



Document Type Definition (DTD) File

The Document Type Definition (DTD) file provides the rules required by the XML import file for importing bulk data into TEM.

For instructions on how to import tunnels into TEM, see the [“Import Primary Tunnel” section on page 5-8](#).

This appendix includes the following sections:

- [DTD File, page E-1](#)
- [Example, page E-4](#)

DTD File

This is the DTD file provided with TEM.

```
<?xml version="1.0" encoding="UTF-8"?>

<!-- Data Definition for file based tunnel import -->

<!-- Import File Structure -->
<!ELEMENT IMPORT_DATA (TUN_ADD|TUN_CHANGE|TUN_DELETE|TUN_MIGRATE)+ >

<!-- Notes on attributes:
importId:must be unique within the file,
        it is alphanumeric, must begin with alpha character,
        and no special character
head, tail:hostname of valid TE enabled device
policy:name of existing managed tunnel policy
bw: must be numeric and values between 0-2147483647
tnum:is the number portion of a tunnel interface
        E.g. for "interface tunnel3", use tnum="3"
        must be numeric and values between 0-65535
-->

<!-- Tunnel Add

- #IMPLIED attributes are optional, if not specified, defaults to null
- If tnum is not specified, system will generate tunnel number
- To enable auto bandwidth, specify AUTOBW element
- bw is required if autobw is not enabled
- By default, tunnel will be created with a system path and a dynamic path
```

```

-->

<!ELEMENT TUN_ADD (AUTOBW?)>
<!ATTLIST TUN_ADD
    importId ID #REQUIRED
    head CDATA #REQUIRED
    tail CDATA #REQUIRED
    policy CDATA #REQUIRED
    bw CDATA #IMPLIED
    tnum CDATA #IMPLIED>

<!-- Tunnel Change

- #IMPLIED attributes are optional, if not specified, value on existing
  tunnel is kept
- To enable auto-bw, or to change auto-bw parameters, specify AUTOBW element
- To disable auto-bw, set disableAutoBw="yes" and do not specify AUTOBW element
- Existing tunnel path cannot be changed directly, setting reroutable="true"
  will enable system to reroute the tunnel if necessary

-->

<!ELEMENT TUN_CHANGE (AUTOBW?)>
<!ATTLIST TUN_CHANGE
    importId ID #REQUIRED
    head CDATA #REQUIRED
    tnum CDATA #REQUIRED
    policy CDATA #IMPLIED
    bw CDATA #IMPLIED
    disableAutoBw (yes) #IMPLIED
    reroutable (true|false) #IMPLIED>

<!-- Tunnel Delete

- all attributes are required to identify tunnel to be deleted

-->

<!ELEMENT TUN_DELETE EMPTY>
<!ATTLIST TUN_DELETE
    importId ID #REQUIRED
    head CDATA #REQUIRED
    tnum CDATA #REQUIRED>

<!-- Tunnel Migrate

- #IMPLIED attributes are optional, if not specified, value on existing
  tunnel is kept
- All comments under Tunnel Change (above) applies to Tunnel Migrate
- only unmanaged primary tunnel can be migrated
- for tunnels with unmanaged tunnel policy, must specify a managed policy
- for tunnels that was non-conformant:
  . if bw was zero, specify a new bw or enable auto-bw
  . if path was dynamic or non-conformant, the path options will be
    replaced with a system path and a dynamic path, and reroutable will
    be set to true.
- reroutable attribute applicable only for tunnel that had a conformant first
  explicit path (i.e. explicit path with no loopback)

-->

```

```

<!ELEMENT TUN_MIGRATE (AUTOBW?)>
<!ATTLIST TUN_MIGRATE
    importId ID #REQUIRED
    head CDATA #REQUIRED
    tnum CDATA #REQUIRED
    policy CDATA #IMPLIED
    bw CDATA #IMPLIED
    disableAutoBw (yes) #IMPLIED
    reroutable (true|false) #IMPLIED>

<!-- Auto Bandwidth

- #IMPLIED attributes are optional, if not specified, value is set to null
  for TUN_ADD and existing value is kept TUN_CHANGE
- maxBw is required when used in TUN_ADD or if existing tunnel is not auto-bw
  enabled
- minBw and maxBw must be numeric and values between 0-2147483647
- maxBw must be greater than minBw if specified
- freq must be numeric and values between 300-604800

-->

<!ELEMENT AUTOBW EMPTY>
<!ATTLIST AUTOBW
    freq CDATA #IMPLIED
    minBw CDATA #IMPLIED
    maxBw CDATA #IMPLIED>
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE IMPORT_DATA SYSTEM "TeImport.dtd">

<IMPORT_DATA>

<!-- Add New Managed Tunnel -->
<TUN_ADD importId="a1" head="isctmp3" tail="isctmp1" policy="mgdPolicy" bw="400" />
<TUN_ADD importId="a2" head="isctmp2" tail="isctmp9" policy="mgdPolicy" >
  <AUTOBW freq="300" minBw="100" maxBw="200"/>
</TUN_ADD>

<!-- Modify Existing Tunnel -->
<TUN_CHANGE importId="c1" head="isctmp2" tnum="200" bw="30" />
<TUN_CHANGE importId="c2" head="isctmp4" tnum="2" policy="mgdPolicy" reroutable="true"/>
<TUN_CHANGE importId="c3" head="isctmp5" tnum="46">
  <AUTOBW freq="300" minBw="100" maxBw="200"/>
</TUN_CHANGE>
<TUN_CHANGE importId="c4" head="isctmp2" tnum="200" bw="30" disableAutoBw="yes"/>

<!-- Delete Existing Tunnel -->
<TUN_DELETE importId="d1" head="isctmp3" tnum="45"/>

<!-- Migrate Tunnel -->
<TUN_MIGRATE importId="m1" head="isctmp2" tnum="3" policy="mgdPolicy"/>
<TUN_MIGRATE importId="m2" head="isctmp5" tnum="1" policy="mgdPolicy"/>

</IMPORT_DATA>

```

Example

The following is an example of a tunnel import XML file conforming to the DTD file specified in [DTD File, page E-1](#). It consists of a sample block for each of the Add, Change, Delete, and Migrate operations.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE IMPORT_DATA SYSTEM "TeImport.dtd">

<IMPORT_DATA>

<!-- Add New Managed Tunnel -->
<TUN_ADD importId="a1" head="isctmp3" tail="isctmp1" policy="mgdPolicy" bw="400" />
<TUN_ADD importId="a2" head="isctmp2" tail="isctmp9" policy="mgdPolicy" >
  <AUTOBW freq="300" minBw="100" maxBw="200"/>
</TUN_ADD>

<!-- Modify Existing Tunnel -->
<TUN_CHANGE importId="c1" head="isctmp2" tnum="200" bw="30" />
<TUN_CHANGE importId="c2" head="isctmp4" tnum="2" policy="mgdPolicy" reroutable="true"/>
<TUN_CHANGE importId="c3" head="isctmp5" tnum="46">
  <AUTOBW freq="300" minBw="100" maxBw="200"/>
</TUN_CHANGE>
<TUN_CHANGE importId="c4" head="isctmp2" tnum="200" bw="30" disableAutoBw="yes"/>

<!-- Delete Existing Tunnel -->
<TUN_DELETE importId="d1" head="isctmp3" tnum="45"/>

<!-- Migrate Tunnel -->
<TUN_MIGRATE importId="m1" head="isctmp2" tnum="3" policy="mgdPolicy"/>
<TUN_MIGRATE importId="m2" head="isctmp5" tnum="1" policy="mgdPolicy"/>

</IMPORT_DATA>
```