CHAPTER 8

Configuring and Monitoring the GeoDB

This chapter describes how to implement the GeoIP database (GeoDB) proximity computation mechanism in GSS. From the latitudinal and longitudinal information in the GeoDB, GSS decides the proximity, based on the geographical distance from the client D-proxy instead of the round-trip time (RTT) value. Once you determine the latitude and longitude of the client's D-proxy and a resource in the data center, the GSS can calculate the distance. During the proximity calculation, the GSS uses these distances instead of RTT values to determine the IP address of the resource nearest to the D-proxy.

To enhance the various GSS features with GeoIP-awareness, you can add support for the GeoDB in locations. The process of updating the GeoDB does not impact GSS operations. All user-defined database entries are preserved during a database upgrade.

To enable the GeoDB feature, a valid license should be installed and the GeoIP database should be imported into GSS. After importing, if static entries are present, then the distance gets computed based on the latitude and longitude mentioned for the static entries. If you want to enable the GeoDB license package on a particular GSS, you must purchase a GeoDB license from Cisco in order to receive a Product Authorization Key (PAK) number. For more information on obtaining and installing a GeoDB license, see the *Global Site Selector Administration Guide*.

Note GeoIP database currently supports only IPv4 address. For IPv6 proximity, use legacy, RTT based. proximity.

This chapter contains the following major sections:

Setting Up the GeoDB Configuration

This section includes the following topics:

Configuring the Global GeoDB Properties

To set up the global GeoDB configuration settings, perform the following steps:

1. From the primary GSSM GUI, click the **GeoDB** tab.
2. Click the **Configuration** tab. The configuration page appears.
3. Click the **Global Configuration** navigation link. The global GeoDB configuration page appears.
4. From the global GeoDB configuration page, do the following:
   a. Click one of the following radio buttons to set the GeoDB operating state:
   - **Disabled**—Disables the GeoDB feature.
   - **Enabled**—Enables the GeoDB feature. This is the default setting.

   b. In the Mask field, enter a global GeoIP static entry mask that the GSS uses to uniformly group contiguous addresses. You can enter the mask in either dotted-decimal notation (for example, 255.255.255.0) or as a prefix length in CIDR bit-count notation (for example, /24).
   c. In the Entry Inactivity Timeout field, enter the maximum time interval that can pass without the proximity receiving a lookup request for an entry before the GSS removes the entry from the database. The inactivity timeout range is from 5 to 10080 minutes (168 hours).
   d. In the Equivalence Distance field, enter the distance that the GSS applies to the most proximate GeoIP values to identify the relative values of other zones that the GSS should consider as equally proximate. The equivalence distance range is from 0 to 9999 kms.
   e. In the Acceptable Distance field, enter a value that the GSS uses as the acceptable distance value when determining the most proximate answer. The range of the acceptable distance is from 0 to 20000 kms.
   f. In the Request Monitoring field, click one of the following radio buttons to set the Geo source monitoring settings:
   - **Disabled**—Disables the Geo-source monitoring. This is the default setting.
   - **Enabled**—Enables the Geo-source monitoring.
5. Click the **Submit** button to save your changes.

Configuring the Default Continent Regions

To set up the default continent region, perform the following steps:

1. From the primary GSSM GUI, click the **GeoDB** tab.
2. Click the **Configuration** tab. The configuration page appears.
3. Click the **Default Region Configuration** link. The Default Region Configuration page appears.
4. From the default region configuration page, click **Generate** to generate the default continent regions. A message that confirms the successful configuration of default continent regions appears.

To view the configured regions, click the **Regions** tab under **Resources** tab. It displays all the configured regions.

Note To configure the default continent regions, you must import the latest version v002 of the GeoDB file.

You can edit or delete the configured regions. After configuring the default continent regions for the first time, if you again generate default continent regions by clicking on **Generate**, a message appears asking if you want to overwrite the existing configured continent regions. If you choose Yes, it will recreate the default continent regions and remove any modifications done on the default continent regions.

While configuring a default continent region, if a region with any of these names, _NORTH_AMERICA_ALL, _SOUTH_AMERICA_ALL, _ASIA_ALL, _AFRICA_ALL, _OCEANIA_ALL, EUROPE_ALL and _ANTARCTICA_ALL (which are not configured by running generate default continent region command) exists, you will be prompted to delete the existing region and proceed.

The maximum number of regions you can configure is 250. Out of these, seven are reserved for default continent regions and three for legacy regions (Central USA, Eastern USA & Western USA) to support backward compatibility. It is recommended not to configure more than 240 regions. If you exceed 243 regions (including legacy regions) and then try to generate the default continent regions, a message displays prompting you to allocate space for default continent regions.

Managing the GeoDB Static Entries

This section shows how to manage the GeoDB static entries and contains the following topics:

Adding a New GeoDB Static Entry

To create a new static entry in the GeoDB, perform the following steps:

1. From the primary GSSM GUI, click the **GeoDB** tab.
2. Click the **Database** navigation link. The global GeoDB configuration page appears.
3. From the **Add Static Entries** page, do the following:
   a. In the Start IP Address field, enter the start of the IP address range.
   b. In the End IP Address field, enter the end of the IP address range.
   c. From the Country drop-down list, choose the appropriate country.
   d. From the State drop-down list, choose the appropriate country.
   e. In the Latitude field, enter the latitude of the location where the IP address range is located.
   f. In the Longitude field, enter the longitude of the location where the IP address range is located.
4. Click the **Submit** button to save your changes.

Note GeoIP database currently supports only IPv4 address. For IPv6 proximity, use legacy, RTT based. proximity.

Viewing GeoDB Static Entries

To view the number of Static Entries, perform the following steps:

1. From the primary GSSM GUI, click the **GeoDB** tab.
2. Click the **Database** navigation link, and then click **Show Static Entries**. The show static entries list page appears displaying the following information:

- **Start IP Address**—Start of an IP range.
- **End IP Address**—End of an IP range.
- **Latitude**—Latitude of the geographical location.
- **Longitude**—Longitude of the geographical location.
- **Country Code**—Country code that resides in the GeoDB configuration.
- **State Name**—Name of the state that you have associated with a specific country.

Monitoring GeoDB Statistics

To view the GeoDB Database Stats, perform the following steps:

- Monitoring GeoDB Rule Hit Stats
- Monitoring GeoDB Database Stats
- Monitoring GeoDB Lookup Stats

Monitoring GeoDB Rule Hit Stats

The GeoDB rule hit stats list page displays the GeoDB rule hit statistics for each rule that has the GeoDB option enabled.

To view the number of GeoDB rule hit statistics, perform the following steps:

1. From the primary GSSM GUI, click the **GeoDB** tab.
2. Click the **Statistics** navigation link and then click **GeoDB Rule Hit Stats**. The GeoDB rule hit stats list page appears displaying the following information:

- **Name**—Name assigned to the GeoDB rule using the primary GSSM.
- **Owner**—GSS owner to which the GeoDB rule has been assigned.
- **non.gss.com**—Name of the GSSM or GSS.

Note Data may be delayed up to 300 seconds.

Monitoring GeoDB Database Stats

The GeoDB database stats list page displays the status of GeoDB engine, number of entries in the cached GeoDB, last cleanup time, and the number of cleanups.

To view the GeoDB Database Stats, perform the following steps:

1. From the primary GSSM GUI, click the **GeoDB** tab.
2. Click the **Statistics** navigation link and then click **GeoDB Database Stats**. The GeoDB database stats list page appears displaying the following information:

- **Global Site Selector**—Name of the GSS or GSSM device.
- **Status**—Online status of each GSS device.
- **Entries in Use**—Number of entries currently in the proximity database, out of a maximum of 500, 000 entries.
- **Last Cleanup**—Last time that the GSS removed the least recently used entries from the proximity database.
- **Number of Cleanups**—Number of entries removed during the cleanup process.

Note Data may be delayed up to 300 seconds.

Monitoring GeoDB Lookup Stats

The GeoDB lookup stats list page displays the number of lookup requests, current lookup rate, peak lookup rate, number of DB entries found, number of partial data, DB full dropped requests, and last DB full timestamp.

To view the number of GeoDB Lookup Stats, perform the following steps:

1. From the primary GSSM GUI, click the **GeoDB** tab.
2. Click the **Statistics** navigation link and then click on **GeoDB Lookup Stats**. The GeoDB lookup stats list page appears displaying the following information:

- **Global Site Selector**—Name of the GSS or GSSM device.
- **Count**—Total number of proximity lookup requests made to the GSS.
- **Crnt Rate**—Current request rate per second that requests are made to the GSS to perform a proximity lookup in the database.
- **No Entry**—Number of times the GSS was unable to locate a proximate answer from the proximity database.
- **Partial Data**—Number of times only round-trip time (RTT) data for a partial set of zones was available in the proximity database.
- **Req. Dropped**—Number of proximity lookup queries dropped by the GSS.
- **Db Full**—Number of times that the GSS was unable to perform a proximity add because the database exceeded the maximum number of entries.

Note Data may be delayed up to 300 seconds.

Where To Go Next

If you plan to use DNS sticky for your global server load balancing, configure local or global DNS sticky for GSS devices in your network. See Chapter 9, Configuring DNS Sticky, for details.

If you plan to use network proximity for your global server load balancing, configure proximity for GSS devices in your network. See Chapter 10, Configuring Network Proximity, for details.