Genesys

Genesys 8.1

Resource Capacity Planning Guide

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Preface

Welcome to the *Genesys 8.1 Resource Capacity Planning Guide.* This document describes the methodology and inner workings of the planning tools Genesys offers to assist you in managing human resources in a multimedia contact center environment.

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This guide is valid only for the 8.0.*x* release(s) of the Resource Capacity Wizard and Editor. It describes their operation and behavior when paired against an 8.1.*x* version of Stat Server.

Note: For versions of this document that have been created for other releases of this product, please visit the Genesys Documentation website, or request the Documentation Library DVD, which you can order by e-mail from Genesys Order Management at `orderman@genesyslab.com`.

For information about related resources and about the conventions that are used in this document, see the supplementary material starting on page 65.

About Resource Capacity Planning

Resource capacity planning within a 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.

You should also be familiar with Genesys Framework architecture and T-Server and Stat Server functions.

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Document Change History

This is the first release of the *Genesys 8.1 Resource Capacity Planning Guide*. In the future, this section will list topics that are new or have changed significantly since the first release of this document.

1 Overview

Resource Capacity Planning (RCP) represents Genesys's latest methodology for distributing contact-center interactions. Stat Server is the principle element at the core of resource capacity planning, feeding the capacities of resources to Multimedia and Universal Routing servers—information that is needed to make intelligent routing decisions. Together with the business-priority planning that you define, RCP enables you to better manage agent workload and interaction delivery.

This chapter contains the following sections:

New in This Release

This *Genesys 8.1 Resource Capacity Planning Guide* introduces the following features:

- Beginning with Stat Server 8.1.2, support for interactions that are distributed in a SIP Cluster deployment. Stat Server supports a restricted release of SIP Cluster. For information on Stat Server in the SIP Cluster solution, see page 16. For information on Genesys SIP Cluster technology, contact your Genesys representative.

- Support for the Resource Capacity Wizard on the Windows Vista and Windows 7 platforms. These and other supported platforms are listed beginning on page 19.

- Ability to configure one or more security banner(s) for display to users before the Resource Capacity Wizard is invoked. You configure this feature during the installation of the Wizard, which is described beginning on page 20.

- Additional tips, beginning on page 57, for troubleshooting capacity rules when you cannot alter them or when you cannot save the changes that you have successfully made.

- The latest *Framework Stat Server User's Guide* or *Framework Stat Server Deployment Guide* describe other new features for configuring Stat Server statistic definitions and the Stat Server application.

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 to 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 makes sense to use only the media types that your set of Genesys solutions supports. The Multimedia 8.0^+ (and higher) releases, for example, support `chat, email, sms` (short message service), and open-media media types for capacity planning.

Note: Interactions categorized under the `webform` media type, which was available in prior releases, are now processed as `email` 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.

In most cases, you can also associate a capacity rule to a `Place` object within Configuration Manager (except for those environments in which Stat Server monitors interactions that are distributed from a SIP Cluster. Refer to "Capacity Planning for New Agent-Place Model" on page 16 for more information). When a capacity rule is assigned to a `Place`, the rule applies to all agents who are logged in to DNs that belong to the place and who do not already have a capacity rule directly assigned to them (that is, to their `Person` objects).

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.)

For details on how to associate capacity rules to resources, see Chapter 4. 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 prerogative.

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 the agent's ability to receive interactions of that particular media type.

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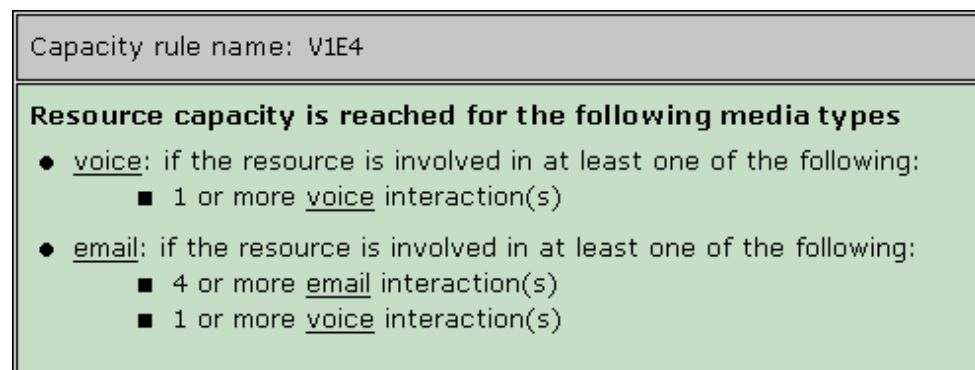

Figure 1:   A Sample Capacity Rule with Two Media Rules

When assigned to a specific resource—Susan, for example—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 has only 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, might disqualify or prevent her from receiving new interactions. For instance, she might have logged off the email media type and surrendered her license to receive e-mail interactions; she might not possess the required skills to handle a particular interaction; her status might be NotReadyForNextCall or she might be performing after-call work; or the environment's routing strategy might favor the distribution of e-mail 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 2 and 3 introduce the tools you will need to use to accomplish this.

A media rule might 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 the system considers that agents are no longer 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 might still be available for interactions of other media types.

How to Use Capacity Rules

A useful application of resource capacity planning might be to create capacity rules and apply them to the following:

- Agents or collections of agents (not agent groups) of different abilities. You can create different capacity rules for such cases and assign the different rules to agents who have different abilities. (At present, Stat Server does not support capacity rules for `GroupAgents` or `GroupPlaces` objects.) For example, you could create a `Seasoned` capacity rule and assign it to agents who can handle more chat interactions, for example, than less-qualified agents. (To the latter, you would assign any of the `NewHire,` `AvgWorkload,` or `1ChatOnly` capacity rules that you might create.)

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

Note: Whether Stat Server considers (in its determination of resource capacity) the interactions that are initiated or received while the agent-associated directory number (DN) is in after-call work (ACW) status is configurable. Review the description of the `capacity-treat-acw-as-interaction` Stat Server configuration option in the *Framework Stat Server Deployment Guide* for more information.

Genesys Resource Allocation Prior to RCP

The routing-allocation model that Genesys used prior to resource capacity planning depended on the state of an agent and the status of the agent's DN as determined by Stat Server. This dependency focused heavily on the Genesys

telephony model, which is described in the "Genesys Telephony Model" section of the *Reporting Technical Reference Guide*.

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

• No monitored interactions currently in progress or

• *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 that is provided in Stat Server's Status Priority tables.)

However, if you have set the router's useAgentState configuration option to false, Ready signifies that an agent has either of the following:

• No monitored interactions currently in progress.

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

As a result of this ready-agent view, Genesys software, prior to resource capacity planning, supported a one-at-a-time model of interaction distribution. With few exceptions, this model is still well suited for environments that distribute live voice interactions. It does not, however accommodate situations in which an agent can receive and handle additional live voice calls while the agent is already actively involved in one—as might be preferable in rare situations in which a high-priority call, for example, enters the contact center and no other qualified agent is "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 non-telephony–related media, such as e-mail, and is not particularly effective in blended media environments, such as those that distribute 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 such as email and chat—and 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 that an agent can simultaneously handle held a one-to-one correspondence to the number of DNs that are configured for that agent.

This "Media DN" model, however, did not depict reality; it did not allow the distribution of a voice interaction, for instance, to a particular agent if that agent was already participating in an e-mail interaction, nor could one specify that the agent was able to accept and participate in a predefined number of interactions simultaneously.

Capacity Planning for Voice Interactions

Because many different types of telephony devices are continuously being developed, attention should be paid during capacity planning to some peculiarities in the ways that Genesys software routes voice interactions. 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.

A *single-DN place* is a device that has only one directory number ascribed to it.

As a general rule, in regard to Genesys environments that uses a nonSIP (Sessions Initiated Protocol) Server, Genesys capacity planning enables routing to *single-* or *multi-DN places* where an agent performs a login to each DN. When DNs exist at a place to which the agent does not log in, Genesys software does not consider those DNs in its calculation of resource capacity.

Multi-DN places or *multiline DNs* are devices that have more than one directory number ascribed to them.

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 multiline DNs that occupy two DNs for each Genesys place—a Position DN and an 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. Ensure that you consider this when incorporating capacity planning into your routing strategies. IVR phones present additional examples of multiline DNs for which the Genesys capacity model is unable to direct more than one voice interaction at a time.

There are two exceptions to this 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 1/Meridian Link Symposium model, it is the Position DN that the agent logs in to, not the Extension DN. However, the Genesys router routes calls—one at a time—to the Extension DN, given an agent login on the Position DN.

Capacity Planning for Multimedia DNs

Prior to the 7.6 release, Genesys capacity planning, from the routing perspective, treated multiline DN devices (such as IP phones that have simultaneous video and multiline DN capabilities) as single-line, voice DNs. Genesys software permitted the routing of one and only one voice interaction, for instance, to these DNs, provided that no other voice interaction was already occurring at the DN. The presence of an interaction on a DN prevented the routing of another interaction to that DN, even though the DN was capable of

handling an additional interaction of a different media type. Furthermore, each DN was associated with a single media type.

A multimedia DN is a single directory number than can receive simultaneous interactions of more than one media type.

The Stat Server 7.6 release introduced support for the *multimedia DN*—a DN type that is controlled by SIP Server. To specify the physical capacity of a multimedia DN, the `voice` configuration option was introduced in the Framework 7.6 release for `Extension`-type DN objects. Setting this option to `true` enables you to specify whether capacity for voice interactions applies to the multimedia DN. Multimedia DN capacity settings propagate to capacity rules for supported resources. Refer to the "Configuring DNs to handle instant messaging" procedure in the *Genesys Instant Messaging Solution Guide* for more information on this topic.

Unlike a single-media DN, a multimedia DN supports multiple media (for example, voice and chat) on each DN. Introduction of this multimedia DN to a Genesys contact-center environment enhances the resource capacity model by enabling the Genesys Universal Router Server (URS) to route multiple interactions to a single instance of such a DN. The model now enables URS to route one or more of chat and/or voice interactions to the same DN if the DN is configured as `multimedia`, its type is `Extension`, and the servicing T-Server is SIP-compliant.

To support this new functionality, the semantics of actions that are generated by Stat Server for statistic and status calculation of multimedia DNs have been updated. In addition to prior classifications, actions can now be *media-dependent* or *media-independent.* Furthermore, media-dependent actions can be further classified as *media-unique* or *media-common.*

An action is media-unique if only one action of a particular media type can exist on a device. For example, the `LoggedIn` action is media-independent. Generation of this action does not rely on the media channel to which an agent registers. Contrarily, the `CallInbound` action is media-dependent, because inbound interactions in the current capacity model are always associated with only one media type. Furthermore, the `CallInbound` action is media-common. In fact, all call-related actions are media-dependent and media-common. The `WaitForNextCall`, `NotReadyForNextCall`, and `AfterCallWork` actions that occur on multimedia DNs are classified as media-dependent and media-unique.

Prior classifications of actions ran along the following lines and are still applicable to multimedia DNs:

- Actions are either durable or instantaneous.

- Actions are either related to interactions or not.

- Actions are generated for either mediation DNs or regular (or multimedia) DNs.

Refer to the *Framework Stat Server User's Guide* for a complete listing of how Stat Server–generated actions are categorized.

Capacity Planning for New Agent-Place Model

Stat Server 8.1.0 and prior releases (8.1.0⁻) always checked which place a DN belonged to as part of its algorithm for determining capacity. With this information, Stat Server 8.1.0⁻ was then able to link an agent, who was logged in to the DN, to the place. In a SIP Cluster environment, however, you do not create DN objects in Configuration Server (where Stat Server looks for DNs). Instead, DNs are managed within the SIP Cluster solution. Given this DN-less model and the independence that `Agent` and `Place` objects gained in the 8.1.2 release, there is no theoretically correct way that the model used by Stat Server 8.1.0⁻ can associate an agent with a place. And, with multiple and different types of clients (multiple types of T-Server, SIP Server, and Interaction Server)—each potentially reporting different kinds of associations between agents and devices—there is no single entity in which Stat Server 8.1.0⁻ can maintain a one-to-one constraint of agent to place. So, the model in Stat Server 8.1.2 was improved primarily for scalability but also to address this SIP Cluster environment.

Stat Server 8.1.2, operating in either regular mode or restricted cluster mode[1], does not require that a DN be assigned to a particular place for the purposes of agent or agent-group reporting. In the 8.1.2 release, when Stat Server receives the `EventAgentLogin` TEvent, Stat Server tries instead to identify the agent in configuration by matching the `AgentID` attribute of the TEvent with the `EmployeeID` attribute of an agent (`Person` object) in configuration. If Stat Server succeeds in finding a match, Stat Server then is able to link the configured agent to the DN. Any agent-state changes or interactions occurring at the DN can then be attributed to the agent for determining capacity. In this model, there is no association at all between agent and place. In fact, `Place` and `PlaceGroups` objects are not supported at all in restricted cluster mode operation of Stat Server 8.1.2.

Capacity Rule Inheritance

Capacity rule inheritance in the Stat Server 8.1.2 release also differs from that of the Stat Server 8.1.0 release.

In the 8.1.0 release, Stat Server is able to create an implicit relationship between an agent and a place as described above. You can assign capacity rules to both `Agent` and `Place` objects in configuration (to `Tenant` object as well), and Stat Server will determine which rule prevails:

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1 Refer to the *Framework 8.1 Stat Server Deployment Guide* and the *Framework 8.1 Stat Server User's Guide* for information about Stat Server operation in regular mode and in restricted cluster mode.

- If the agent has an explicitly defined and valid capacity rule, then that rule overrides the capacity rule that might be assigned to the place.
- If no capacity rule is assigned to the agent, the capacity rule explicitly assigned to the place prevails.
- If no capacity rule is assigned to the agent or the place, then the capacity rule explicitly assigned to the tenant prevails.
- If no capacity rule is assigned to the agent, the place, or the tenant, the inherent default capacity rule of no more than one voice interaction prevails.

In the 8.1.2 release, Stat Server operating in restricted cluster mode does not support `Place` objects. Capacity rule inheritance is this mode is straightforward and linear: agent > tenant > default. In regular mode, however, there are two different chains of precedence that Stat Server observes:

- agent > tenant > default capacity rule
- place > tenant > default capacity rule

In regular mode, Stat Server does support `Place` objects; however, Stat Server 8.1.2 does not associate agents with places as it did in prior releases. The reasoning behind this improved logic enables advanced configurations where:

- Two (or more) DNs could be associated with one place. This configuration allows two independent agents to log in to these DNs.
- One agent might be logged in to more than one DN. This configuration allows DNs to belong to different places.

In both cases, Stat Server aggregates information without having to determine which one agent should be associated with the one place.

The Capacity Vector

The Universal Routing Server (URS) requests four statistics from Stat Server in order to determine which contact center object has the capacity to receive a routed interaction. The statistics all share the same statistical category (`CurrentTargetState`), but they each differ in object:

`Agent, Place, GroupAgents, GroupPlaces`

If an interaction appears on a DN, Stat Server 8.1.0ˉ reflects this information in the capacities of the corresponding `Place` and `GroupPlaces` objects. And, by association, this interaction would also be reflected in the capacities of corresponding `Agent` and `GroupAgents` objects. Stat Server 8.1.0ˉ returns one capacity vector only to URS when all four `CurrentTargetState` statistics are opened for the associated object. (Capacity vectors, or snapshots, are described in Chapter 6.)

In the 8.1.2 release, however, Stat Server must send two capacity vectors—one vector for `Place` and `GroupPlaces` objects, the other for `Agent` and `GroupAgents` objects—because agents and places are not linked in this release.

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2 Resource Capacity Wizard

The Resource Capacity Wizard (RCW) is one of the many Genesys Framework and Solution Wizards that you invoke from the Genesys Wizard Manager. (The Genesys Wizard Manager is described in the *Framework 8.1 Deployment Guide.*) Use RCW and its Capacity Rule Editor (CRE) to create new capacity rules or modify existing ones. In multi-tenant environments, you can also copy capacity rules and paste them among different tenants within 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. It contains the following sections:

Prerequisites

You can operate the Resource Capacity Wizard on the following Windows platforms:

- Windows Server 2003 (32- and 64-bit systems) Service Pack 1 (SP1) or higher
- Windows XP SP2 or higher (32-bit systems)
- Windows 7 (32- and 64-bit systems)
- Windows Vista (32-bit systems)

> **Note:** Microsoft XML Core Services 4.0 Service Pack 2 must be installed on this platform.

To invoke the Resource Capacity Wizard, your release of Configuration Server must be 7.0.1 or higher.

Installing the Resource Capacity Wizard

You can deploy only one instance of the Genesys 8.0 Resource Capacity Wizard on any given host. If the Wizard is already installed, you must uninstall it first before installing it anew. Refer to page 27 for instructions on uninstalling the Wizard.

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

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

3. At the `Security Banner Configuration` dialog box, decide whether to configure a security banner for user entry to the Resource Capacity Wizard application. If configured, this security banner will prompt the user to accept or reject conditions of use before the Wizard is invoked.

   If you mark the `Enable Security Banner` box, additional options, which are shown in Figure 2, appear on this dialog box and prompt you to apply this feature to all Genesys applications that support it or only to the current application. Click `Next`.
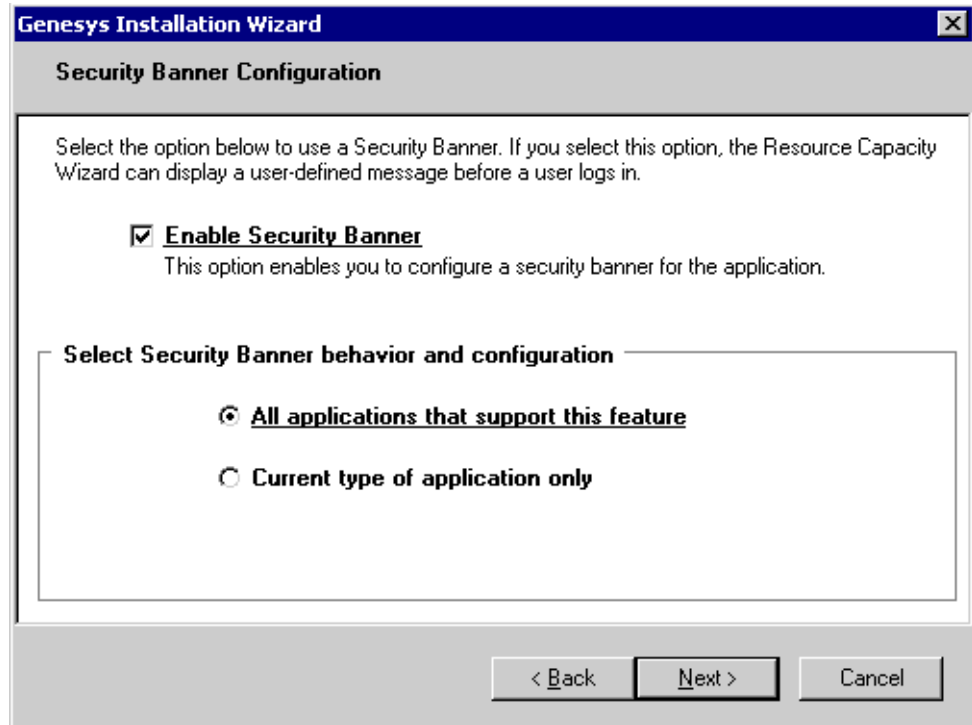
Figure 2:   Configuring a Security Banner

4. If you opted to display a security banner at Step 3, in the `Security Banner Parameters` dialog box, configure the following parameters:

- When to display the security banner during the next launch of the Resource Capacity Wizard (either every time the application starts or at the user's discretion)

- How the application should process a login if the banner cannot be displayed (proceed or exit)

- The title to display on the browser

- The amount of time that should elapse before the application displays a temporary message in the event that the security banner has not yet loaded

- The height and width of the security banner

> **Tip:** If you leave the height and width fields blank, the resultant browser window for the security banner will automatically resize to fit the content. However, if you do specify values and later want to change them, you can edit the `Height` and `Width` entries directly in the Windows registry under the following:
> `HKEY_LOCAL_MACHINE\SOFTWARE\GCTI\UniLogin\Banner`

For the first two configuration parameters, predefined choices are available in list boxes from which you can select.

If you opted not to display a security banner to your users, skip to Step 7.

5. Toward the bottom of the `Security Banner Documents` dialog box, input the Uniform Resource Locator (URL) of your security message and add it to the list that is above the URL field.

   You can configure more than one security banner to display to users. For each subsequent security message that should be displayed, enter its URL too and add it to the list. Then, click `Next`.

   Note: The installation routine does not validate URLs.

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6. If you elected not to have the Wizard invoked when the security banner cannot be displayed at Step 4 (second bullet), toward the bottom of the `Security Banner Error Documents` dialog box, enter the URL of your error page(s) and add it to the list that is above the URL field, or leave this field blank. Then, click `Next`.

   If you elected to proceed (at the second bullet of Step 4), this dialog box does not appear. Proceed to Step 7.

7. At the `Ready to Install` dialog box, click `Install`.

   The installation routine copies the files that are needed to operate the Resource Capacity Wizard to the directory in which the Genesys Wizard Manager was installed.

8. In the `Installation Complete` dialog box, click `Finish`.

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

Invoking the Resource Capacity Wizard

You can invoke RCW from a number of locations including:

- The Multimedia Wizard. (From the `Framework Objects` screen, select a `Capacity Rule` object type and click `Add` as shown in Figure 3.)

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

After you have invoked RCW, you can select one of the two methods to create a capacity rule. Both methods are discussed in the sections that follow.
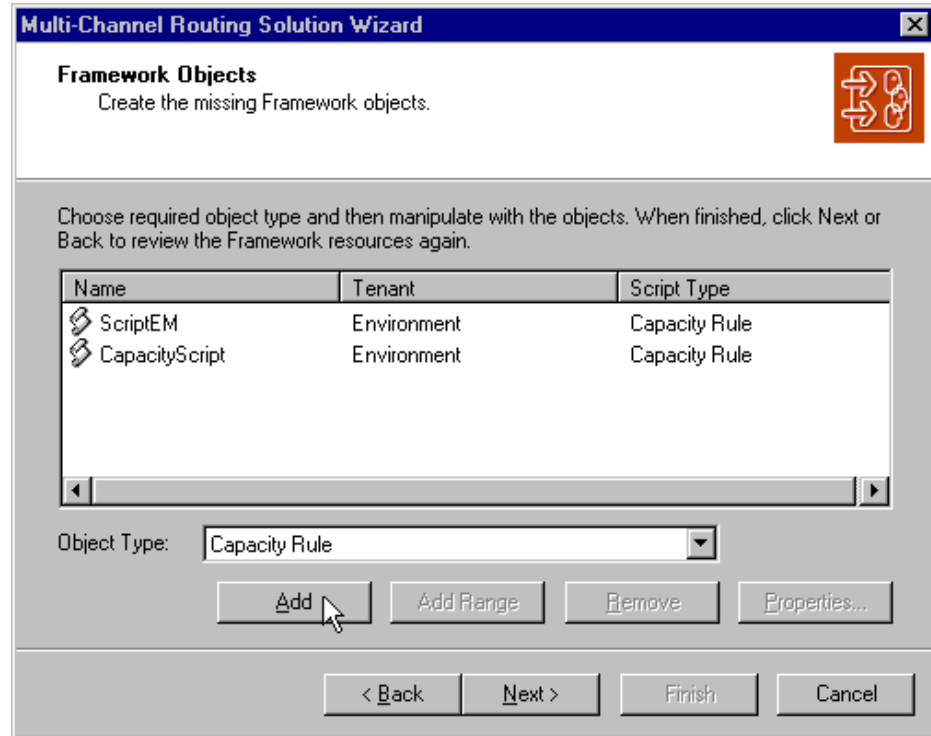
Figure 3:   Calling the Resource Capacity Wizard from the Multimedia Wizard

Note: The installation routine deploys a `Resource Capacity Wizard` program folder inside the `Programs > Genesys Solutions > Framework` folder (accessible from the `Start` menu). The command that is available in this folder invokes the general Genesys Wizard Manager, not the Resource Capacity Wizard directly.

Creating a Capacity Rule from Scratch

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

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

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

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

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

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

5. In the `Media Types` screen (shown in Figure 4):

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

        Under typical circumstances, you will need just three media types: `voice`, `email`, 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 the assumption that only interactions of this media type are present.

        The number that you specify 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.

    c. When you are done, click `Next`.

The media types and maximum values that you specify at this screen are used during the next step should you invoke the Capacity Rule Editor. Figure 4, for example, shows three media types having been selected at this screen.

Figure 4:   Selecting Media Types for Your Capacity Rule

6. In 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 the resource's 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 , which begins on , for instructions on how to operate the Capacity Rule Editor.

7. In the `Summary` screen, click `Finish`.

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

If you want to change the capacity rule after you have left the Wizard, right-click the name of the script in Configuration Manager. Then, from the context menu that appears, select `Wizard > Configure` to reinvoke the Wizard. Finally, open the Capacity Rule Editor that is accessible from 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 Resource Capacity Wizard creates an empty, invalid rule. You must configure it by using the Resource Capacity Wizard, before Stat Server can use it.

Creating a Capacity Rule from an Existing Rule

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

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

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

   The Wizard does not allow you to advance to the next screen, if you have not provided a unique name.

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

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

6. In the `Used Media` screen, verify that the media types that are selected and the maximum capacities that are indicated are appropriate for your new capacity rule—or change them accordingly—and click `Next`. (Figure 11 on shows this dialog box.)

At this screen, the Wizard displays media types that have been previously configured for the current tenant, including custom media types.

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

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

Reconfiguring Capacity Rules

You can reconfigure an existing capacity rule, after you have created it:

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

2. From the context menu that appears, select `Wizard > Configure`.

3. From the `Script Properties` dialog box that appears, click the `Advanced` tab. Figure 5 shows this dialog box for a sample script.

4. Choose the appropriate media, and specify the maximum capacity for those media.

5. Invoke the Capacity Rule Editor to change the definitions of constituent media-type rules. When you are done, exit the Capacity Rule Editor.

6. Click `OK` at the bottom of the `Script Properties` dialog box.
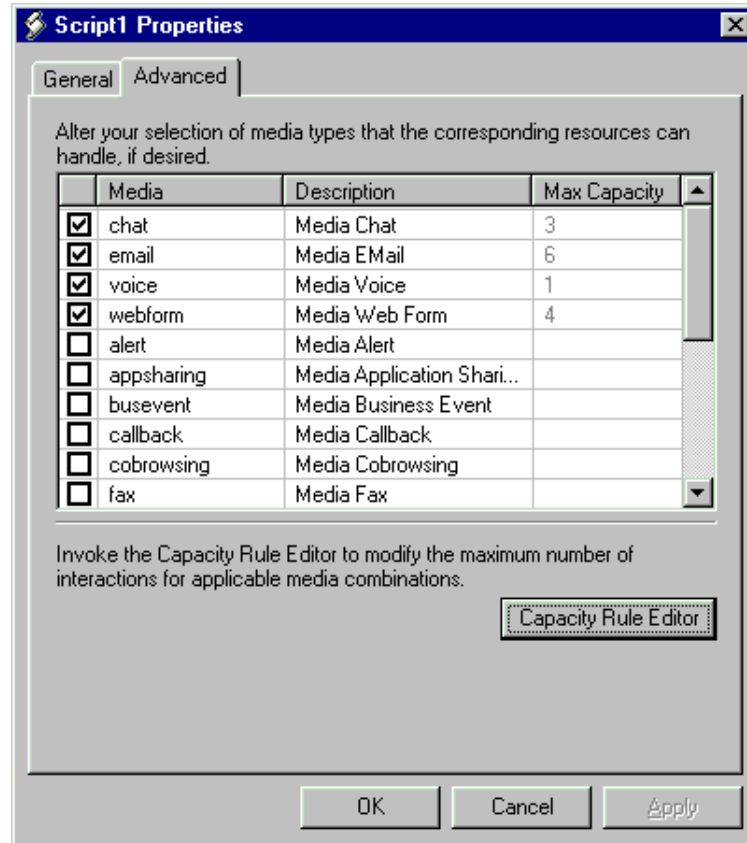
Figure 5:   Properties of a Sample Capacity Rule Script

Deleting Capacity Rules

You can remove a capacity rule script from the Configuration Layer by deleting the corresponding script object in Configuration Manager. You should exercise caution, however, when you perform this action. Make sure that the capacity rule that 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 might render the resource unavailable to some or all media. Consult the *Multimedia 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

Uninstalling RCW removes neither any capacity rule scripts from the Configuration Layer nor their assignments to resource objects. You are not required to uninstall RCW if you want to upgrade its version from a previous family.

Uninstalling from the Control Panel

To uninstall the Resource Capacity Wizard from the Control Panel:

1. Select `Add/Remove Programs`.
2. Select `Genesys Resource Capacity Wizard 8.x` from the list, and click `Add/Remove`.
3. Click `Yes` in the `Confirm File Deletion` dialog box.

Uninstalling from the Application Executable

To uninstall the Resource Capacity Wizard from the Wizard installation package:

1. Double-click `setup.exe`.
2. In the `Welcome` screen, mark the `Remove` button and click `Next`.
3. In the confirmation dialog box, click `Yes`.
4. In the `Maintenance Complete` screen, indicate when to reboot the computer, and click `Finish`.

![Genesys logo]

3

Using the Capacity Rule Editor

The Capacity Rule Editor (CRE) is a special mode of the Resource Capacity Wizard (RCW). You use the Capacity Rule Editor when you need to create a more complex capacity rule than the inherent default rule or if you must alter an existing capacity rule. Complex capacity rules take into account the interdependencies among different media.

This chapter discusses the Capacity Rule Editor within the following contexts:

Invoking the Capacity Rule Editor

The `Important Information` screen (Figure 6) of the Resource Capacity Wizard includes a button to invoke the Editor. To look at the capacity rule that the Resource Capacity Wizard has created, based on your selections in the `Media Types` screen (Figure 4 on page 24) (or `Used Media` screen [Figure 11 on page 38]), click this button. You should also invoke CRE if you want to create or edit a complex capacity rule that involves interdependencies among different media.
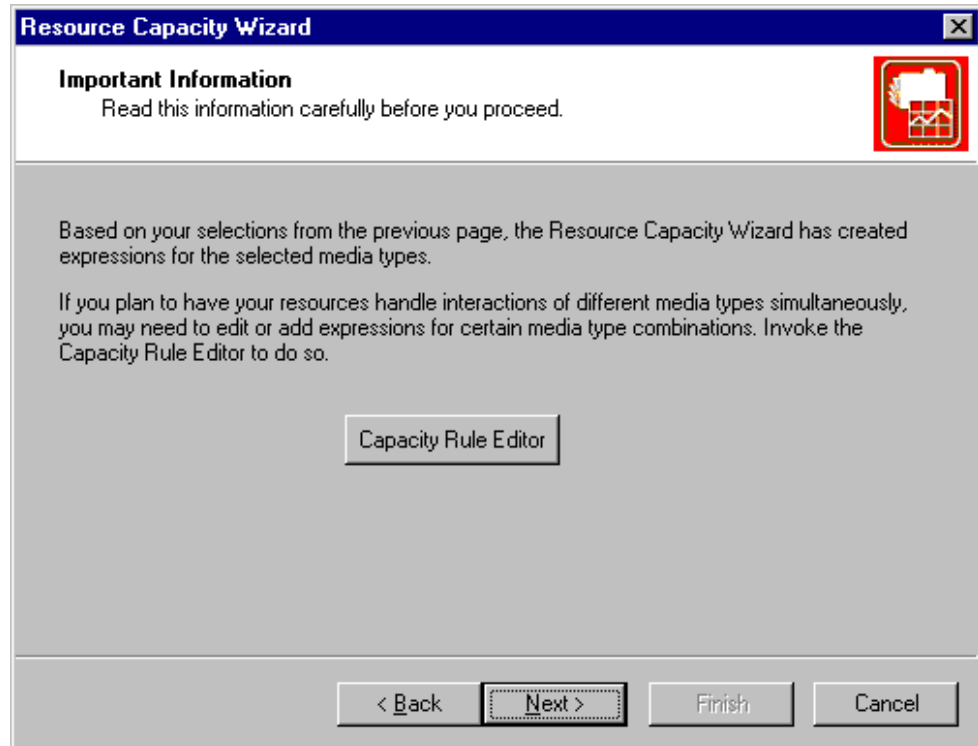
Figure 6:   Opening the Capacity Rule Editor from the Resource Capacity Wizard

When you have created your capacity rule, perform the following steps 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 7.
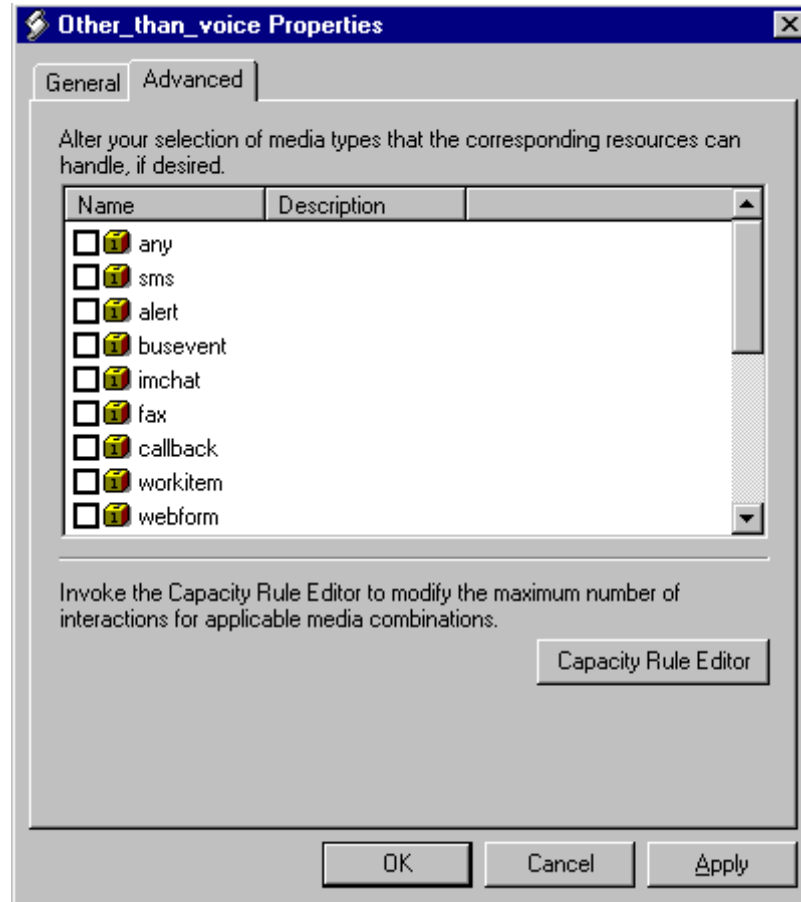
Figure 7:   Opening the Capacity Rule Editor from the Properties Page

Exploring the Interface

The Capacity Rule Editor interface does not use menus or menu items. Instead, you execute commands by clicking buttons that are positioned across the top of the Editor or by clicking the buttons or hyperlinks that are within the main window. Figure 8 shows the main window and some of its hyper-elements for a capacity rule that is already developed.
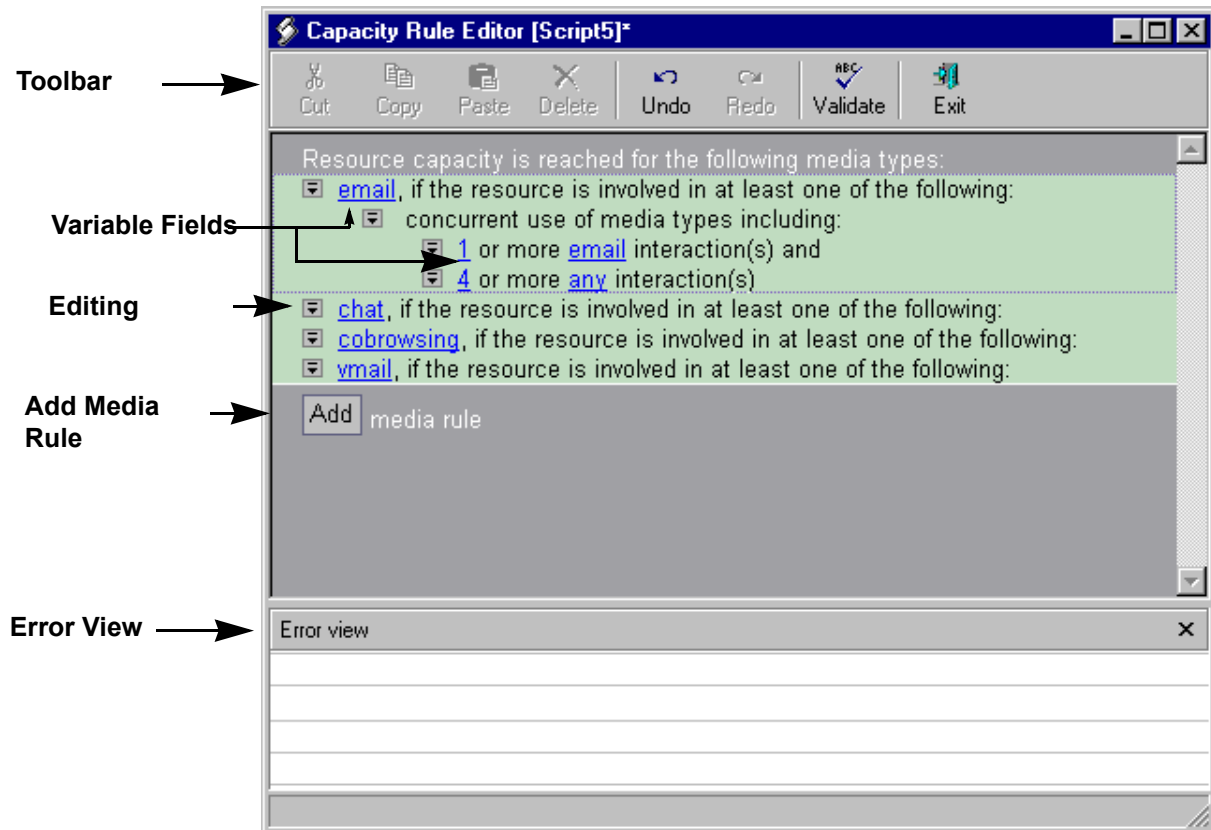
Figure 8: Capacity Rule Editor

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 the selected media rule to the clipboard and removes it from the equation. This button is disabled, if you have not selected a media rule.
Copy	Copies the selected media rule to the clipboard. This button is disabled if you have not selected a media rule
Paste	Appends the media rule that is 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 that was executed—only one level of undo
Redo	Re-executes the last `Undo` command.

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

Button Name	Button Function
Validate	Checks the rule for completeness. Exiting the Capacity Rule Editor in and of itself does not validate the capacity rule. To obtain validation results, you must explicitly validate the rule by clicking this button.
Exit	Prompts you to save or abandon your work and exits CRE. You can click the Windows control close button to perform the same action. There is no explicit save command. Any changes that are made to the script are temporary until they are saved.

Hyper-Elements Within the Main Window

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

- The editing symbol ⊟ that precedes each line
- The blue-underlined variable fields
- The `Add` button

Refer to the figure on page 32 for a screen shot containing these elements.

Editing Symbol

You can click the editing symbol to display a context menu that has one or two commands:

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

  Note: The Resource Capacity Wizard automatically creates media rules for each media type that is selected in the `Media Types` dialog box. (Refer to Figure 7 on page 31.) If you subsequently delete a media rule, you can click the `Add Condition` button to restore it.
 ---

- `Delete`—Removes the condition that immediately follows (or that is on the same line as) the command icon that is clicked.

Figure 9, for example, shows a snippet of a capacity rule both before and after the addition of a new condition to a media rule. In this figure, you could also add dependent conditions under the following level:

`concurrent use of media types including:`

However, you could not add dependent conditions under the following level:

`1 or more email interaction(s) and`

Before
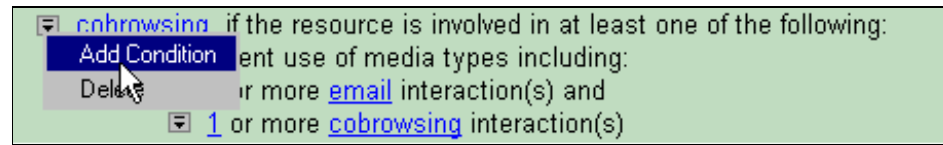
After
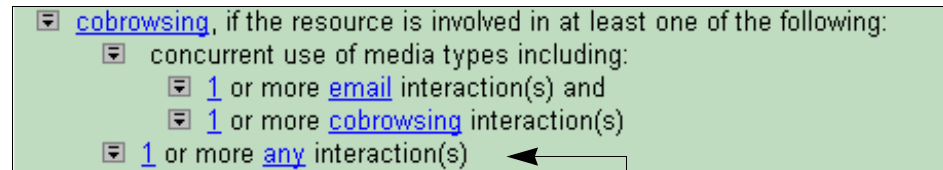
New dependent condition
added to cobrowsing media rule

Figure 9: Adding a Condition to Your Media Rule

Note: Cobrowsing is a secondary media type that an agent initiates after a voice or chat session begins with a customer. Cobrowsing involves no routing of interactions and Interaction Server does not inform Stat Server that a cobrowsing session has begun. Although you can define a cobrowsing media rule within a capacity rule, Stat Server does not know the number of cobrowsing sessions in which a resource is involved—let alone whether any cobrowsing session is active at the resource. Its use in Figure 9 is for illustration purposes only.

Variable Fields

You can change the value that are 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 that is larger than 5. In the fields where you specify media types, the Capacity Rule Editor only displays values in the context menu for the media types that you selected in the Media Types screen when you created the script object. Revisit Step Step 5 on page 24 to add or remove media types from the context menu.

Add Button

Click the Add button above the Error View (see Figure 8) 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 Capacity Rule 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 that you add.

Error View

When you validate your capacity rule, the Capacity Rule Editor displays validation results in its `Error View` pane. (Refer to Figure 8 on page 32.) You can click a particular error from this pane to select and highlight 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` in 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.

The Capacity Rule Editor does not validate whether media types still exist in Configuration Server. If a media type was subsequently deleted from Configuration Server after it was referenced in a media rule of a saved capacity rule, the capacity rule will pass the validity test, assuming that all other syntax is correct. Upon determining capacity, however, Stat Server will ignore the media rule if its media type no longer exists in configuration. Refer to Chapter 7 for other troubleshooting tips on operating the Capacity Rule Editor.

Creating a Capacity Rule from Scratch

When you create a capacity rule from scratch and invoke the Capacity Rule Editor, the Editor opens with a simple definition for each media type that you selected in the `Media Types` screen. (Refer to Step Step 5a on page 24.) The Resource Capacity Wizard populates the numeric fields with the maximum values that you specified in Step Step 5b.

The example that is shown in Figure 10, is the default display when you select the options that are shown in Figure 4 on page 24.
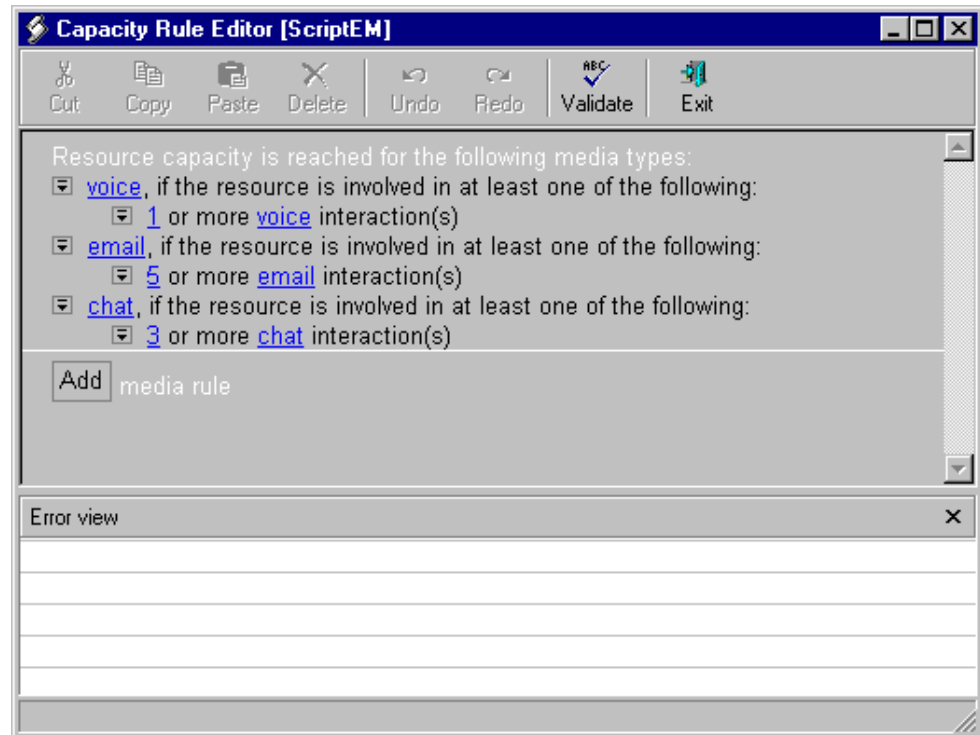
Figure 10: Generated Capacity Rule Based on Simple Media Rules

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

1. Click the editing symbol and select `Add Condition` from the context menu that appears in order 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's syntax and to correct any problems that might appear in the `Error View`.

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

If you delete a media rule and then want 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 Capacity Rule Editor displays values only for the media types that you previously selected in 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 media type that applies to your
> environment in your capacity rule. If, for example, you miss
> defining a chat media rule in your Multimedia environment (which
> employs chat sessions), 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 s/he 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 11 displays the capacity rule that was created earlier (on
page 24) as the existing capacity rule.

The capacity rule definition is copied from the existing rule. From the `Used`
`Media` screen, you can add media types to your capacity rule, remove them, or
change capacity values in the `Max Capacity` field just as if you were creating a
media rule from scratch. The changes that you introduce have no impact on the
original, copied-from capacity rule; at this screen, you are modifying only the
new capacity rule that 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 that are provided in the
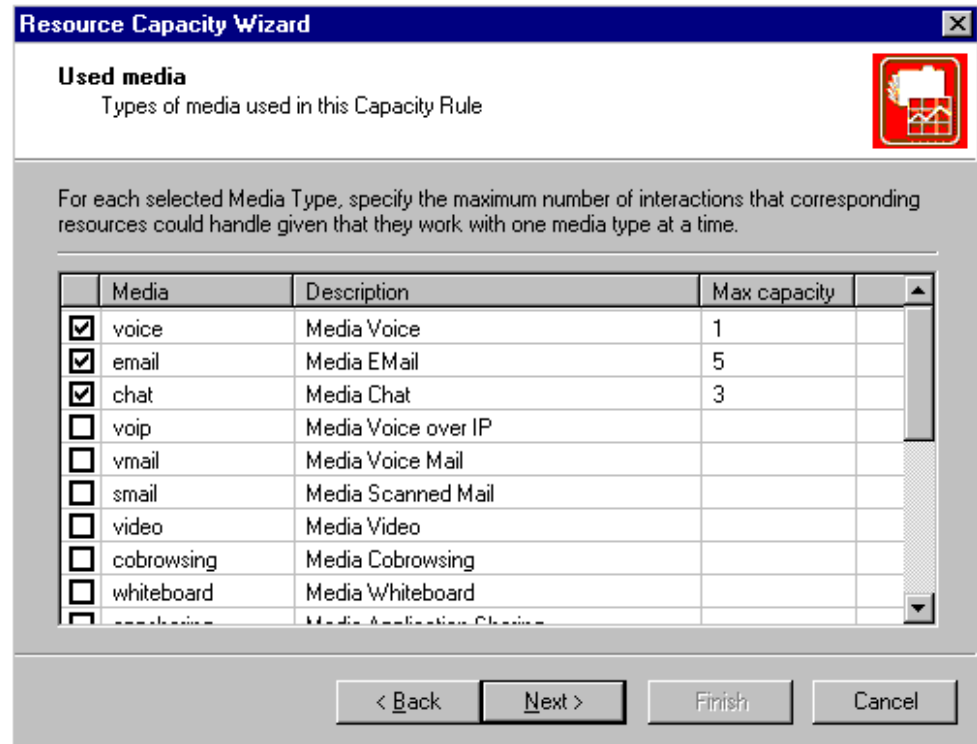existing capacity rule. (Refer to Figure 10 on page 36).

Figure 11: Used Media Screen of Resource Capacity Wizard

You can refine the media-type definitions of your new capacity rule by following the previous steps (Steps Step 1 through Step 4 on page 36).

When Internal Logic Supersedes

Under some conditions, when the logic behind the media rules that you define conflicts, the system's logic might interpret your capacity rule differently than what you intended. This occurs, for example, when you have specified redundant information in one or more media rules, as shown in Figure 12. 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 to remedy it.
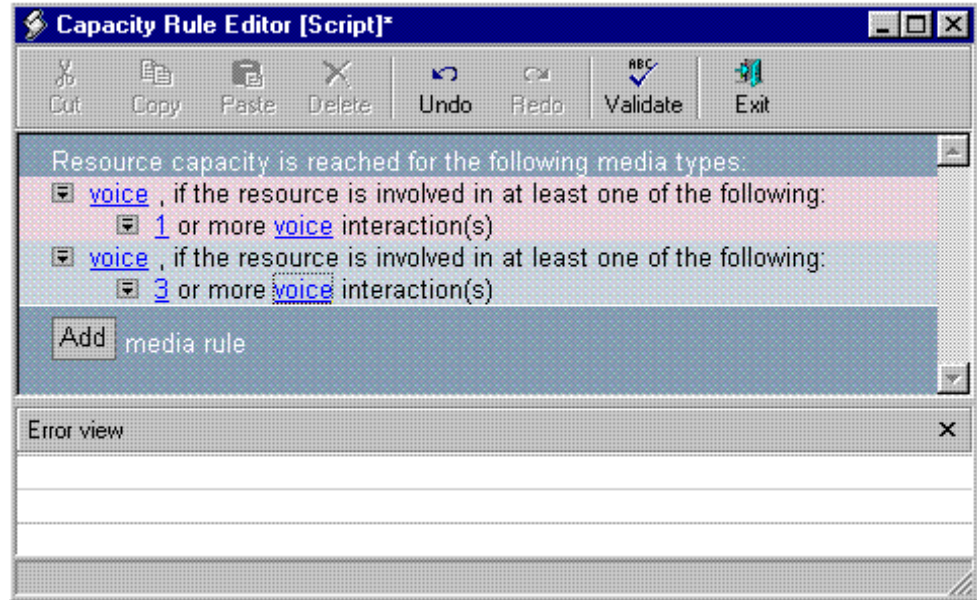
Figure 12: Media Rule Defined with Redundant Information

Internal logic selects the more restrictive clause and interprets this particular construction as having reached capacity if one or more voice interactions are currently in progress for a particular resource.

There are other similar misconstructions about which the Capacity Rule Editor will inform you in the Error View if you validate your capacity rule before you exit the Editor. Refer to Chapter 7 for more information.

![Genesys logo]

4

Assigning Capacity Rules to Resources

This chapter describes how to assign capacity rules to `Person, Place,` or `Tenant` objects within Configuration Manager. It contains the following sections:

You cannot assign more than one capacity rule to a particular object. Also, 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 Genesys router uses each of those rules 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 13, for example, shows the `Properties` dialog box for the `Anja Lonit` agent.
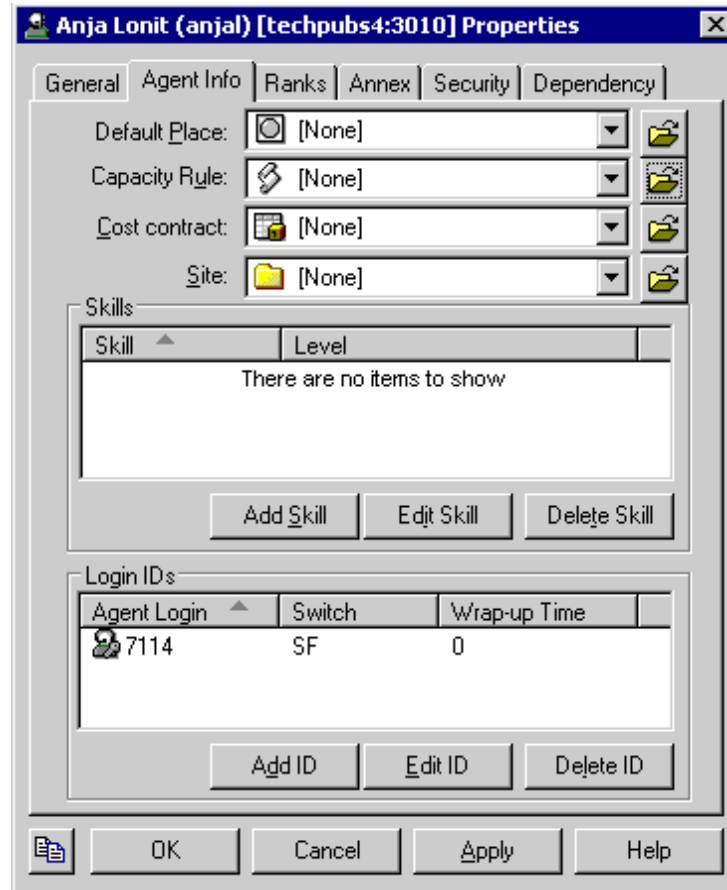
Figure 13: Assigning a Capacity Rule to a Person Within Object Properties

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.

For Stat Server 8.1.2, the valid capacity rules that you assign to agents in your contact-center environment take precedence over the capacity-rule assignment to the tenants to which the agents belong. For Stat Server 8.1.0⁻, agent capacity-rule assignments also take precedence over place capacity-rule assignments.

Assigning Capacity Rules to Places

You can assign capacity rules to `Place` objects, as well as to `Person` objects, in the Configuration Layer. However, such an assignment applies to the logged-in entities (such as agents) that are attributed to that `Place`, and not to the `Place` itself. In other words, 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. Instead, you are defining the capacity for the number and mix of

interactions that each entity (named or anonymous) who is associated with the `Place` can handle.

> **Note:** For Stat Server operating in restricted cluster mode, Stat Server ignores place capacity-rule assignments; places are not supported in this mode of operation.

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 that 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 pre-empt valid assignments that are made directly to `Person` objects that might belong to the `Place`. This means that if capacity-rule assignments are made to both an agent and the corresponding place of that agent, Stat Server uses the rule that is assigned to the agent—if it is valid—over the capacity rule that is assigned to the place.

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

Assigning Capacity Rules to Tenants

You can assign capacity rules to `Tenant` objects, as well as to `Place` and `Person` objects, in the Configuration Layer. Such an assignment applies to all of the logged-in entities (such as agents) that belong 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 entity (named or anonymous) that belongs to that tenant can handle. In no manner does this affect 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 that are made directly to `Person` or `Place` objects that might belong to that tenant.

Assigning Capacity Rules by Using the MCR Wizard

Toward the end of the Multi-Channel Routing Solution (MCR) Wizard are two screens for deploying Genesys-provided capacity rules. 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 to `Tenant` objects only.

1. In the `Resource Capacity Rules Deployment` screen (shown in Figure 14), 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`.
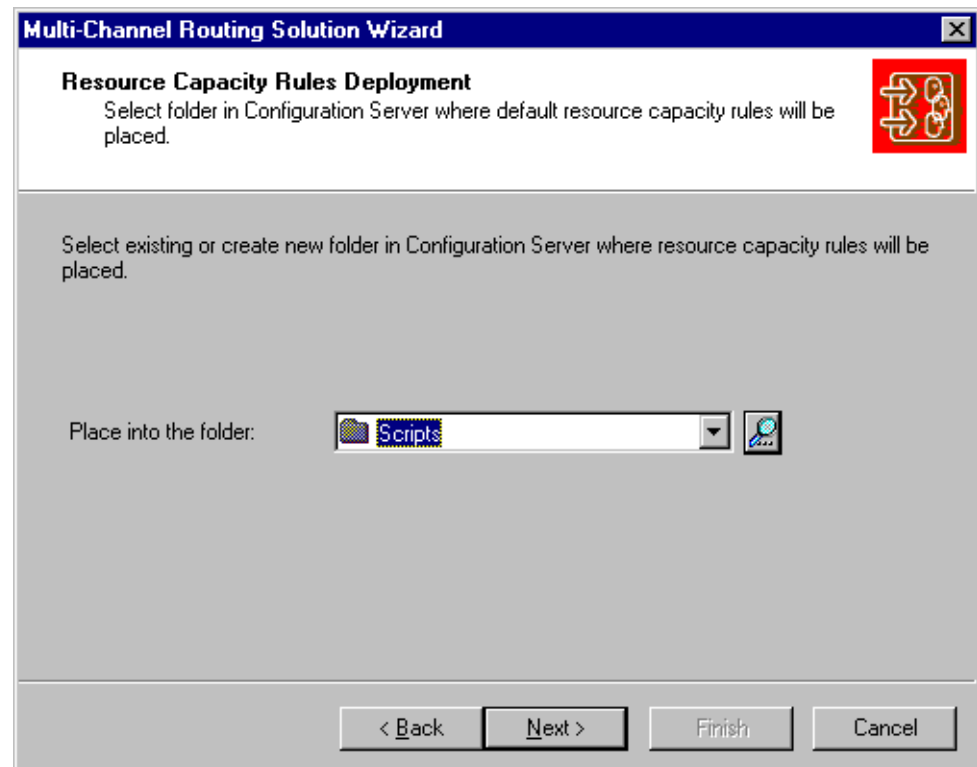
Figure 14: Deploying the Genesys-Provided Capacity Rules

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

*   `Default_One_interaction_of_any_type_only`
*   `Default_One_media_allows_more_than_one_interaction`
*   `Default_Voice_interactions_always_allowed`

See Chapter 5 for more information about the definition of these rules.

2. In the `Resource Capacity Rules Selection` screen, from the drop-down list box, choose a default capacity rule to apply to your tenant. Alternatively, you can click the `Browse` icon, as shown in Figure 15, to select a capacity rule from the `Browse for Script` dialog box. Then, click `Next`.
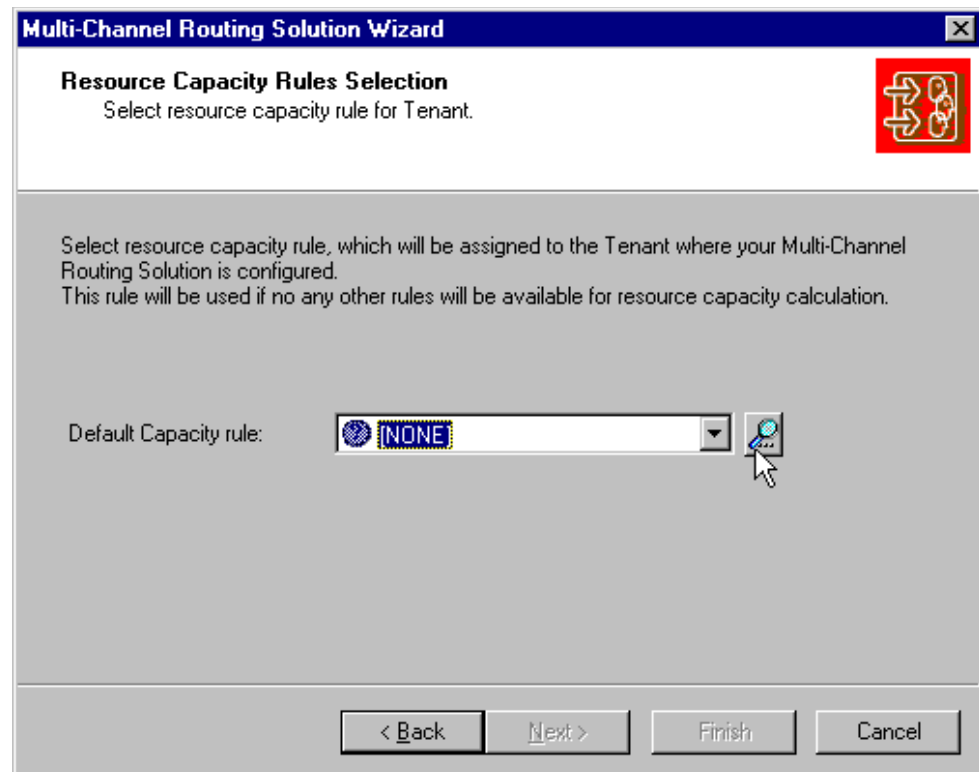
Figure 15: MCR Wizard: Applying a Default Capacity Rule to the Tenant

All agents who belong to the tenant automatically inherit the capacity rule that 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 of this chapter.

3. Complete the MCR Wizard.

![Genesys logo]

5

Genesys-Provided Capacity Rules

With the Multimedia 8.*x* release, Genesys supplies three out-of-box capacity rules for you to assign to `Person`, `Place`, or `Tenant` objects in Configuration Server. These rules are stored in the tenant's `Scripts` folder of Configuration Manager when deployed using the Multimedia Wizard. If you do not assign any capacity rule to these objects, then Stat Server's inherent `Default` capacity rule applies.

This chapter describes the `Default` and the three Genesys-provided rules:

Default Capacity Rule

Stat Server uses its inherent `Default` capacity rule when no capacity rule has been assigned directly or indirectly to an agent. This might 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 voice interaction only and no other interactions of any other media type. For example, if Configuration Manager has the `voice`, `email`, and `chat` media types, then each agent (who does not have an assigned capacity rule) can receive one voice interaction if he or she is not already working on an interaction of any type; the agent can receive no e-mail or chat interactions in this scenario. If you

configure an additional media type at a later time—for example, `fax`—then the same applies: the `Default` capacity rule will allow the agent to receive one voice interaction, and no fax, chat, or e-mail interactions, before the software determines that capacity has been reached. To state 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 any type cannot 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.

Capacity rule: Default_One_interaction_of_any_type_only

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 any interaction(s)
- email: if the resource is involved in at least one of the following:
    - 1 or more any interaction(s)
- chat: if the resource is involved in at least one of the following:
    - 1 or more any interaction(s)
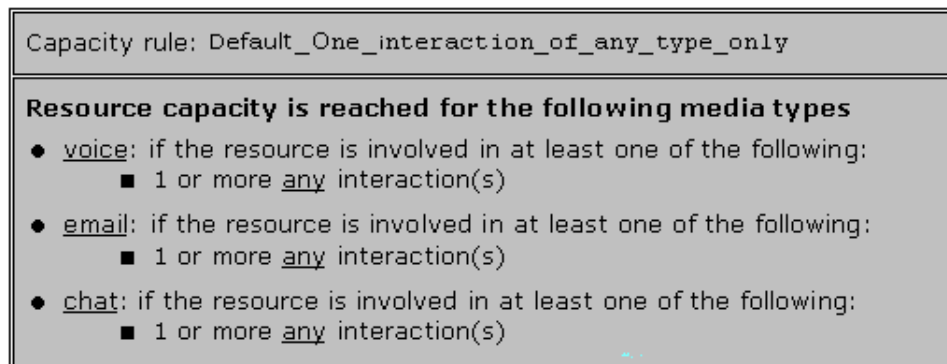
Figure 16: Default_One_interaction_of_any_type_only Capacity Rule

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.
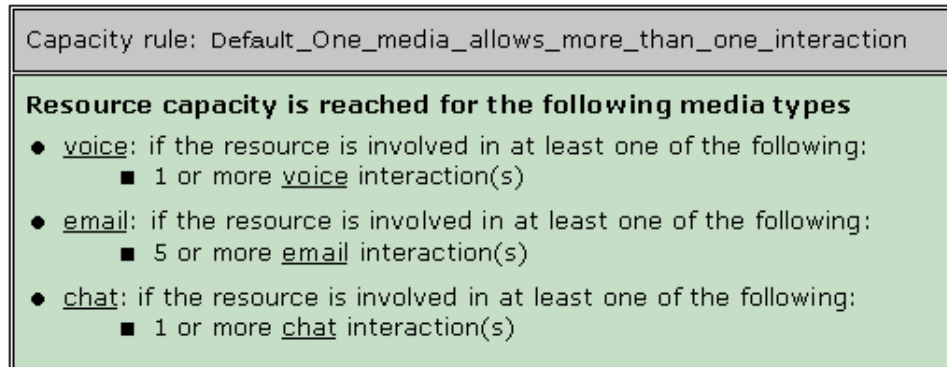

Figure 17: Default_One_media_allows_more_than_one_interaction Capacity Rule

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.

Capacity rule: Default_Voice_ interaction_always_ allowed

Resource capacity is reached for the following media types

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

- <u>email</u>: if the resource is involved in at least one of the following:
    - ■ 1 or more <u>any</u> interaction(s)

- <u>chat</u>: if the resource is involved in at least one of the following:
    - ■ 1 or more <u>any</u> interaction(s)

Figure 18: Default_Voice_interactions_always_allowed Capacity Rule

6 Capacity Snapshots

Stat Server logs *capacity snapshots,* which correspond to the capacity rules that you define.

This chapter describes capacity snapshots and the capacity vectors that they include. It contains the following sections:

About Capacity Snapshots

Stat Server logs a capacity snapshot whenever certain events take place, including:

- Any time that a place associated with a voice DN is added to your configuration
- When the state of readiness at a particular place for a particular media type changes from `NotReady` to `Ready` or from `Ready` to `NotReady`
- When the state of readiness at a voice DN that has an agent logged into it changes, even if, starting with Stat Server 8.1.2, the DN is not associated with any place
- When assigned capacity rules are added, altered, or deleted
- As the number of concurrent or assignable interactions for each media type changes at a particular place or agent

Capacity Snapshot Formats

The format of the capacity snapshot depends on whether there is an association between the agent and a place.

An association exists between the agent and a place

Stat Server 8.1.0⁻ Stat Server 8.1.0⁻ logs the capacity snapshot for the place and associated agent, as follows:

```
<date> <time> <loglevel>: Capacity snapshot for place
'<placeID>'('<tenant>'), agent '<agentID>'('<tenant>')
(CR='<CapacityRuleName>')
media_state   current_number   max_number   routable
-----------   --------------   ----------   --------------
[    S              N₁              N₂            N₃ ] <-- <mediatype>
```

where [S N_1 N_2 N_3] is a *capacity vector* relating to one particular media type. For more information about the capacity vector, see "Capacity Vector".

Stat Server 8.1.2⁺ Stat Server $8.1.2^+$ in regular mode logs separate capacity snapshots for the agent and place, as follows:

- For the agent:

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

- For the place:

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

Note: Stat Server $8.1.2^+$ logs no place information while operating in restricted cluster mode.

No association exists between the agent and a place

Stat Server logs the capacity snapshot only for the agent, as follows:

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

Capacity Vector

There are four dimensions of the capacity vector. They represent:

- The state of readiness, S, of a particular media type 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 the other media remains unchanged. This calculation does not take into account the

physical capacity of the multimedia DN; instead, this value corresponds to the value defined in the capacity rule for the person, place, or tenant resource.

*   The number of additional interactions, N_3, of a particular media type that can be routed without violating the capacity rule, given the condition that the number of interactions on each of the other media remains unchanged.

Media State

The `Ready`/`NotReady` media state recorded in the capacity vector differs from the `Ready`/`NotReady` status of `Place` objects, which is documented in the *Stat Server User's Guide.* The `Ready` media state, as specified within a capacity vector, signifies that the Genesys router can route an interaction of a particular media type to a DN at a Genesys place, whereas the `NotReady` media state signifies that the Genesys router cannot route the interaction.

Stat Server derives the media state for the place from the independent media states of all of the DNs associated with that place. This DN media state can take on different interpretations, depending on the DN type and switch type:

*   The media state on a voice treatment port (VTP) DN is considered to be `Ready` if and only if the status of the VTP DN is `WaitForNextCall`.

*   A paired Position-Extension Meridian DN is `Ready` if any of the following apply:
    *   The status of the Extension DN is `WaitForNextCall`.
    *   An agent is logged in to the Position DN.
    *   The Position DN holds any status other than `AfterCallWork` or `NotReadyForNextCall`.

Note: The media state of a DN configured on a Meridian 1 or Meridian Link Symposium switch takes into account the pairing of Position and Extension DNs on the Meridian switch. For purposes of determining capacity, Stat Server considers each pairing of Position and Extension DNs as one DN.

---

*   The media state for most other DN types is `Ready` if and only if both of the following conditions are true:
    *   An agent is logged in to the DN.
    *   The status of the DN is `WaitForNextCall`.

The media state for a place, then, is defined to be `Ready` if the media state of at least one DN (or one pairing of Position-Extension Meridian DNs) at that Place is `Ready`. The media state for a place for media other than voice is equivalent to the status for the place.

Capacity Vector Examples

Example 1

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 Stat Server can assign no interactions to PlaceX. From this information, you can infer that Stat Server has not yet connected to T-Server and because of this, it is not possible to know whether a voice interaction is currently under way.

Example 2

Capacity vector [R 1 2 1] at PlaceY for email media type signifies that PlaceY is in Ready state, one e-mail interaction is currently under way 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.

Example 3

From the absence of place information in the following example, you can deduce that Stat Server is running in restricted cluster mode:

```
2013-01-30 19:42:27> Status: Capacity snapshot for agent '2'('S00L')
(CR='<system default>')
media_state current_number max_number routable
----------- -------------- ---------- ---------
[ NR             0              1         0     ] <-- voice
```

Further Examples

Review your own Stat Server log for additional capacity vector examples to better understand the mechanics of how Stat Server applies capacity rules to your resources.

Chapter

7

Troubleshooting Capacity Rules

When you validate a capacity rule, you might 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 might also encounter messages that indicate 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 in configuration and describes how to resolve them. It contains the following sections:

No Media Rules

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

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

The Capacity Rule Editor 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.
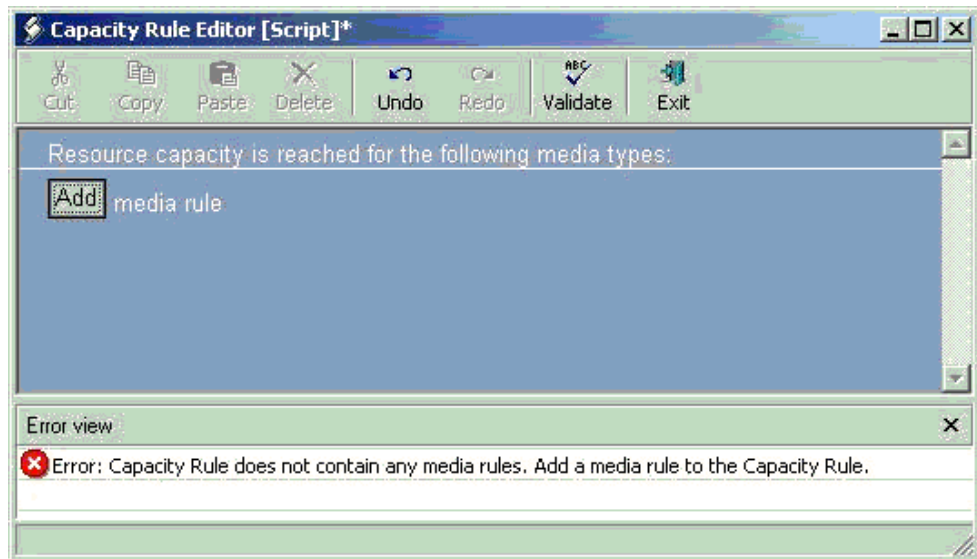
Figure 19: Empty Capacity Rule

To correct this error:

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

    CRE inserts a media rule that is 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 that is 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.
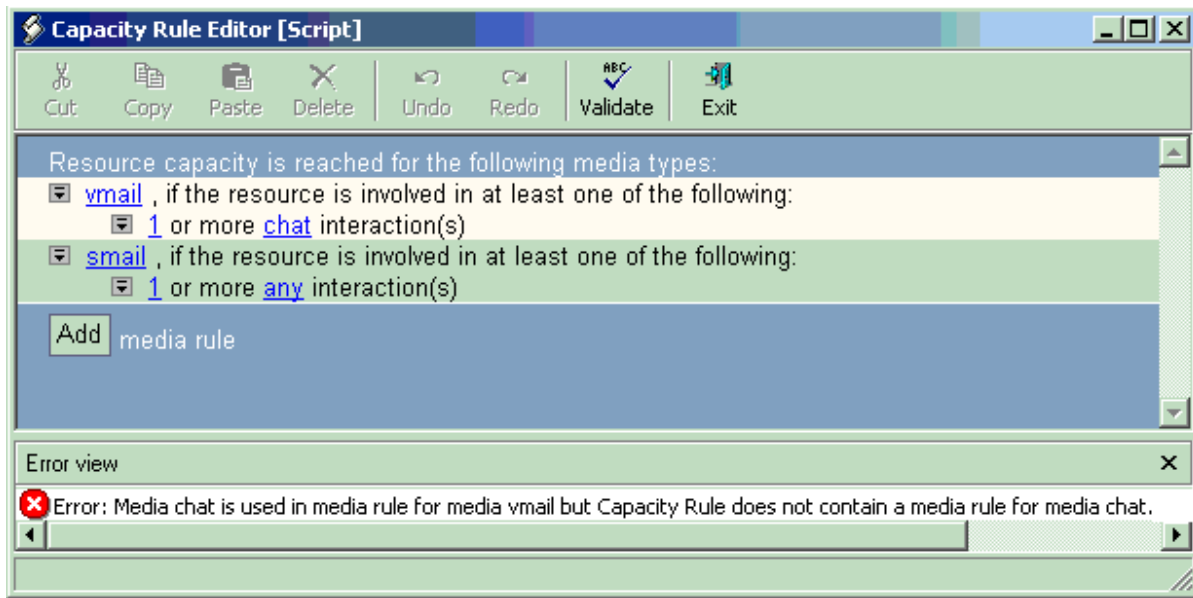
Figure 20: Example of Missing Media Rule

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 that is used in the capacity rule and 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.

Cannot Make Any Changes Within CRE

Upon first use of Internet Explorer (IE), the configuration of your host's IE application might block your ability to edit a capacity rule by using the Capacity Rule Editor. If the dialog box in Figure 21 appears, click Add... to add the security_ CfgWzLoader executable to the listing of trusted sites. Then, close and reopen CRE to edit the rule.

Figure 21: Trusted Site

Rule Changes Are Not Saved

You can view *and seemingly edit* capacity rule definitions from the `Annex` tab of a capacity rule `Application` object in Configuration Manager. The `_CRWizardMediaCapacityList_` section displays the selected media and their assigned values for the capacity rule. Configuration Manager also allows you to change values that are visible from this tab; however, Stat Server does not read information from this location when it determines capacity. To save changes to capacity rule definitions, you must execute the changes within the Resource Capacity Wizard or within the Capacity Rule Editor, which you can access from the Wizard. How you invoke this Wizard is described on .

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 that have 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 22, 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 fewer than four.
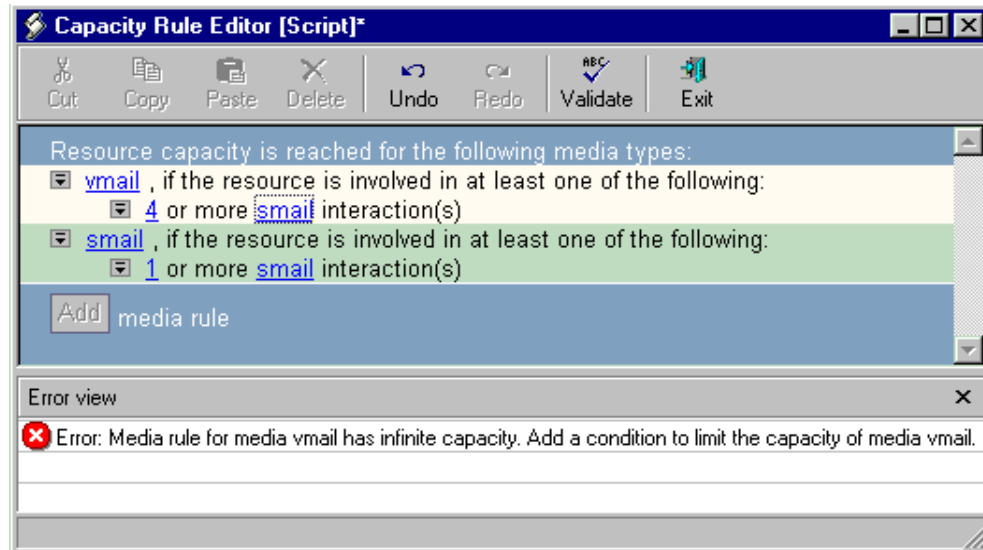
Figure 22: Example Illustrating Infinite Capacity

To correct this error:

1. Click the editing symbol that precedes 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 23, for example, shows that a condition that addresses vmail interactions has been added to the vmail media rule.
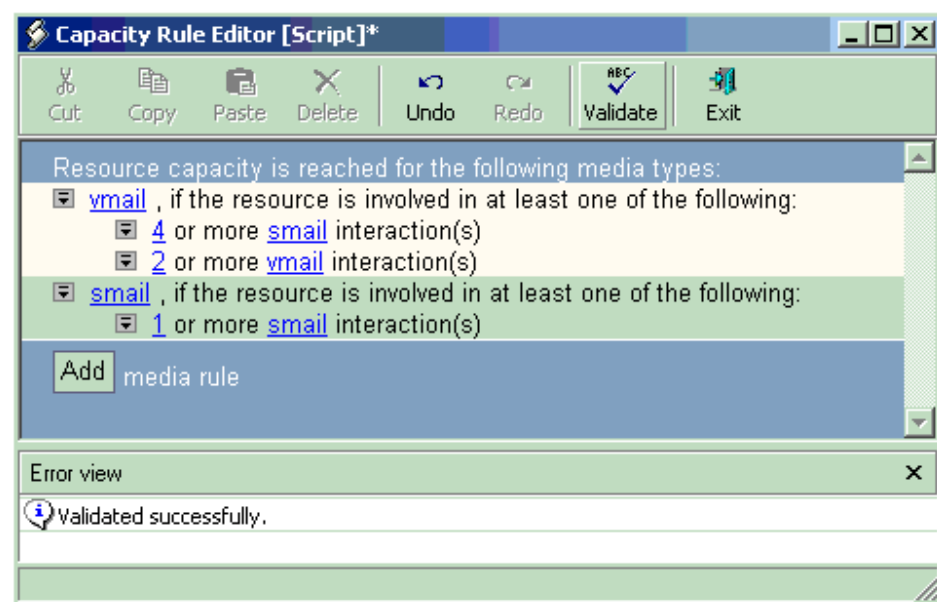
Figure 23: Infinite Capacity Resolved

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 24 illustrates a capacity rule with one media rule that specifies no conditions.
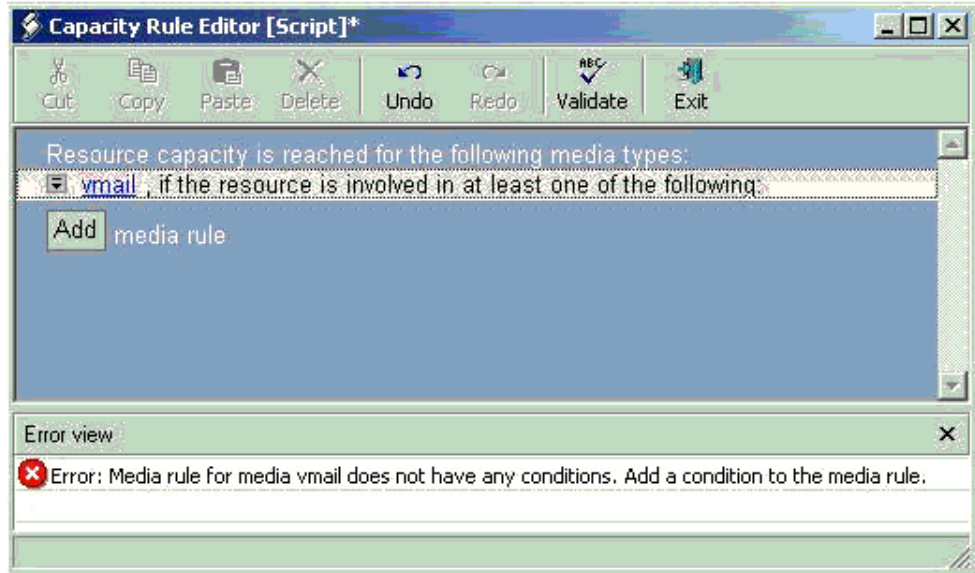
Figure 24: Example of a Media Rule Without Conditions

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 that contains 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 25 illustrates a capacity rule that has an `unknown` media type.
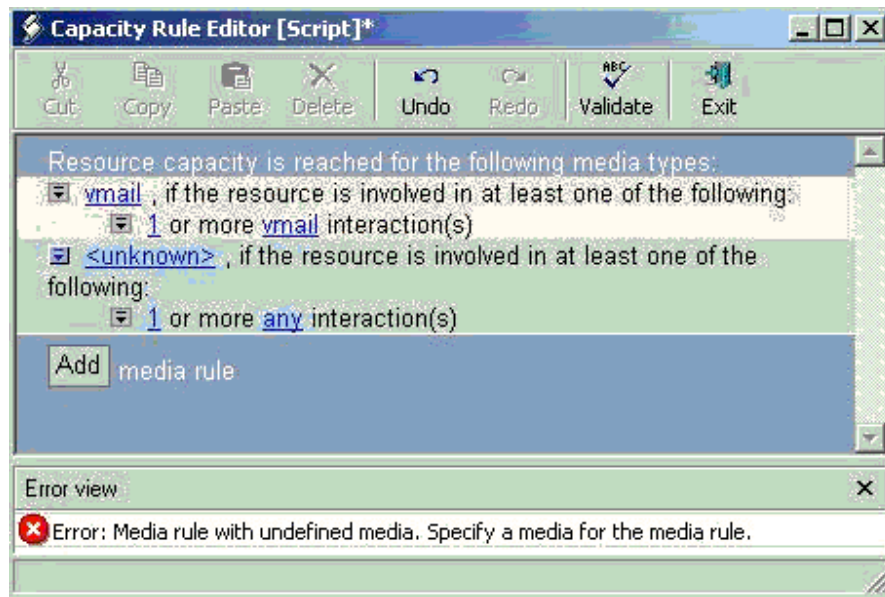
Figure 25: Example of Media Rule with Unspecified Media

To correct this error:

1. Click the `<unknown>` link, and select an appropriate media from the pop-up that appears.

2. Make sure that the media rule includes a restrictive condition that limits 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 that contains two or more media rules of the same type:

    Error: Media rule duplicated. Remove duplicate media rule.

Capacity rules should contain a single media rule only for each media type. Figure 26 illustrates this error in defining two media rules for `vmail`.
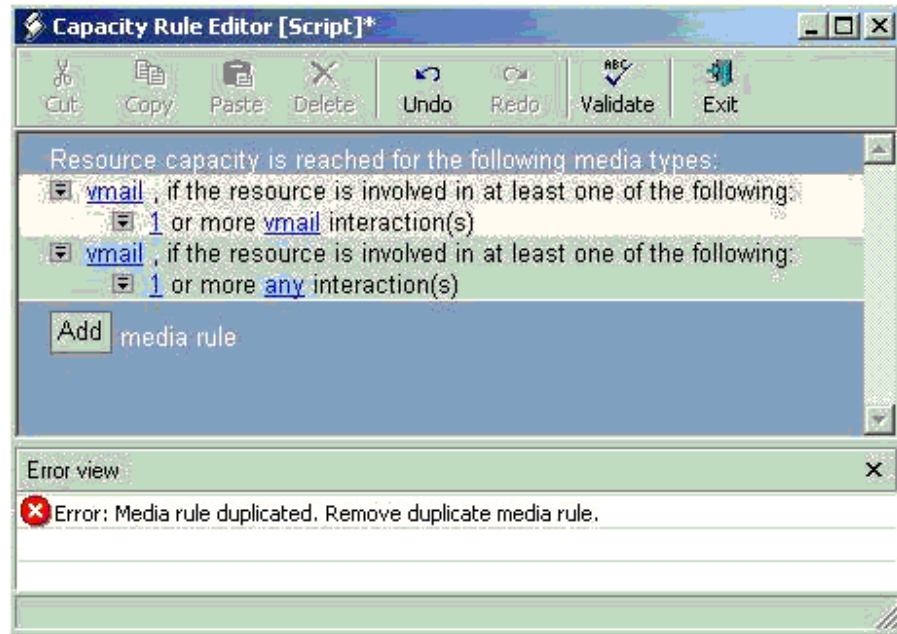
Figure 26: Example of Two Identical Media Rules Present for One Media Type

To correct this error, perform the following:

1. Either 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 that contains 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 that specify any interaction that it can handle. Figure 27 illustrates a capacity rule that surpasses these internal limitations.
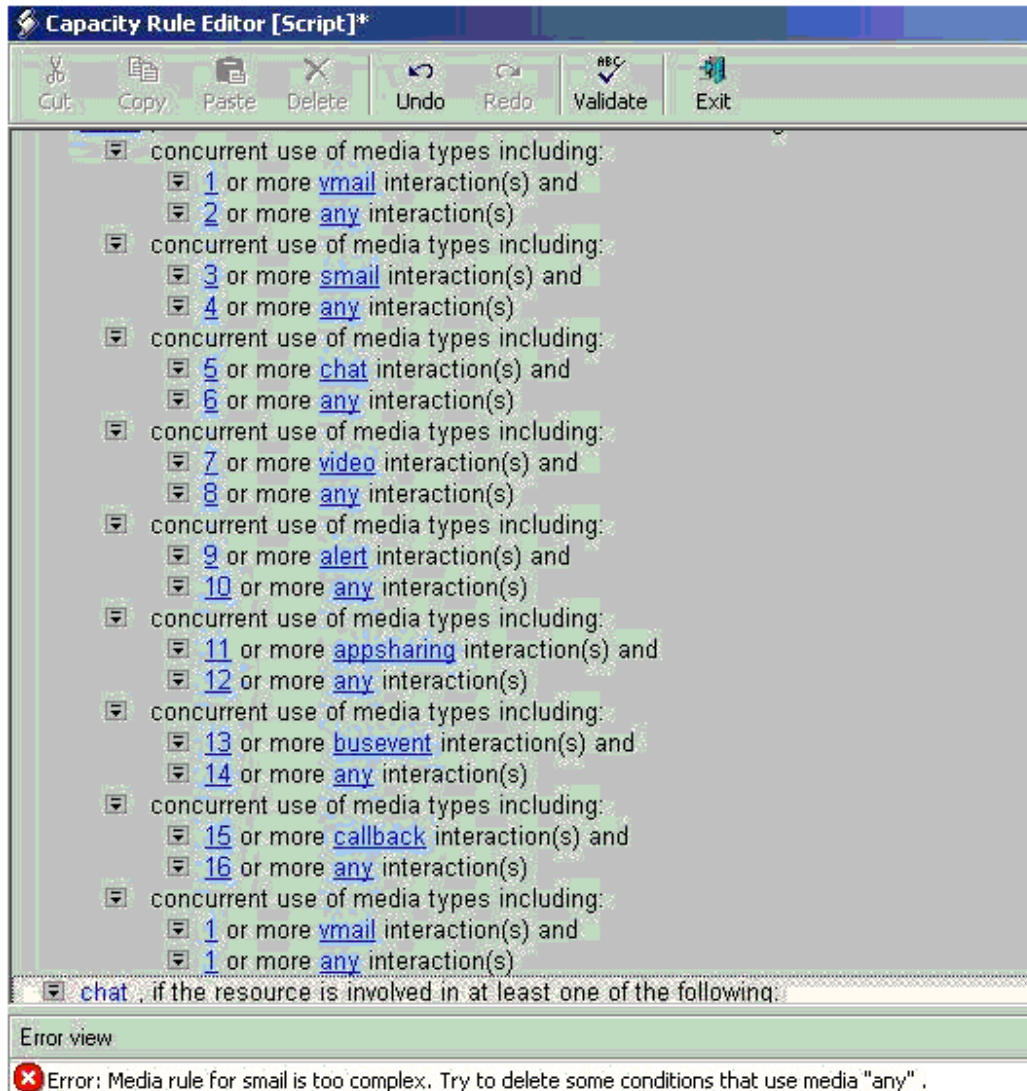
Figure 27: Example of Too Complex Media Rule

To correct this error:

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

2. Validate the rule.

How Stat Server Handles Invalid Rules

If a capacity rule is invalid or missing, then the capacity rule for the next object in the chain of precedence prevails. If no rule applies at all to an object (because of invalidity or because no rule was assigned to the object), then the inherent `Default` capacity rule applies to the object. Refer to "Capacity Rule Inheritance" on page 16 learn which links contribute to the chain of precedence.

Related Documentation Resources

The following resources provide additional information that is relevant to this software. Consult these additional resources as necessary.

Framework

- *Framework 8.1 Stat Server User's Guide*
- *Framework 8.1 Stat Server Deployment Guide*
- *Framework 8.1 SIP Server Deployment Guide*
- *Framework Combined Log Events Help*

Multimedia

- *Multimedia 8.1 Deployment Guide*

Genesys

- *Genesys 7.6 Instant Messaging Solution Guide*
- *Genesys Technical Publications Glossary,* which ships on the Genesys Documentation Library DVD, provides a comprehensive list of the Genesys and computer-telephony integration (CTI) terminology and acronyms used in this document.
- *Genesys Migration Guide*, which ships on the Genesys Documentation Library DVD, provides documented migration strategies for Genesys product releases. Contact Genesys Customer Care for more information.
- Release Notes and Product Advisories for this product, which are available on the Genesys Customer Care website at `http://genesyslab.com/support`.

Information about supported hardware and third-party software is available on the Genesys Customer Care website in the following documents:

- *Genesys Supported Operating Environment Reference Guide*

- *Genesys Supported Media Interfaces Reference Manual*

For additional system-wide planning tools and information, see the release-specific listings of System-Level Documents on the Genesys Documentation website (docs.genesyslab.com).

Genesys product documentation is available on the:

- Genesys Customer Care website at `http://genesyslab.com/support`.

- Genesys Documentation site at `http://docs.genesyslab.com/`.

- Genesys Documentation Library DVD and/or the Developer Documentation CD, which you can order by e-mail from Genesys Order Management at `orderman@genesyslab.com`.

Document Conventions

This document uses certain stylistic and typographical conventions—introduced here—that serve as shorthands for particular kinds of information.

Document Version Number

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

81g_pg_rescap_09-2013_v8.1.200.01

You will need this number when you are talking with Genesys Customer Care about this product.

Screen Captures Used in This Document

Screen captures from the product graphical user interface (GUI), as used in this document, may sometimes contain minor spelling, capitalization, or grammatical errors. The text accompanying and explaining the screen captures corrects such errors *except* when such a correction would prevent you from installing, configuring, or successfully using the product. For example, if the name of an option contains a usage error, the name would be presented exactly as it appears in the product GUI; the error would not be corrected in any accompanying text.

Type Styles

Table 2 describes and illustrates the type conventions that are used in this document.

Table 2: Type Styles

Type Style	Used For	Examples
Italic	• Document titles • Emphasis • Definitions of (or first references to) unfamiliar terms • Mathematical variables Also used to indicate placeholder text within code samples or commands, in the special case where angle brackets are a required part of the syntax (see the note about angle brackets on page 68).	Please consult the *Genesys Migration Guide* for more information. Do *not* use this value for this option. A *customary and usual* practice is one that is widely accepted and used within a particular industry or profession. The formula, $x + 1 = 7$ where x stands for . . .
Monospace font (Looks like `teletype` or `typewriter text`)	All programming identifiers and GUI elements. This convention includes: • The *names* of directories, files, folders, configuration objects, paths, scripts, dialog boxes, options, fields, text and list boxes, operational modes, all buttons (including radio buttons), check boxes, commands, tabs, CTI events, and error messages. • The values of options. • Logical arguments and command syntax. • Code samples. Also used for any text that users must manually enter during a configuration or installation procedure, or on a command line.	Select the `Show variables on screen` check box. In the `Operand` text box, enter your formula. Click `OK` to exit the `Properties` dialog box. T-Server distributes the error messages 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. Enter `exit` on the command line.
Square brackets ([ ])	A particular parameter or value that is optional within a logical argument, a command, or some programming syntax. That is, the presence of the parameter or value is not required to resolve the argument, command, or block of code. The user decides whether to include this optional information.	`smcp_server -host [/flags]`
Angle brackets (< >)	A placeholder for a value that the user must specify. This might be a DN or a port number specific to your enterprise. **Note:** In some cases, angle brackets are required characters in code syntax (for example, in XML schemas). In these cases, italic text is used for placeholder values.	`smcp_server -host <confighost>`

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Symbols

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