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# CMSSW Generic File Monitoring

Starting with CMSSW\_6\_1\_0, the Xrootd file-close monitoring has been implemented as a CMSSW framework service. This allows for applications like the CERN popularity service to monitor all file accesses done by CMSSW applications and provides the experiment with a more complete view of what files are used and how they are used.

This service is off by default and can be enabled on a per-job basis (see "edmPluginHelp -p SiteLocalConfigService" for details) or a per-site basis. Enabling the service is done by modifying the `site-local-config.xml`.

For each file read by CMSSW, a single UDP packet is sent to the monitoring host. We believe this system is scalable for the foreseeable future.

## Enabling File Monitoring

To enable file monitoring, add the following tag inside the `<source-config>` tag of your `site-local-config.xml`:

```
<statistics-destination name="cms-udpmon-collector.cern.ch:9331" />
```

If there is no `<source-config>` tag in your `site-local-config.xml`, add one inside the `<tag>`.

## Example `site-local-config.xml`

Here is a complete `site-local-config.xml`, including the statistics destination line:

```
<site-local-config>
  <site name="T2_US_Nebraska">
    <event-data>
      <catalog url="trivialcatalog_file://cvmfs/cms.cern.ch/SITECONF/T2_US_Nebraska/PhEDEx/storag
      <catalog url="trivialcatalog_file://cvmfs/cms.cern.ch/SITECONF/T2_US_Nebraska/PhEDEx/storag
    </event-data>
    <source-config>
      <statistics-destination name="cms-udpmon-collector.cern.ch:9331" />
    </source-config>
    <local-stage-out>
      <command value="hadoop" />
      <catalog url="trivialcatalog_file://cvmfs/cms.cern.ch/SITECONF/T2_US_Nebraska/PhEDEx/storag
      <se-name value="srm.unl.edu" />
    </local-stage-out>
    <fallback-stage-out>
      <se-name value="srm-dcache.rcac.purdue.edu"/>
      <lfn-prefix value="srm://srm-dcache.rcac.purdue.edu:8443/srm/managerv2?SFN=/"/>
      <command value="srmv2"/>
    </fallback-stage-out>
    <calib-data>
      <frontier-connect>
        <load balance="proxies"/>
        <proxy url="http://red-squid1.unl.edu:3128"/>
        <server url="http://cmsfrontier.cern.ch:8000/FrontierInt"/>
      </frontier-connect>
    </calib-data>
  </site>
</site-local-config>
```

Any support questions may be sent to the [hn-cms-wanaccess Hypernews forum](#).

## Sample Information Packet

Below is a sample information packet from a CMSSW job. Note the DN information is only recorded if present; this is the same information collected by Frontier's monitoring system.

```
{ "site_name": "T2_US_Nebraska",
  "fallback": true,
  "user_dn": "/DC=com/DC=DigiCert-Grid/O=Open Science Grid/OU=People/CN=Brian Bockelman",
  "client_host": "brian-test",
  "client_domain": "unl.edu",
  "server_host": "cmsstor359",
  "server_domain": "fnal.gov",
  "unique_id": "8ABDCAFE-B469-E211-82E9-00163ED711AD-0",
  "file_lfn": "/store/relval/CMSSW_6_1_0-GR_R_61_V6_RelVal_wEl2012C/SingleElectron/RECO/v1/00000/FA",
  "file_size": 2198266271,
  "read_single_sigma": 630363,
  "read_single_average": 161060,
  "read_vector_average": 1.26992e+07,
  "read_vector_sigma": 7.91128e+06,
  "read_vector_count_average": 21.3929,
  "read_vector_count_sigma": 70.4056,
  "read_bytes": 358477665,
  "read_bytes_at_close": 358477665,
  "read_single_operations": 18,
  "read_single_bytes": 2899080,
  "read_vector_operations": 28,
  "read_vector_bytes": 355578585,
  "start_time": 1359423686,
  "end_time": 1359423788
}
```

This packet is under 900 bytes in size.



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