C H A P T E R 2

Configuring Resources

This chapter describes how to establish global server load-balancing resources on your GSS network.

This chapter contains the following major sections:

- Organizing Your GSS Network
- Creating and Modifying Locations and Regions
- Creating and Modifying Owners
- Grouping GSS Resources by Location, Region, and Owner
- Managing Global Manual Reactivation of Answers and Clauses
- Where to Go Next

Organizing Your GSS Network

The primary GSSM provides you the following ways to group and organize resources on your GSS network:

- Locations—Logical groupings for GSS resources that correspond to geographical entities such as a city, data center, or content site
- Regions—Higher-level geographical groupings that contain one or more locations
- Owners—Groupings that correspond to business or organizational relationships; for example, customers, internal departments, and IT personnel

Regions and locations are not required to correspond to actual geographical sites. They are simply organizing concepts that allow you to group GSS resources and exist in a one (region) to many (locations) relationship.

In addition to providing an organizational scheme for your GSS network, locations can also be used for bulk management of GSS resources, such as answers. Answers can be grouped and managed according to an established GSS location. Using a location to manage your answers can simplify the process to suspend or activate answers in a particular area of your network (see Chapter 6, Configuring Answers and Answer Groups). For example, you can shut down one or more data centers to perform software upgrades or regular maintenance.

Creating and Modifying Locations and Regions

Use the following procedures to set up regions and locations on your GSS network.

> **Note** We recommend that you create regions before you create locations because you associate a region with a location when creating the location.

> **Note** Release 4.1.0 supports creating additional regions and adding states to a specific region.

This section contains the following topics:

- Creating Regions
- Modifying Regions
- Add or Modify Regions and States
- Creating Locations
- Modifying Locations
- Deleting Locations and Regions

Creating Regions

To create a region, perform the following steps:

1. From the primary GSSM GUI, click the **Resources** tab.
2. Click the **Regions** navigation link. The Regions list page appears.

3. Click the **Create Regions** icon. The Creating New Region details page appears.

4. In the Name field, enter the name for your new region.

5. In the Comments field, enter descriptive information or important notes regarding the new region.

6. Click **Submit** to save changes to your new region and return to the Region list page. Your new region appears in the list and can be used to help you organize other GSS resources.

✎
Note   The recommended maximum number of regions you can create is 20.

Modifying Regions

To modify a GSS region, perform the following steps:

1. From the primary GSSM GUI, click the **Resources** tab.

2. Click the **Regions** navigation link. The Regions list page appears.

3. From the Regions list, click the **Modify Region** icon located to the left of the list that you want to modify. The Modifying Region details page appears.

4. In the Name field, change the name of the region, if desired.

5. In the Comments field, enter or modify the descriptive information or notes regarding the region.

6. Click **Submit** to save the changes to your region and return to the Regions list page.

Add or Modify Regions and States

To add or modify a state in the regions from the primary GSSM GUI, perform the following steps:

1. From the primary GSSM GUI, click the **Resources** tab.

2. Click the **Regions** navigation link. The Regions details page appears listing all of the configured regions.

3. Click the **Create Regions** (**+**) icon. The Creating New Region - General Configuration details page appears.

4. In the Name field, enter the name for your new Region.

5. In the Comments field, enter descriptive information or important notes regarding the Region.

6. To add a state in a selected region, click **Add States** from the navigation bar on the left. The modifying region details page appears.

✎
Note   The primary GSS GUI supports specific countries and regions. Before you add or modify the regions or states, you have to import the GeoDB database file. To import the GeoDB database file, use the following command: **geodb database import tar-file-name cisco_geodb_2011-07-12_v001.tar.gz md5sum-file-name cisco_geodb_2011-07-12_v001.tar.gz.md5**. Download the GeoDB database file from the following URL: http://geolite.maxmind.com/download/sec/ . To enable the database file, username, and password, refer to the e-delivery letter of your GeoIP license. For further assistance, contact your Cisco account representative.

> **Note** The state codes and country codes sometimes disappear if you perform **geodb enable | disable** function after you import the GeoDB database file. This change occurs because the country and state codes that are needed to create regions are stored as a gslb configuration. It is recommended that you import the GeoDB database file again for the proper functionality. The **show geodb output** command displays the status of the GeoDB tables that are available in the cache memory, while the codes reside in the gslb configuration.

7. From the Country drop-down list, choose the approprite country.

8. From the State drop-down list, choose the appropriate state. You can add multiple states in a specific region. For example, if you select United States, you can add multiple states such as California, North Carolina, and Texas.

> **Note** The recommended maximum number of states that you can associate with a region is 50. Configuring more than 50 states for a region can result in unexpected results. The maximum number of regions you can create is 20.
>
> The list of countries and states gets populated *only* when you import the GeoDB database file.

9. Click **Add**.

10. Click **Submit** to save changes to your region. You return to the Regions list page.

11. From the Regions list page, you can do the following:

    a. Modify the region by clicking the appropriate region from the regions list page, and then clicking the Modifying Regions icon. The modifying region details page appears listing all of the existing states and region.

    b. Edit the name and the comments of the existing region in the Name and Comments field.

    c. Remove the state from the specific region by clicking **Remove States**. You can remove one or more states from a specific region at a time

    d. Add a new state to the region to the specific region by clicking **Add States**.

> **Note** Make sure to click **Submit** to save your changes and verify if the changes are reflected in the regions details page.

12. Repeat Step 1 to Step 14 to create additional Regions and States.

> **Note** The recommended maximum number of states per region is 50. Configuring more than 50 states per region can result in undesired results.

Creating Locations

To create a location, perform the following steps:

1. From the primary GSSM GUI, click the **Resources** tab.

2. Click the **Locations** navigation link. The Locations list page appears.

3. Click the **Create Location** icon. The Creating New Location details page appears.

4. In the Name field, enter the name for your new location.

5. Click the **Region** drop-down list and choose a region with which the location will be associated. There should be a logical connection between the region and location.

6. If performing network proximity, click the **Zone** drop-down list and associate a zone with the location. There should be a logical connection between the zone and the location.

7. In the Comments field, enter descriptive information or important notes regarding the new region or location.

8. Click **Submit** to save your new location and return to the Locations list page. Your new location appears in the list and can be used to help you organize other GSS resources.

Modifying Locations

To modify a GSS location, perform the following steps:

1. From the primary GSSM GUI, click the **Resources** tab.

2. Click the **Locations** navigation link. The Locations list page appears.

3. From the Locations list, click the **Modify Location** icon located to the left of the list that you want to modify. The Modifying Location details page appears.

4. In the Name field, change the name of the location, if desired.

5. If you wish to move the location to a new region, click the **Region** drop-down list and select a new region with which the location will be associated.

6. If performing network proximity, click the **Zone** drop-down list and associate a zone with the location. There should be a logical connection between the zone and the location.

7. In the Comments field, enter or modify the descriptive information or notes regarding the location.

8. Click **Submit** to save the changes to your location and return to the Locations list page.

Deleting Locations and Regions

Before deleting a region or location, ensure that you know about the dependencies associated with a resource. For example, regions that have locations associated with them cannot be deleted. In addition, answers associated with locations that are deleted are automatically associated with the "Unspecified" location.

⚠️
Caution   Deletions of any kind cannot be undone in the primary GSSM. Before deleting any data that you think you might want to use at a later point in time, perform a database backup of your GSSM. See the *Global Site Selector Administration Guide* for details.

To delete regions and locations, perform the following steps:

1. From the primary GSSM GUI, click the **Resources** tab.

2. Click either the **Locations** or **Regions** navigation link, depending on what type of resource you want to delete. The list page appears.

3. Click the **Modify** icon for the location or region that you want to delete. The details page appears, displaying configuration information for that resource.

4. Click the **Delete** icon in the upper-right corner of the page. The GSS software prompts you to confirm your decision to delete the Region or Location.

5. Click **OK** to confirm your decision. You return to the list page.

If an error appears informing you that a GSS resource is still linked to the region or location that you want to delete, disassociate that resource and then attempt to delete the grouping again.

Creating and Modifying Owners

An owner is a logical grouping for GSS network resources that corresponds to a business or organizational structure. For example, an owner might be a hosting customer, an internal department such as human resources, or an IT staff resource.

As with locations, owner designations are used for the bulk management of GSS resources. Using a GSS owner to manage your answer group can simplify the process to suspend or activate all related answers.

For information on using owners to manage your GSS network, see the following chapters and sections:

- See the Suspending or Reactivating All Answers in an Answer Group Associated with an Owner section in Chapter 6, Configuring Answers and Answer Groups
- See the Suspending or Reactivating All DNS Rules Belonging to an Owner section in Chapter 7, Building and Modifying DNS Rules

This section contains the following topics:

- Creating Owners
- Modifying Owners
- Deleting Owners

Creating Owners

To create an owner, perform the following steps:

1. From the primary GSSM GUI, click the **Resources** tab.

2. Click the **Owners** navigation link. The Owners list page appears displaying a list of all configured owners on your GSS network and providing an overview of the resources assigned to each owner.

3. Click the **Create Owner** icon. The Creating New Owner details page appears.

4. In the Name field, enter the contact name for your new owner.

5. In the Comments field, enter other descriptive or contact information for the new owner.

6. Click **Submit** to save the new owner and return to the Owners list page. Your new owner is listed and can now be used to help you organize other GSS resources.

Modifying Owners

To modify an owner, perform the following steps:

1. From the primary GSSM GUI, click the **Resources** tab.

2. Click the **Owners** navigation link. The Owners list page appears.

3. From the Owners list, click the **Modify Owner** icon located to the left of the list that you want to modify. The Modifying Owner details page appears.

4. In the Name field, enter a new name for your new owner, if desired.

5. In the Comments field, enter or modify the descriptive information or notes regarding the owner.

6. Click **Submit** to save the changes to the owner and return to the Owners list page.

Deleting Owners

Before you attempt to delete an owner, be sure that you know the dependencies of that resource. For example, answer groups, DNS rules, and domain lists associated with an owner will, if that owner is deleted, automatically be associated with the "System" owner account.

⚠ **Caution**   Deletions of any kind cannot be undone in the primary GSSM. Before deleting any data that you think you might want to use at a later point in time, perform a database backup of your GSSM. See the *Global Site Selector Administration Guide* for details.

To delete an owner, perform the following steps:

1. From the primary GSSM GUI, click the **Resources** tab.

2. Click the **Owners** navigation link. The Owners list page appears.

3. From the Owners list, click the **Modify Owner** icon located to the left of the list that you want to delete. The Modifying Owner details page appears.

4. Click the **Delete** icon in the upper right corner of the page. The GSS software prompts you to confirm your decision to delete the owner.

5. Click **OK** to confirm your decision. You return to the Owners list page.

Grouping GSS Resources by Location, Region, and Owner

After you create your locations, regions, and owners, you can begin to use these tools to help organize your GSS resources. To associate a particular resource with a location, region, or owner, edit the properties of that resource and then choose the location, region, or owner from the drop-down list provided. Table 2-1 indicates which GSS resources can be grouped by locations, regions, and owners.

Table 2-1   GSS Network Groupings

GSS Network Resource	Grouped By	Grouped Using
GSS	Location	Global Site Selector details page
Locations	Region	Locations details page
Region	—	—
Owner	—	—
DNS rules	Owner	DNS Rule Builder DNS Rule Wizard

Table 2-1   GSS Network Groupings

GSS Network Resource	Grouped By	Grouped Using
Source address lists	Owner	Source Address Lists details page
Domain lists	Owner	Domain Lists details page
Answer group	Owner	Answer Group details page
Answer	Location	Answer details page

Managing Global Manual Reactivation of Answers and Clauses

Use the GSS manual reactivation function to manage when the GSS reverts to sending an answer that had gone offline but is now online and ready for service, or reverts to using a clause that was unavailable for use but is now available and ready for service.

The manual reactivation function works as follows for answers and clauses:

- Answers—When an answer goes offline (for example, Answer 1), the GSS sends the next available answer (Answer 2) associated with the clause. If the clause does not contain another answer to send, the GSS sends an answer from the next available clause. By default, the GSS reverts to sending Answer 1 when this answer returns to an online state. To manually control when the GSS reverts to sending an answer that returns to an online state after being offline, you enable the manual reactivation feature from the primary GSSM.

  When you enable manual reactivation for a specific answer and a GSS on the GSS mesh detects that its local copy of the answer is offline, that GSS alone suspends its copy of the answer. The GSS marks the answer as "operational suspend" and does not use it in its load-balancing algorithm. KALs do not monitor the suspended answer, which remains suspended until you reactivate all operationally suspended answers. Because the other GSSs on the GSS mesh maintains their own operational view of the answer, they continue to treat it as online as long as it remains in an online state locally.

- Clauses—A clause becomes unavailable for use by the GSS when all the answers in the answer group associated with it are either offline or overloaded. When at least one of the answers returns to an online state, the clause becomes available once again and the GSS, by default, begins using it. To manually control when the GSS reverts to using a clause that returns to an available state, you enable the manual reactivation function from the primary GSSM.

  When you enable manual reactivation for a specific clause and a GSS on the GSS mesh detects that its local copy of the clause is unavailable, that GSS alone suspends its copy of the clause. The GSS marks the clause as "operational suspend" and does not use it in its load-balancing algorithm. Because the other GSSs on the GSS mesh maintain their own operational view of the clause, they continue to treat it as online as long as it remains in an online state locally. The clause remains suspended until you reactivate all operationally suspended clauses.

To use the manual reactivation function for answers and clauses, you must configure the primary GSSM as follows:

- Enable manual reactivation in each answer that you want to manage (see the "Configuring and Modifying Answers" section on page 6-1).

- Enable manual reactivation in each clause that you associate with a rule and want to manage (see the "Building DNS Rules Using the DNS Rule Builder" section on page 7-10).

- Enable the global manual reactivation function as described in this section. The global manual reactivation function enables the GSS to operationally suspend all answers or clauses that you configure for manual reactivation. You can then manually reactivate all answers or clauses that are in the Operational Suspend state when required.

This section contains the following topics:

- Enabling or Disabling the Global Manual Reactivation Function
- Activating All Operationally Suspended Answers or Clauses

Enabling or Disabling the Global Manual Reactivation Function

To enable or disable the global manual activation function on the primary GSSM, perform the following steps:

1. From the primary GSSM GUI, click the **Resources** tab.

2. Click the **Manual Reactivation** navigation link. The Global Manual Reactivation Configuration page appears.

3. Click the desired manual reactivation operating state:

- **Disabled**—Disables the manual reactivation function.

> **Note**   Disabling global manual reactivation causes the GSS to automatically reactivate all answers and clauses when they return to an online state, including any answers and clauses that you configure for manual reactivation.

- **Enabled**—Enables the manual reactivation function.

4. Click **Submit** to save the manual reactivation change.

Activating All Operationally Suspended Answers or Clauses

You can manually reactivate all of the answers or clauses that the GSS operationally suspended.

> **Note**   Manually reactivating all of the answers that the GSS operationally suspended restarts all of the keepalives for answers that have manual reactivation enabled, including those that are currently in an online state. This may cause the online manual reactivation answers to enter the initializing (INIT) state for a short period of less than 40 seconds before returning to an online state.

To manually reactivate all of the answers or clauses that are operationally suspended, perform the following steps:

1. From the primary GSSM GUI, click the **Resources** tab.

2. Click the **Manual Reactivation** navigation link. The Global Manual Reactivation Configuration page appears.

3. Click the **Activate MR-enabled answers/clauses** drop-down list and choose one of the following options:

- **Activate MR-enabled answers**—Reactivates all answers that are currently in an Operational Suspend state.

- **Activate MR-enabled clauses**—Reactivates all clauses that are currently in an Operational Suspend state.

4. Click **Submit** to activate the chosen manual reactivation option.

Where to Go Next

Chapter 3, Configuring Source Address Lists, describes the creation of source address lists, which are collections of IP addresses or address blocks for known client DNS proxies (or D-proxies).