone number (without trunk/ARS/AAR access codes) that reaches the remote call center site. The long-distance access (dial "1" in the United States) may also be required depending on the PSTN requirements for the trunk group. This number is used differently during the invoke process depending on which redirection service is available from the public network service provider.

7. With call vectoring activation of NCR, either NCT or NCD will be initiated based on which type of redirection is administered to the trunk group for the incoming call. In either case, a FACility message is sent to the public network over the D-channel associated with the incoming trunk to invoke redirection of the call.

A successful NCR completion (when the PSTN indicates a successful NCT invoke) terminates vector call processing while the original call is connected through the interflowed to call center site by the public network. CMS tracks this as a successful network call redirection for the call.

An unsuccessful NCR attempt (NCD invoke failure or NCT secondary call failure) results in vector processing going to the next step in the vector following the `queue-to-best` vector step. NCT invocation failure after the second call is established results in the DEFINITY reverting to the trunk-to-trunk call connection.

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Network Call Transfer

The following steps are used when the ~r route-to-number vector
step is used for Network Call Redirection:

1. The call arrives at the first location.

2. The call is processed by a vector that has a ~r in the leftmost two
   character positions in the number field or the Network Redir?
   field on **BSR Application Table** form is set to Y for the location
   specified in the consider step for the active VDN application.

3. The DEFINITY sends the call to the public network.

4. The public network switch sets up the second leg of the call and
   passes the codeset 0 UUI information in the SETUP message if this
   is supported.

5. The DEFINITY "tells" the public switch to transfer the call over the
   public network.

   For incoming 800 number calls from MCI WorldCom DMS-250
   network switches, the vector reached by the second leg call placed
   by DEFINITY must immediately be answered (and send an ISDN
   CONNect message). This can be accomplished via a "wait 0 secs
   hearing music" or an "announcement" step as the first step in the
   interflow receiving vector.

6. The public network merges the second leg of the call to the second
   site and drops the DEFINITY. With NCT, at this point, if the second
   call fails, the DEFINITY can pick up the call again and attempt
   trunk-to-trunk transfer.

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NCR activation using DEFINITY ECS Call Vectoring

If NCR is activated using either the route-to-number or queue-to-best vector steps, either the NCT or the NCD options may be used to redirect an incoming call while the call is still being processed by the DEFINITY ECS vector.

The NCR feature is activated by DEFINITY call vectoring if:

- The Best Service Routing feature selection of a "best location" has been administered with the Net Redir? option set to Y on the BSR Application Table form (with both BSR and LAI active), followed by the execution of the queue-to-best vector step.

- The route-to-number vector step is administered with a ~r as the first two characters in the number field (with or without the LAI option set to "Y" or with Attendant Call Vectoring active — the administration for ~r in route-to-number vector steps will be supported by R3V9 CMS and Version 9 Visual Vectors).

⇒ NOTE:
Until R3V9 CMS is available, the ~r in the route-to-number vector steps must be administered directly on DEFINITY, and these vectors cannot be accessed by CMS or Visual Vectors. BSR vectors can be administered on R3V6 or later CMS.

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NCT

If the NCT feature is enabled for the trunk over which an incoming call is routed to the DEFINITY, then NCR redirection will be attempted only if a ISDN CONNect message (answer supervision) has been sent to the public network for the original call. Any vector step of this type, such as wait hearing music or collect *x* digits (refer to the list below) will send the ISDN CONNect message to the public network and NCR will be attempted with either the `route-to-number` or `queue-to-best` vector steps. If none of the vector steps listed below for NCD have been executed, then the DEFINITY will automatically send a ISDN CONNect message to the public network before call transfer is requested from the PSTN. This will start PSTN charging for the call, which is done after the second leg call is established.

If NCT is used, a second call is set up by the redirecting DEFINITY to redirect the call using the public network. This second leg call must be immediately answered (ISDN CONNect message) by the far end when the incoming call is an 800 number with MCI WorldCom DMS-250 network switches.

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NCT call success

With NCT, a call transfer is considered to be successful if:

- The public network responds to the FACility message that requested the NCT operation with a FACility message to the requesting DEFINITY indicating "PSTN request is valid." The requesting DEFINITY should then receive a DISConnect message for both the first and second leg of the call after the original call and the second leg are joined by the PSTN. The call is not successful to the DEFINITY until both DISConnect messages are received.

- If the public network responds with a "PSTN failure" FACility message to the requesting DEFINITY, which will result in a trunk-to-trunk connection between the first leg of the call and the second leg of the call. DEFINITY vector call processing considers this to be successful for the NCR attempt because the original call was not lost; however, a vector event will be generated indicating that the NCT public network operation failed, and this call will not be indicated as "deflected" in CMS.

NCD

NCD may only be activated if a CONNect ISDN message has not been sent to the public network for the call; this is call answer supervision. In that case, the following vector steps should not be used by a vector in prior steps if the NCD feature is going to be used for NCR:

- wait hearing music
- collect *x* digits
- announcement
- converse-on split

If NCD is used, the DEFINITY does not set up a second call to redirect the call on the public network, and only the incoming ISDN D-channel is used by the public network to redirect the call. The second call is actually set up by the public network.

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NCD call success

With NCD, an NCR attempt is considered successful (depending on the PSTN network option) if:

- The public network has validated the NCR request and returned a `call reroute return result` in a DISConnect message to the requesting DEFINITY for the first leg of the call if the NCD "clear call on invocation" public network service has been subscribed to for the incoming ISDN call's trunk group. This indicates invoke success.

- The public network has sent a `call reroute return result` indication in a FACility message, followed some time later by a DISConnect message (for the first leg of the call) to the requesting DEFINITY if the NCD "retain call until alerting/connect" operation has been subscribed to for the incoming ISDN call's trunk group. The DISConnect is sent after the PSTN has successfully set up the second leg of the call; that is, the public network has received an ALERTing or CONNect ISDN message from the redirected-to public network endpoint. This indicates successful call deflection. This currently is not available from PSTNs.

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Sample NCR vectors

This example shows the primary, status poll, and interflow vectors that redirect calls on the public network using the NCR feature.

NOTE:

This example assumes knowledge of multi-site BSR applications. For more detailed information on BSR and NCR, see the *DEFINITY ECS Call Vectoring/Expert Agent Selection Guide.*

The e-Commerce company has three call centers. BSR was implemented across the sites when the DEFINITY ECS R6.3 was installed and NCR was implemented with the DEFINITY ECS R8.1.

The e-Commerce company is always looking for ways to reduce costs. To help do this, the company has implemented Network Call Redirection (NCR) to redirect calls on the public network and reduce the trunking costs between the three DEFINITY switches.

The e-Commerce company receives calls from the MCI public network and the trunks used to deliver calls from MCI have been assigned Network Call Transfer (NCT) capabilities. NCT occurs after the incoming call is initially answered. With NCT, the DEFINITY ECS is required to set up the second leg of the call and then wait for the second site to acknowledge before requesting the public network to transfer the first leg of the call to the second leg, and before the public network drops the trunks to the DEFINITY ECS. The benefit is that the DEFINITY ECS retains control over the call and can redirect the call using the trunk-to-trunk method should the NCT invocation fail.

After the second leg of the call is initiated and acknowledged by the public switch, the public network joins the original ISDN caller to the redirected-to endpoint and then drops both the original ISDN call and the second leg of the call at the redirecting DEFINITY ECS.

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To activate the NCR feature for each site, the DEFINITY Administrator ensures that the Net Redir? field on the BSR Application Table form is set to **y** for the location entry.

The e-Commerce company has set up IP trunking to emulate ISDN PRI and will use this capability to poll remote sites for possible NCR. For information on setting up IP trunking to emulate ISDN PRI, see the *DEFINITY ECS Administration for Network Connectivity* (555-233-504).

The following sections give examples of how the vectors must be set up at each site to use the public network via NCR (as opposed to IP trunking) to route a call from one site to another.

Primary Vector

A call arrives at eCommerce Site 1 and is processed by the primary vector. This vector begins the BSR process by considering the specified resources. The primary vector for incoming call processing at eCommerce Site 1 looks like this:

```
1.    wait time 0 secs hearing ringback
2.    consider split 1 pri m    adjust-by 0
3.    consider location 2       adjust-by 30
4.    consider location 3       adjust by 10
5.    queue-to-best
```

Screen 1.   Primary vector

For this example, we will assume that Site 2 (location 2) returned the lowest EWT, so the call will be routed to that site.

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Status poll vector

To collect information from the remote switch, the command *consider location 2 adjust-by 30* in the primary vector places a *status poll* using IP trunking to the *status poll vector* on the switch at Site 2. The status poll vector on the remote switch might look like this:

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

Screen 2.   Status poll vector

The status poll only obtains information and returns it to the origin switch; the call is not connected to the status poll VDN. Once the remote switch has returned the necessary information, the *consider* series in the primary vector at Site 1 can continue at the next vector step.

Interflow Vector

Once the DEFINITY ECS has selected the site to which the call should be routed (Site 2), the call is sent to the public network. The public network switch then sets up the second leg of the call and passes the codeset 0 UUI information in the SETUP message if this is supported. Next, the DEFINITY ECS tells the public switch to transfer the call over the public network. The DEFINITY ECS knows to do this because Net Redir for Site 1, Site 2, and Site 3 was set to y on the BSR Application Form.

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For incoming 800 number calls from MCI WorldCom DMS-250 network switches, the vector reached by the second leg call placed by the DEFINITY ECS must immediately be answered (and send an ISDN CONNect message). This can be accomplished with a *wait 0 secs hearing music* or an *announcement* step as the first step in the receiving interflow vector. The interflow vector at eCommerce Site 2 looks like this:

```
1.   announcement   83345
2.   consider split 2     pri m     adjust-by 0
3.   consider split 11    pri m     adjust-by 0
4.   queue-to best
```

Screen 3.   BSR example of interflow vector on remote switch

The public network then merges the second leg of the call to the second site and drops the trunk to the DEFINITY ECS.

NCR and Information Forwarding

The Information Forwarding feature is supported with NCR when the PSTN supports Type 1 MA-UUO transport in conjunction with the network redirection feature.

With NCD, Information Forwarding information is forwarded in the ISDN FAC message to the PSTN.

With NCT, Information Forwarding information is forwarded in the ISDN SETUP message for the second leg call.

With either NCD or NCT, the PSTN facility must support MA-UUO (the N-Quest Type 1 service available with MCI WorldCom DMS-250 network switches).

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If NCR vector activation fails, use the display events command on the DEFINITY system to check for the events related to NCR. See the troubleshooting chapter for details on vector events. The vector events for NCR are event number 310 through 325. Take the suggested course of action based on the vector event(s) displayed using this command.

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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*.

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What is CentreVu Advocate?

CentreVu Advocate provides predictive and adaptive methods for call centers that address three fundamental questions in terms of how the most expensive resource of the center, its agents, are used each time a call is handled.

What should this agent do next?

Advocate answers the question "what should this agent do next?" each time an agent becomes available and calls are waiting in queue. The term "should" is used deliberately because it implies a consideration of trade-offs in the decision. With Advocate, the answer to this question does not come from executing a set of preprogrammed directives such as "take the highest priority, oldest waiting call." Such a fixed plan does not consider consequences. Advocate, on the other hand, understands the consequences of the decisions it makes and the business objectives for each type of call.

Which agent should take this call?

Advocate answers the question "which agent should take this call?" when a call arrives and there are available agents waiting for calls. Advocate can make this decision so that workloads are distributed fairly across the agents, to eliminate "hot seats." Advocate can also promote fairer opportunities for compensation by delivering a certain predetermined mix of calls to agents.

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Does the center need to adjust its operations to bring performance back to the desired level?

Advocate continuously evaluates the call center's performance to determine "what does the center need to adjust to bring performance back to the desired level?" Advocate responds, down to the levels of an individual caller, when it detects that agent resources should be used differently to prevent a caller's wait times from being too high or to accomplish service level goals more consistently.

Advocate methods versus traditional methods

It's important to note that a center using Advocate generally discards many traditional call center practices. For instance, queue priorities are discarded in favor of the more adaptive service objectives. The simple time-in-queue measurement is discarded in favor of the more consequential view of wait time, known as Predicted Wait Time. Multi-queuing, overflowing, and manual movement of agents and calls are replaced with the use of reserve agents when the need is detected.

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

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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 and each of the queues they support in order to determine which skill to serve. These methods are administered as *call handling preferences* on the Agent LoginID form and they include Greatest Need, Skill Level, and Percent Allocation. Each of these methods is described in this section. Once call selection determines which skill will be served, the call at the head of that queue is delivered to the agent.

Advocate call selection methods take into account more than just traditional issues such as wait time and queue priority. They include:

- Eventual caller wait time
- Your service goals
- Using each agent for maximum benefit

How calls are selected for an agent

When calls are in queue and an agent becomes available, the DEFINITY ECS quickly reviews the following types of information to determine which skill to select for the agent. When the skill is selected, the call from the head of the queue is delivered to the agent.

- What call selection method is administered?
- Is Service Objective activated for call selection?
- What are the eligible agent's skill levels or reserve levels?
- Are any of the skills in an overload threshold state? If so, which threshold is exceeded, Level 1 or Level 2?
- Is Current Wait Time or Predicted Wait Time selected as the call selection measurement?

■ What is the administered queue priority for the calls in queue?

■ Is Call Selection Override activated?

Information about each of these elements is included later in this chapter.

Call selection measurements

When administering call selection methods for agents, you must choose from one of two call selection measurements for wait time. This decision is made at the system level, which means this choice applies across all of your skills.

■ 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 or time in queue.

■ Predicted Wait Time (PWT) is a call selection measurement that calculates how long a call will wait in total if the currently available agent does not take the call. This method is recommended because it results in fewer calls with exceedingly long wait times and it can optimize critical agent resources.

Predicted Wait Time example

In a call center, a call may be queued for a specialized skill for which a small number of agents is staffed. Although this call may have only been waiting in queue for 10 seconds, it is estimated that the call will wait an additional 40 seconds because of the small number of agents who are assigned to the skill. Another call is queued for a general skill that is staffed by many agents. This call has been waiting for 20 seconds, but it is estimated that it will wait in queue for an agent for only 5 more seconds. The agent who becomes available is eligible to serve both the specialized and the general skill. Advocate selects the call for the specialized skill first, because its overall predicted wait time is 50 seconds (40 + 10 seconds). The other call

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continues to wait in queue because its total PWT is only 25 seconds (20 + 5 seconds).

Call handling preferences

Three call handling preferences (call selection methods) 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 using the Agent LoginID form. 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 a call selection method that 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 highest relative to the administered service objective.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 a 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 CWT or greatest PWT or greatest ratio of CWT/SO or PWT/SO. 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.

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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, and assigning two or more skills at each level where possible.

Percent Allocation

Percent Allocation allows you to assign a percentage of an agent's time to each of her assigned skills, to total 100% of her 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 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. Or, if you have an agent who is most proficient at sales, you might allocate 75% of his time to the sales skill and 25% to the service skill.

The Percent Allocation call selection method is intended to be used only with the Percent Allocation Distribution (PAD) agent selection method, which was introduced with Release 9. Using both helps you to control agents' time in skills under both agent surplus and call surplus conditions. For best results, if you administer Percent Allocation for an agent, you should administer PAD as the hunt group method for all of that agent's skills. Conversely, if you administer PAD for a skill, you should administer Percent Allocation as the call handling preference for all agents serving that skill.

Service Objective

Service objectives 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 more aggressive 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

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premier customer skill and 45 seconds for a regular customer skill. This
ensures that premier calls receive a higher level of service. When Service
Objective is administered on the Hunt Group form and selected for usage on
the Agent LoginID form, the DEFINITY Enterprise Communications Server
(ECS) selects calls for agents according to the ratio of Predicted Wait Time
(PWT) or Current Wait Time (CWT) to the administered service objective
for the skill. The ratio used is either Current Wait Time/Service Objective
(CWT/SO) or Predicted Wait Time/Service Objective (PWT/SO).

You can also use Service Objective to create the same level of service for all
skills if you 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 the service objective for
the skills involved.

$\Longrightarrow$ **NOTE:**
Service Objective cannot be used with Percent Allocation.

Call Selection Override

What is Call Selection Override?

Call Selection Override is an option within Service Level Supervisor that
alters how calls are selected when overload thresholds are exceeded for one
or more of an agent's skills. Calls are selected from skills that are over
threshold to the exclusion of calls from skills that are under threshold when
the skill in overload has Call Selection Override activated. This feature,
when activated, is helpful for call centers that have one or more skills that
are critical in nature, for example, those involving emergency-related calls.

Call Selection Override is activated (set to **y**) at the system level and must
also be administered individually for each skill for which you want to use
the feature.

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NOTE:

The Call Selection Override being activated effects all agents - those that hold the skill as standard and those that hold the skill as reserve.

How does Call Selection Override work?

When an agent becomes available, if one of his skills is in overload and Call Selection Override is activated for that skill, the skill that is in overload will be served next. In other words, normal call selection for the agent is overridden. If two or more of the agent's skills, both with call selection override activated, are in overload when the agent becomes available the call is selected according to the ratio of PWT or CWT and the threshold for the skill.

Call Selection Override is most effective for skills that represent emergency situations. In these cases it is appropriate that all other types of calls be essentially ignored if the emergency related skill is in overload. Outside of this type of scenario, Call Selection Override is usually not activated.

When Call Selection Override is off, the following conditions apply.

If the Call Handling Preference is:	Then the DEFINITY will serve:
Greatest Need	the reserve skill in overload if the reserve skill has the greatest need among all the available agent's skills that have calls queued.
Skill Level	the reserve skill in overload if no standard skill calls are waiting for the available agent.

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Call Selection Override example

The table below shows that calls are waiting in three of an agent's assigned skills. The agents call handling preference is skill level. All calls have been queued at the same priority. With Call Selection Override turned on for each skill, which call does he receive?

Skill	Skill level	Predicted Wait Time	Overload Condition
A	1	5 seconds	normal
B	1	10 seconds	normal
C	2	40 seconds	overload 1

The agent receives the call from skill C because skill C is in an over-threshold state and Call Selection Override selects calls from over-threshold skills first. If Call Selection Override is not turned on, the agent receives the call from skill B, for which he has the highest assigned skill level and which has the longest predicted wait time.

NOTE:
If Percent Allocation is used, the only way a call is selected based on the threshold is if Call Selection Override is on. If Call Selection Override is off, the threshold is ignored.

Dynamic Queue Position

A new feature called Dynamic Queue Position gives you the ability to queue calls from multiple Vector Directory Numbers (VDNs) to a single skill, while maintaining different service objectives for those VDNs. Newly arriving calls are inserted in queue based on a comparison of ratios of estimated times in queue for new calls and for calls already in queue and the administered service objectives for the originating VDNs.

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How does Dynamic Queue Position work?

The following figure shows how different service objectives can be used for various VDNs and queued to a single skill, which simplifies staffing and forecasting.

Dynamic Queue Position

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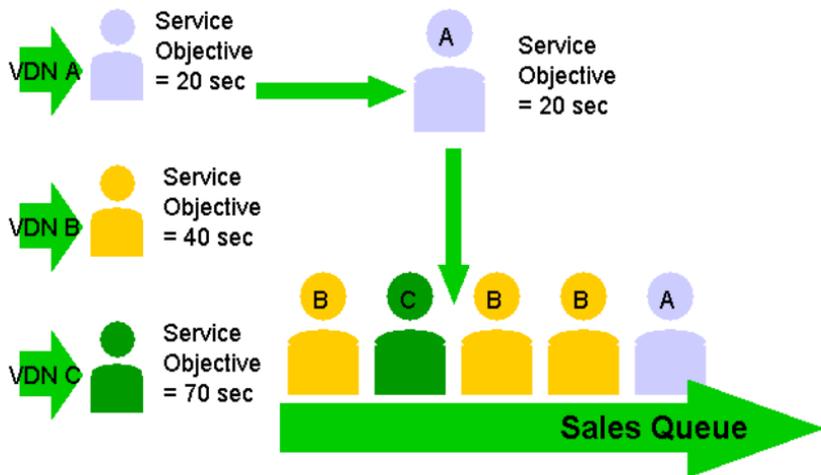
Dynamic Queue Position example

Dynamic Queue Position is valuable for businesses that want to support customer segmentation. Consider, for example, a business that receives customer service calls from a wide range of customers and wants to support differentiation in how it handles calls from customers with varying service policies. Since each agent is already handling all types of customers, a single skill can suffice. A differentiation is needed, however, in terms of how quickly calls are handled. This is accomplished by assigning a different service objective to the VDNs that correspond to the varying sets of customers. The service objective for the customers with policies is assigned a service objective of 10 seconds. Customers without policies are handled through a VDN with a service objective of 40 seconds.

As calls arrive they are placed in queue so that the average speed with which calls from each VDN are answered is roughly proportional to the service objectives of the VDN. Customers with the most valuable policies will tend to be placed in front of some of the other calls, but will not necessarily be placed in front of all of them. This arrangement allows the call center to continue to operate with a single skill defined, forecasted, and staffed. This also prevents problems that result from just queuing calls at different priority levels within the same queue. For example, calls queued at low priority will be ignored if there is a significant volume of higher-priority calls.

This feature is administered on the VDN form and the Hunt Group form.

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Call selection examples

The following examples show how the various types of call selection work. In each of these examples, assume that 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. The examples include Greatest Need with and without Service Objective, Skill Level with and without Service Objective, and Percent Allocation, which is not used with Service Objective.

Greatest Need without Service Objective

In the following example, the agent's call handling preference is Greatest Need. Service Objective is not activated for this agent, and Predicted Wait Time (PWT) is set at the system level. All calls are queued at the same priority. Which call is selected first when the agent becomes available?

Skill Number	PWT
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 (PWT).

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Greatest Need with Service Objective

In the following example, service objectives have been added for use in the agent's call selection. All calls are queued at the same priority. Which call is selected if calls are queued for an agent who is eligible to serve all three skills?

Skill Number	Service objective	PWT
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 its PWT is at the highest percentage (250%) of the 20-second service objective for that skill. (Remember that the ratio used with Service Objective is PWT/SO.) The 90-second call, in this case, with a service objective of 45 seconds, is only at 200% of the service objective and therefore it is not selected.

Tip:
   Service Objectives are generally activated on agent's templates because this aligns each agent's work with the various objectives.

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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 activated for this agent. All calls are queued at the same priority. Which call will the agent receive in this situation?

Skill Number	Skill Level	PWT
1	1	45 seconds
2	1	90 seconds
3	4	90 seconds

In this instance, the call waiting for skill 2 is selected because its PWT is the greatest among the skill level 1 calls. Skill 3 cannot be selected even though its PWT is greatest, because there are calls waiting for skill level 1 skills.

🗗 **Tip:**

Traditional call centers have often used skill level as a call handling preference in order to try to give the right service level to each skill. Now with Advocate, service objectives generally are a more direct approach to expressing and achieving goals. If you are transitioning into Advocate, consider whether skill level preferences were originally introduced to help achieve the desired service levels and if so, the greatest need approach with service level will give you a far more robust design.

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Skill Level with Service Objective

In the following example, Service Objective is administered and Skill Level
as the call handling preference. All calls are queued at the same priority.
Which call is selected for the agent?

Skill Number	Skill Level	Service Objective	PWT
1	1	20	45 seconds
2	1	45	50 seconds
3	4	20	90 seconds

In this situation, the agent receives the call waiting in skill 1. CentreVu
Advocate identifies two level 1 skills with calls in queue and selects the call
that has the highest ratio of PWT to administered Service Objective (PWT/
SO). Notice, the call for skill 3 has the highest ratio of PWT to SO, but skill
level call handling preference has limited call selection to the skill level 1
skills.

Tip:
Traditional call centers have often used skill level as a call handling
preference in order to try to give the right service level to each skill.
Now with Advocate, service objectives generally are a more direct
approach to expressing and achieving goals. If you are transitioning
into Advocate, consider whether skill level preferences were
originally introduced to help achieve the desired service levels and if
so, the greatest need approach with service level will give you a far
more robust design.

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Percent Allocation

In the following example, Percentage Allocation is administered for each of the agent's three skills. If the agent has already spent 45% of his time serving skill 1, 35% of his time serving skill 2, and 10% of his time serving skill 3, which of the queued calls will be selected for him?

Skill Number	Percent Allocation Plan	Actual work time	Adjusted work time	PWT
1	60%	45%	49%	45 seconds
2	30%	35%	40%	90 seconds
3	10%	10%	17%	50 seconds

The agent has spent more time on skills 2 and 3 than the plan calls for and needs a skill 1 call to move toward plan. Therefore, he will receive the skill 1 call.

NOTE:

(Neither PWT or CWT is considered in call selection when Percentage Allocation is in effect for an agent.)

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Agent selection methods

Agent selection methods are activated when there are more available agents than incoming calls. This is known as an *agent surplus* condition. CentreVu Advocate allows you to select agents by idleness in a skill (Most Idle Agent), occupancy across skills (Least Occupied Agent), or by percentage of work time for a skill (Percent Allocation Distribution). These methods are administered on the Hunt Group form and are also known as *hunt group types*.

How agents are selected for calls

When more than one agent is eligible to serve a call, the DEFINITY Enterprise Communications Server (ECS) determines which of the eligible agents should be selected based on the agent selection method that you administered. This process includes consideration of the following:

- Which available agents are eligible to serve a call from that skill?

- What agent selection method is administered for the skill?

- Which of the eligible agents is most appropriate to serve the call based on the administered agent selection method?

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Agent selection options

CentreVu Advocate offers the following agent selection methods:

- Most Idle Agent (MIA) selects an agent based on the time since completion of the last ACD call.

- Least Occupied Agent (LOA) selects an agent based on the agent's occupancy across all skills.

- Percent Allocation Distribution (PAD), new with Release 9, selects an agent based on the available agents' predefined allocations for their skills and the agents' adjusted work times for the skills.

Most Idle Agent

Most Idle Agent (MIA) selects the most idle agent with the assigned skill for the incoming call. With this method, the call is delivered to the agent who has been idle the longest.

There are two types of MIA selection:

- **Expert Agent Distribution - Most Idle Agent (EAD-MIA):**
  Selects the most idle agent who is at the highest skill level for in the skill to take the call. Note that the DEFINITY ECS considers skill level first. If there is only one agent available at that skill level, that agent is selected. If there is more than one agent available at that skill level, then idle time in queue is used to determine which agent is selected.

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

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Least Occupied Agent

Least Occupied Agent (LOA) selects agents based upon their occupancy across all skills rather than position in an idle agent queue. The occupancy includes the agent's time with ACD calls ringing, ACD calls active, ACD calls on hold, and after call work time (ACW) if ACW time is considered work time. It is designed to spread work time more evenly among agents, reducing the number of "hot seats," that is, situation in which some agents receive many more calls than others.

There are two types of LOA selection:

- **Expert Agent Distribution - Least Occupied Agent (EAD-LOA):**
  Takes the skill level of agents into consideration before distributing a call. It selects the least occupied agent who is at the highest skill level for the skill to take the incoming call. Note that the DEFINITY ECS considers skill level first. If there is only one agent at the highest level, then that agent is selected for the call. If there is more than one agent available at that skill level, then occupancy is used to determine which agent is selected.

- **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.

Tip:
Occupancy levels will be more ~~fair~~ equal under UCD-LOA distribution. EAD-LOA results will vary depending on how skills and the related skill levels are assigned to the agents.

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Agent occupancy

It is important to note that occupancy is initialized when the agent logs in and is reinitialized when an agent exits the AUX work mode. The agent's occupancy, when initialized or reinitialized, is based on the current occupancy of other agents who are administered with similar skills (peer agents.)

Percent Allocation Distribution

Percent Allocation Distribution (PAD), which was introduced with Release 9, uses an agent's target percentage allocations and the adjusted work time for her assigned skills to determine whether she is selected to serve a call under an agent surplus condition. Using the Agent LoginID form, you assign a percentage to each of the agent's assigned skills (for a total of 100%). During the agent selection process, the DEFINITY ECS uses the agent's current work time and target allocation for that skill. It is important to note that the selection process favors agents with higher target allocations over agents with lower allocations. For example, if agent A is assigned a target allocation of 80% and her work time for the skill is at 85%, she may be selected over agent B, who is assigned 20% and is currently at 15% for the skill depending on the expected call handling time for the skill.

This agent selection method should only be used with the Percent Allocation call selection method, which uses an agent's target allocations when determining which skill to select under call surplus conditions. For best results, when using PAD as an agent selection method for a skill, it is recommended that you administer Percent Allocation as the call handling preference for all agents in the skill.

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Agent selection examples

The following examples, each use the same agents and profiles to demonstrate how agent selection works. All of these examples assume that agents are available, no calls are waiting, and a new call has just arrived.

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 receives the next call?

Agent	Skill Level	Occupancy
A	1	90%
B	1	95%
C	2	64%

Agent A receives the next arriving call from the Sales-skill because she is the highest level, least occupied agent.

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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 receives the next call?

Agent	Skill Level	Occupancy
A	1	90%
B	1	95%
C	2	64%

Agent C receives the next arriving call for the Sales skill. With UCD, skill levels are not considered during agent selection, and Agent C has the lowest occupancy.

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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 is selected for the call?

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

Agent B receives the next arriving call for the Sales skill because he is the highest skill level agent 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 EADS component of the decision; in other words, Agent C has been assigned a lower skill level.

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Uniform Call Distribution - Most Idle Agent

Using the same agents and conditions, but administering Uniform Call Distribution (UCD-MIA), which agent is 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

Agent C receives the next arriving call for the Sales skill because with UCD-MIA calls are distributed evenly across agents according to idle time in queue, without regard to skill level.

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Percent Allocation Distribution

Using the same agents, but administering Percent Allocation Distribution (PAD), which agent is selected to receive the next arriving Sales skill call?

Agent	Target allocation	Current work time	Adjusted work time	Percentage of target
A	25%	30%	35%	140%
B	50%	45%	49%	98%
C	75%	76%	78%	103%

Agent B is selected for the next call for the Sales skill because his adjusted work time is the lowest percentage of the target allocation.

$\Rightarrow$ **NOTE:**

Adjusted work time is an intermediate calculation that Advocate makes for each of these three agents to make the agent selection. The *percentage of target* is a comparison of the adjusted work time and the target allocation.

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Call Selection at a glance

The following table shows what happens during call surplus conditions, according to the call selection methods that are administered on the DEFINITY.

IF calls are waiting when an agent becomes available and the agent's selection method is . . .	THEN the DEFINITY takes . . .
Skill Level without Service Objective	the highest skill level, highest prioirity call with the longest CWT or PWT.
Skill Level with Service Objective	the highest skill level, highest prioirity call with the highest ratio of CWT/SO or PWT/SO.
Greatest Need without Service Objective	the highest prioirity call with the longest CWT or PWT.
Greatest Need with Service Objective	the highest priority call with the highest ratio of CWT/SO or PWT/SO.
Percent Allocation	the call waiting that best maintains the administered target allocations for all skills.

🗐 **Tip:**
Advocate call centers typically do not use queue priority as a technique to influence call selection, instead Advocate call centers use service objectives to give the right service level to each skill.

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Agent Selection at a glance

The following table shows what happens during agent surplus conditions, according to the agent selection method that is administered.

WHEN agents are available, a call arrives, and the agent selection method is . . .	THEN the DEFINITY selects the . . .
EAD-MIA	highest skill level, most idle agent.
UCD-MIA	most idle agent, without regard to skill level.
EAD-LOA	highest skill level agent with the lowest occupancy.
UCD-LOA	least occupied agent, without regard to skill level.
PAD	agent with the lowest ratio of adjusted work time and target allocation for the skill.

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Automated agent staffing adjustments

CentreVu Advocate offers several ways to automate staffing adjustments and enhance your call center operation under changing conditions. This section provides details on the many options that are available to help automate your staffing.

With Advocate, you can automatically activate reserve agents when skills exceed overload thresholds you set. Additionally, you can use Dynamic Threshold Adjustment to automatically adjust thresholds as needed. If you are using Percent Allocation, you can automatically adjust target allocations for agents' work time as needed to meet service level targets, and you can choose to activate Auto Reserve Agents to leave an agent idle in a skill if the agent's work time exceeds her preassigned allocation for that skill.

Service Level Supervisor

Using Service Level Supervisor, you can administer one or two overload thresholds for a skill that is supported by reserve agents. When the Expected Wait Time (EWT) for an arriving call (or optionally, with Activate on Oldest Call Waiting enabled, the time in queue of the head call in queue) exceeds the threshold, the skill goes into an overload state. When the appropriate overload state exists, agents who are preassigned to assist during overload periods are eligible to receive subsequent calls from the overloaded skill. Service Level Supervisor alleviates the need to move agents from skill to skill during emergencies or unanticipated peaks in call volume.

Service Level Supervisor also enables agents to remain working in their standard skills unless a wait time problem is identified for a reserve skill.

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What happens when a skill goes over threshold

A skill goes over threshold when either the EWT or optionally, the time in queue for the head call (Oldest Call Waiting) exceeds a preadministered threshold. When a skill goes over threshold, reserve agents are activated and call selection override is in effect if activated, according to which of these options you administered.

Assigning reserve agents

You can assign reserve agents so that they can assist with skills that might become overloaded during peak times. You can assign reserve 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 are 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 overload threshold is exceeded

- Reserve Level 2 agents are eligible to receive calls from the overloaded skill when the second administered overload threshold is exceeded.

Activation of reserve agents

Reserve agents can be activated at each overload threshold. These reserve agents are eligible to take calls from a reserve skill only when that skill is in an overload state. When the skill returns to a normal state, calls from that skill are not sent to reserve agents.

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Tip:
Call centers that use Advocate generally eliminate multiqueuing and overflowing from their vector designs. These techniques to route calls to backup agents are replaced by assigning the backups the appropriate Reserve level skill.

Considerations for reserve skills

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? Remember that agents are often less effective or more costly when handling calls from 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 determine when contingency operations go into effect for a skill. Overload thresholds determine the conditions under which reserve agents become eligible for work on the over-threshold skill. You can set one or two overload thresholds at the level or length of wait considered too long for that skill, when Reserve agents should be used. These thresholds are set individually on the Hunt Group form for each skill that uses reserve agents.

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Dynamic Threshold Adjustment

Dynamic Threshold Adjustment is a new Service Level Supervisor feature that provides you with an increased level of automation for your staffing. With this feature, you administer overload thresholds and a service level target. You establish service level targets for each skill (for example 80% in 20 seconds), on the Hunt Group Form.

Service level target is an aggregate measurement that describes how well a group of callers were handled. For example, answering 80 percent of the calls to this skill in 20 seconds or less, is a more challenging target than answering 70 percent of the calls to this skill in 20 seconds.

The DEFINITY Enterprise Communications Server (ECS) uses a comparison of your service level target to recent performance for the skill to determine when to automatically adjust overload thresholds to help meet the administered service level. This feature activates reserve agents a bit sooner or a bit later, as needed to maintain your organization's service levels with minimal over-achievement or under-achievement. Dynamic Threshold Adjustment is administered individually for each skill for which you want to use the feature. If you prefer not to use Dynamic Threshold Adjustment, you can still use Service Level Supervisor; however, automatic adjustments will not be made to the overload thresholds you set.

It is also important to note that there is a minimum and maximum range for Dynamic Threshold Adjustments. The adjustments are made as needed, from 0% to 200% of the administered value. If you have set an overload threshold at 20 seconds, for example, the adjusted thresholds can vary from 0 to 40 seconds as required to meet your service level targets.

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Automatic adjustments to target allocations

If service levels are particularly important to you and you want to have more control over the amount of time that an agent spends serving a skill, you might consider the new Dynamic Percentage Adjustment feature. You establish service level targets for each skill, (for example 90% in 20 seconds) on the Hunt Group form, and the DEFINITY Enterprise Communications Server (ECS) makes automatic adjustments to agents' target allocations as needed to ensure that your percent in service level goals are met.

For example, with Dynamic Percentage Adjustment administered, an agent who has a 70% target for Sales and a 30% target for Service may have his plan adjusted to 76% Sales and 24% Service in the morning, when Sales is very busy. Later in the day, the plan may be adjusted to 66% Sales calls and 34% Service calls, as the volume of Service calls increases. Without Dynamic Percentage Adjustment, the level of service for Sales would have been adversely affected in the morning and the level of service for Service would have been adversely affected in the afternoon.

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Auto Reserve Agents

Auto Reserve Agents is a new Percent Allocation feature that intentionally leaves an agent idle in a skill when the agent's work time for that skill exceeds her assigned target allocation. You can use this feature when it is particularly important to control an agent's time in a skill. You might activate this feature to ensure that a particularly proficient agent is available for your most important types of calls, or to more closely control where the agent spends his time to better meet your organization's sales or service goals.

An agent that has just become available can be put into Auto Reserve if the only types of calls in queue are ones for which the agent is over plan and the skill over plan is not presently in an overload state.

When an agent is in Auto Reserve and a call is in queue, one of three things typically happens:

- Another agent becomes available and takes the call in queue.

- A call arrives in a skill for which the agent is not auto reserved and the agent takes that call.

- The agent's work time in the skill drops below her allocation. Now that she is no longer auto reserved, she takes the waiting call.

This feature is activated on the System-Parameters Features form. Using the Agent LoginID form and skill levels for each of an agent's skills, you can determine in which (if any) skills you want to leave the agent idle when his work time exceeds his target allocation. You can activate the feature for all of an agent's skills by entering **all** in the Auto Reserve Agents field or only for their nonprimary (level 2 to 16) skills by entering **secondary-only**. If secondary-only is selected, the agent never goes into auto reserve if a level 1 call is waiting.

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If Auto Reserve Agents is set to all, then an agent that has just become available can be put into Auto Reserve if the only types of calls in queue are ones for which the agent is over-plan and if call selection override is on.

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Developing your strategy

CentreVu Advocate provides a variety of features to help meet your business goals and to help you manage your agent resources. The following table shows some of the ways that you can combine call and agent selection methods to meet your company's specific needs.

IF your goal is to . . .	THEN consider . . .
Maintain service levels while controlling the time agents spend serving each of their skills	■ Percent Allocation ■ Dynamic Percentage Adjustment ■ PAD
Control the time your agents spend serving their assigned skills while maintaining the flexibility to change to meet service level requirements for the center	■ Percent Allocation ■ Dynamic Percentage Adjustment ■ Call Selection Override ■ Service Level Supervisor ■ PAD
Maintain service levels using more or less time from reserve resources to supplement staffing as needed	■ Greatest Need ■ Service Level Supervisor ■ Dynamic Threshold Adjustment ■ UCD-LOA
Add customer segmentation with differentiated levels of service while routing all segments to the same skill to simplify staffing	■ Greatest Need ■ Dynamic Queue Position ■ UCD-LOA

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IF your goal is to . . .	THEN consider . . .
Ensure that critical skills are covered, regardless of caller wait time in other skills	■ Greatest Need ■ Service Level Supervisor ■ Call Selection Override for the critical skills ■ Activate on Oldest Call Waiting for the critical skills ■ UCD-LOA
Automate agent staffing to activate back up agents a little sooner or a little later to meet service level goals with minimal overachievement or under achievement	■ Greatest Need or Skill Level ■ Service Level Supervisor ■ Dynamic Threshold Adjustment ■ UCD-LOA or EAD-LOA
Minimize the complexity of differentiating service levels for different types of calls that require similar agent abilities	■ Greatest Need or Skill Level ■ Dynamic Queue Position ■ UCD-LOA or EAD-LOA
Maximize the amount of time that agents spend in high revenue or high contribution roles while limiting their use of lesser skills to address wait time problems	■ Greatest Need ■ Service Objective ■ Service Level Supervisor ■ UCD-LOA
Spread calls more evenly among agents while delivering the right level of service to each skill	■ Greatest Need ■ Service Objective ■ UCD-LOA

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Avaya support

Avaya offers a subscription service for Advocate customers that provides access to skilled consultants with expertise in understanding how Advocate helps to solve business problems.

As part of the subscription, service includes the following:

- Proactive monitoring of certain performance metrics consistent with business objectives

- Web-based information and tips

- Multi-media contact support, available through voice and email, for questions and consultation

- Additional specialized services, such as simulation and performance analysis, can also be conducted.

For more information, please contact your Avaya Account Executive or CRM Opportunity Management at 1-877-9-CRM OMC.

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

Feature compatibility

It is important to choose the right combination of features to meet your organization's needs and ensure that CentreVu Advocate is set up to work most effectively. This section summarizes the features that provide the best results when used together and also lists those that are not designed to work together.

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Call selection methods (call handling preferences)

The following table shows the features that work effectively with the various CentreVu Advocate call selection methods.

Call selection method	Recommended to work with
Greatest Need	■ Predicted Wait Time ■ Service Objective ■ Service Level Supervisor ■ UCD-MIA ■ UCD-LOA
Skill Level	■ Predicted Wait Time ■ Service Objective ■ Service Level Supervisor ■ EAD-MIA ■ EAD-LOA
Percent Allocation	■ Dynamic Percentage Adjustment ■ Auto Reserve Agents ■ Service Level Supervisor ■ PAD

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Agent selection methods (hunt group types)

The following table shows which features work with the various agent selection methods.

Agent Selection Method	Recommended to work with
UCD-MIA	■ Greatest Need ■ Predicted Wait Time ■ Service Objective ■ Service Level Supervisor
EAD-MIA	■ Skill Level ■ Predicted Wait Time ■ Service Objective ■ Service Level Supervisor
UCD-LOA	■ Greatest Need ■ Predicted Wait Time ■ Service Objective ■ Service Level Supervisor
EAD-LOA	■ Skill Level ■ Predicted Wait Time ■ Service Objective ■ Service Level Supervisor

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Agent Selection Method	Recommended to work with
PAD	■ Percent Allocation
	■ Dynamic Percentage Adjustment
	■ Auto Reserve Agents
	■ Service Level Supervisor

Feature combination to avoid

The PAD agent selection method should not be used with Greatest Need or Skill Level call selection methods.

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Administering call and agent selection features

Once you determine your call and agent selection strategy, you need to administer the appropriate features. You need to make several decisions about how to implement CentreVu Advocate. Some of these decisions affect your call center system wide, while others affect particular Vector Directory Numbers (VDNs), skills, or agents. The following table lists the features that are available with CentreVu Advocate and CentreVu Dynamic Advocate, the level of impact for implementing those features, and where the features are administered on the DEFINITY Enterprise Communications Server (ECS).

$\Longrightarrow$ NOTE:

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

The following table shows where each feature is administered. .

Feature	Decision level	Where administered
Least Occupied Agent:		
■ LOA (Group Type)	Skill	Hunt Group form
■ ACW Considered Idle?	System	Feature-Related System Parameters form
Percent Allocation:		
■ Percent Allocation (call handling preference)	Agent	Agent LoginID form
■ PAD (Group Type)	Skill	Hunt Group form

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Feature	Decision level	Where administered
■ Expected Call Handling Time	Skill	Hunt Group form
■ Dynamic Percentage Adjustment	Skill	Hunt Group form
■ Service Level Target	Skill	Hunt Group form
■ ACW Considered Idle?	System	Feature-Related System Parameters form
■ Auto Reserve Agents	System	Feature-Related System Parameters form
Dynamic Queue Position:		
■ Dynamic Queue Position	Skill	Hunt Group form
■ Service Objective	VDN	Vector Directory Number form
Service Objective:		
■ Service Objective (activate for agent)	Agent	Agent LoginID form
■ Service Objective (set target objective)	Skill	Hunt Group form
■ Call Selection Measurement (CWT or PWT)	System	Feature-Related System Parameters form
Service Level Supervisor:		
■ Service Level Supervisor (administer for skill)	Skill	Hunt Group form
■ Activate on Oldest Call Waiting	Skill	Hunt Group form

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Feature	Decision level	Where administered
■ Call Selection Override	System	Feature-Related System Parameters form
	Skill	Hunt Group form
■ Overload Thresholds	Skill	Hunt Group form
■ Dynamic Threshold Adjustment	Skill	Hunt Group form
■ Service Level Target	Skill	Hunt Group form
■ Reserve Agents	Agent	Agent LoginID form
Predicted Wait Time (PWT)	System	Feature-Related System Parameters form
Call handling preference (call selection method: Greatest Need, Skill Level, Percent Allocation)	Agent	Agent LoginID form
Group type (agent selection method: UCD-MIA, EAD-MIA, UCD-LOA, EAD-LOA, PAD)	Skill	Hunt Group form

Important notes about administration

Call and agent selection method 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

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- Which call selection method (Greatest Need, Skill Level, or Percent Allocation) is administered for the agent on the Agent LoginID form

- Whether Service Objective is activated on the Agent LoginID form

- What (if any) overload thresholds are administered for the skills and what reserve skills are assigned to agents.

- Whether Dynamic Threshold Adjustment has been activated with Service Level Supervisor to automatically adjust overload thresholds.

- Whether Dynamic Percentage Adjustment has been activated with Percent Allocation to automatically adjust target allocations to help meet percent in service level goals.

- Whether Auto Reserve Agents has been activated to intentionally leave an agent idle in a skill when her work time in the skill exceeds her target allocation for the skill.

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 on the Hunt Group form (EAD-LOA, EAD-MIA, UCD-LOA, UCD-MIA, or PAD).

For detailed instructions for administering CentreVu Advocate features, please see the *CentreVu Advocate User Guide.*

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Where should I start?

Release 9.1 of Dynamic Advocate permits businesses to more closely match their use of Advocate to their true operational needs. A company's call center may need to implement different strategies in different parts of the call center. Listed below are the three most distinctive ways to characterize the approaches a call center can take with Dynamic Advocate. Additionally, call centers may want to include in their designs the enhanced customer segmentation possible with Dynamic Queue Position.

■ Primary Focus: *Percent in Service Level Achievement*

For the formal or in-house Service Bureau style call center, the operational demand may be first and foremost to make the contractual "numbers", which most often are defined as percent in service level targets for each type of call. Collective caller experience is the measure of success. Individual caller experience is significant only to the extent that the caller's wait time doesn't hurt the numbers. Over performance is not rewarded, but under performance may carry a penalty.

■ Primary Focus: *Individual Callers*

For other centers, managing by the "numbers" is not the focus. Traditional call center performance metrics may be a reference only to determining whether good staffing plans were in place and to evaluate trends. Instead, the goal for this center is to get each caller to the best agent possible, deviating only when necessary based on wait time problems that potentially affect individual callers. This focus on individual customers may best be served by using features found in the original release of Advocate. A center managed by Advocate in this way will see the results of individual caller focus in the collective metrics of the center, but the collective metrics are not used to create control.

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■ Combined Focus: *Metrics and Individual Callers*

Many call centers are interested in managing to achieve targets, such as a percent in service level, but also need to be sensitive to individual caller treatment. These centers can have both, using service level targets as the means to determine if Reserve Agents should be brought in a little sooner or a little later in order to keep performance on track. Individual caller experience will still be the trigger that determines if Reserves should be engaged.

Help for Enhanced Customer Segmentation

All centers may have opportunities where differentiation can be enhanced, for example where higher value callers can gain access to agents quicker, without increasing agent differentiation. Any center may want to examine where Dynamic Queue Position might increase customer satisfaction or reduce caller abandonment for key customer segment while using only a single skill for call routing.

The Dynamic Queue Position feature can help segment skills further simply in terms of differentiating how quickly one segment is served relative to another. For example, customers who have pre-paid for technical support might be routed to the same technical support skill as customer who did not pre-pay, but those who pre-paid could be answered sooner. Rather than priority queue the pre-paying customers, an example would be to route the pre-paid callers through a VDN with a Service Objective of 20 seconds and route the other callers through a VDN with a Service Objective of 40 seconds. Both of these VDNs would route calls to the same technical support skill where the Dynamic Queue Position feature was enabled. On average each pre-paid caller will have one-half the wait of a caller that did not pre-pay. Yet both pre-paid and non pre-paid callers will be routed to the same skill, so agent administration is not affected.

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Primary Focus: Percent in Service Level Achievement

Your center wants to achieve its numbers with as little over performance or under performance as possible. Your design should use the enhanced Percent Allocation strategy.

The following can be used as the foundation for a design that focuses primarily on achieving service level targets for each skill. In this design, achievement of the collective measurement of percent in service level is the chief guiding factor. Call handling is adapted to maximize accomplishment of this measurement for each skill with minimal over and under performance. This accomplishment is enhanced for centers willing to permit a call to wait in queue while an agent who could take the call is kept available for another type of call that has not yet arrived.

How to administer

All the skills in the center, or in the part of the center using this strategy, needs to be of a group type of PAD, for percent allocation distribution. This in turn implies that all agents serving these skills should have a call handling presence of Percent Allocation.

Each skill should have a Service Level Target administered. These are of the type___% in ___ seconds, for example 85% in 15 seconds.

Each agent needs a Percent Allocation plan administered.

Dynamic Percentage Adjustment. Shift the agent's percent allocation plans so that call handling adapts to the dynamic conditions in the center. By doing this, all targets are met as best as possible. For example, you won't want agents sticking to a plan that is obsolete because an unexpected situation resulted in higher volumes of one type of call to arrive, and you don't want to re-administer the plans in real time. Therefore, activate Dynamic Percentage Adjustment to allow an agent's percent allocation plan to respond when a skill is experiencing over performance or under performance.

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Auto Reserve Agents. Using Auto Reserve Agent will enhance how call handling adapts to make sure your center's performance is on track with its goals. When an agent becomes available and the only call waiting is queued to a skill that the agent has had more than enough of according to the agent's percent allocation plan, Auto Reserve Agent will keep that agent available. An agent may be auto reserved regardless of the performance of the skill. Only time in skill, versus allocation is checked.

The agent's percent allocation plan will be adjusted dynamically in response to center performance on each skill. The allocation for the type of call that's waiting would have been dropping if, for example, this type of call was over performing against the target. Keeping this agent available and the call waiting won't hurt the metrics for the skill with a call in queue, but it creates the opportunity to get another one of the agent's calls answered in zero seconds, helping achieve the target for that skill.

Allocation versus Skill level. If your auto reserve is set to secondary-only, an agent will never be auto reserved in a skill that is a primary skill for that agent. It could be auto reserved in a skill that was anything other than a primary skill, so primary and secondary is specified by skill level. The administration of skill level for auto reserve agents, affects the design. As far as which agent gets selected (excluding auto reserving), skill level doesn't have any impact. When using a percent allocation design, think of skill level as an equivalent to being the allocations. the agent that you would have made skill level 1, you would give a higher allocation to. The agent you would have made skill level 16, you would have assigned a very small allocation to.

Alternatives for adapting this design further

This design could be adapted further by assigning reserve skills to agents. The Reserve skill will not have a percentage assigned in the agent's percent allocation plan. Reserve agents will be made eligible when you activate call selection override for this skill. With this

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activated, when a skill is over threshold the percent allocation algorithm is replaced with the "normal" call selection algorithm using time in queue, etc.

Auto Reserve Agents. Auto Reserve Agents is set to none, all, or secondary-only at the system level. If a choice of secondary-only is used, an agent will never remain idle while a call is waiting for a primary skill. Consequently, the choice of skill levels for each of an agent's skills will have influence in the design. If an agent is very proficient in a skill and can contribute the most to the business by using that skill quite often, it is likely you would allocate a large percentage of time to that skill. The choice of skill levels will influence the design if you use secondary-only Auto Reserve Agents.

Primary Focus: Individual Callers

Your center wants to be responsive to the needs of individual callers. Lack of accomplishment at a collective level should not result in a call being taken by a Reserve agent simply in order to improve a collective statistic, and an individual caller with a long wait time shouldn't be ignored because the collective statistic was in an over performance level.

How to administration

In order to have a sensitivity to individual caller experiences, the design will use Service Objectives and Overload Thresholds defined for each skill. The Service Objectives set for each skill will define how urgent each type of call is relative to another. The Overload Thresholds should be set to a level that represents a caller wait time problem sufficient to warrant using Reserve Agents.

Agents will need to administer both standard and Reserve skills. The call handling preference of Greatest Need will permit Advocate the greatest ability to be responsive to caller wait times.

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You will also need to assign a group type to each skill to determine how agent selection is performed. A choice of UCD-LOA will do the most to bring about fair workloads across the center.

Alternatives for adapting this design further

This design could be adapted further. If some agents perform better than others in a certain skill, and this difference in performance results in greater revenue per call, shorter calls, or higher customer satisfaction, consider either of the following:

- Use the skill level call handling preference and set skill levels to reflect each agent's abilities. Use no more than two or three skill levels per agent, and make sure that two or more skills are present at each skill level. Not all agents need to be skill level agents. It may be beneficial for only agents who have superior abilities to work in this fashion. You may also consider whether an EAD-LOA method for agent selection would result in more proficient agents taking the calls that result in higher revenue.

- Concentrate each agent's time on his or her highest performance skills and assign the less proficient skills to Reserve levels. Take into account that some agents may be over qualified or too costly to use routinely on some types of calls. These are perfect opportunities for using Reserve skills. An approach like this will work best with a Greatest Need call handling preference, or with just one or two skill levels defined in a Skill Level call handling preference.

Some centers have one or more types of calls for which agents are compensated per call. Collections departments are often run in this way, and agents want to get as many of these types of calls as possible. For these types of calls it can be beneficial to make the group types UCD-MIA or EAD-MIA in order that each agent have as fair a chance at getting the next call. This method will tend to create hot seats, but often this is not an issue when per-call compensation is a factor in recruiting or rewarding agents.

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Combined Focus: Metrics and Individual Callers

Your center wants to achieve its percent in service level goals but not to the extent that individual caller needs are minimized in relevance. You can strike a balance between achieving your metrics and being sensitive to individual caller experience using the features of Service Level Targets and Dynamic Threshold Adjustment.

How to administration

First, set Service Level Targets for each skill that represents the collective performance you want to achieve. Then set a single Overload Threshold at the number of seconds equal to the seconds in the Service Level Target. Activate Dynamic Threshold Adjustment in order that the Overload Thresholds can float up by as much as 200% of the administered level or float down to as little as 0% of the administered level. This adjustment lets Reserves engage a little later or a little sooner in order to achieve the collective performance you want, but the limits on how far they can be adjusted maintains focus at the individual caller level.

You will need to assign skills to agents, both standard skills and Reserve skills. A call handling preference of Greatest Need permits Advocate the greatest ability to manage against your targets as well as be sensitive to caller experience. A group type of UCD-LOA for each skill will permit as fair a distribution of workload as possible across the center.

If some agents perform better than others in a certain skill, and this difference in performance results in greater revenue per call or shorter calls or higher customer satisfaction, consider either of the following:

- Use the skill level call handling preference and set skill levels to reflect each agent's abilities. Use no more than two or three skill levels per agent, and make sure that two or more skills are present at each skill level. Not all agents need to be

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skill level agents. It may be beneficial for only agents who have superior abilities to work in this fashion. You may also consider whether an EAD-LOA method for agent selection would result in more proficient agents taking the calls that result in higher revenue.

■ Concentrate each agent's time on his or her highest performance skills and assign the less proficient skills to Reserve levels. Take into account that some agents may be over qualified or too costly to use routinely on some types of calls and these are natural cases for using Reserve skills. An approach like this will be best with a Greatest Needs call handling preference, or with just one or two skill levels defined in a Skill Level call handling preference.

Consider whether your center has one or more types of calls for which agents are compensated per call. Collections departments are often run in this way, and agents want to get as many of these types of calls as possible. For these types of call, it can be beneficial to make the group type UCD-MIA or EAD-MIA in order that each agent have as fair a chance at getting the next call. This method will tend to create hot seats, but often this is not an issue when per-call compensation is of concern.

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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 15: 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
CMS Agent Group Report	Percentage of calls handled in primary skill	If agents are handling calls in their primary or top skills

Table 15: CentreVu Supervisor Reports

Report	What it measures	What it tells you
Graphical Skill Overload report	Time over threshold	How much time is spent in overload thresholds 1 and 2 and whether threshold settings are appropriate

Special considerations

The following are a few considerations for CentreVu Advocate:

- The use of Auto Reserve Agents can result in a calls in queue — agents available condition. This is a normal and expected outcome for this feature, which is designed to keep an agent idle in a skill if the agent's work time for that skill exceeds the agent's target allocation. Additionally, this may result in lower occupancy for multi-skilled agents.

- The Dynamic Threshold Adjustment, Dynamic Percentage Adjustment, Percent Allocation Distribution (PAD), Dynamic Queue Position, and Auto Reserve Agents features are only available with CentreVu Dynamic Advocate (Release 9).

- Vectors will likely need to be redesigned to take full advantage of CentreVu Advocate features; for example, Advocate eliminates the need to queue to multiple skills at different priorities.

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We'd like your opinion.

We welcome your feedback! Please let us know what you think about this book.

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1. Please check the ways you feel we could improve this book:

- ☐ Improve the Welcome
- ☐ Improve the table of contents
- ☐ Improve the organization
- ☐ Add more figures
- ☐ Add more examples
- ☐ Add more detail

- ☐ Make it more concise
- ☐ Add more step-by-step procedures/tutorials
- ☐ Add more troubleshooting information
- ☐ Make it less technical
- ☐ Add more/better quick reference aids
- ☐ Improve the index

Please add details about what you think. _____
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2. What did you like most about this book? _____
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3. Feel free to write additional comments._____
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If we may contact you concerning your comments, please complete the following:

Name:_____Telephone Number: (____)_____

Company/Organization_____Date:_____

Address:_____
_____

When you have completed this form, please fax your feedback to **+1 303 538 1741**.
Thank you.

Little Instruction Book for advanced administration
585-215-955

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Customer Self-Service web sites

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Customer Self-Service web sites

Looking for a quick and easy way to get more information or assistance? We recommend you visit the Online services link on our self-service web site to find the tools and resources you need to accomplish your day to day communication activities!

http://support.avaya.com/

Case status

Review the status of your maintenance requests by entering your case number. You can get the status for any ope case or for a case closed within the last 60 days.

Frequently asked questions

View answers to frequently asked questions for all of your Avaya call center products.

Software downloads

Access product software, upgrades, patches, presentations and help guides and information pertinent to your Avaya products.

Troubleshooting

Find instructions on basic product maintenance, including job aids, technical troubleshooting articles, and screen videos.

Electronic library material

Search and view over 1100 documents in our Electronic Library. Available are: System and Feature Descriptions, Administration Guides, and Maintenance Manuals. Documents and manuals are available for nearly all systems and adjuncts, large or small.

TELL US WHAT YOU THINK

email: document@drmail.avaya.com

fax: 303-538-1741

write: Avaya Product Documentation
        Rm 22-2H15, 11900 N. Pecos St., Denver, CO 80234

Call Center

Little
Instruction
Book

for advanced administration

Why this new book?

You've told us that you want step-by-step instructions on everyday administration tasks for your call center, and we've been listening. This book contains the information you need for advanced call center administration.