PCIe RAS Executed Tests

Test Environment details:
- Bare Metal, Ubuntu 16.04.2 LTS

Repo/branch used:
- collectd/feat_pcieras_with_logparser

Tests precondition:
- AER injection tool installed.
- Collectd installed.
- Exec/python collectd plugin configured.

PCIe non native OS error injection

Collectd configuration:

```xml
<Plugin pcie_errors>
Source "sysfs"
AccessDir "/sys/bus/pci"
ReportMasked false
PersistentNotifications false
ReadLog false
LogFile "/var/log/syslog"
</Plugin>
```

Table#1: PCIe non native OS error injection test cases

<table>
<thead>
<tr>
<th>#</th>
<th>Test Summary</th>
<th>Steps</th>
<th>Expected</th>
<th>Status</th>
<th>Comments</th>
</tr>
</thead>
</table>
| 1  | PCIe plugin notifications upon collectd start    | 1. Collected initial configuration. Start collectd.                   | 1. Collected started.  
2. Basic/AER PCIe errors dispatched after collectd start for all related (network NICs) PCIe devices. | Pass   | SA: No clear limits between messages in collectd/exec plugin.           |
|    |                                                  | 2. Verify notifications dispatched by PCIe plugin.                   |                                                                         |        |                                                                          |
| 2  | PCIe plugin dispatches notifications after every collectd restart | 1. Collected initial configuration. Start collectd.  
2. Inject PCIe error.  
3. Clear PCIe error.  
4. Restart collectd.  
5. Repeat steps #2-#4 multiple times. | 2. Notification about PCIe error is dispatched as set.  
3. Notification about PCIe error is dispatched as cleared.  
4. Collectd is started, no warnings/errors in syslog. PCIe errors dispatched after collectd start for all related (network NICs) PCIe devices. | Pass   |                                                                          |
| 3  | PCIe plugin upon raised notification and collectd restart | 1. Collected initial configuration. Start collectd.  
2. Inject PCIe error.  
3. Clear PCIe error.  
4. Restart collectd.  
5. Repeat steps #2-#4 multiple times. | 2. Notification about PCIe error is dispatched as set.  
3. Collectd is started, no warnings/errors in syslog. Notification about PCIe error is dispatched as set.  
4. Notification about PCIe error is dispatched as cleared. | Pass   |                                                                          |
| 4  | PCIe plugin results upon collectd recovery (kill collectd process) | 1. Collected initial configuration. Start collectd.  
2. Inject PCIe error.  
3. Clear PCIe error.  
5. Start collectd if collectd not autostarted.  
6. Repeat steps #2-#4 at least one more time. | 2. Notification about basic/AER PCIe error is dispatched as set.  
3. Notification about basic/AER PCIe error is dispatched as cleared.  
4. / 5. Collectd is killed and started.  
Note: if collectd is configured as service it may be auto started. | Pass   |                                                                          |
| 5  | PCIe plugin upon commented whole "Plugin pcie_errors" section | 1. Comment whole pcie_errors section including <Plugin pcie_errors>, </Plugin> lines. Start collectd.  
2. Inject basic PCIe error. | 1. Collectd started.  
2. PCIe plugin loaded with default parameters.  
2. Notification about basic/AER PCIe error is dispatched. | Fail   | SA: Readout's summary - default non native OS support. So, default configuration should be available (Ubuntu is target OS).  
|    |                                                  |                                                                      |                                                                         |        | Internal JIRA filed                                                      |
| 6  | PCIe plugin upon commented content of "Plugin pcie_errors" (<?Plugin pcie_errors>...) </Plugin>) | 1. Comment content of "Plugin pcie_errors", like:  
<Plugin pcie_errors>  
...  
</Plugin>)  
2. Inject basic PCIe error. | 1. Collectd started.  
2. PCIe plugin loaded with default parameters.  
2. Notification about basic/AER PCIe error is dispatched. | Fail   | SA: Readout's summary - default non native OS support. So, default configuration should be available (Ubuntu is target OS).  
|    |                                                  |                                                                      |                                                                         |        | Internal JIRA filed                                                      |
### PCIe plugin upon 'Source' parameter changed

1. Configure collectd:
   - `<Plugin pcie_errors>
     Source "sysfs"
     AccessDir "/sys/bus/pci"
   </Plugin>`
2. Inject basic/AER PCIe error.
3. Clear injected PCIe error.
4. Configure collectd, restart collectd:
   - `<Plugin pcie_errors>
     Source "proc"
     AccessDir "/proc/bus/pci"
   </Plugin>`
5. Inject basic/AER PCIe error.
6. Clear injected PCIe error.
7. Configure collectd, restart collectd:
   - `<Plugin pcie_errors>
     Source "off"
   </Plugin>`
8. Inject basic/AER PCIe error.

### PCIe plugin upon incorrect device location given ('AccessDir')

1. Collectd initial configuration. Start collectd.
2. Inject basic/AER PCIe error.
3. Change location to existing path to invalid ("/sys/bus", "/proc/pciinfo"), restart collectd.
4. Inject basic/AER PCIe error.
5. Clear injected PCIe error.
6. Change location to non existing path, restart collectd.
7. Inject basic/AER PCIe error.
8. Clear injected PCIe error.

### PCIe plugin errors upon 'ReportMasked' parameter changed

1. Collectd initial configuration. Start collectd.
2. Inject AER PCIe error:
   - `# cali uce unsupreq
   AER_PCI_ID 05:00.0 UNCOR_STATUS 0x00000000
   # /aer-inject uce unsupreq`
3. Clear PCIe error (setpci: s 05:00.0 0x104.0)
5. Inject unsupreq AER PCIe error.
6. Clear PCIe error.

### PCIe plugin dispatches events according to 'PersistentNotifications' parameter

1. Collectd initial configuration. Start collectd.
2. Inject basic/AER PCIe error.
3. Clear injected errors.
4. Set 'PersistentNotifications true' in collectd.conf. Restart collectd.
5. Inject basic/AER PCIe error.
6. Clear injected errors.

### PCIe plugin dispatches events every interval when 'PersistentNotifications' is true

1. Set 'PersistentNotifications true' in collectd.conf. Change time interval to 1 second. Restart collectd.
2. Inject basic/AER PCIe error.
3. Clear injected errors.
4. Repeat test with time interval in range 2-60 seconds.

### PCIe plugin upon 'ReadLog' parameter changed

1. Set 'ReadLog true', Restart collectd.
2. Inject basic/AER PCIe error.
3. Set 'ReadLog false', Restart collectd.

### PCIe plugin upon 'ReadLog' parameter changed

1. Collectd started.
2. Notification about basic/AER PCIe error is not dispatched.
3. Notification about basic/AER PCIe error is dispatched as cleared.
4. Collectd started.
5. Notification about basic/AER PCIe error is dispatched as set.
6. Notification about basic/AER PCIe error is dispatched as cleared.
7. Collectd started, plugin not loaded.
8. No notification about basic/AER PCIe error is dispatched.

### PCIe plugin upon incorrect device location given ('AccessDir')

1. Collectd initial configuration. Start collectd.
2. Inject basic/AER PCIe error.
3. Change location to existing path to invalid ("/sys/bus", "/proc/pciinfo"), restart collectd.
4. Inject basic/AER PCIe error.
5. Clear injected PCIe error.
6. Change location to non existing path, restart collectd.
7. Inject basic/AER PCIe error.
8. Clear injected PCIe error.

### PCIe plugin errors upon 'ReportMasked' parameter changed

1. Collectd started.
2. Notification about basic/AER PCIe error is not dispatched.
3. Collectd started, pcie_errors plugin loaded.
4. Warning about PCIe devices read failure logged.
5. No notification about basic/AER PCIe error is dispatched.
6. PCIe error is cleared (setpci: s 05:00.0 0x104.0)
7. PCIe error is cleared as cleared.
8. No notification about basic/AER PCIe error is dispatched.
9. No notification about basic/AER PCIe error is dispatched as cleared.
10. Notification about AER PCIe error is dispatched as cleared.

### PCIe plugin dispatches events according to 'PersistentNotifications' parameter

1. Collectd started.
2. Notification about AER PCIe error is not dispatched. Status is changed:
   - `# setpci: s 05:00.0 0x104.0 0x10000000
   # CB: a5 -e "Capabilities: [100]
   # /aer-inject uc unsupreq`
3. Clear PCIe error (setpci: s 05:00.0 0x104.0)
5. Notification about AER PCIe error is dispatched as cleared.
6. Notification about AER PCIe error is dispatched as cleared.
7. Notification about basic/AER PCIe error is dispatched.
8. Notification about basic/AER PCIe error is dispatched as cleared.
9. Notification about basic/AER PCIe error is dispatched as cleared.
10. Notification about basic/AER PCIe error is dispatched as cleared.

### PCIe plugin dispatches events every interval when 'PersistentNotifications' is true

1. Set 'PersistentNotifications true' in collectd.conf. Change time interval to 1 second. Restart collectd.
2. Inject basic/AER PCIe error.
3. Clear injected errors.
4. Repeat test with time interval in range 2-60 seconds.

### PCIe plugin upon 'ReadLog' parameter changed

1. Collectd started.
2. No notification about PCIe error is dispatched.
3. After collectd restart notifications appeared.
4. Notification about PCIe errors injected.
5. Notification about PCIe error is dispatched once injected/cleared.

Pass

Fail

Internal JIRA filed

Pass
13. PCIe plugin upon 'ReadLog true' parameter upon collectd start and error injected

1. Set 'ReadLog true' in collectd.conf. Start collectd.
2. Inject a PCIe error.
3. Restart collectd.

1. Collectd started.
2. PCIe error is raised (lspci/setpci) but not dispatched as syslog is parsed.
3. No notifications after collectd started as non-native OS support configured with syslog read option.

*Observed:* Upon start up all errors are read from default configuration as well as injected prior PCIe error, but syslog doesn't contain any PCIe error.
4. Error is cleared, notification is not dispatched.

14. PCIe plugin AER Corrected errors notifications

1. Collectd initial configuration. Start collectd.
2. Inject AER PCIe error:
   - cat ce_badtlp
   - AER_PCI_ID 05:00.0 COR_STATUS 0x00000040
   - /aer-inject ce_badtlp
3. Clear injected errors:
   - setpci -s 05:00.0 0x110.l=0x40
4. Repeat test with other PCIe correctable errors:
   - Receiver Error Status (0x00000001), Bad DLLP Status (0x00000080), REPLAY_NUM Rollover (0x00000100), etc.

1. Collectd started.
2. Verify register status by setpci -s 05:00.0 0x110.l=0x40:
   - 00000040
3. Verify status by lspci -s 05:00.0 -vv | grep -A9
   - CESta: RxErr- BadTLP- BadDLLP- Rollover- NonFatalErr- Notification with correct timestamp, title, severity, address is dispatched as set:
   - Severity: WARNING
   - Time:1491226583.117
   - Host:silpixa00398942
   - Plugin:pcie_errors
   - PluginInstance:0000:05:00.0
   - Type:pcie_error
   - TypeInstance:correctable
   - CorrectableError set: Bad TLP Status

*Pass*

15. PCIe plugin AER Uncorrected non fatal errors notifications

1. Collectd initial configuration. Start collectd.
2. Inject AER PCIe uncorrectable fatal error:
   - cat ce_acsviol
   - AER_PCI_ID 05:00.0 UNCOR_STATUS 0x00200000
   - /aer-inject ce_acsviol
3. Clear injected errors:
   - setpci -s 05:00.0 0x104.l=0x00200000
4. Repeat test with other PCIe Uncorrectable errors:
   - Surprise Down (0x00000020), Poisoned TLP (0x00001000), Flow Control Protocol (0x00002000), etc.

1. Collectd started.
2. Verify register status by setpci -s 05:00.0 0x104.l=0x00200000:
   - 00200000
3. Verify status by lspci -s 05:00.0 -vv | grep -A9
   - UESta: DLP- SDES- TLP- FCP- CmpltTO- CmpltAbrt- UnxCmplt- RxOF- MalfTLP- ECRC- UnsupReq- ACSViol-
   - Notification with correct timestamp, title, severity, address is dispatched as set:
   - Severity: WARNING
   - Time:1491229811.884
   - Host:silpixa00398942
   - Plugin:pcie_errors
   - PluginInstance:0000:05:00.0
   - Type:pcie_error
   - TypeInstance:non_fatal
   - Uncorrectable(non_fatal)Error set: ACS Violation

*Pass*

16. PCIe plugin AER Uncorrected fatal error notifications

1. Collectd initial configuration. Start collectd.
2. Inject AER PCIe uncorrectable fatal error:
   - cat ce_dlp
   - AER_PCI_ID 05:00.0 UNCOR_STATUS 0x10
   - /aer-inject ce_dlp
3. Clear injected errors:
   - setpci -s 05:00.0 0x104.l=0x00200000
4. Repeat test with other PCIe Uncorrectable errors:
   - Surprise Down (0x00000020), Poisoned TLP (0x00001000), Flow Control Protocol (0x00002000), etc.

1. Collectd started.
2. Verify register status by setpci -s 05:00.0 0x104.l=0x00000010:
   - 00000010
3. Verify status by lspci -s 05:00.0 -vv | grep -A9
   - UESta: DLP- SDES- TLP- FCP- CmpltTO- CmpltAbrt- UnxCmplt- RxOF- MalfTLP- ECRC- UnsupReq- ACSViol-
   - Notification with correct timestamp, title, severity, address is dispatched as set:
   - Severity: FAILURE
   - Time:1491227475.743
   - Host:silpixa00398942
   - Plugin:pcie_errors
   - PluginInstance:0000:05:00.0
   - Type:pcie_error
   - TypeInstance:fatal
   - Uncorrectable(fatal)Error set: Data Link Protocol

*Pass*
PCIe native OS error injection

System configuration:

- Turn on native OS driver support

Collectd configuration:

```xml
<Plugin pcie_errors>
    Source "off"
    AccessDir "/sys/bus/pci"
    ReportMasked false
    PersistentNotifications false
    ReadLog true
    FirstFullRead false
    LogFile "/var/log/syslog"
    <MsgPattern "aer syslog">
        <Match>
            Name "root port"
            Regex "pcieport (\d+): AER:" IsMandatory true
        </Match>
    </MsgPattern>
</Plugin>
```

Table#2: PCIe native OS error injection test cases

<table>
<thead>
<tr>
<th>#</th>
<th>Test Summary</th>
<th>Steps</th>
<th>Expected</th>
<th>Status</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PCIe plugin basic errors notification</td>
<td>1. Collectd initial configuration. Start collectd. 2. Check PCIe devices for active errors (lspci -s 81:00.0 -v</td>
<td>1. Collectd started. 2. PCIe errors dispatched after collectd started for all related (network NIC’s) PCIe devices.</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Get errors and try to clear, e.g.: Get: setpci -s 81:00.0 0xAA.w Clear: setpci -s 81:00.0 0xAA. w=&lt;read_value&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Restart collectd.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>PCIe plugin dispatched notification after every collectd restart</td>
<td>1. Collectd initial configuration. Start collectd. 2. Inject basic/AER PCIe error. 3. Restart collectd. 4. Repeat steps #2-#3 multiple times.</td>
<td>2. Notification about PCIe error is dispatched. Injected AER PCIe error is cleared 3. Collectd is started, no warnings/errors in syslog. 4. PCIe errors dispatched after collectd start for all related (network NIC’s) PCIe devices.</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>PCIe plugin upon ‘ReadLog’ parameter changed</td>
<td>1. Change initial collectd.conf by changing ‘ReadLog true’. Start collectd. 2. Inject basic/AER PCIe error. 3. Set ‘ReadLog false’. Restart collectd. 4. Inject basic/AER PCIe error.</td>
<td>1. Collectd started. 2. Notification about PCIe error dispatched from syslog. PCIe error is cleared. 3. Collectd started, PCIe plugin unloaded. 4. Notification about PCIe error dispatched from syslog. PCIe error is cleared.</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>PCIe plugin notification fields when ‘FirstFullRead true’</td>
<td>1. Change initial collectd.conf by changing ‘FirstFullRead false’. Start collectd. 2. Collectd started with PCIe error plugin. Notification fields are same as fields read from syslog.</td>
<td></td>
<td>Fail</td>
<td>Internal JIRA filed</td>
</tr>
<tr>
<td>Step</td>
<td>Description</td>
<td>Result</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>--------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Collectd initial configuration. Start collectd.</td>
<td>Pass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Inject basic/AER PCIe error.</td>
<td>Pass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Change initial collectd.conf by changing 'FirstFullRead false'. Start collectd.</td>
<td>Pass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Inject basic/AER PCIe error.</td>
<td>Pass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>PCIe plugin upon 'FirstFullRead parameter changed</td>
<td>Pass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>PCIe plugin errors upon 'ReportMasked' parameter changed</td>
<td>Fail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>PCIe plugin dispatches events according to 'PersistentNotifications' parameter</td>
<td>Fail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>PCIe plugin dispatches events every interval when 'PersistentNotifications true'</td>
<td>Blocked</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>PCIe plugin upon 'ReadLog' parameter changed</td>
<td>Pass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>PCIe plugin AER Corrected errors notifications</td>
<td>Pass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>PCIe plugin AER Uncorrected non fatal errors notifications</td>
<td>Pass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step</td>
<td>Description</td>
<td>Pass/Fail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>----------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>PCIe plugin AER Uncorrected fatal error notifications</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Collectd initial configuration. Start collectd.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Inject AER PCIe uncorrectable fatal error:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td># cat ue_dlp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AER_PCI_ID 05:00.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UNCOR_STATUS 0x10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td># ./aer-inject_ue_dlp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Collectd started.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Notification with correct timestamp, title, severity, address is dispatched as set:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severity: FAILURE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Time: 1491415541.938</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Host: silpixa00398942</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plugin: pcie_errors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PluginInstance: 0000:05:00.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type: pcie_error</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TypeInstance: fatal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>rootport: 0000:00:03.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Error: Unaccessible id: 0500 (Unregistered Agent ID)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AER fatal error reported in log</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>PCIe plugin notification read from non existent syslog file location</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Change syslog location to non-existent. Start collectd.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Change syslog location to valid. Restart collectd.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Inject AER PCIe error.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Collectd started. Error message recorded to syslog:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;utils_tail: stat (/var/llog/syslog) failed: No such file or directory&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Notification &quot;Failed to read from log file&quot; is dispatched.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Collectd started.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Notification about AER PCIe error is dispatched from syslog.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pass</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>PCIe plugin notifications of basic PCIe errors caused by AER UE fatal error injection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Change collectd.conf file, restart collectd:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;LoadPlugin pcie_errors&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interval 0.005</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;LoadPlugin&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;Plugin pcie_errors&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Source &quot;sysfs&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AccessDir &quot;/sys/bus/pci&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ReportMasked false</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PersistentNotifications false</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ReadLog true</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FirstFullRead false</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LogFile &quot;/var/log/syslog&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/Plugin&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Inject AER Uncorrected fatal error (like, ue_dlp).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Change interval to 1 second.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Inject AER Uncorrected fatal error (like, ue_dlp).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Collectd started.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Notifications about PCIe AER Uncorrected fatal error is dispatched.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Notifications about basic PCIe errors are dispatched.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pass</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>PCIe plugin dispatches notification after single negative match</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Add following to initial collectd.conf and restart collectd:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;MsgPattern &quot;aer syslog&quot;&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;Match&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Name &quot;root port&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Regex &quot;pcieport (\d+)&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IsMandatory false</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/Match&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/MsgPattern&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Inject AER PCIe error.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Collectd started.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Notification is not sent because &quot;IsMandatory false&quot;, so all is taken by default.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fail</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Internal JIRA filed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SA: Current implementation forcibly turns mandatory fields for first and last match section. Why first and last match must be mandatory?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>PCIe plugin dispatches notification after simple positive match for the same line</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Add following to initial collectd.conf and restart collectd:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;Match&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Name &quot;root port&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Regex &quot;pcieport (\d+)&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IsMandatory true</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/Match&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;Match&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Name &quot;root port&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Regex &quot;AER : (\d+)&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IsMandatory false</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/Match&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;Match&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Name &quot;root port&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Regex &quot;(\d+) Corrected&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IsMandatory true</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;/Match&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Inject AER PCIe error.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Collectd started.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Notification is sent because &quot;IsMandatory false&quot; and such match not found.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pass</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PCIe plugin dispatches notification after simple negative match for the same line

1. Add following to initial collectd.conf and restart collectd:
   
   `<Match>
   Name "root port"
   Regex "pcieport (.*)"
   IsMandatory true
   </Match>

   `<Match>
   Name "root port"
   Regex "AER : (.*)"
   IsMandatory true
   </Match>

   `<Match>
   Name "root port"
   Regex ".* Corrected"
   IsMandatory true
   </Match>

2. Inject AER PCIe error.

Collectd started.
Notification is not sent because "IsMandatory true" and such match not found. (At least one mandatory match not found - message not sent)

Pass