



Creating Coverage Zone Files

This section describes the Coverage Zone file and provides several Coverage Zone file examples.

A *Coverage Zone file* is an XML file used to specify a user-defined coverage zone. The Coverage Zone file supports different tags to support different types of proximity configurations.

- Network and subnet—Specify the IP address range
- Geographical location—Specify the longitude and latitude of the data center

In addition to the coverage zone information, two optional elements are created for documentation purposes: a revision value to specify the version of the Coverage Zone file and a customer name.

For information about importing or uploading a Coverage Zone file, see the [“Coverage Zone File Registration,” page 6-12](#).

For more information about Coverage Zone files, see the [“Coverage Zone File” section on page 1-37](#).

Coverage Zone files can be created using any ASCII text-editing tool. You can use a single coverage zone text-format file to define all of the coverage zones for your VDS-IS network.

The XML Schema file describes and dictates the content of the XML file. The `CdsCoverageZone.xsd` file contains the XML schema. To view or download a copy of the `CdsCoverageZone.xsd`, see the [“Viewing or Downloading XML Schema Files” section on page 6-24](#).



Note

When DNS-based redirection is enabled, the Coverage Zone file needs to have entries with respect to the IP address of the DNS proxies instead of the client IP address.

[Table C-1](#) defines the Coverage Zone file elements.

Table C-1 Coverage Zone File Elements

Tag	Element	Value	Description
location	latitude	float	Value indicating the geographical coordinate (latitude) of the data center.
	longitude	float	Value indicating the geographical coordinate (longitude) of the data center.

Table C-1 Coverage Zone File Elements (continued)

Tag	Element	Value	Description
coverageZone	network	IP address	Coverage zone IP address range.
	SE	Service Engine name (string)	Specifies the Service Engines serving the coverage zone specified in the network element. This can have one or more elements.
	metric	integer	Value indicating the proximity of the Service Engine to the end user. The lower the value, the closer the Service Engine is to the end user.
	location	—	Value indicating the geographical coordinates (latitude and longitude) of the data center.
CDNNetwork	revision	1.0	Not used in this VDS-IS release.
	customerName	customer name	Not used in this VDS-IS release.
	coverageZone	—	This can have one or more coverage zones.

**Note**

The metric value of a default coverage zone is set to 20. If a particular SE is preferred for a user-defined coverage zone, the metric value in the Coverage Zone file should be set to a value less than 20. If a default coverage zone is preferred, then the metric value in the Coverage Zone file should be set to a value greater than 20.

Zero-IP Based Configuration

The zero-ip based configuration is a catch-all condition for routing. It can be used in combination with proximity-based routing and location-based routing. If an SE cannot be found through location-based routing or proximity-based routing, the zero-ip based configuration is taken into account for selecting an SE.

The zero-ip based configuration is a network entry in the Coverage Zone file defined as 0.0.0.0/0. It matches all client subnets. If the client subnet does not match any of the other network entries in the Coverage Zone file and a 0.0.0.0/0 network entry exists, then the SEs listed for that entry are considered for serving the client request.

Following is an example of the zero-ip based configuration.

```
<?xml version="1.0"?>
<CDNNetwork>
<revision>1.0</revision>
  <coverageZone>
    <network>3.1.2.18/32</network>
    <SE>U8-CDE220-1</SE>
    <metric>5</metric>
  </coverageZone>
  <coverageZone>
    <network>3.1.13.10/32</network>
    <SE>U8-CDE220-2</SE>
    <metric>5</metric>
  </coverageZone>
  <coverageZone>
    <network>0.0.0.0/0</network>
    <SE>U8-CDE220-3</SE>
    <metric>20</metric>
  </coverageZone>
</CDNNetwork>
```

Invalid IPv4 Addresses in Coverage Zone File

The following IPv4 addresses are considered invalid in the Coverage Zone file:

- Limited broadcast address (255.255.255.255)
- Class A (0.x.x.x)—These addresses are reserved.



Note The exception is 0.0.0.0/0, which is used for zero-IP based configuration.

- Class A (127.x.x.x)—These addresses are reserved. They are used as internal host loopback addresses, internal host loopback.
- Class B (191.255.x.x)—These addresses are reserved.
- Class C (223.255.255.x)—These addresses are reserved.
- Class D (224.x.x.x - 239.x.x.x)—Entire class is reserved for multicast addresses (the low order 24 bits represent the multicast group ID).
- Class E (240.x.x.x - 255.x.x.x)—Entire class is reserved for future use.

In addition, the following broadcast IPv4 addresses are not valid, and are not likely to be used in the Coverage Zone file:

- Class A (y.255.255.255, y = 1 to 127)—Directed broadcast to specified network.
- Class B (y.x.255.255, y = 128 to 191)—Directed broadcast to specified network.
- Class C (y.x.x.255, y = 192 to 223)—Directed broadcast to specified network.

Coverage Zone File Examples

The following sections show different Coverage Zone file examples in the following scenarios:

- [“Scenario 1: Coverage Zone with Client Network Only”](#) section on page C-4
- [“Scenario 2: Coverage Zone with Geographical Location of the Datacenter Only”](#) section on page C-4
- [“Scenario 3: Coverage Zone with Client Network and Geographical Location of the Datacenter”](#) section on page C-5
- [“Scenario 4: Coverage Zone for Same Client Network with Different Weighted SEs”](#) section on page C-5
- [“Scenario 5: Coverage Zone with Restricted List of SEs Used for Proximity-Based Routing”](#) section on page C-5
- [“Scenario 6: Coverage Zone for IPv6 Client Networks”](#) section on page C-6

For a proximity-based routing include list, the <coverageZone> tag just includes the <SE> and <metric> elements, as follows:

```
<!-- For proximity based routing include list -->
<coverageZone>
  <SE>W13-CDE205-1</SE>
  <SE>W13-CDE205-2</SE>
  <metric>10</metric>
</coverageZone>
```

Scenario 1: Coverage Zone with Client Network Only

```

<?xml version="1.0" ?>
<!-- Coverage Zone data in XML -->
<CDNNetwork>
  <revision>1.0</revision>
  <customerName> Cisco Systems </customerName>
  <!-- San Jose Datacenter -->
  <coverageZone>
    <network>192.1.2.0/16</network>
    <SE>CDE-200-SE1</SE>
    <SE>CDE-200-SE2</SE>
    <metric>10</metric>
  </coverageZone>
  <!-- Chicago Datacenter -->
  <coverageZone>
    <network>192.1.3.0/24</network>
    <SE>CDE-200-SE3</SE>
    <SE>CDE-200-SE4</SE>
    <metric>10</metric>
  </coverageZone>
  <!-- New York Datacenter -->
  <coverageZone>
    <network>192.1.4.0/24</network>
    <SE>CDE-200-SE5</SE>
    <SE>CDE-200-SE6</SE>
    <metric>10</metric>
  </coverageZone>
</CDNNetwork>

```

Scenario 2: Coverage Zone with Geographical Location of the Datacenter Only

```

<?xml version="1.0" ?>
<!-- Coverage Zone data in XML -->
<CDNNetwork>
  <revision>1.0</revision>
  <customerName> Cisco Systems </customerName>
  <!-- San Jose Datacenter -->
  <coverageZone>
    <location>
      <latitude>37</latitude>
      <longitude>-122</longitude>
    </location>
    <SE>CDE-200-SE1</SE>
    <SE>CDE-200-SE2</SE>
    <metric>10</metric>
  </coverageZone>
  <!-- Chicago Datacenter -->
  <coverageZone>
    <location>
      <latitude>42</latitude>
      <longitude>-88</longitude>
    </location>
    <SE>CDE-200-SE3</SE>
    <SE>CDE-200-SE4</SE>
    <metric>10</metric>
  </coverageZone>
  <!-- New York Datacenter -->
  <coverageZone>
    <location>
      <latitude>41</latitude>
      <longitude>-74</longitude>
    </location>
    <SE>CDE-200-SE5</SE>
  </coverageZone>

```

```

        <SE>CDE-200-SE6</SE>
        <metric>10</metric>
    </coverageZone>
</CDNNetwork>

```

Scenario 3: Coverage Zone with Client Network and Geographical Location of the Datacenter

```

<?xml version="1.0" ?>
<!-- Coverage Zone data in XML -->
<CDNNetwork>
    <revision>1.0</revision>
    <customerName> Cisco </customerName>
<!-- San Jose Datacenter -->
    <coverageZone>
        <network>192.1.2.0/16</network>
        <SE>CDE-200-SE1</SE>
        <SE>CDE-200-SE2</SE>
        <metric>10</metric>
    </coverageZone>
<!-- Chicago Datacenter -->
    <coverageZone>
        <location>
            <latitude>41</latitude>
            <longitude>-74</longitude>
        </location>
        <SE>CDE-200-SE3</SE>
        <SE>CDE-200-SE4</SE>
        <metric>10</metric>
    </coverageZone>
<!-- New York Datacenter -->
    <coverageZone>
        <network>192.1.4.0/24</network>
        <SE>CDE-200-SE5</SE>
        <SE>CDE-200-SE6</SE>
        <metric>10</metric>
    </coverageZone>
</CDNNetwork>

```

Scenario 4: Coverage Zone for Same Client Network with Different Weighted SEs

```

<?xml version="1.0" ?>
<!-- Coverage Zone data in XML -->
<CDNNetwork>
    <revision>1.0</revision>
    <customerName>Cisco Systems</customerName>
    <coverageZone>
        <network> 172.31.10.0/12 </network>
        <SE> dmz2-roam </SE>
        <metric> 10 </metric>
    </coverageZone>
    <coverageZone>
        <network> 172.31.10.0/12 </network>
        <SE> dmz2-is </SE>
        <metric> 20 </metric>
    </coverageZone>
</CDNNetwork>

```

Scenario 5: Coverage Zone with Restricted List of SEs Used for Proximity-Based Routing

```

<?xml version="1.0" ?>
<!-- Coverage Zone data in XML -->
<CDNNetwork>

```

```

    <revision>1.0</revision>
    <customerName>Cisco Systems</customerName>

<!-- Coverage Zone for static routes -->
  <coverageZone>
    <network> 192.0.2.0/24 </network>
    <SE> philly1 </SE>
    <SE> philly2 </SE>
    <metric> 10 </metric>
  </coverageZone>

<!-- For proximity-based routing include list -->
  <coverageZone>
    <SE> philly1 </SE>
    <SE> philly2 </SE>
    <SE> boston1 </SE>
    <SE> boston2 </SE>
    <SE> anywhere1 </SE>
    <SE> anywhere2 </SE>
    <metric>10</metric>
  </coverageZone>
<!-- For location-based routing -->
  <coverageZone>
    <location>
      <latitude>40</latitude>
    </location>
    <SE> philly1 </SE>
    <SE> philly2 </SE>
    <metric>10</metric>
  </coverageZone>

  <coverageZone>
    <location>
      <latitude>42</latitude>
      <longitude>71</longitude>
    </location>
    <SE> boston1</SE>
    <SE> boston2 </SE>
    <metric>10</metric>
  </coverageZone>

<!-- all zeros -->
  <coverageZone>
    <network> 0.0.0.0/0 </network>
    <SE> anywhere1 </SE>
    <SE> anywhere2 </SE>
    <metric> 10 </metric>
  </coverageZone>
</CDNNetwork>

```

Scenario 6: Coverage Zone for IPv6 Client Networks

```

<?xml version="1.0"?>
<CDNNetwork>
  <revision>1.0</revision>
  <customerName>Cisco Systems</customerName>
  <coverageZone>
    <network>2001:0DB8:0000:0001::/64</network>
    <SE>SE-1</SE>
    <metric>10 </metric>
  </coverageZone>
  <coverageZone>
    <network>::/0</network>

```

```
<SE>SE-2</SE>  
<metric> 30 </metric>  
</coverageZone>  
</CDNNetwork>
```

