CFM and Y1731 Configuration

Table of Contents

1. Overview

1.1 Stipulation

1.1.1 Format Stipulation in the Command Line

Syntax	Meaning
Bold	Stands for the keyword in the command line, which stays unchanged and must be entered without any modification. It is presented as a bold in the command line.
{italic}	Stands for the parameter in the command line, which must be replaced by the actual value. It must be presented by the italic in the brace.
<italic>	Stands for the parameter in the command line, which must be replaced by the actual value. It must be presented by the italic in the point bracket.
[ ]	Stands for the optional parameter, which is in the square bracket.
{x | y | ...}	Means that you can choose one option from two or more options.
{x | y | ...}	Means that you can choose one option or none from two or more options.
{x | y | ...} *	Means that you have to choose at least one option from two or more options, or even choose all options.
{x | y | ...} *	Means that you can choose multiple options or none from two or more options.
&<1-n>	Means that the parameter before the "&" symbol can be entered 1～n times.
#	Means that the line starting with the "#" symbol is an explanation line.

2. CFM Configuration

2.1 CFM Configuration Task List

- Adding the Maintenance Domain
- Adding the Maintenance Association
- Adding MIP (Maintenance domain Intermediate Point)
- Adding MEP (Maintenance association End Point)
- Starting CFM

2.2 CFM Maintenance Task List

- Using the Loopback Function
- Using the Linktrace Function

2.3 CFM Configuration

2.3.1 Adding the Maintenance Domain

Configuration mode: Global

Command	Purpose
ethernet cfm md mdnf {string} mdn <char_string> [level <0-7> | creation <MHF_creation_type> | sit <sender_id_type> | ip <IP_address>]	Adds a maintenance domain whose name is char_string. Note: The system enters the maintenance domain configuration mode after the maintenance domain is added.

2.3.2 Adding the Maintenance Association

Configuration mode: maintenance domain

Command	Purpose
ma manf {string} man <char_string> ci {100ms | 1s | 10s | 1min | 10min} meps <mepids> [vlan <1-4094> | creation <MHF_creation_type> | sit <sender_id_type> | ip <IP_address>]	Adds a maintenance association whose name is char_string.

2.3.3 Adding MIP (Maintenance Domain Intermediate Point)

Configuration mode: physical interface

Command	Purpose
ethernet cfm mip add level <0-7> [vlan <1-4094>]	Adds a designated VLAN and hierarchical MIP to the designated physical interface.

2.3.4 Adding MEP (Maintenance Association End Point)

Configuration mode: physical interface

Command	Purpose
ethernet cfm mep add mdnf {string} mdn <char_string> manf {string} man <char_string> mepid <1-8191> [direction {up | down} | ip <ip_address> | lap {all | mac | rCCM | eCCM | xcon | none}]	Adds a designated maintenance domain and an MEP to the designated physical interface.

2.3.5 Starting CFM

Configuration mode: Global

Command	Purpose
ethernet cfm {enable}	Starts CFM.

2.4 CFM Maintenance

2.4.1 Using the Loopback Function

Configuration mode: EXEC

Command	Purpose
ethernet cfm loopback mdnf {string} mdn <char_string> manf {string} man <char_string> mepid <1-8191> mac <AA:BB:CC:DD:EE:FF> number <1-64>	Uses a designated MEP to conduct loopback towards itself.

2.4.2 Using the Linktrace Function

Configuration mode: EXEC

Command	Purpose
ethernet cfm linktrace mdnf {string} mdn <char_string> manf {string} man <char_string> mepid <1-8191> mac <AA:BB:CC:DD:EE:FF> [ttl {1-255}	fdb-only {yes}] <char_string> manf {string} man <char_string> mepid <1-8191> mac <AA:BB:CC:DD:EE:FF> ttl <1-255>	Uses a designated MEP to conduct loopback towards itself.

2.5 Configuration Example

Users want to add a maintenance domain whose name is customer and hierarchy is 5, set a customer1 maintenance association for vlan1, configure the transmission interval of CCM of the maintenance association to 1s (MEP1, MEP2, MEP2009) and at last add an MEP whose MEPID is 2009 to physical port1.

Switch_config#ethernet cfm md mdnf string mdn customer level 5
Switch_config_cfm#ma manf string man customer1 vlan 1 ci 1s meps 1-2,2009
Switch_config_cfm#interface g0/1
Switch_config_g0/1#ethernet cfm mep add mdnf string mdn customer manf string man customer1 mepid 2009 direction DOWN lap ALL
Switch_config_g0/1#exit
Switch_config#ethernet cfm enable

3. Y1731 Configuration

3.1 Y1731 Configuration Task List

• Specifying an MEP to Forward AIS Frame
• Enabling Frame Delay Measurement
• Displaying the Information About OAM Protocol

3.1.1 Specifying an MEP to Forward AIS Frame

Run the following commands specify an MEP to transmit AIS frames:

Procedure	Command	Purpose
Step1	config	Enters the global configuration mode.
Step2	ethernet y1731 ais-mep timer time	Designates the transmission interval of AIS packets. <1> -- 1 frame per second <2> -- 1 frame per minuteThe default transmission value is 1 second. The default transmission value is 1 second.
Step3	interface intf-type intf-id	Enters the interface configuration mode.
Step4	ethernet y1731 ais-mep MEGID MEPID	Specifies an MEP to transmit AIS frames. MEGID is the name of MEG to which MEP belongs. MEPID is the identifier of the specified MEP.

Enter no ethernet y1731 ais-mep timer to resume the forwarding preriod of AIS frame to the default. Enter no ethernet y1731 ais-mep MEGID MEPIDto delete MEP which can forward AIS.

3.1.2 Enabling Frame Delay Measurement

Enable frame delay measurement with following configurations:

Procedure	Command	Purpose
Step1	enable	Enters the EXEC mode.
Step2	ethernet y1731 delay-measurement [-n number]* MEGID {aimmep MEPID| macaddr} [one-way]	Enabling Frame Delay Measurement -n (optional parameter) Sets the number of packets forwarding. The default value is 5 (which is effective for the bidirectional detection only.) MEGID means the name of MEG running loopback function aimmep means the destination mep when running frame transmission latency measurement and needs the mac address of destination mep learned by cc function. Macaddr the mac address of destination mep learned by cc function and does not need to learn mac address. one-way Enable the unidirectional frame transmission latency measurement. After the command is enabled, the unidirectional transmission latency measurement packets will be forwarded ceaselessly.

Step3	[no]ethernet y1731 delay-measurement info	Enable/disable the information display of unidirectional frame transmission latency. The command can be used to observe the change of the frame transmission latency of every unidirectional delay measurement packet.

3.1.3   Stop Command

The command can be used to stop a running detection. Configuring the command as follows:

Procedure	Command	Purpose
Step1	enable	Enters the EXEC mode.
Step2	ethernet y1731 terminate	The command is used to disable the delay-measurement function.

3.1.4   Clear Y1731 Protocol Configuration/Statistics Information

Use the command clear to clear Y1731 configuration/statistics information

Command	Purpose
clear ethernet y1731 counters	To delete the transmission statistics information about the OAM packets and the system error information, run the following command.
clear ethernet y1731 delay-measurement MEGID	The command is used to delete the statistics information about the one-way delay measurement carried out by a designated MEG.