Dynamic Logger

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Prerequisites

Before using dynamic logging, confirm that the following are on your switch:

- The `libmtxlogmgr*.so` library is installed `/opt/mtx/lib/`. The `libmtxlogmgr*.so` library is part of the `mtx_infra` RPM.
- The `mtx.conf` file that is located in `/etc/` contains:

```
[mtxlogger]
config=/opt/mtx/conf/mtxlogger.cfg
```

- The `mtxlogger.cfg` file is in `/opt/mtx/conf/`.

Reference

The configuration file has the following structure:

```
<config name="nxos-device-mgmt">
  <container name="mgmtConf">
    <container name="logging">
      <leaf name="enabled" type="boolean" default="false"></leaf>
      <leaf name="allActive" type="boolean" default="false"></leaf>
      <container name="format">
        <leaf name="content" type="string" default="$DATETIME$ $COMPONENTID$ $TYPE$:
$MSG$"></leaf>
     <container name="componentID">
            <leaf name="enabled" type="boolean" default="true"></leaf>
     </container>
     <container name="dateTime">
            <leaf name="enabled" type="boolean" default="true"></leaf>
            <leaf name="format" type="string" default="%y%m%d.%H%M%S"></leaf>
     </container>
     <container name="fcn">
            <leaf name="enabled" type="boolean" default="true"></leaf>
            <leaf name="format" type="string"
default="$CLASS$::$FCNNAME$($ARGS$)@$LINE$"></leaf>
     </container>
```

```
      </container>
      <container name="dest">
        <container name="console">
          <leaf name="enabled" type="boolean" default="false"></leaf>
        </container>
        <container name="file">
          <leaf name="enabled" type="boolean" default="false"></leaf>
          <leaf name="name" type="string" default="mtx-internal.log"></leaf>
          <leaf name="location" type="string" default="./mtxlogs"></leaf>
    <leaf name="mbytes-rollover" type="uint32" default="10"></leaf>
    <leaf name="hours-rollover" type="uint32" default="24"></leaf>
    <leaf name="startup-rollover" type="boolean" default="false"></leaf>
          <leaf name="max-rollover-files" type="uint32" default="10"></leaf>
        </container>
      </container>
      <list name="logitems" key="id">
        <listitem>
         <leaf name="id" type="string"></leaf>
   <leaf name="active" type="boolean" default="true"></leaf>
        </listitem>
      </list>
    </container>
  </container>
</config>
```

The **<list>** tag defines the log filters by **<componentID>**.

The following table describes some of the containers and their leaves.

Table 1: Container and Leaf Descriptions

Container	Container Description	Contained Containers	Contained Leaf and Description
logging	Contains all logging data types	format dest file **Note** Also contains list tag "logitems"	enabled: Boolean that determines whether logging is on or off. Default off. allActive: Boolean that activates all defined logging items for logging. Default off

Container	Container Description	Contained Containers	Contained Leaf and Description
format	Contains the log message format information	componentID dateTime type fcn	content: String listing data types included in log messages. Includes: • $DATETIME$: Include date or time in log message • $COMPONENTID$: Include component name in log message. • $TYPE$: Includes message type ("", INFO, WARNING, ERROR) • $SRCFILE$: Includes name of source file. • $SRCLINE$: Include line number of source file • $FCNINFO$ Include class::function name from the source file. • MSG: Include actual log message text.
componentID	Name of logged component.	NA	enabled: Boolean that determines if the log message includes the component ID. Default to "true." Value of "false" returns a "" string in log message.
dateTime	Date or time of log message	NA	enabled: Boolean whether to include date or time information in log message. Default is enabled. format: String of values to include in log message. Format of %y%m%d.%H%M%S.

Container	Container Description	Contained Containers	Contained Leaf and Description
dest	Holds destination logger's configuration settings.	console: Destination console. Only one allowed. file: destination file. Multiple allowed.	NA
console	Destination console	NA	enabled: Boolean that determines whether the console is enabled for logging. Default of "false."

Container	Container Description	Contained Containers	Contained Leaf and Description
file	Determines the settings of the destination file.	NA	enabled: Boolean that determines whether the destination is enabled. Default is "false." name: String of the destination log file. Default of "mtx-internal.log" location: String of destination file path. Default at "./mtxlogs." mbytes-rollover: uint32 that determines the length of the log file before the system overwrites the oldest data. Default is 10 Mbytes. hours-rollover: uint32 that determines the length of the log file in terms of hours. Default is 24 hours. startup-rollover: Boolean that determines if the log file is rolled over upon agent start or restart. Default value of "false." max-rollover-files: uint32 that determines the maximum number of rollover files; deletes the oldest file when the max-rollover-files value exceeded. Default value of 10.

Example

The following is the configuration file with the default installed configuration.

```
<config name="nxos-device-mgmt">
  <container name="mgmtConf">
    <container name="logging">
      <leaf name="enabled" type="boolean" default="false">true</leaf>
      <leaf name="allActive" type="boolean" default="false">false</leaf>
      <container name="format">
        <leaf name="content" type="string" default="$DATETIME$ $COMPONENTID$ $TYPE$:
$MSG$">$DATETIME$ $COMPONENTID$ $TYPE$ $SRCFILE$ @ $SRCLINE$ $FCNINFO$:$MSG$</leaf>
```

```
      <container name="componentID">
             <leaf name="enabled" type="boolean" default="true"></leaf>
      </container>
      <container name="dateTime">
             <leaf name="enabled" type="boolean" default="true"></leaf>
             <leaf name="format" type="string" default="%y%m%d.%H%M%S"></leaf>
      </container>
      <container name="fcn">
             <leaf name="enabled" type="boolean" default="true"></leaf>
             <leaf name="format" type="string"
default="$CLASS$::$FCNNAME$($ARGS$)@$LINE$"></leaf>
      </container>
       </container>
       <container name="dest">
         <container name="console">
           <leaf name="enabled" type="boolean" default="false">true</leaf>
         </container>
         <container name="file">
           <leaf name="enabled" type="boolean" default="false">true</leaf>
           <leaf name="name" type="string" default="mtx-internal.log"></leaf>
           <leaf name="location" type="string" default="./mtxlogs">/volatile</leaf>
     <leaf name="mbytes-rollover" type="uint32" default="10">50</leaf>
     <leaf name="hours-rollover" type="uint32" default="24">24</leaf>
     <leaf name="startup-rollover" type="boolean" default="false">true</leaf>
           <leaf name="max-rollover-files" type="uint32" default="10">10</leaf>
         </container>
       </container>
       <list name="logitems" key="id">
         <listitem>
          <leaf name="id" type="string">*</leaf>
    <leaf name="active" type="boolean" default="false">false</leaf>
      </listitem>
      <listitem>
       <leaf name="id" type="string">SYSTEM</leaf>
    <leaf name="active" type="boolean" default="true">true</leaf>
      </listitem>
      <listitem>
       <leaf name="id" type="string">LIBUTILS</leaf>
    <leaf name="active" type="boolean" default="true">true</leaf>
      </listitem>
      <listitem>
       <leaf name="id" type="string">MTX-API</leaf>
    <leaf name="active" type="boolean" default="true">true</leaf>
      </listitem>
      <listitem>
       <leaf name="id" type="string">Model-*</leaf>
    <leaf name="active" type="boolean" default="true">true</leaf>
      </listitem>
      <listitem>
       <leaf name="id" type="string">Model-Cisco-NX-OS-device</leaf>
    <leaf name="active" type="boolean" default="true">false</leaf>
      </listitem>
      <listitem>
       <leaf name="id" type="string">Model-openconfig-bgp</leaf>
    <leaf name="active" type="boolean" default="true">false</leaf>
      </listitem>
      <listitem>
       <leaf name="id" type="string">INST-MTX-API</leaf>
    <leaf name="active" type="boolean" default="true">false</leaf>
      </listitem>
      <listitem>
       <leaf name="id" type="string">INST-ADAPTER-NC</leaf>
    <leaf name="active" type="boolean" default="true">false</leaf>
      </listitem>
```

```
        <listitem>
         <leaf name="id" type="string">INST-ADAPTER-RC</leaf>
   <leaf name="active" type="boolean" default="true">false</leaf>
        </listitem>
        <listitem>
         <leaf name="id" type="string">INST-ADAPTER-GRPC</leaf>
   <leaf name="active" type="boolean" default="true">false</leaf>
        </listitem>
      </list>
    </container>
  </container>
</config>
```