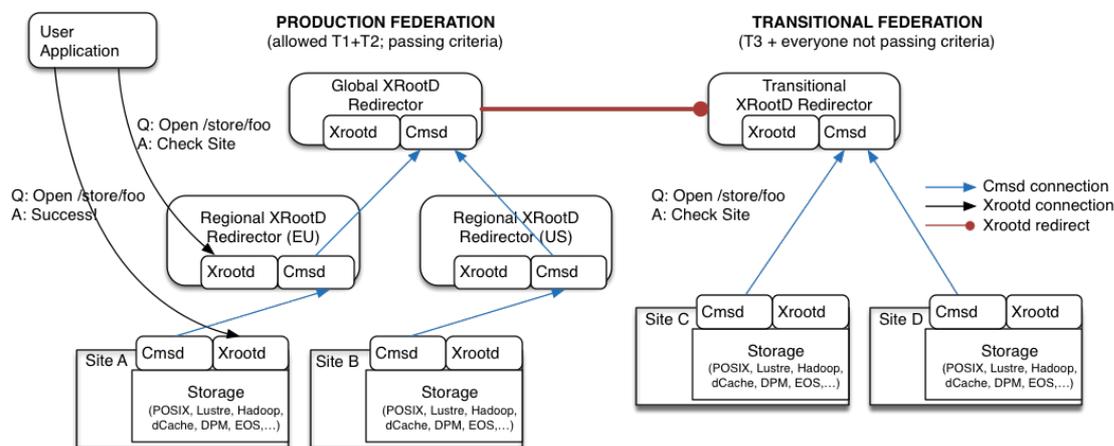


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Redirectors (site managers) subscription overview

AAA - Make accessible **Any** data from the existing distributed CMS data cache to scientists **Anywhere**, **Anytime**. The resulting system - hierarchy of redirectors - improves the scientific productivity of CMS physicists reach the data, as well as effectiveness of the storage infrastructures deployed among the CMS Tier-1/2/3 worldwide. Access is based on XRootD protocol.



The hierarchical subscription of XRootD managers (cmsd process) provides **resiliency** in data access towards clients. Effectively this means if accessed data are not available at given site where job lands client will be **resiliently** redirected to the closest data available within the hierarchy of redirectors to the storage server where the data exist.

Configuration file(s)

To configure subscription to the XRootD redirector, following file(s) need to be edited in your site redirector or server:

- the xrootd config file (typically located in `/etc/xrootd/` unless site admins locate it elsewhere; it is also generally named `xrootd-clustered.cfg` but this can depend on your local configuration).
- `storage.xml`: site TFC file.

Please note the '+' in the `xrootd-clustered.cfg` file, it means the IP is known to be multiply resolved, and hence a multiple connection to the redirector will take place. A restart of all the daemons is needed, refer to this section below when your configuration is ready.

Site allow list

Being part of CMS AAA production federation, we do require your site to be whitelisted, otherwise site manager (cmsd process) won't authenticate in the hierarchy of redirectors. If you experience that or you are completely new site, contact us to specify your domain to be added in allow list in the US regional redirector.

US sites subscription

Editing xrootd config

Locate configuration file `xrootd-clustered.cfg` on your site redirector **or** server and point it to `cmsxrootd.fnal.gov:1213`. This requires following change, if you are already subscribed to `xrootd.unl.edu` replace the line:

```
all.manager meta xrootd.unl.edu:1213
```

with this line (or add new line if you haven't configured subscription previously):

```
all.manager meta all cmsxrootd.fnal.gov+ 1213
```

Using site local redirector

This configuration assumes site runs local redirector in front of the site's xrootd servers. Local redirector subscription to regional redirector is recommended hierarchical setup of redirectors, where site's xrootd servers should subscribe to local redirector first. Here example:

```
# this is part of xrootd-clustered.cfg file of local redirector (site manager).
all.role manager
all.manager <host_name_of_local_redirector>:1213
all.manager meta all cmsxrootd.fnal.gov+ 1213 # this subscribes your local redirector to re
```

And all xrootd servers at a site should subscribe to your local redirector as follows:

```
# this is part of xrootd-clustered.cfg file of xrootd server
all.role server
all.manager <host_name_of_local_redirector>:1213 # this subscribes server to your local redin
```

Does your configuration supports TFC (fallback)?

NOT using local redirector

This configuration assumes site not running local redirector thus expects direct subscription of xrootd servers to the regional redirector. Site admin needs to do slightly different subscription method in the xrootd server configuration file:

```
# this is part of xrootd-clustered.cfg file of xrootd server
all.role server
all.manager cmsxrootd.fnal.gov+ 1213
```

When ready, continue with TFC (fallback) configuration.

If you think your site needs different subscription method, please, consult settings at hn-cms-wanaccess@cernNOSPAMPLEASE.ch.

EU/Asia sites subscription

Editing xrootd config

You simply need to point your site redirector **or** servers (depending whether you have a site redirector) to `xrootd-cms.infn.it:1213`.

If you are already subscribed to the Bari redirector `xroot.ba.infn.it`, it generally means substituting a line like

```
all.manager xrootd.ba.infn.it 1213 # if configuring a server
```

with

```
all.manager xrootd-cms.infn.it+ 1213 # if configuring a server
```

OR

```
all.manager meta xrootd.ba.infn.it 1213 # if configuring a local redir
```

with

```
all.manager meta all xrootd-cms.infn.it+ 1213 # if configuring a local
```

PLEASE NOTE: now we have introduced **italian** and **french** redirectors, in order to partition the traffic in a better way. Italian sites should substitute the 1213 with 1313, french sites with 1413. You may want to contact Andrea Sartirana (FR) or Tommaso Boccali (IT).

In any case, the basic action is substituting `xrootd.ba.infn.it` with `xrootd-cms.infn.it`. The latter is a RR-DNS entry, which points **also** to the old server, so the action should not be disruptive. When ready, continue with TFC (fallback) configuration.

Transitional Federation

Transitional Federation isolates all sites not passing production federation criteria plus integrates T3 sites in the separate federation. Such sites are blocked in the production federation. If your site is not (or blocked) in the allowed list of production federation you can still benefit from the data access within transitional federation if you subscribe into it. Primarily, transitional federation serves data among T3 sites and also provides fallback (one-way) access for those in production who request data present only in the transitional federation. Joining transitional federation is easy to do:

Using local redirector

This configuration assumes site runs local redirector in front of the site's xrootd servers. Local redirector subscription to the redirector in higher level of hierarchy of redirectors is recommended. In this sense, site's xrootd servers should subscribe to local redirector first. Here example:

```
# this is part of xrootd-clustered.cfg file of local redirector (site manager).
all.role manager
all.manager <host_name_of_local_redirector>:1213
all.manager meta all cms-xrd-transit.cern.ch+ 1213 # this subscribes your local redirector
```

And all xrootd servers at a site should subscribe to your local redirector as follows:

```
# this is part of xrootd-clustered.cfg file of xrootd server
all.role server
all.manager <host_name_of_local_redirector>:1213 # this subscribes server to your local redir
```

When ready, continue with TFC (fallback) configuration.

NOT using local redirector

This configuration assumes site not running local redirector thus expects direct subscription of xrootd servers to the transitional top level redirector. Each xrootd server should then use following lines in the xrootd configuration file:

```
# this is part of xrootd-clustered.cfg file of xrootd server # this subscribes your xrootd
all.role server
all.manager cms-xrd-transit.cern.ch+ 1213
```

When ready, continue with TFC (fallback) configuration.

Special configuration for aliased redirector(s)

Some sites (e.g. PIC or KIT), for the High Availability purpose, want to host two or more local redirectors that would act as a single point of subscription for downstream data servers in the topology. While we do not recommend experiment with optional configuration that may contribute to various discussions about pros and cons of this setup, we do recommend in such case the following configuration for site managers (redirectors):

Considered scenario: Proper way to achieve redirector redundancy is to have them all in a common DNS alias and then configure the servers to subscribe to all the redirectors in the DNS alias. Let's assume site has DNS alias `redir-alias.foo.bar` that resolves to the two local redirectors `site-redir1.foo.bar` and `site-redir2.foo.bar`.

Configuration in `site-redir1.foo.bar` should have:

```
# distinguish all.sitename between managers
# 1st redirector
all.sitename Site-Redirector-1
all.role manager
all.manager meta all cms-xrd-global.cern.ch+ 1098
all.manager redir-alias.foo.bar+ 1213
```

Configuration in `site-redir2.foo.bar` should have:

```
# distinguish all.sitename between managers
# 2nd redirector
all.sitename Site-Redirector-2
all.role manager
all.manager meta all cms-xrd-global.cern.ch+ 1098
all.manager redir-alias.foo.bar+ 1213
```

So the data servers at the site should have this in the xrootd config:

```
all.role server
all.manager redir-alias.foo.bar:<port>
```

Fallback: editing site TFC

This section assumes your site has implemented TFC trick - if you are completely new to TFC changes, you should skip it and follow this document.

To apply xrootd changes make sure modify the fallback according to redirector region you're subscribing to. If you previously you had for **EU site** something like:

```
<lfn-to-pfn protocol="xrootd" path-match="/+store/(.*)" result="root://xrootd.ba.infn.it//store/$1"
```

You should change with:

```
<lfn-to-pfn protocol="xrootd" path-match="/+store/(.*)" result="root://xrootd-cms.infn.it//store/$1"
```

PLEASE NOTE: now we have introduced **italian** and **french** redirectors, in order to partition the traffic in a better way. Italian sites should substitute the `xrootd-cms.infn.it` with `xrootd-cms.infn.it:1194`, french sites with `xrootd-cms.infn.it:1294`.

or **US site:**

```
<lfn-to-pfn protocol="xrootd" path-match="/+store/(.*)" result="root://xrootd.unl.edu//store/$1"
```

You should change with:

```
<lfn-to-pfn protocol="xrootd" path-match="/+store/(.*)" result="root://cmsxrootd.fnal.gov//store/$1"
```

(So a simple hostname exchange over an already working configuration.)

When ready, restart and test.

Service restart and testing subscription

Assuming you've done subscription, you should restart your service and perform simple test.

Service restart

```
$ service xrootd restart
$ service cmsd restart
```

Test redirector subscription

You can verify subscription of your site using this command, e.g. from `lxplus.cern.ch` (have in mind export `X509_USER_PROXY` env variable belonging to CMS VO):

```
$ xrdfs xrootd.unl.edu locate -d -m /store/test/xrootd/T2_US_Nebraska/store/mc/SAM/GenericTbar/G
red-gridftp9.unl.edu:1094 Server ReadWrite
red-gridftp1.unl.edu:1094 Server ReadWrite
red-gridftp7.unl.edu:1094 Server ReadWrite
red-gridftp6.unl.edu:1094 Server ReadWrite
red-gridftp8.unl.edu:1094 Server ReadWrite
red-gridftp10.unl.edu:1094 Server ReadWrite
red-gridftp12.unl.edu:1094 Server ReadWrite
red-gridftp4.unl.edu:1094 Server ReadWrite
red-gridftp2.unl.edu:1094 Server ReadWrite
red-gridftp5.unl.edu:1094 Server ReadWrite
red-gridftp3.unl.edu:1094 Server ReadWrite
...
```

Testing specific redirector and site will look like:

```
$ xrdfs REDIRECTOR locate -d -m /store/test/xrootd/SITE_NAME/store/mc/SAM/GenericTbar/GEN-SIM-RE
...
...
```

NOTE: `REDIRECTOR` is the full redirector hostname you should have subscribed into (either US, EU or transitional redirector). `SITE_NAME` is your particular site according to the CMS site naming convention (e.g. `T2_US_Nebraska` if you are testing subscription of Nebraska). Success in the process of subscription is defined by 'Location IP' result which will be your site server hosting the SAM test file. If not (e.g. seeing as result *No matching files were found*) there is something wrong and you should contact for further assistance: [hn-cms-wanaccess@cernNOSPAMPLEASE.ch](mailto:hn-cms-wanaccess@cern.ch).

Also, it may take a while things get propagated through the whole system and thus *No matching files were found* could be expected if you do `xrd REDIRECTOR locateall ...` right after the change. Reasonable time to wait would be ~30mins. If impatient, you can still try `xrdcp` test:

```
$ xrdcp -d 1 -f -DIReadCacheSize 0 -DIRedirCntTimeout 60 root://REDIRECTOR//store/test/xrootd/SIT
```

Support

In case of troubles, contact us at:

- HN: hn-cms-wanaccess@cernNOSPAMPLEASE.ch (preferred)
 - GGUS: https://ggus.eu/?mode=ticket_cms (make sure select "CMS AAA - WAN Access" support unit)
 - Production and Transitional federation schematic overview:
-

This topic: [Main](#) > [RedirectorsSubscription](#)

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