Genesys 7

Resource Capacity Planning Guide

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Genesys Telecommunications Laboratories, Inc., a subsidiary of Alcatel, is 100% focused on software for call centers. Genesys recognizes that better interactions drive better business and build company reputations. Customer service solutions from Genesys deliver on this promise for Global 2000 enterprises, government organizations, and telecommunications service providers across 80 countries, directing more than 100 million customer interactions every day. Sophisticated routing and reporting across voice, e-mail, and Web channels ensure that customers are quickly connected to the best available resource—the first time. Genesys offers solutions for customer service, help desks, order desks, collections, outbound telesales and service, and workforce management. Visit www.genesyslab.com for more information.

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About This Document

Welcome to the *Genesys 7 Resource Capacity Planning Guide.* This new addition to the Genesys documentation set describes the methodology and inner workings of the planning tools Genesys now offers to assist you in managing human resources in a multimedia contact center environment. The functionality presented herein constitutes a new feature to the 7.0.2 Real-Time Metrics Engine release.

This chapter provides an overview of this guide, identifies the primary audience, introduces document conventions, lists related reference information, and invites your feedback:

- Intended Audience, page 5
- Chapter Summaries, page 6
- Document Conventions, page 6
- Related Resources, page 8
- Making Comments on This Document, page 9

This guide is valid only for the 7.0.2 release of this product.

Resource capacity planning within the Genesys software environment enables you to create and manage routing strategies for different media types as they apply to various Genesys-defined resources, such as directory numbers, e-mail, chat sessions, and more.

Intended Audience

This guide, primarily intended for system and contact center administrators, assumes that you have a basic understanding of:

- Computer-telephony integration (CTI) concepts, processes, terminology, and applications.
- Network design and operation.
- Your own network configurations.

Chapter Summaries

In addition to this opening chapter, this guide contains these chapters:

- Chapter 2, "Overview" beginning on page 11, defines some key terms used in this document. This chapter also describes Genesys's distribution method of interactions prior to the Resource Capacity Model.

- Chapter 3, "Resource Capacity Wizard" beginning on page 17, describes how to install and operate the Resource Capacity Wizard to create capacity rules.

- Chapter 4, "Using the Capacity Rule Editor" beginning on page 25, describes the elements of this graphical user interface and how to add and define media rules to your capacity rule.

- Chapter 5, "Assigning Capacity Rules to Resources" beginning on page 35, demonstrates how to associate capacity rules to `Person`, `Place`, and `Tenant` objects.

- Chapter 6, "Genesys-Provided Capacity Rules" beginning on page 41, provides the in-depth media definitions of the three Genesys Capacity rules provided with this release.

- Chapter 7, "Capacity Snapshot" beginning on page 45, describes how to interpret the capacity vector information that Stat Server records in its log.

- Chapter 8, "Troubleshooting Capacity Rules" beginning on page 47, describes how to correct some commonly encountered errors.

Document Conventions

This document uses some stylistic and typographical conventions that you might want to familiarize yourself with.

Document Version Number

A document version number appears at the bottom of the inside front cover of this guide. Version numbers change as new information is added to this guide. Here is a sample version number:

70g_pg_rescap_04-2005_v3.00

You will need this number when you are talking with Genesys Technical Support about this product.

Type Styles

Italic

In this document italic is used:

- When a term is being defined.

  Example

  - *A customary and usual practice* is one that is widely accepted and used within a particular industry or profession.

- For emphasis. For example, "Do *not* use this value for this option."

- For variables. For example, "$x + 1 = 7$ where x stands for . . ."

Monospace

A monospace font, which is shown in the following examples, is used for:

- All programming identifiers and GUI elements. This convention includes the *names* of directories, files, folders, paths, scripts, dialog boxes, options, fields, text and list boxes, all buttons including radio buttons, check boxes, commands, tabs, CTI events, and error messages; the values of options; logical arguments and command syntax; and code samples.

  Examples

  - Select the `Show variables on screen` check box.
  - Click the `Summation` button.
  - On the `Properties` dialog box, enter the value for the host server in your environment.
  - In the `Operand` text box, enter your formula.
  - Click `OK` to exit the `Properties` dialog box.
  - The following table presents the complete set of error messages T-Server® distributes in `EventError` events.
  - If you select `true` for the `inbound-bsns-calls` option, all established inbound calls on a local agent are considered business calls.

- For any text the user must manually enter during a configuration or installation procedure:

  Example

  - Enter `exit` at the command line.

Correction of Errors in Screen Captures

Screen captures taken from the product GUI (graphical user interface) and used in this document may sometimes contain a minor spelling, capitalization, or grammatical error. The text accompanying and explaining the screen captures corrects such errors.

Use of Square Brackets

In any logical arguments, commands, and programming syntax presented in this document, square brackets are used to indicate that a particular parametric value is optional. That is, the value is not required to resolve a command, argument, or programming syntax. The customer/user decides whether to supply a value and what that value is. Here is a sample:

```
smcp_server -host [/flags]
```

Use of Angle Brackets

Angle brackets are used to indicate that a value in a logical argument, command, or programming syntax is required, but that the user must supply the data for the value. Because the value is specific to an individual enterprise—for example, DNs or port numbers—the program cannot predict (that is, program in) what the value is. Here is a sample:

```
smcp_server -host <confighost>
```

Related Resources

Consult these additional resources as necessary:

- Multi-Channel Routing documentation set
- *Framework 7 Stat Server User's Guide*
- *Framework 7.1 Combined Log Events Help*
- The *Genesys Technical Publications Glossary,* which ships on the Genesys Documentation Library CD and which provides a comprehensive list of the Genesys and CTI terminology and acronyms used in this document.
- The Release Notes and Product Advisories for this product, which are available on the Genesys Technical Support website at `http://genesyslab.com/support.`

Information on supported hardware and third-party software is available on the Genesys Technical Support website in the following documents:

- *Genesys 7 Supported Operating Systems and Databases*
- *Genesys 7 Supported Media Interfaces*

Genesys product documentation is available on the:

- Genesys Technical Support website at `http://genesyslab.com/support`.
- Genesys Documentation Library CD, which you can order by e-mail from Genesys Order Management at `orderman@genesyslab.com`.

Making Comments on This Document

If you especially like or dislike anything about this document, please feel free to e-mail your comments to `Techpubs.webadmin@genesyslab.com.`

You can comment on what you regard as specific errors or omissions, and on the accuracy, organization, subject matter, or completeness of this document. Please limit your comments to the information in this document only and to the way in which the information is presented. Speak to Genesys Technical Support if you have suggestions about the product itself.

When you send us comments, you grant Genesys a nonexclusive right to use or distribute your comments in any way it believes appropriate, without incurring any obligation to you.

2 Overview

Resource Capacity Planning (RCP) represents Genesys's latest methodology for distributing contact center interactions. RCP supports Multi-Channel Routing (MCR) in the 7.0 release. Together with business-priority routing, RCP enables you to better manage agent workload and interaction delivery.

This chapter contains the following sections:

What Is a Capacity Rule

A major element of Resource Capacity Planning is a capacity rule, which defines a resource's ability to handle multiple interactions. For RCP methodology, the term *resource* is synonymous with a `Person` object that is configured as an `Agent` and defined in the Configuration Layer. A *capacity rule* is a set of logical expressions that specify the boundaries of a resource's ability to handle one interaction or more than one simultaneous interaction of differing media types.

Even though the capacity planning tools enable you to define rules for all Genesys-provided media types, it make sense only to use the media types that your set of Genesys solutions supports. The current MCR 7.0 release, for example, supports the following three media types:

- `voice`
- `chat`
- `email`

> **Note:** Interactions categorized under the `webform` media type, which was available in prior releases, are now processed as e-mail interactions.

Applying a Capacity Rule to Resources

You can directly associate a capacity rule to an agent (a `Person` object, that is) using Configuration Manager. In such a case, the capacity rule describes the agent's ability to receive interactions. You can also associate a capacity rule to a `Place` object within Configuration Manager. In this case, the rule applies to all agents logged in to that place who do not already have a capacity rule directly assigned to them (that is, to their `Person` objects in Configuration Manager). Lastly, you can associate a capacity rule to a `Tenant` object. The capacity rule applies to all agents belonging to the tenant where no capacity rule is directly assigned to those agents (or their corresponding places). (In single-tenant environments, the tenant is the entire contact center.) This guide devotes an entire chapter—Chapter 5 on —to explain how to associate capacity rules to resources.

Please note, however, that capacity rules only affect the *distribution* of interactions. Capacity rules do not preclude the agent from initiating any number of interactions of any media type on his or her own.

Media Rules

A capacity rule consists of a set of media types and expressions. For every media type, a *media rule* within the capacity rule expresses the boundaries of agent ability to receive interactions for that particular media.

By means of media rules, you define an appropriate workload for an agent for every media that the agent is allowed to handle. While defining a rule for a specific media, you may consider the simultaneous workload for another media. Figure 1, for example, illustrates a simple capacity rule, named `V1E4`, containing two media rules.

```
Capacity rule name: V1E4

Resource capacity is reached for the following media types
 ● voice: if the resource is involved in at least one of the following:
      ■ 1 or more voice interaction(s)

 ● email: if the resource is involved in at least one of the following:
      ■ 4 or more email interaction(s)
      ■ 1 or more voice interaction(s)
```
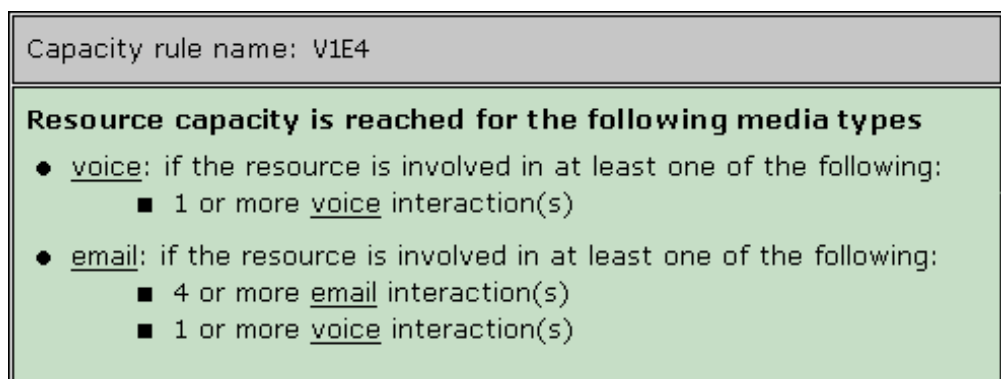
Figure 1: A Sample Capacity Rule with Two Media Rules

When assigned to a specific resource, Susan, let's assume, the `V1E4` capacity rule enables the simultaneous distribution of up to four e-mail interactions to her when she is not working on a voice interaction—that is, when her phone line(s) is (are) free. Furthermore, a new voice interaction could be distributed to Susan if she is currently conducting:

• No other voice interactions and/or

- Any number of e-mail interactions.

Conversely, an e-mail interaction cannot be distributed to Susan if she already is working on four e-mail interactions or if she is already working on a voice interaction. However, if Susan only has two e-mail interactions and no voice interactions, then up to two new e-mail interactions that enter the contact center could be distributed to her, *within the confines of resource capacity planning.* Other factors, outside RCP, may disqualify or prevent her from receiving new interactions. For instance, she may have logged off the `e-mail` media type and surrendered her license to receive e-mail interactions; she may not possess the required skill to handle the interaction; perhaps her status is `Not Ready` or she is performing after-call work; or the routing strategy you deploy in your environment may favor the distribution of interactions to another agent over her.

Other factors aside, this capacity rule does allow Susan to work with several e-mail interactions simultaneously. Moreover, the capacity rule allows her e-mail-related work to be interrupted when a voice call—generally considered to be a higher priority type of interaction—arrives. You can artificially establish the priority of media types in your contact center environment by designing and applying your own capacity rules. Chapters 3 and 4 introduce the tools you will need to use to accomplish this.

A media rule may be thought of as a logical expression that is applied against the current number of agent interactions per medium. These logical expressions (media rules) define when agents can no longer be available for a new interaction for that particular medium. Media rules are evaluated in runtime for agents, and the Universal Router Server uses these results to make intelligent routing decisions. Consequently, agents may have several simultaneous interactions. If capacity is reached for one particular media type, the agent may still be available for interactions of other media types.

How to Use Capacity Rules

A useful application of resource capacity planning may be in creating and applying capacity rules to:

- Agents or collections of agents (not agent groups) of different abilities. You may create different capacity rules for such cases and associate the different rules to agents with different abilities. For example, you could create a `Seasoned` capacity rule and assign it to agents who can handle more chat interactions than lesser-qualified agents. (To the latter, you would assign any of the `NewHire, AverWorkload,` or `1ChatOnly` capacity rules that you might create.)

- Expert agents—preserving their expertise by setting an artificially low setting of capacity to prevent overloading them.

Genesys Resource Allocation Prior to RCP

The routing-allocation model Genesys used prior to resource capacity planning depended on agent state and the status of the agent's directory number (DN) as determined by Stat Server. This dependency focused heavily on the Genesys call model, which is described in a section of the same name in the *Reporting Technical Reference Guide for the Genesys 7 Release*.

The Genesys Router, at the point of call (interaction) distribution, selects a target—an agent—from a pool of potential participants consisting only of *ready* agents. Ready, from Router's default perspective, signifies that an agent has either:

- No monitored interactions currently in progress.

- *All* monitored DNs in `Ready` state. (Other DNs assigned to the agent can reside in a less-than-`Ready` state, such as `Monitored` or `NotMonitored` as determined by the ranking provided in Stat Server's Status Priority tables.)

However, if you have set the Router's `useAgentState` configuration option to `false,` then Ready signifies that an agent has either:

- No monitored interactions currently in progress.

- *At least one* monitored DN in `Ready` state. (Other DNs which may be assigned to the agent can reside in a less-than-`Ready` state, such as `Monitored` or `NotMonitored` as determined by the ranking provided in Stat Server's Status Priority tables.)

As a result of this ready-agent view, Genesys supports a one-at-a-time model of interaction distribution. With few exceptions, this model is still well suited for environments distributing live voice interactions. It does not, however accommodate situations where an agent may receive and handle additional live voice calls while already actively involved in one—as may be preferable in some rare situations when a high-priority call enters the contact center and no other qualified agents are "ready" to handle it. (Given this scenario, the agent could place one call on hold and accept the second call.)

This ready-agent view is also not well suited for noncall-related media, such as e-mail, and is not particularly effective in blended media environments, such as those distributing voice, e-mail, and chat interactions. To accommodate the distribution of multiple media, the 6.1 release of Universal Routing Server extended its strategy language to project the DN model onto interactions of nontelephonic types. This projection required DN configurations for media types like `email` and `chat`—not just one DN, but a separate DN for each of the interactions that agents could potentially handle simultaneously, for each media type, and for each agent. The number of interactions an agent can simultaneously handle holds one-to-one correspondence to the number of DNs configured for that agent. This "Media DN" model, however, does not depict reality—it does not allow the distribution of a voice interaction, for instance, to a particular agent if that agent is already participating in an e-mail interaction, nor can we specify that agent is able to accept and participate in a predefined number of interactions simultaneously.

Capacity Planning for Voice Interactions

With the many different types of telephone devices that technology continually produces, there are peculiarities with respect to capacity planning in how Genesys software routes voice interactions that merit special attention. Genesys software continually evolves to meet new capabilities. Whereas the initial release of capacity planning limited the number of voice interactions that the Genesys router could direct to a particular Genesys place to one, now the Genesys router can route more than one voice interaction to a Genesys place—under certain circumstances.

As a general rule, Genesys capacity planning enables routing to single- or multi-DN places where an agent performs a login to each DN. For those DNs at a place to which the agent does not log in, Genesys software does not consider them in its calculation of resource capacity.

Routing of more than one call to a multi-line DN within a Genesys environment is currently unavailable in this release. Meridian and Meridian Link Symposium phones, for instance, present special examples of multi-line DNs that occupy two DNs for each Genesys place: a Position DN and Extension DN. For this particular configuration, the Genesys Stat Server logs DN status against the Position DN, but only the Extension DN is accessible to the Genesys Router for directing calls. You should consider when incorporating capacity planning into your routing strategies. IVR and G3 phones present additional examples of multi-line DNs for which the Genesys capacity model is unable to direct more than one voice interaction at a time.

There are two exceptions to the general rule:

• The Genesys router can route calls to voice treatment port DNs (IVR DNs) without requiring that agent logins be simulated on these DN types.

• In a Meridian/Meridian Link Symposium model, it is the Position DN that the agent logs in to, not the Extension DN. But, the Genesys router routes calls—one at a time—to the Extension DN given an agent login on the Position DN.

For multi-media DNs, such as IP phones having simultaneous video and multi-line DN capabilities, Genesys capacity planning, from the routing perspective, treats these devices as single-line, voice DNs. Genesys software permits the routing of one voice interaction to these DNs, provided that no other voice interaction is already occurring at the DN.

3 Resource Capacity Wizard

Use the Resource Capacity Wizard (RCW) and its Capacity Rule Editor (CRE) to create new, or to modify existing, capacity rules. In multi-tenant environments, you may also copy and paste capacity rules between different tenants in Configuration Manager. Genesys recommends that you do not use any other method to create or manage Genesys capacity rules.

This chapter describes how to use the Resource Capacity Wizard:

Installing the Resource Capacity Wizard

1. From the Real-Time Metrics CD, open the `configuration_wizard_capacity` folder and click `setup.exe`.

2. At the `Welcome` dialog box, click `Next`.

3. At the `Installed Genesys Wizards` dialog box, click `Next`.

   The InstallShield Wizard copies the Wizard to the `genesyscfgwizards` directory.

4. At the `Setup Complete` dialog box, click `Finish`.

Installing the Resource Capacity Wizard also installs its Capacity Rule Editor.

Invoking the Resource Capacity Wizard

Note: You must be using a 7.0.1 or higher version of Configuration Server to invoke the Resource Capacity Wizard.

You can invoke RCW from a number of locations including:

- The Multi-Channel Solution Routing Wizard. (From the `Framework Objects` screen, select a `Capacity Rule` object type and click `Add` as shown in Figure 2.)
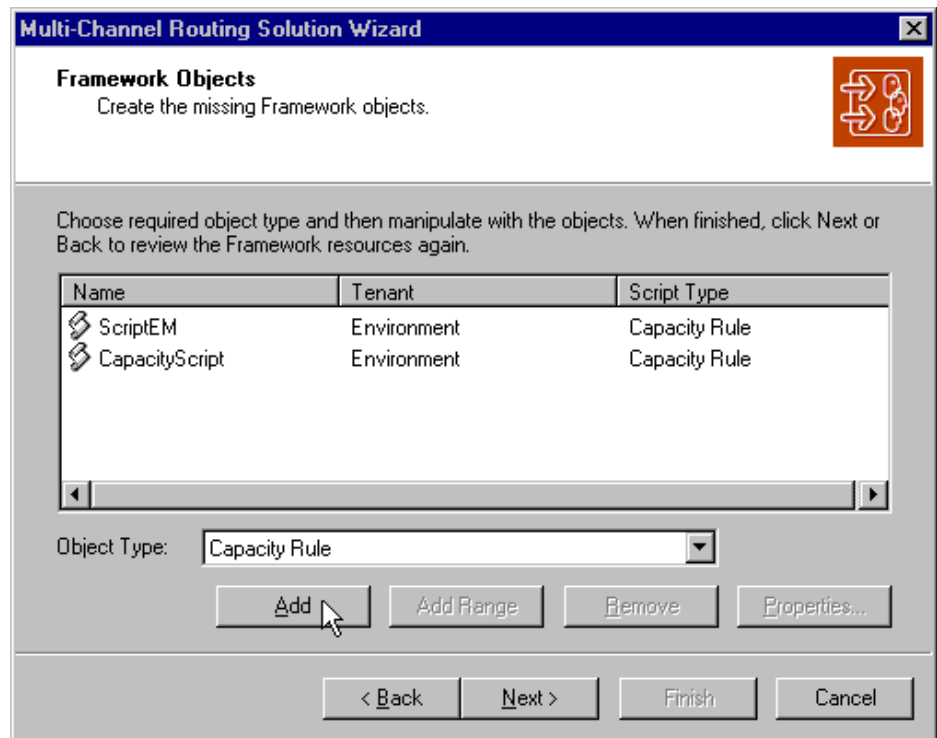
Figure 2: Calling the Resource Capacity Wizard from the MCR Wizard

- Configuration Manager. Right-click the `Scripts` folder and select `Wizard > Install > Capacity Rule` from the context menu that appears.

After invoking RCW, you can select one of the two methods to create a capacity rule. Both methods are discussed in the following sections.

Creating a Capacity Rule from Scratch

Use this method if the capacity rule you intend to create significantly differs from any other already created for your tenant.

1. Invoke the Resource Capacity Wizard using one of the methods described in the previous section.

2. At the `Welcome` screen, click `Next`.

3. At the `Capacity Rule Name` screen, type a unique name for the capacity rule, provide a brief description if you wish, and click `Next`.

   The capacity rule you name here is stored in the `Scripts` folder of the Configuration Manager when you complete the Wizard.

4. At the `Creation Method` screen, choose `Create from scratch` and click `Next`.

5. At the `Media Types` screen:

   a. Choose the media types for which you want to define a capacity rule by selecting or clearing the check box preceding each media type. The Wizard displays the media types that have been previously configured for the current tenant.

   Under typical circumstances, you will need just three media types: `voice, e-mail,` and `chat.`

   b. For each selected media, in the `Max Capacity` field, specify a realistic maximum number of interactions that a corresponding resource can reasonably handle simultaneously under assumption that only interactions of this media type are present.

   This number must be a positive integer between 1 and 255. When you clear a media check box, the Wizard automatically clears the value in the `Max Capacity` field.

   The media types and maximum values you specify at this screen are used during the next step should you invoke the Capacity Rule Editor. Figure 3 on , for example, shows three media types selected at this screen.

Figure 3: Selecting Media Types for Your Capacity Rule

Click Next when you are done.

6. At the Important Information screen, invoke the Capacity Rule Editor and refine the media rules if you want your capacity rule to consider resource workloads that consist of interactions of different media. Otherwise, the capacity rule will not consider that a resource's workload for one particular media can influence his or her workload for other media types. When you exit the Capacity Rule Editor, the Wizard returns you to the Important Information screen. Click Next.

   Refer to Chapter 4 on page 25 for instructions on how to operate the Capacity Rule Editor.

7. At the Summary screen, click Finish.

   Note: If your capacity rule script contains errors, you must click Back to correct them before terminating the Wizard. Otherwise, the Wizard will not save the script.

If you want to change the capacity rule after you have left the Wizard, open the script's Properties dialog box, select Wizard > Configure to reinvoke the Wizard, and open the Capacity Rule Editor located on the Advanced tab.

> **Note:** You can also create a capacity rule by creating a `Script` object of `Capacity Rule` type within Configuration Manager. In this case, the Capacity Wizard creates an empty, invalid rule. You must configure it using the Wizard before it can be useful.

Creating a Capacity Rule from an Existing Rule

1. Invoke the Resource Capacity Wizard using one of the methods described previously.

2. At the `Welcome` screen, click `Next`.

3. At the `Capacity Rule Name` screen, type a unique name for the capacity rule, provide a brief description if you wish, and click `Next`.

   The Wizard does not allow you to advance to the next screen without providing a unique name.

4. At the `Creation Method` screen, choose `Create from existing rule` and click `Next`.

5. At the `Existing Capacity Rules` screen, choose the desired rule from the list and click `Next`.

6. At the `Used Media` screen, verify that the media types selected and the maximum capacities indicated are appropriate for your new capacity rule and click `Next`.

7. At the `Important Information` screen, invoke the Capacity Rule Editor if you wish to change the definitions of the constituent media-type rules. The Wizard copies these definitions from the existing capacity rule you selected at Step 5. Click `Next` when you are done.

8. At the `Summary` screen, click `Finish`.

Configuring a Capacity Rule

You can configure (or reconfigure) an existing capacity rule once you have created it:

1. From Configuration Manager, right-click the specific capacity rule in the `Scripts` folder.

2. Select `Wizard > Configure` from the context menu that appears.

3. From the `Script Properties` dialog box that appears, click the `Advanced` tab. Figure 4 shows this dialog box of a sample script.

4. Choose the appropriate media and specify the maximum capacity for that media.

5. Invoke the Capacity Rule Editor to change the definitions of constituent media type rules. Exit the Editor when you are done.

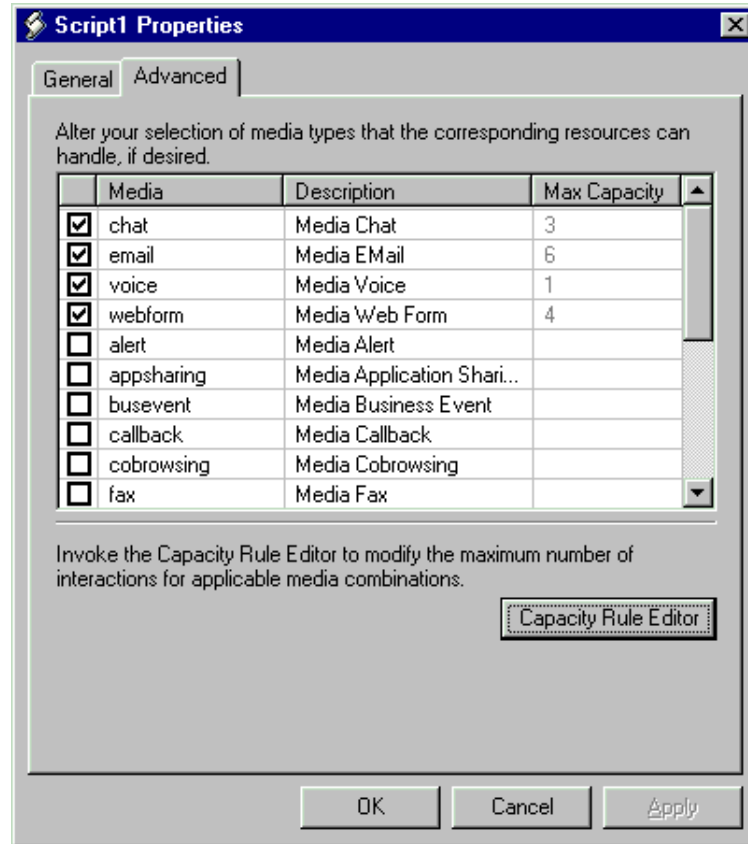**6.** Click `OK` at the bottom of the `Script Properties` dialog box.

Figure 4: Properties of a Sample Capacity Rule Script

Uninstalling and Deleting Capacity Rules

You can remove a capacity rule script from the Configuration Layer by deleting the corresponding script object in Configuration Manager (or by right-clicking the script object and selecting `Uninstall` from the context menu that appears). You should exercise caution, however, when deleting capacity rules. Make sure that the capacity rule you are about to delete is no longer assigned to `Person`, `Place`, or `Tenant` objects. Deleting a capacity rule while it is still assigned to resources may render the resource unavailable for some or all media. Consult the *Multi-Channel Routing 7 Reference Manual* for more information. The software does not warn you of these circumstances. Deleting the script object automatically removes any assignments of the script to `Person`, `Place`, or `Tenant` objects.

Uninstalling the Resource Capacity Wizard

Uninstall RCW only if you no longer intend to use resource capacity planning functionality or if you decide to downgrade the Wizard's version. You are not required to uninstall RCW if you wish to upgrade its version. Uninstalling the Wizard does not remove any capacity rule scripts from the Configuration Layer nor their assignments to resource objects.

To uninstall the Wizard:

1. From the Control Panel select `Add/Remove Programs`.

2. Select `Genesys Resource Capacity Wizard` from the list and click `Add/Remove`.

3. Click `Yes` at the `Confirm File Deletion` dialog box.

Chapter

4

Using the Capacity Rule Editor

The Capacity Rule Editor (CRE) represents a special mode of the Resource Capacity Wizard. You use the Editor if you need to create a more complex capacity rule or if you must alter an existing, complex capacity rule. Complex capacity rules take into account the interdependency between different media.

This chapter discusses the Capacity Rule Editor in these contexts:

Invoking the Capacity Rule Editor

The `Important Information` screen (Figure 5) of the Resource Capacity Wizard includes a button to invoke the Capacity Rule Editor. To look at the capacity rule that the Resource Capacity Wizard has created based on your selections at the `Media Types` screen (or `Used Media` screen), click this button. You should also invoke CRE if you want to create or edit a complex capacity rule involving media interdependencies.
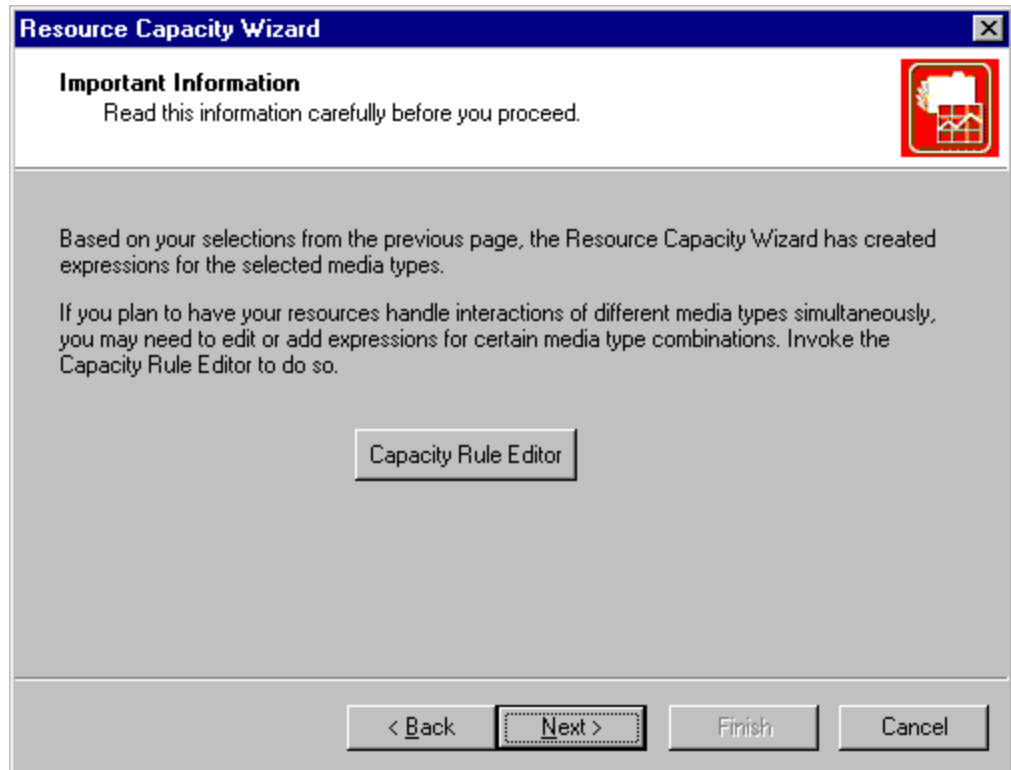
Figure 5: Opening the Capacity Rule Editor from the Resource Capacity Wizard

Once you have created your capacity rule, to revisit its definition:

1. With your script object selected in Configuration Manager, right-click and select `Wizard > Configure` from the context menu that appears.

2. In the resulting dialog box, click the `Advanced` tab and select `Capacity Rule Editor` from the lower right-hand corner as shown in Figure 6.
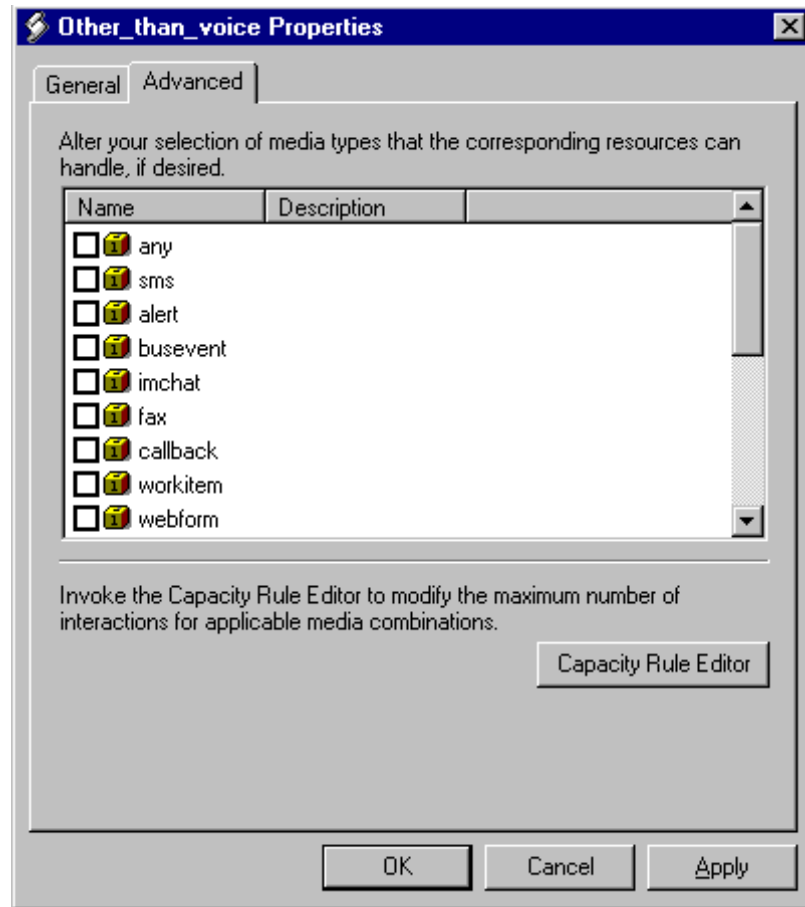
Figure 6: Opening the Capacity Rule Editor from the Properties Page

Exploring the Interface

The Capacity Rule Editor interface does not use menus or menu items. Instead, you execute commands by clicking buttons located across the top of the Editor or by clicking buttons or hyperlinks within the main window. Figure 7 shows the main window and some of its hyperelements for an already developed capacity rule.
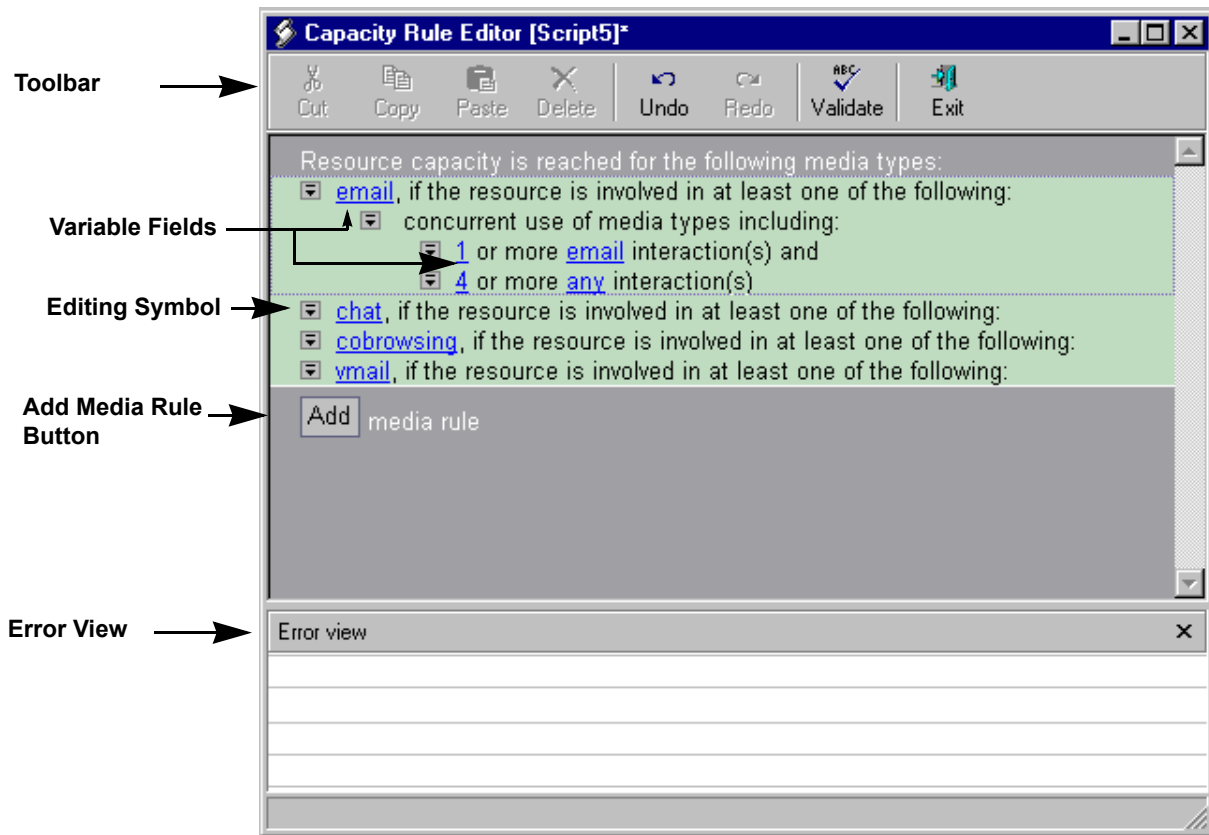
Figure 7: Capacity Rule Editor

CRE Toolbar Buttons

Table 1 explains the functions of the CRE toolbar buttons.

Table 1: Toolbar Buttons of the Capacity Rule Editor

Button Name	Button Function
Cut	Copies to the clipboard and removes the selected media rule from the equation. This button is disabled if you have not selected a media rule.
Copy	Copies the selected media rule into the clipboard. This button is disabled if you have not selected a media rule
Paste	Appends the media rule stored in clipboard to the end of the media rule list. This button is disabled if the clipboard contains no media rule.
Delete	Deletes the selected media rule
Undo	Undoes the last command executed—only one level of undo

Table 1: Toolbar Buttons of the Capacity Rule Editor (Continued)

Button Name	Button Function
Redo	Reexecutes the last `Undo`.
Validate	Checks the rule for completeness. Exiting the Editor in and of itself does not validate the capacity rule. You must explicitly validate the rule by clicking this button to obtain validation results.
Exit	Prompts you to save or abandon your work and exits CRE. Clicking the Windows control close button performs the same action. There is no explicit save command. Any changes made to the script are temporary until saved.

Hyperelements Within the Main Window

The Capacity Rule Editor is not a text editor. You can perform only a limited number of operations within the main window using three hyperelements:

- The editing symbol ▣ preceding each line
- The blue underlined variable fields
- The `Add` button

Refer to Figure 7 on .

Editing Symbol

Clicking the editing symbol displays a context menu with one or two commands:

- `Add Condition`—adds a new dependent condition immediately below the specific command icon clicked.

  > **Note:** The Resource Capacity Wizard automatically creates media rules for each media type selected at the `Media Types` dialog box. (Refer to Figure 6 on .) If you subsequently delete a media rule, you can click the `Add Condition` button to restore it.

- `Delete`—removes the condition immediately following (that is on the same line as) the command icon clicked.

Figure 8, for example, shows a snippet of a capacity rule both before and after adding a new condition to a media rule. In this figure, you could also add dependent conditions under

    concurrent use of media types including

but you could not add dependent conditions under the level of

    1 or more email interaction(s) and

Before

After

New dependent condition
added to cobrowsing media rule
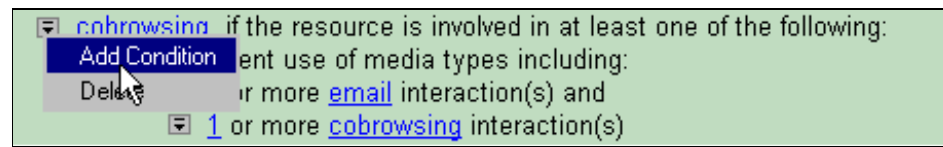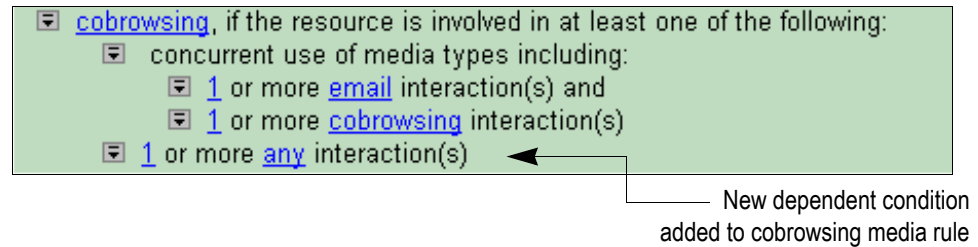
Figure 8: Adding a Condition to Your Media Rule

Note: Cobrowsing technology is not available in the Genesys 7 release. Its use in Figure 8 is only for illustration purposes.

Variable Fields

You can change the value shown in any of the blue underlined fields by clicking the field and selecting an appropriate value from the context menu that appears. For number fields, select `More` from the context menu to specify a value larger than `5`. In the fields where you specify media types, the Editor only displays values in the context menu for the media types you selected at the `Media Types` screen when you created the script object. Revisit Step 5 on page 19 to add or remove media types from the context menu.

Add Button

Click the `Add` button above the `Error View` to add a new media rule to the capacity rule. This button is activated only if the number of media in the `Media Types` screen exceeds the number of media rules; otherwise, it is disabled. This button is useful if, for instance, you delete a media rule and later decide to restore it to your capacity rule definition. The Editor adds the following line under the last existing media rule:

`<unknown>, if the resource is involved in at least one of the following:`

You must both define the media type and add appropriate conditions under this line to complete the media rule's definition. The Editor provides no default definition for the media rules you add.

Error View

When you validate your capacity rule, the Editor displays validation results in its `Error View` pane. (Refer to Figure 7 on page 28.) Clicking a particular error from this pane, selects and highlights the erroneous media rule. You can save your capacity rule and exit the Editor whether or not your script contains errors. However, if you invoked the Editor via the Resource Capacity Wizard, you will not be able to close the Wizard by clicking `Finish` at the `Summary` page. It is this closing action that permanently saves and writes the script to the Configuration Layer. If you attempt to apply an invalid capacity rule within your environment, Stat Server ignores it.

Creating a Capacity Rule from Scratch

When you create a Capacity Rule from scratch and invoke the Editor, the Editor opens with a simple definition for each media type you selected at the `Media Types` screen. (Refer to Step 5a on page 19.) The Wizard populates the numeric fields with the maximum values you specified at Step 5b.

The example, shown in Figure 9 is the default display when you select the options shown in Figure 3 on page 20.
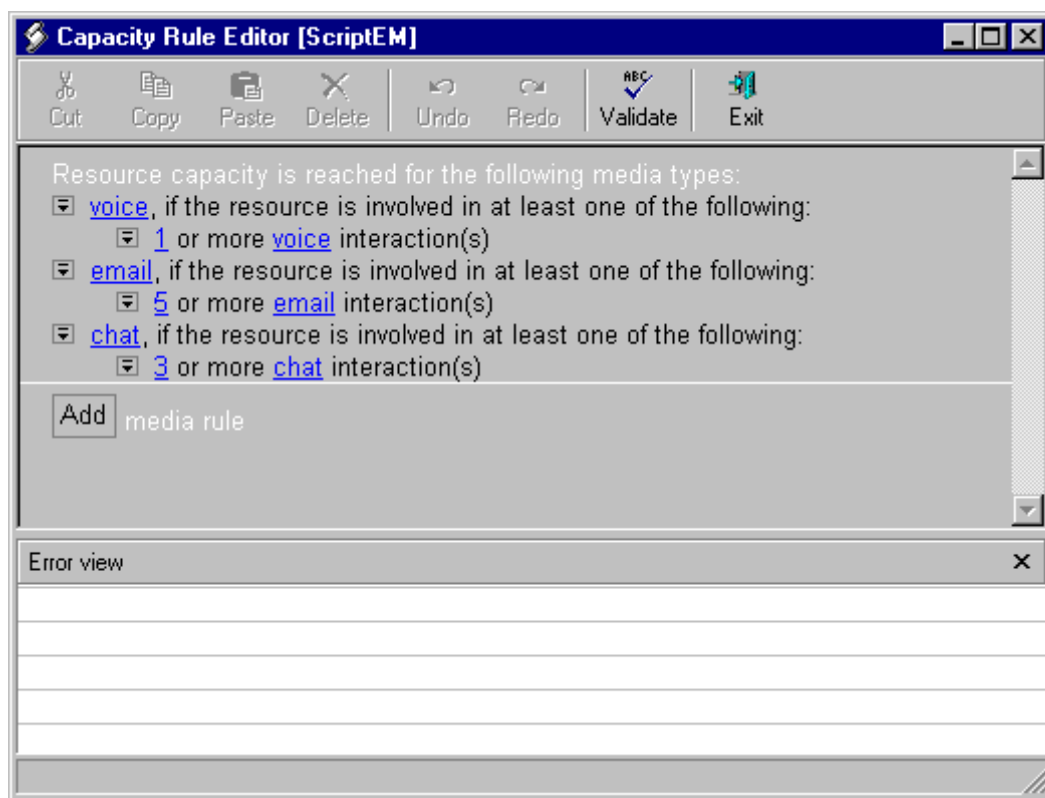
Figure 9: Generated Capacity Rule Based on Simple Media Rules

To refine media-type definitions, perform the following steps:

1. Click the editing symbol and select `Add Condition` from the context menu that appears to define the media rule.

2. Customize your media rule by adding as many subconditions as necessary to suit your environment and indicating the number and type of permissible concurrent interactions.

3. Click `Validate` to check the rule for completeness and correct any problems noted in the Error View.

4. Click `Exit` to save the rule and exit the Editor.

If you delete a media rule and then wish to restore it:

1. Click the `Add` button.

2. Click `<unknown>` and select an appropriate media type from the context menu that appears.

3. Add the appropriate conditions to the media rule.

   Note: The Editor only displays values for the media types you previously selected at the `Media Types` screen when you created the script object.

4. Add and define additional media rules by repeating these steps.

   Warning! You must specify every applicable media type in your capacity rule. If, for example, you miss defining a chat media rule in your MCR environment (which employs chat sessions), then application of the capacity rule to Person, `Place,` and `Tenant` objects will prevent Genesys software from routing a customer-requested chat session to an available agent even if he or she is currently handling no interactions at all. Furthermore, you should be aware of the ramifications of agents checking out a limited number of chat licenses, in this scenario and yet not being enabled to receive chat interactions.

Creating a Capacity Rule from an Existing Rule

When you create a new capacity rule from an existing rule, the Resource Capacity Wizard displays the `Used Media` screen instead of the `Media Types` screen. Figure 10 displays the capacity rule created earlier (on page 20) as the existing capacity rule.

The capacity rule definition is copied from the existing rule. From the `Used Media` screen, you can add or subtract media types or change values in the `Max`

`Capacity` field just as if you were creating a media rule from scratch. The changes you introduce have no impact on the existing media rule—you modify only the rule you are creating. Click `Next` to arrive at the `Important Information` screen, where you can invoke the Capacity Rule Editor. The Editor opens with the same media-type definitions as provided in the existing capacity rule. (Refer to Figure 9 on page 31).

Figure 10: Used Media Screen of Resource Capacity Wizard

You can refine the media-type definitions of your new capacity rule by following the same steps as before (Steps 1 through 4 on page 32).

When Internal Logic Supersedes

Under some conditions, when the logic behind media rules you define conflict, the system's logic may interpret your capacity rule differently than how you may have intended it to be interpreted. This occurs, for example, when you have specified redundant information in one or more media rules, as shown in Figure 11. Under most circumstances, the Capacity Rule Editor displays an appropriate warning message in the `Error View`. This message identifies the problem and provides a suggestion for how you can remedy it.
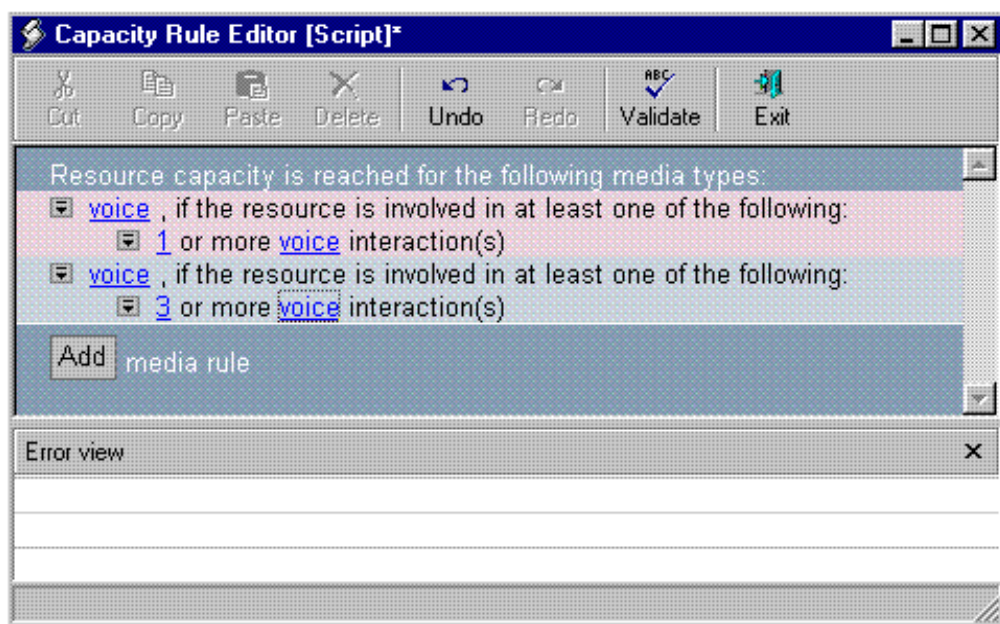
Figure 11: Media Rule Defined With Redundant Information

Internal logic interprets this particular construction as having reached capacity if 1 or more voice interactions are currently in progress for a particular resource.

There are other similar misconstructions that the Capacity Rule Editor will inform you about in the Error View if you validate your capacity rule before exiting the Editor. Refer to Chapter 8, "Troubleshooting Capacity Rules" on page 47 for this information.

![Genesys logo]

Chapter

5

Assigning Capacity Rules to Resources

This chapter describes how to assign capacity rules to `Person`, `Place`, or `Tenant` objects within Configuration Manager:

- Assigning Capacity Rules to Agents, page 35
- Assigning Capacity Rules to Places, page 36
- Assigning Capacity Rules to Tenants, page 37
- Assigning Capacity Rules Using the MCR Wizard, page 38

You cannot assign more than one capacity rule to a particular object. And, at this time, there is no mechanism (such as a scheduler) for automatically changing capacity-rule assignments.

Assigning Capacity Rules to Agents

You assign capacity rules to individual `Person` objects in the Configuration Layer. The Router uses that rule to determine agent availability for assigning interactions. You use Configuration Manager to effect capacity-rule assignments.

1. In Configuration Manager, open the `Properties` dialog box of a `Person` object. Figure 12, for example, shows the `Properties` dialog box of the `Person_1` object.
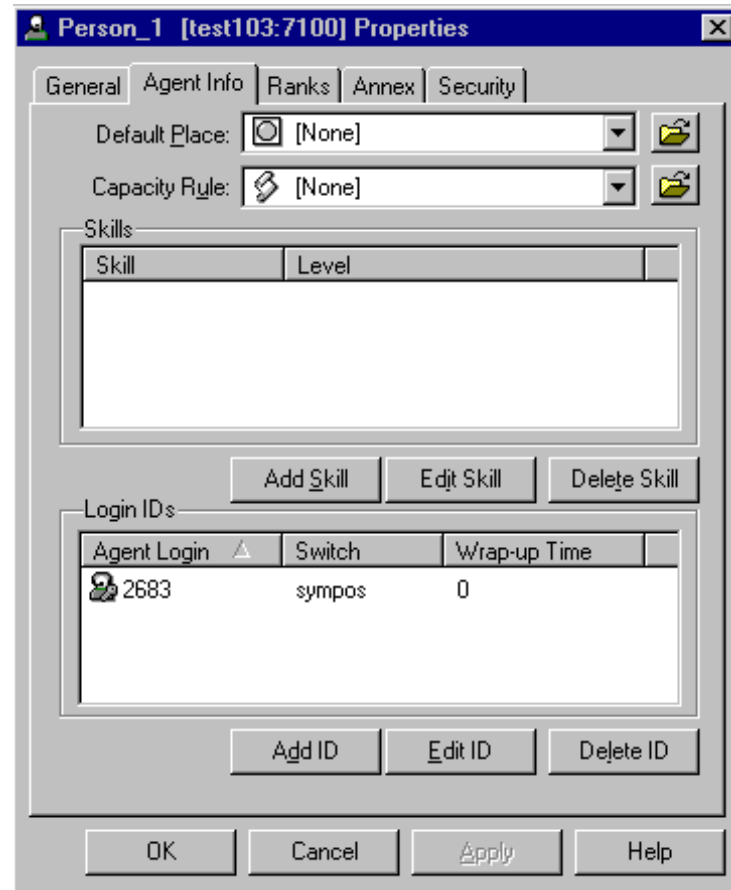
Figure 12: Assign a Capacity Rule to a Person Within Object Properties

2. On the `Agent Info` tab, select the appropriate capacity rule from the
`Capacity Rule` list box or click the `Browse` icon to search for and select a
capacity rule from the `Browse` dialog box that opens.

3. Click `OK` to save and close the `Properties` dialog box of your object.

The valid capacity rules you assign to agents in your contact center
environment take precedence over capacity-rule assignments to the places and
tenants to which the agent belongs.

Assigning Capacity Rules to Places

You can assign capacity rules to `Place` objects in the Configuration Layer as
well as to `Person` objects. However, such an assignment applies to the agents
belonging to the `Place,` and not to the `Place` itself. That is, by assigning a
particular capacity rule to a `Place,` you are not defining capacity for the
number and mix of interactions that place can handle. Rather, you are defining
the capacity for the number and mix of interactions each and every agent
logged in to that `Place` can handle.

Indeed, a quick way to assign a specific capacity rule to all agents who are logged in to a particular `Place` is to assign that capacity rule to the agents' corresponding place:

1. In Configuration Manager, open the `Properties` dialog box of a `Place` object.

2. On the `General` tab, select the appropriate capacity rule from the `Capacity Rule` list box or click the `Browse` icon to search for and select a capacity rule from the `Browse` dialog box that opens.

3. Click `OK` to save and close the `Properties` dialog box of your `Place` object.

The valid capacity rules you assign to places in your contact center environment take precedence over capacity-rule assignments to the `Tenant` to which the `Place` is a part. However, the assignments do not preempt valid assignments made directly to `Person` objects that may belong to the `Place`. This means if capacity-rule assignments are made to both an agent and his corresponding place, Stat Server uses the rule assigned to the agent—if it is valid—over the capacity rule assigned to his place.

Note: At this time, you cannot assign capacity rules to agent or place groups.

Assigning Capacity Rules to Tenants

Lastly, you can assign capacity rules to `Tenant` objects in the Configuration Layer as well as to `Place` and `Person` objects. Such an assignment applies to all of the agents belonging to the tenant—not to the tenant itself—provided that you have assigned no superseding rule (to the place or agent). By assigning a particular capacity rule to a tenant, you are defining the capacity for the number and mix of interactions that each and every agent belonging to that tenant can handle. This, in no manner, affects the number of interactions that can be processed within the tenant.

1. In Configuration Manager, open the `Properties` dialog box of a `Tenant` folder.

2. On the `General` tab, select the appropriate capacity rule from the `Default Capacity Rule` list box or click the `Browse` icon to search for and select a capacity rule from the `Browse` dialog box that opens.

3. Click `OK` to save and close the `Properties` dialog box of your `Tenant` folder.

The capacity rules that you assign to tenants do not preempt the assignments made directly to `Person` or `Place` objects that may belong to that tenant. If capacity-rule assignments are made to an agent, his corresponding place, and his corresponding tenant, Stat Server uses the rule assigned to the agent—if it is valid—over the capacity rule assigned to his place or to his tenant. If the capacity rule assigned to the agent is invalid, Stat Server considers the place-assigned capacity rule before considering the rule assigned to the tenant.

Assigning Capacity Rules Using the MCR Wizard

Toward the end of the MCR Wizard are two screens for deploying Genesys-provided capacity rules for the MCR solution. From these screens, you can deploy three prebuilt capacity rules within your environment and assign one of them to your `Tenant` object.

Note: At this time, you can use the MCR Wizard to assign capacity rules only to `Tenant` objects.

1. At the `Resource Capacity Rules Deployment` screen (shown in Figure 13), specify the folder in Configuration Manager that is to store the Genesys-provided rules. The `Scripts` folder is the default location. Click the `Browse` icon if you want to specify a different folder. Then, click `Next`.
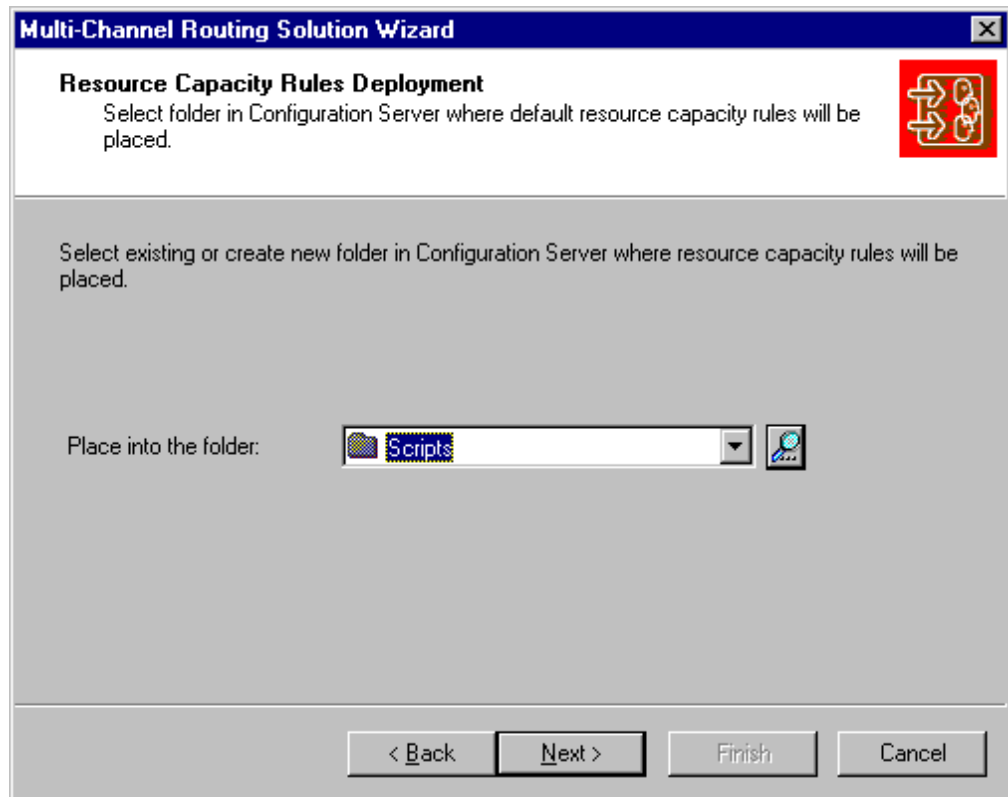
Figure 13: Deploying the Genesys-Provided Capacity Rules

The Wizard copies the three Genesys-provided capacity rules for the MCR solution to the folder you specify:

- `Default_One_interaction_of_any_type_only`
- `Default_One_media_allows_more_than_one_interaction`
- `Default_Voice_interactions_always_allowed`

See Chapter 6 for more information about these rules.

2. At the `Resource Capacity Rules Selection` screen, from the drop-down list box, choose a default capacity rule to apply to your tenant. Or, click the `Browse` icon, as shown in Figure 14, to select a capacity rule from the `Browse for Script` dialog box. Then, click `Next`.
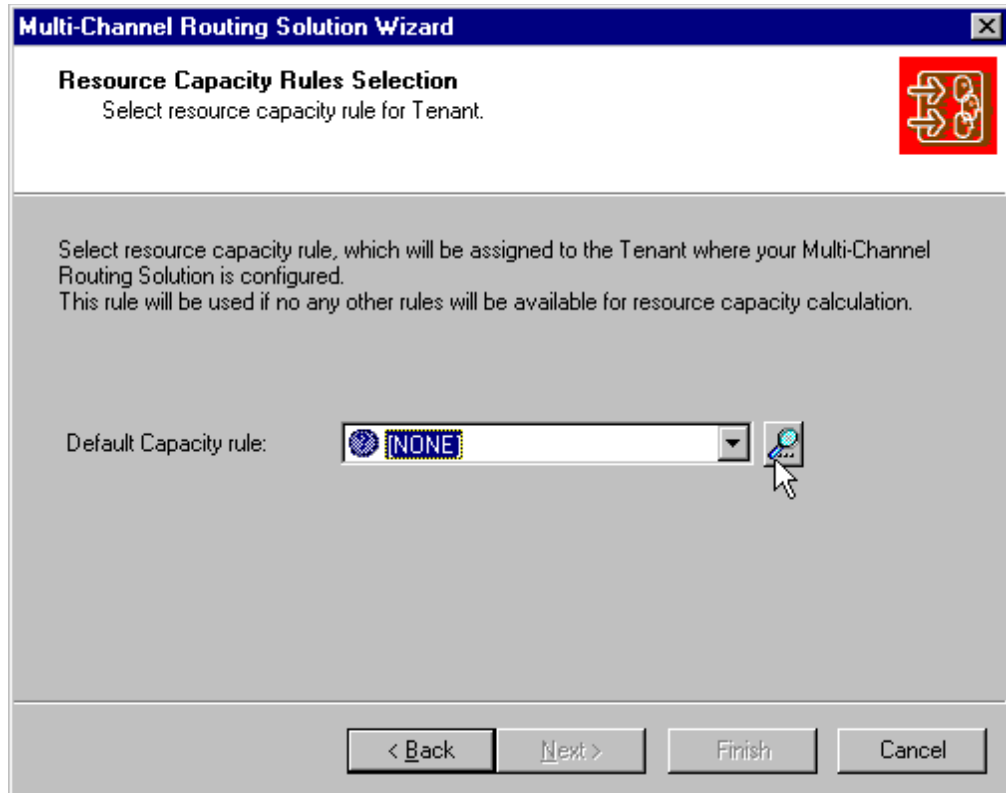
Figure 14: MCR Wizard: Applying a Default Capacity Rule to the Tenant

All agents belonging to the Tenant automatically inherit the capacity rule you assigned to the Tenant. If you want to assign a different capacity rule to an individual `Person` or `Place`, refer to the first two sections in this chapter.

3. Complete the MCR Wizard.

6 Genesys-Provided Capacity Rules

In the MCR 7.0 release, Genesys supplies three out-of-box capacity rules to be assigned to `Person`, `Place`, or `Tenant` objects. Moreover, if no capacity rules have been assigned to these objects, then default capacity rules inherent to Stat Server apply.

This chapter describes the Genesys-provided rules:

Default Capacity Rule

Stat Server uses the `Default` capacity rule when no capacity rule has been assigned directly or indirectly to an agent. This may occur when no capacity rule has been associated with the corresponding `Person`, `Place`, and `Tenant` objects in the Configuration Layer. This default rule is not accessible within the Configuration Layer and is uneditable as it is embedded within Stat Server logic.

The `Default` capacity rule allows an agent to receive one interaction each of any media type configured within the Configuration Layer. If, for example, Configuration Manager has the `voice`, `email`, and `chat` media types, then each agent can receive one voice interaction or one e-mail interaction or one chat interaction if he or she is not already working on an interaction of any type. If you configure an additional media type at a later time—`fax` for example—then the `Default` capacity rule automatically allows an agent to receive one fax interaction or one voice interaction or one e-mail interaction or one chat

interaction before the software determines that capacity is reached. Likewise, if you remove a configured media type from the Configuration Layer, the `Default` capacity rule applies and Stat Server no longer sends interactions of that media type to that agent. Figure 15 illustrates how this capacity rule is defined given three media types.

Figure 15: Default Capacity Rule

To define it another way, the rule states that if an agent has at least one interaction that he or she is already working on, a new inbound interaction of that type will not be distributed to him/her.

Default_One_interaction_of_any_type_only Capacity Rule

This capacity rule states that new e-mail, chat, or voice interactions cannot be distributed to an agent if he or she is already participating in any other interaction. This differs from the `Default` capacity rule just described in that three media rules for these media types are the only three comprising the capacity rule; whereas, the `Default` capacity rule will automatically formulate a media rule for each configured media type.

Figure 16 shows the definition of the `Default_One_interaction_of_any_type_only` capacity rule.

Figure 16: Default_One_interaction_of_any_type_only Capacity Rule

Note: This rule does not prevent an agent from participating in more than one interaction. The rule merely prevents the routing of new interactions to the agent under the stated circumstances.

Participation in an interaction includes those instances where the agent initiates customer contact, accepts an interaction that is transferred to him/her, and is involved in interactions other than voice, e-mail, and chat.

Default_One_media_allows_more_than_one_interaction Capacity Rule

This capacity rule prevents an agent from simultaneously handling more than one interaction of each media type, except e-mail, for which the rule allows for no more than five simultaneous interactions. Maximum capacity using this rule is one voice, five e-mail, and one chat interactions. Figure 17 shows how this capacity rule is defined.

Capacity rule: Default_One_media_allows_more_than_one_interaction

Resource capacity is reached for the following media types

- voice: if the resource is involved in at least one of the following:
  - 1 or more voice interaction(s)

- email: if the resource is involved in at least one of the following:
  - 5 or more email interaction(s)

- chat: if the resource is involved in at least one of the following:
  - 1 or more chat interaction(s)

Figure 17: Default_One_media_allows_more_than_one_interaction Capacity Rule

Default_Voice_interactions_always_allowed Capacity Rule

This capacity rule favors voice interactions over other interaction types in allowing agents to handle one voice interaction plus one interaction of any other type. Maximum capacity is reached when the agent participates in any of the following interactions:

- One voice interaction
- One voice and one chat interactions
- One voice and one e-mail interactions

Figure 18 shows how this capacity rule is defined.

Figure 18: _Default_Voice_interactions_always_allowed Capacity Rule

7

Capacity Snapshot

Stat Server's interpretation of the capacity rules you define are manifested in *capacity snapshots* which Stat Server logs whenever certain events take place, including:

- Any time a place is added to your configuration.
- When the state of readiness changes for a particular place and for a particular media from `NotReady` to `Ready` or from `Ready` to `NotReady`.
- When assigned capacity rules are created, altered, or deleted.
- As the number of concurrent or assignable interactions for each media type changes at a particular place.

This capacity snapshot appears in the Stat Server following this general format:

```
<date> <time> <loglevel>: Capacity snapshot for place
'<placeID>'('<tenant>'), agent '<agentID>'('<tenant>')
(CR='<CapacityRuleName>')

media_state   current_number    max_number    current_margin
-----------   --------------    ----------    --------------
[    S              N₁             N₂              N₃ ] <-- <mediatype>
```

where $[\ S\ N_1\ N_2\ N_3\ ]$ is a *capacity vector* relating to one particular media type. The four dimensions of this vector represent:

- The state of readiness, S, of a particular media at a particular place: either `NR` or `R` for `NotReady` and `Ready` respectively.
- The number of interactions, N_1, currently in progress at a specific target for the particular media
- The maximum number of interactions, N_2, of the particular media that can be routed to a specific target according to the current capacity rule given the condition that the number of interactions on each of other medias remains unchanged.

- The number of additional interactions, N_3, of a particular media that can be routed.

The `Ready/Not Ready` status recorded in the capacity vector differs from `Ready/Not Ready` state of places, which is documented in the *Stat Server User's Guide*. `Ready,` within the resource planning paradigm, signifies that the Genesys router can route an interaction of a particular media type to this DN, whereas `Not Ready` signifies that it cannot.

For example, the `[ NR 0 1 0 ]` capacity vector for target `PlaceX` and `Voice` media type signifies that `PlaceX` is in `NotReady` state, no voice interactions are currently registered at `PlaceX,` and that Stat Server can assign no interactions to `PlaceX`. From this information, you can surmise that Stat Server has not yet connected to T-Server and because of this, one cannot actually know whether or not a voice interaction is currently underway.

Capacity vector `[ R 1 2 1 ]` at `PlaceY` for `E-mail` media type signifies that `PlaceY` is in `Ready` state, one e-mail interaction is currently underway at `PlaceY,` and one additional e-mail interaction can be routed to `PlaceY`.

Note: N_1 may exceed N_2 in situations where the agents themselves initiate interactions.

Check your Stat Server log for this capacity vector to better understand the mechanics of how Stat Server applies your capacity rules to resources.

![Genesys logo]

Chapter

8

Troubleshooting Capacity Rules

When you validate a capacity rule, you may encounter errors or warnings on the `Error View` pane of the Capacity Rule Editor (CRE) that require resolution before the rule can be used. You may also encounter messages indicating capacity rule–related problems in your Stat Server log or the Message Server if you have set up alarm conditions.

This chapter lists some common errors and describes how to resolve them:

No Media Rules

The `Error View` displays the following message when you attempt to save or validate a capacity rule when it is empty:

```
Error: Capacity Rule does not contain any media rules. Add a
media rule to the Capacity Rule.
```

CRE does not allow you to save empty capacity rules. Each capacity rule must contain at least one media rule, which itself specifies at least one condition. Figure 19 illustrates an empty capacity rule.
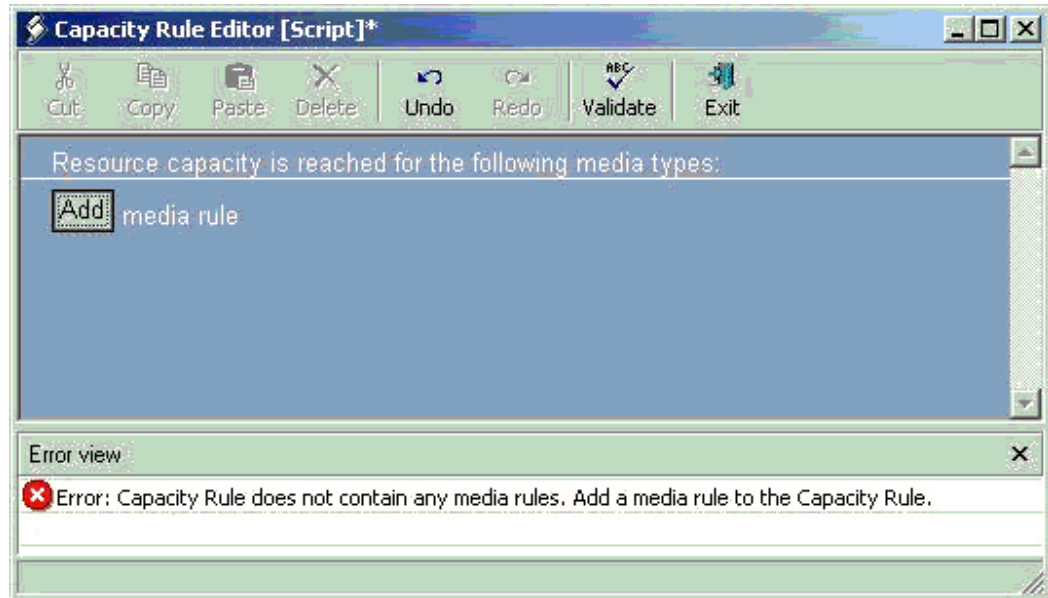
Figure 19: Empty Capacity Rule

To correct this error:

1. Add a media rule to a capacity rule by clicking the `Add` button.

    The Capacity Rule Editor inserts a media rule labeled ⟨`unknown`⟩.

2. Click the editing symbol preceding ⟨`unknown`⟩ and select `Add Condition` from the context menu that appears to define the media rule.

3. Add and define additional conditions and/or media rules as necessary.

4. Validate the rule.

Missing Media Rule

The `Error View` displays the following message when you attempt to validate a capacity rule and the Capacity Rule Editor determines that a media rule is missing:

```
Error: Media X is used in media rule for media Y but Capacity
Rule does not contain a media rule for media X. Create a media
rule for X.
```

The capacity rule must contain a dedicated media rule for each media type used in the capacity rule. Figure 20 illustrates a capacity rule that limits `vmail` interactions when a resource is involved in one or more `chat` interactions; however, the capacity rule fails to define a `chat` media rule.
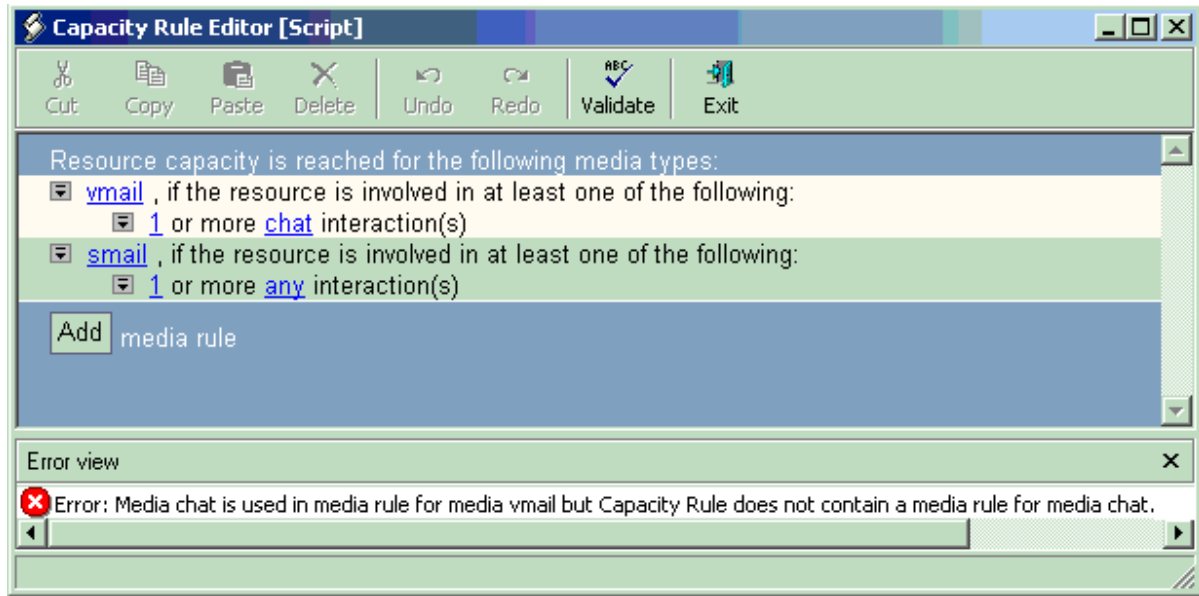
Figure 20: Example of Missing Media Rule

1. To correct this error, either click the `Add` button to add a media rule or define the media rule for the media type that is missing.

2. Repeat this action for each media type used in the capacity rule that is not already defined.

3. Validate the rule.

Alternatively, you can remove any condition from the existing media rules for which no dedicated media rule exists.

Infinite Capacity

The `Error View` displays the following message when you attempt to validate a capacity rule and the Capacity Rule Editor detects media rules having potentially infinite capacity:

```
Error: Media rule for media X has infinite capacity. Add a
condition to limit the capacity of media X.
```

Each media rule must have a restrictive condition for its media type. Figure 21, for example, illustrates an infinite capacity situation. There is no limit to the number of `vmail` interactions that could be assigned to a resource when the number of scanned mail (`smail`) interactions is less than four.
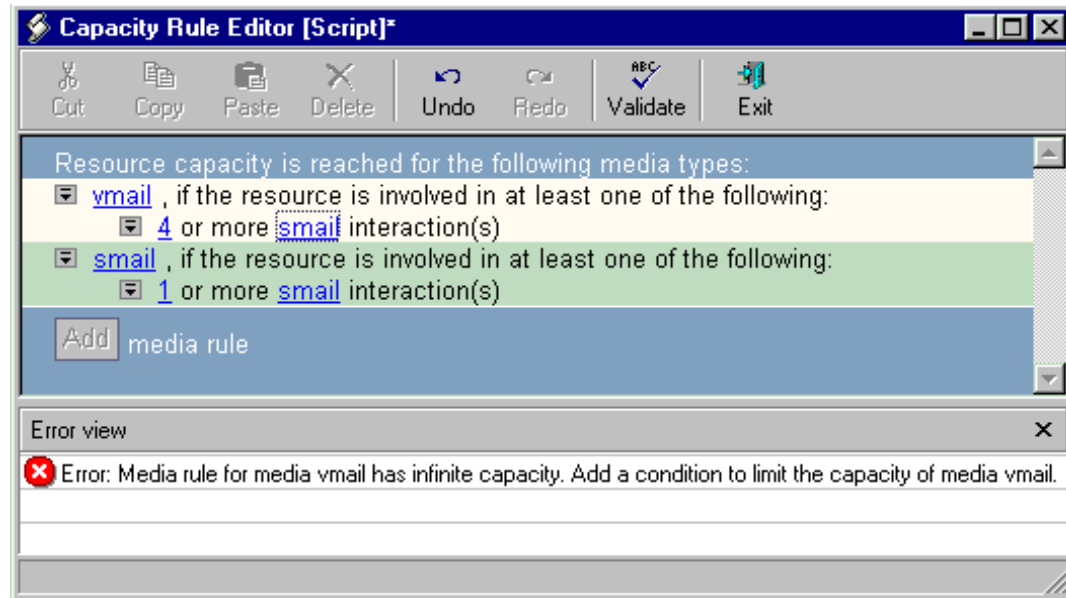
Figure 21: Example Illustrating Infinite Capacity

To correct this error:

1. Click the editing symbol preceding the erroneous media rule.

2. Select Add Condition from the context menu that appears.

3. Define the condition to address interactions of the media rule's own type (or any type).

4. Validate the rule.

Figure 22, for example, shows that a condition addressing vmail interactions has been added to the vmail media rule.
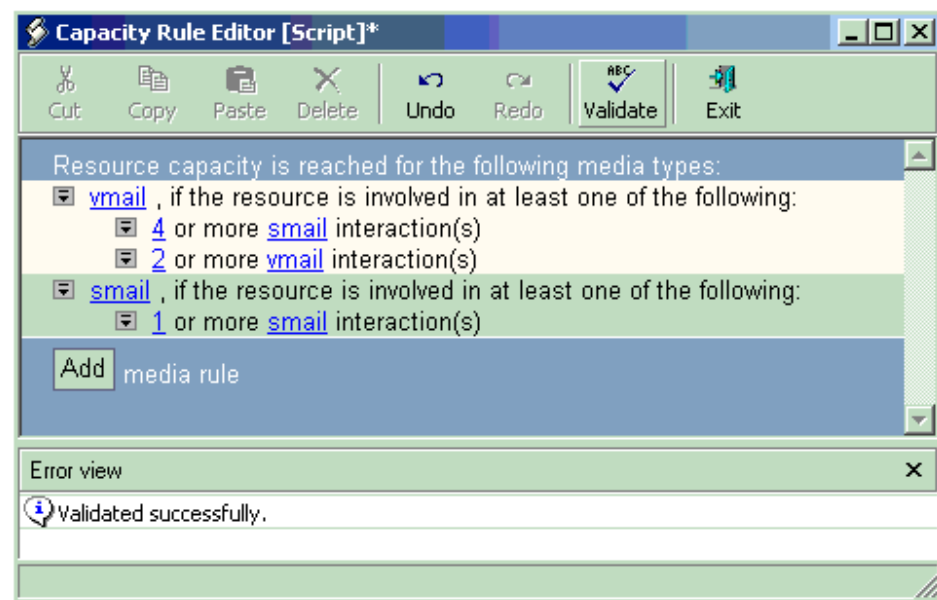
Figure 22: Infinite Capacity Resolved

No Conditions

The `Error View` displays the following message when you validate a capacity rule and no conditions have been created for a media rule:

```
Error: Media rule for media X does not have any conditions. Add a
condition to the media rule.
```

Each media rule must have at least one condition. Figure 23 illustrates a capacity rule with one media rule that specifies no conditions.
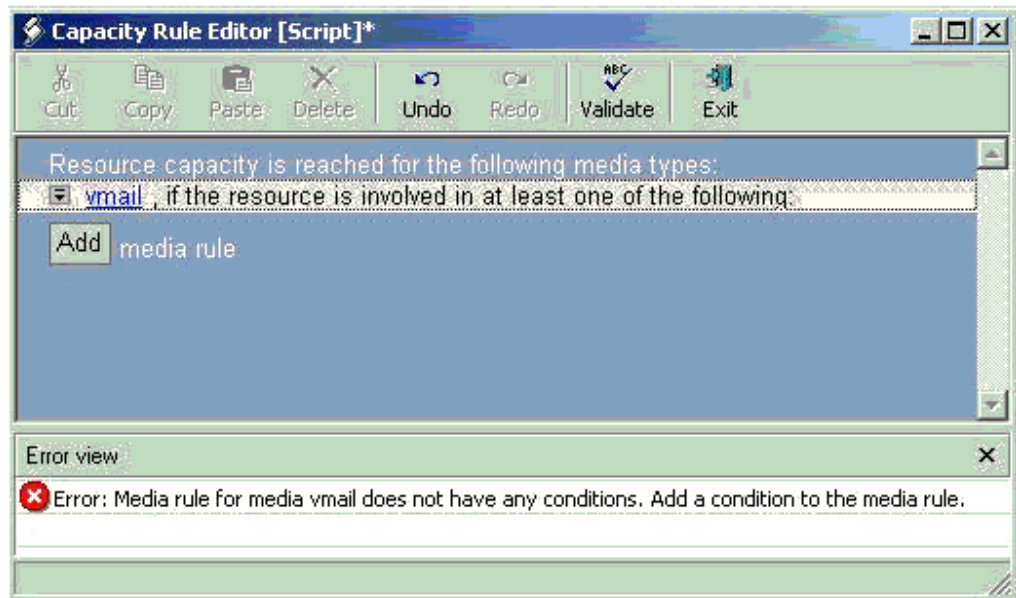
Figure 23: Example of a Media Rule Without Conditions

To correct this error:

1. Click the editing symbol preceding the erroneous media rule.

2. Select `Add Condition` from the context menu that appears.

3. Define the condition.

4. Repeat Steps 2 and 3 for the number of conditions you want to ascribe.

5. Validate the rule.

Undefined Media

The `Error View` displays the following message when you attempt to validate a capacity rule containing an undefined media rule:

```
Error: Media rule with undefined media. Specify a media for the
media rule.
```

When you click the `Add` button, CRE inserts a temporary structure which it names `<unknown>`. The `unknown` media does not hold any significance to Router and you should change this to a meaningful media, such as `voip`, `chat`, or `email` before leaving the Editor. Figure 24 illustrates a capacity rule with an `unknown` media type.
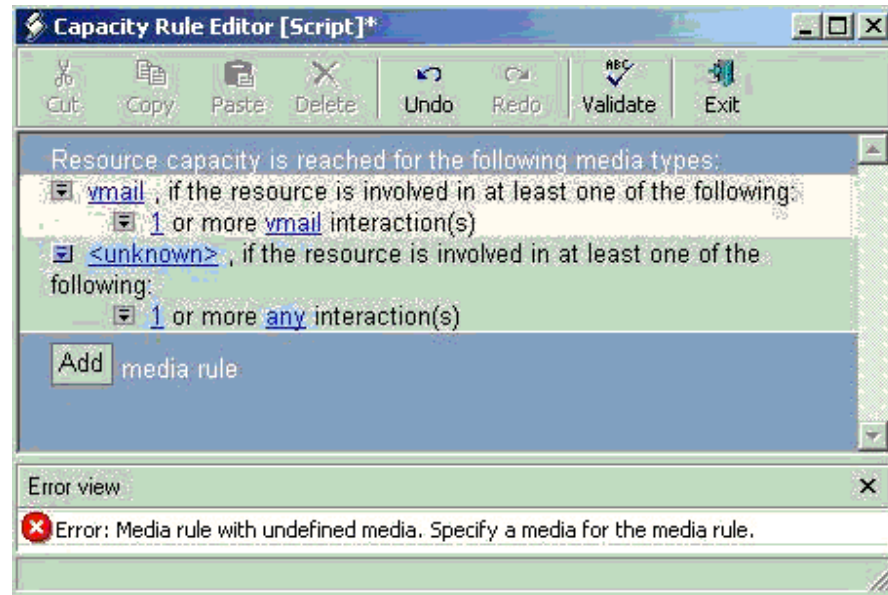
Figure 24: Example of Media Rule with Unspecified Media

To correct this error:

1. Click the `<unknown>` link and select an appropriate media from the popup menu that appears.

2. Make sure the media rule includes a restrictive condition limiting the number of interactions of the media's type.

3. Validate the rule.

Duplicated Media Rule

The `Error View` displays the following message when you attempt to validate a capacity rule containing two or more media rules of the same type:

```
Error: Media rule duplicated. Remove duplicate media rule.
```

Capacity rules should only contain a single media rule for each media type. Figure 25 illustrates this error in defining two media rules for `vmail`.

**Figure 25: Example of Two Identical Media Rules Present for One Media
Type**

To correct this error, either:

1. Delete the redundant media rule or change the redundant media rule to a
medium that has not already been defined for the capacity rule.

2. Validate the rule.

Media Rule Too Complex

The Error View displays the following message when you validate a capacity
rule containing two or more media rules of the same type:

```
Error: Media rule for <media_name> is too complex. Try to delete
some conditions that use media "any"
```

The Capacity Rule Editor has some internal limitations for the number of
concurrent conditions and conditions specifying any interaction that it can
handle. Figure 26 illustrates a capacity rule that surpasses these internal
limitations.
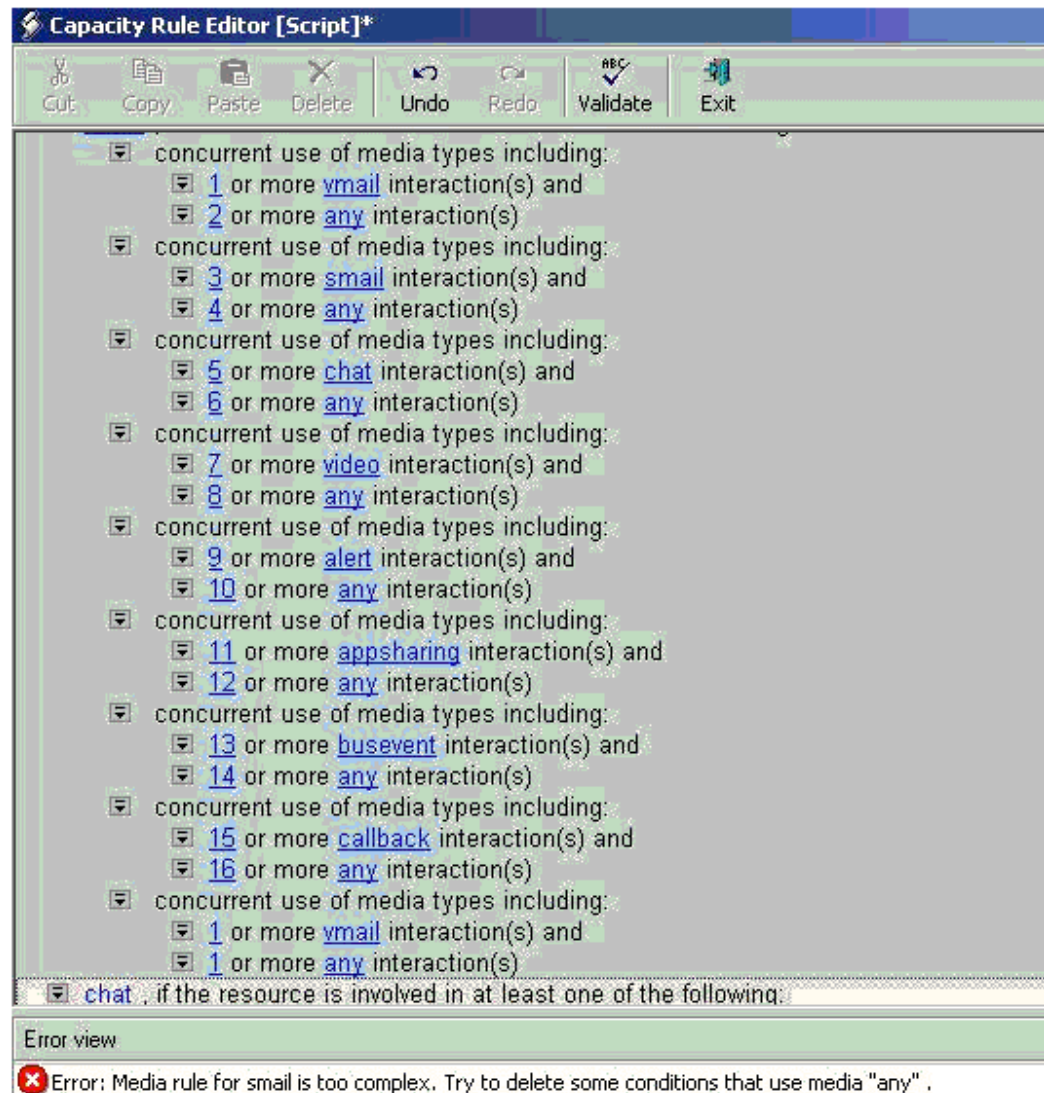
Figure 26: Example of Too Complex Media Rule

To correct this error:

1. Remove from your media rule some of the any interaction used in concurrent conditions.

2. Validate the rule.

How Stat Server Handles Invalid Rules

If an agent capacity rule is invalid or missing, the place capacity rule applies to the agent. If the place capacity rule is invalid or missing, then the tenant capacity rule applies to the agent. If the tenant capacity rule is invalid or missing, then the Default capacity rule applies to the agent.

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