# WP4 Fault Tolerance Task

## Tutorial

# Tutorial overview:

- Getting the FT software
- Installing the binary FT RPM
- Configuring the FT software
- Starting the WP4 Monitoring system
- Controlling the FT daemon
- Creating FT rules
- Examples

# Getting the software

```
FT /tmp/tutorial$ wget 'http://datagrid.in2p3.fr/distribution/autobuild/i386-rh7.3/wp4/fault-tolerance/RPMS/edg-fabricFaultTolerance-1.1.24-1.i386.rpm'
--09:47:16--  http://datagrid.in2p3.fr/distribution/autobuild/i386-rh7.3/wp4/fault-tolerance/RPMS/edg-fabricFaultTolerance-1.1.24-1.i386.rpm
           => `edg-fabricFaultTolerance-1.1.24-1.i386.rpm'
Connecting to proxy.kip.uni-heidelberg.de:3128... connected!
Proxy request sent, awaiting response... 200 OK
Length: 785,664 [audio/x-pn-realaudio-plugin]

    0K -> .......... .......... .......... .......... ..........  [  6%]
   50K -> .......... .......... .......... .......... ..........  [ 13%]
  100K -> .......... .......... .......... .......... ..........  [ 19%]
  150K -> .......... .......... .......... .......... ..........  [ 26%]
  200K -> .......... .......... .......... .......... ..........  [ 32%]
  250K -> .......... .......... .......... .......... ..........  [ 39%]
  300K -> .......... .......... .......... .......... ..........  [ 45%]
  350K -> .......... .......... .......... .......... ..........  [ 52%]
  400K -> .......... .......... .......... .......... ..........  [ 58%]
  450K -> .......... .......... .......... .......... ..........  [ 65%]
  500K -> .......... .......... .......... .......... ..........  [ 71%]
  550K -> .......... .......... .......... .......... ..........  [ 78%]
  600K -> .......... .......... .......... .......... ..........  [ 84%]
  650K -> .......... .......... .......... .......... ..........  [ 91%]
  700K -> .......... .......... .......... .......... ..........  [ 97%]
  750K -> .......... .......                                     [100%]

09:47:16 (10.86 MB/s) - `edg-fabricFaultTolerance-1.1.24-1.i386.rpm' saved [785664/785664]

FT /tmp/tutorial$ ls -la
total 796
drwx------    2 pister   users          93 Sep 24 09:47 .
drwxrwxrwt  165 root     root        27935 Sep 24 09:37 ..
-rw-------    1 pister   users      785664 Sep 22 09:18 edg-fabricFaultTolerance-1.1.24-1.i386.rpm
FT /tmp/tutorial$
```

# Installing the RPM

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FT /tmp/tutorial# ls -la
total 776
drwx------    2 pister   users         93 Sep 24 09:53 .
drwxrwxrwt   23 root     root        7133 Sep 24 09:57 ..
-rw-------    1 pister   users     785664 Sep 24 09:53 edg-fabricFaultTolerance-1.1.24-1.i386.rpm
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial# rpm -qa  | grep 'edg-fab*'
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial# id
uid=0(root) gid=0(root) groups=0(root),1(bin),14(uucp),15(shadow),16(dialout),17(audio),65534(nogroup),102(HLT)
,65534(nogroup)
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial# rpm -i ./edg-fabricFaultTolerance-1.1.24-1.i386.rpm
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial# rpm -qa  | grep 'edg-fab*'
edg-fabricFaultTolerance-1.1.24-1
FT /tmp/tutorial#
FT /tmp/tutorial#
```

```
# The edg-ftd.conf file stores some basic configuration which is needed to
# run the EDG fault tolerance daemon.
# File format: A line beginning with a # is treated as a comment line.
# Blank lines are ignored.
# Configuration information is stored in the format key: value
# where "key" is a configuration parameter.

# MR_SERVER_URL: The URL for the monitoring server
# Actually MR_SERVER_URL the IP of the server and the port which should be 12411
# The http:// part in MR_SERVER_URL is somewhat redundant?
MRSERVERURL: http://lxshare0252:12411
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"/usr/opt/edg/etc/edg-ftd.conf" 13L, 550C written                    11,37         All
```

# Starting the WP4 Monitoring system

- The WP4 Monitoring system is needed as a data source.
- Make sure a monitoring server is running on a node.
- Use the control scripts provided by the Monitoring system to start the monitoring server and agents.
- For further information please consult the documentation of the Monitoring system

# Controlling the FT daemon

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FT /tmp/tutorial# /etc/rc.d/init.d/edg-fabric_ftd status
edg-ftd is stopped
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial# /etc/rc.d/init.d/edg-fabric_ftd start
Starting EDG Fault Tolerance daemon :                      [  OK  ]
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial# /etc/rc.d/init.d/edg-fabric_ftd status
edg-ftd (pid 14881) is running...
FT /tmp/tutorial#
FT /tmp/tutorial# /etc/rc.d/init.d/edg-fabric_ftd status
edg-ftd (pid 14881) is running...
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial# /etc/rc.d/init.d/edg-fabric_ftd stop
Shutting down EDG Fault Tolerance daemon:                  [  OK  ]
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial# /etc/rc.d/init.d/edg-fabric_ftd status
edg-ftd is stopped
FT /tmp/tutorial#
```

```
FT /tmp/tutorial# ls -la /opt/edg/etc/rules/examples/testrules/
total 25
drwxr-xr-x    2 root     root          195 Sep 24 09:58 .
drwxr-xr-x    3 root     root           94 Sep 24 09:58 ..
-rw-r--r--    1 root     root          878 Sep 22 10:18 algebra.xml
-rw-r--r--    1 root     root          590 Sep 22 10:18 eq.xml
-rw-r--r--    1 root     root          714 Sep 22 10:18 multdiv.xml
-rw-r--r--    1 root     root          591 Sep 22 10:18 neq.xml
-rw-r--r--    1 root     root          596 Sep 22 10:18 stringcmp.xml
-rw-r--r--    1 root     root          597 Sep 22 10:18 stringnotcmp.xml
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial# cat /opt/edg/etc/rules/examples/testrules/eq.xml
<?xml version="1.0"?>

<!DOCTYPE edg_ft_rule SYSTEM "http://grid.kip.uni-heidelberg.de/xmlwebgui/dtd/edg_ft/edg_ft.dtd">

<?xml-stylesheet type="text/xsl" href="http://grid.kip.uni-heidelberg.de/xmlwebgui/xslt/edg_ft_rules_html.xsl"?
>

<edg_ft_rule>
<event>
<actuator shell="noshell">
<actuatorname>ps</actuatorname>
<argument number="0"> </argument>
<actuatorpath>/bin/</actuatorpath>
</actuator>
<rule>
<lookup>
<node_id>lxshare0314.cern.ch</node_id>
<metric_id>9501</metric_id>
</lookup>

<mo>eq</mo>
<value value_type="const">1</value>
</rule>

<level> </level>
</event>
</edg_ft_rule>
FT /tmp/tutorial#
```

```
<?xml version="1.0"?>

<!DOCTYPE edg_ft_rule SYSTEM "http://grid.kip.uni-heidelberg.de/xmlwebgui/dtd/edg_ft/edg_ft.dtd">

<?xml-stylesheet type="text/xsl" href="http://grid.kip.uni-heidelberg.de/xmlwebgui/xslt/edg_ft_rules_html.xsl"?
>

<edg_ft_rule>
<event>
<actuator shell="/bin/sh">
<actuatorname>syslog</actuatorname>
<argument number="1">start</argument>
<actuatorpath>/etc/rc.d/</actuatorpath>
</actuator>
<rule>
<lookup>
<node_id>e001</node_id>
<metric_id>9501</metric_id>
</lookup>

<mo>eq</mo>
<value value_type="const">0</value>
</rule>

<level> </level>
</event>
</edg_ft_rule>
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"./syslog.xml" [New] 27L, 589C written                                  27,0-1        All
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```
Checking for service syslog:OK
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial# tail -f /opt/edg/var/edg-ftd.log
2003-09-25 11:17.08
Rule "syslog": Virtual sensor returned: "0"
2003-09-25 11:17.38
Rule "syslog": Virtual sensor returned: "0"
2003-09-25 11:18.09
Rule "syslog": Virtual sensor returned: "0"
2003-09-25 11:18.38
Rule "syslog": Virtual sensor returned: "0"
2003-09-25 11:19.08
Rule "syslog": Virtual sensor returned: "0"

FT /tmp/tutorial# /etc/rc.d/syslog stop
Shutting down syslog services                                   done
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial# /etc/rc.d/syslog status
Checking for service syslog:No process
FT /tmp/tutorial#
FT /tmp/tutorial#
FT /tmp/tutorial# tail -f /opt/edg/var/edg-ftd.log
2003-09-25 11:17.08
Rule "syslog": Virtual sensor returned: "0"
2003-09-25 11:17.38
Rule "syslog": Virtual sensor returned: "0"
2003-09-25 11:18.09
Rule "syslog": Virtual sensor returned: "0"
2003-09-25 11:18.38
Rule "syslog": Virtual sensor returned: "0"
2003-09-25 11:19.08
Rule "syslog": Virtual sensor returned: "0"
2003-09-25 11:19.38
Rule "syslog": Virtual sensor returned: "1"
Rule "syslog": Actuator returned exit status zero.
"Starting syslog services                                       done
"
2003-09-25 11:20.08
Rule "syslog": Virtual sensor returned: "0"

FT /tmp/tutorial# /etc/rc.d/syslog status
Checking for service syslog:OK
FT /tmp/tutorial#
```