Eng3ATMcap EEM Script

Engine 3 ATM LC Failure Capture

By: Scott Search (ssearch@cisco.com), Cisco Systems
01/10/11

Table of Contents

1 Eng3ATMcap Overview

EEM script to help capture various show commands upon an Engine 3 ATM linecard failure. The script is triggered by the following syslog message pattern:

*ROUTING-LDP-5-NBR_CHANGE.*DOWN.*IP address removed*

The above syslog pattern must be received 5 times within a 10 second period. Once the script is triggered the script parses the previous syslog messages for the following patterns:

ROUTING-OSPF-5-ADJCHG : Process
from FULL to DOWN, Neighbor Down: interface down or detached

If the above pattern is found at a minimum of 6 times within a 45 second period the EEM script continues processing. In the event the above patterns are not met the script will issue the following syslog message below and abort.

EEM Script (Eng3ATMcap) exiting due to GoBack_msgs below required value (x) found (y)

2 Eng3ATMcap Execution Steps

1. By default the script will repeat the EEM script generated syslog messages once. An operator can change this by setting the follow EEM environment variable:

   _Eng3ATMcap_msg_repeat <x>

2. Script captures the current routers date and time.
3. Opens the output log file with the following naming convention:

   Eng3ATMcap.MM-DD-YY_HH.MM.SS

4. Places a timestamp in the output log file.
5. Queries the Cisco EEM sys_reqinfo_syslog_history to capture all the syslog messages. Analyzes the messages for the following patterns:

   ROUTING-OSPF-5-ADJCHG : Process
   from FULL to DOWN, Neighbor Down: interface down or detached

   The script requires the above message patterns to be present within the last 45 seconds of the scripts execution. If the above patterns were detected at a

minimum of 6 times the script continues execution. If the above pattern fails the minimum of 6 times the script aborts and exits.

6. The script parses the syslog messages and extracts the suspected failure location(s). The script updates the show commands with the necessary location(s), date/time, and nodename. Prints the locations to the output log file.
7. Opens a VTY connection to the router.
8. Runs the Exec mode show commands and prints all the output to the output log file.
9. Runs the Admin mode show commands and prints all the output to the output log file.
10. Captures the required process job IDs. Then runs the process show commands and again prints all the output to the output log file.
11. Next the script enters the shell, runs two commands and prints the received output to the output log file.
12. The script attaches to the suspect linecard location, runs three commands and prints the received output to the output log file.
13. Next the script sends the following EEM syslog message:

    EEM script Eng3ATMcap ($node) detected a possible Engine 3 LC failure and captured a number of commands

14. Finally if the operator configures the email EEM environment variables the script will send an email to the configured _*email*_to recipients.

3 Eng3ATMcap Required Environment Variables

The __Eng3ATMcap_storage_location EEM environment variable is necessary to configure the routers location to store the output log file.

Example:

event manager environment _Eng3ATMcap_storage_location disk0:/eem

4 Eng3ATMcap Email

The Eng3ATMcap EEM script supports generating an email message. If the following EEM environment variables are configured the EEM script generates an email warning the recipients of the possible Engine 3 LC failure:

__email_server
__email_from

__email_to
__domainname

Example:

event manager environment _email_to user1@att.com user2@att.com
event manager environment _domainname att.com
event manager environment _email_from alert@att.com
event manager environment _email_server 1.2.3.4

By default the EEM script will use the following email subject line:

***Node $node - EEM Eng3ATMcap POLICY DETECTED A POSSIBLE ENGINE 3 ATM LC FAILURE*

This can be changed by setting the following EEM environment variable:

event manager environment _Eng3ATMcap_email_subject <custom email subject>

5 Authentication/Authorization EEM User Configurations

Below are the required AAA and configuration lines required for the EEM script to function correctly:

5.1 Authentication and Authorization

```
aaa authorization exec eem-user local
aaa authorization commands eem-user none
aaa authorization eventmanager default local
aaa authorization eventmanager eem-user local
aaa authentication login eem-user local
```

5.2 EEM-User

```
username eem-user
 group root-system
 group cisco-support
```

5.3 Line template and Vty-pool

```
line template eem-user
 authorization exec eem-user
 authorization commands eem-user
!
vty-pool fm 100 110 line-template eem-user
```

6 Configure and Register EEM Policy Eng3ATMcap

Below are the commands to configure and register the EEM script Eng3ATMcap:

event manager environment _Eng3ATMcap_storage_location disk0:/eem
event manager directory user policy disk0:/eem
event manager policy Eng3ATMcap.tcl username eem-user type user

7 Optional EEM Environment Variables

Below are the optional EEM environmental variables:

Environment Variable	**Description**
_Eng3ATMcap_msg_repeat	Default repeat syslog message once. Override this by setting this variable
_Eng3ATMcap_email_subject	Override the default email subject with this environment variable subject

8 Optional EEM Script Test

The triggering event for this EEM script is difficult to reproduce. One way to reproduce these syslog messages that trigger the EEM script is to echo the syslog messages to the syslog process. Below are the steps to do so:

The following syslog message must be echoed at a minimum 6 times and within a 45 second period before the syslog message below (LDP state change):

run echo “ospf[336]: %ROUTING-OSPF-5-ADJCHG : Process 2, Nbr 165.87.247.165 on ATM0/11/0/0.210 in area 10.10.3.1 from FULL to DOWN, Neighbor Down: interface down or detached,vrf default vrfid 0x60000000” > /dev/syslog

The final triggering syslog message below must be echoed at a minimum of 5 times within a 10 second period:

run echo “mpls_ldp[313]: %ROUTING-LDP-5-NBR_CHANGE : Neighbor 165.87.247.165:0, DOWN (IP address removed)” > /dev/syslog