

FTS Administration and Troubleshooting

Paolo Tedesco (paolo.tedesco@cern.ch)

White Area Lecture

10 October 2008

- **Deployment**
- Installation and configuration
- Troubleshooting
- FAQ

Production-scale system

- Web service (FTS): nodes in DNS load balancing
- Database: Oracle RAC cluster
- VO Agents: separate node
- Agents (FTA)
 - All VO agents on one node
 - Channel agents over multiple nodes
- Monitoring system (FTM): separate node, optional

Test system

- FTS, FTA and FTM on the same machine
- Oracle Express Edition (XE) database

- FTS is installed at T0 and T1s
- An FTS server is responsible for
 - Transfers where the installation site is the destination
 - Transfers to and from the related T2s
 - Exception: T0 service is responsible for all transfers involving CERN

- Deployment
- **Installation and configuration**
- Troubleshooting
- FAQ



- Scientific Linux 4 machines
- Valid hostcert, hostkey in /etc/grid-security
- Java JDK
- Oracle InstantClient
- Web service:
 - firewall open for incoming on port tcp/8443
- FTA agents: outgoing firewall must allow access to
 - MyProxy server
 - Database
 - All source/destination SRM/gridFTP clusters

- Check the version-specific installation guide
 - <https://twiki.cern.ch/twiki/bin/view/LCG/FtsServerInstall21>
- Install the metapackages and run the YAIM configuration scripts

Web service (FTS node)

```
~# yum install glite-FTS_oracle
~# /opt/glite/yaim/bin/yaim -c -s site-info.def -n FTS2
```

Agents (FTA node)

```
~# yum install glite-FTA_oracle
~# /opt/glite/yaim/bin/yaim -c -s site-info.def -n FTA2
```

- **FTS_DBURL:** sets the JDBC Oracle connection string
 - user/password for web service can be overridden if necessary
 - taken from agents configuration in YAIM otherwise
- **FTS_HOST_ALIAS:**
 - if you're using multiple web-services with DNS load-balancing
 - publish the DNS alias specified rather than the current hostname in the information system

1. Which agents are on which hosts
2. Type of each named agent
3. Global parameters, applied to all agents
 - Logging
 - DB connection details
4. Type specific parameters, applied to all agents of a given type
 - e.g. all 3rd party copy agents
5. Specific parameters for individual agents

1. Which agents are on which hosts

- What machines are there:

```
FTA_MACHINES="ONE TWO"
```

- What agents goes where:

- The hostname is need to match for the YAIM script

```
FTA_AGENTS_ONE_HOSTNAME="fts101.cern.ch"
```

```
FTA_AGENTS_ONE="CERN-CERN DTEAM"
```

2. Type of each named agent

- URLCOPY: 3rd party copy

- SRMCOPY: SRM copy

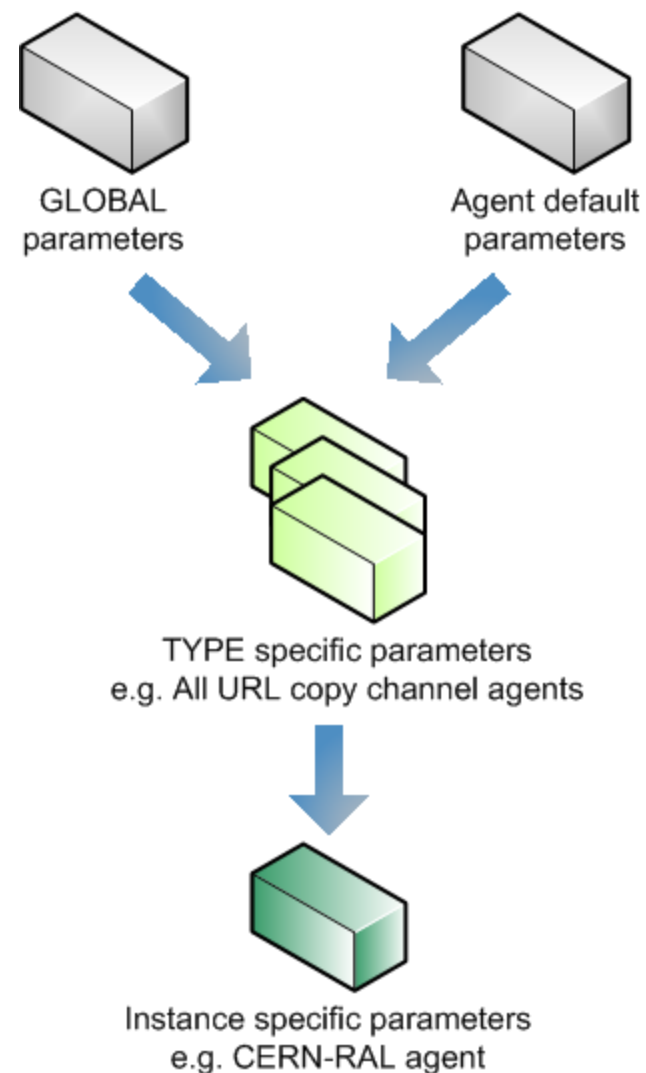
- VOAGENT: VO agent

```
FTA_CERN_CERN="URLCOPY"
```

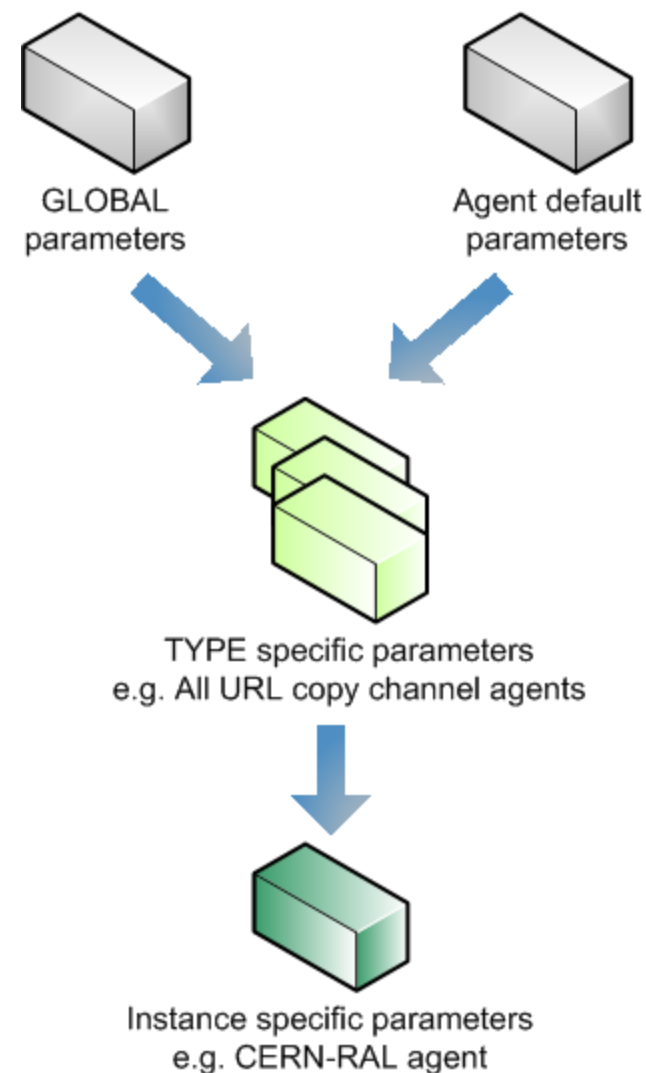
```
FTA_DTEAM="VOAGENT"
```

Note: "-" in "CERN-CERN"
changed to "_" to have a valid
shell variable name

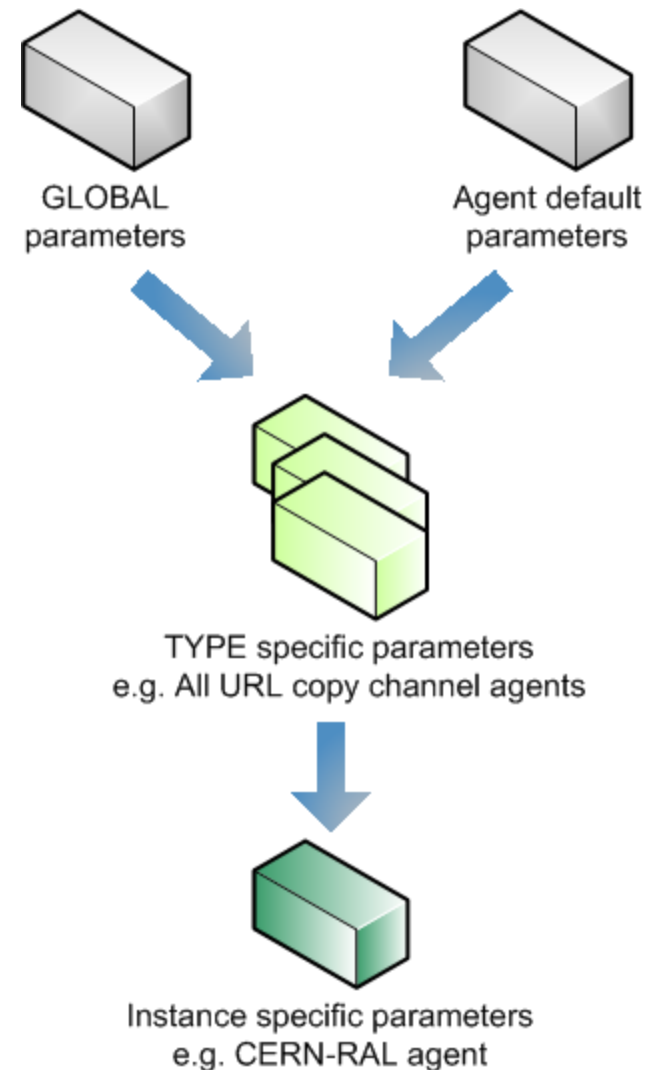
- (most) parameters may be specified at
 - GLOBAL level
 - TYPE level
 - INSTANCE level
- Agents come with reasonable defaults
 - DB connection parameters have no defaults
 - For the vast majority of possible parameters the default is fine
- GLOBAL parameters are applied to *all* agents and override the defaults



- Type-specific parameters are applied to all agents of a given type
 - e.g. all URLCOPY agents
- These parameters override the default and global ones
 - Most parameters that need to be varied from default are changed here



- Instance-specific parameters change one instance only
- Override the default, GLOBAL and type-specific ones
- Should (ideally) be used rarely



- General format is of YAIM variable is:
 - FTA_%SCOPE%_PARAMNAME
 - Scope is either GLOBAL, TYPEDEFAULT_%type, or the specific named agent
- Example:
 - FTA_GLOBAL_LOG_PRIORITY
 - all agents
 - FTA_TYPEDEFAULT_URLCOPY_LOG_PRIORITY
 - URL copy agents
 - FTA_CERN_RAL_LOG_PRIORITY
 - the named CERN-RAL agent (note the “-” goes to a “_”)
- More details here:
 - <https://twiki.cern.ch/twiki/bin/view/EGEE/DMFtsSupport#YaimConfig>
 - <https://twiki.cern.ch/twiki/bin/view/LCG/FtsYaimValues21>

- FTS 2.1: many channel agent configuration parameters moved to the database
 - see <https://twiki.cern.ch/twiki/bin/view/LCG/FtsYaimValues21> for the complete list
- CLI has not (yet) been updated accordingly
- These parameters are written to the database by the YAIM configuration script
- If you are not using YAIM:
 - modify the agent(s) configuration file(s)
 - re-run the `update_channels.py` script, that will migrate the settings to the database
- If you modify one of these parameters:
 - you do not need to restart the related agents
 - the agent will re-read it from the database after a while

- Create the new channel

```
~# glite-transfer-channel-add CERN-RAL CERN-PROD  
RAL-LCG2 -f 20 -T 1 -s Active
```

- Edit the site-info.def

```
FTA_AGENTS_ONE="CERN-CERN DTEAM CERN-RAL"  
FTA_CERN_RAL="URLCOPY"
```

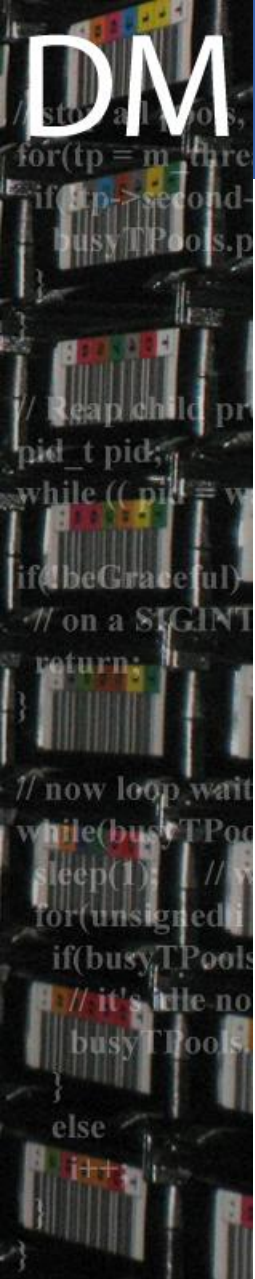
- Re-run the yaim configuration

```
~# yaim -c -s site-info.def -n FTA2
```

- Start the new agent

```
~# service transfer-agents --instance glite-  
transfer-channel-agent-srmcopy-CERN-RAL start
```


- Deployment
- Installation and configuration
- Troubleshooting
- FAQ



- FTS web-service runs inside the tomcat container
- Logs are in `/var/log/tomcat5/`
- Tomcat logs into `catalina.out`
- Web service logs into:
 - `org.glite.data.transfer.fts-calls` – one call per line, with client DN and IP and call information for standard FTS operations
 - `org.glite.data.transfer.channeladmin-calls` – one call per line, client DN and IP and call information for channel control operations
 - `org.glite.data` – debug information
 - Oracle errors, problems with DB or connection
 - FATAL errors, web service not starting

- The tomcat5 daemon is running
- It's listening on
 - *:tcp/8443
 - localhost:tcp/8005
- The application running inside is not stuck
 - Does a test command answer?
- There are ESTABLISHED connections to the database nodes
- Check log file for “ORA-xxxxx” errors (and associated stack trace)

- Web service is not responding
 - can happen if it runs out of memory
 - restarting the tomcat daemon “fixes” the problem
 - service tomcat5 restart
- Web service doesn't start
 - usually a DB connection problem
 - scan org.glite.data for **FATAL** errors
- Tomcat doesn't start
 - seen on development play boxes...
 - ...clean re-install of Tomcat solves the problem

- Default logging level is “INFO”
- Agents log level:
 - FTA_GLOBAL_LOG_PRIORITY=“DEBUG”
 - Restart the agents
 - Logging configuration is written in the separate “.log-properties” file
- Transfers log level
 - FTA_GLOBAL_GUC_LOGLEVEL=“DEBUG”
 - No actual need to restart the agents with FTS 2.1, since the parameter is actually read from the database, but you still need to run the YAIM configuration or the update_channels script

- Under `/var/log/glite`
 - Compressed and log-rotated
- VO Agents
 - Allocation problems
 - Channel not found or closed for VO
 - Host resolution to site failed
 - Retry strategy details
- Channel Agents
 - Transfer related events
 - Fetch, start, check state...
 - Cancellation of running transfers

- Under `/var/tmp/glite-url-copy-edguser`
 - Archived under `/var/logs-archive`
- Folder contains `.log` and `.mem` files
 - Running transfers
 - `<Channel-Name>completed/failed/lost`
- Log files contain details on the transfer
 - SRM interaction problems
 - Gridftp errors

- Check configured agents are running
 - `service transfer-agents status`
- For every busy channel there are transfer processes running
- None of the `.log` and `.mem` files in [/var/tmp/glite-url-copy-edguser/](#) is too old (stuck transfer?)
- Check for presence of “lost” transfers
- Check for “ORA-xxxxx” errors in agents logs
- Check for “ALERT” logs in agents logs

- Check the log file for details
- Check for DB connection errors
- Check `/tmp/<svc-name>-svc-conf-debug.log` or `/tmp/glite-data-config-service-svc-conf-debug.log`
 - Useful to determine the reason of a start failure if the standard logger was not yet initialized.
- Check there is no other agents for the given channel or VO running
 - on this node and all other agent nodes
 - particularly important if you've just changed an agent from "urlcopy" to "srmcopy" or vice-versa, or moved an agent (check the procedures...)

- If this command fails:
 - `service transfer-agents stop --instance glite-transfer-channel-agent-urlcopy-CERN-TEST`
- The agent may be busy...
 - It won't stop until it finishes it's current task
 - Wait a while and try again
- It may be stuck
 - `service transfer-agents kill --instance glite-transfer-channel-agent-urlcopy-CERN-TEST`

- Deployment
- Installation and configuration
- Troubleshooting
- **FAQ**



- All VO jobs are stuck in 'Submitted' state
 - The associated VO agent is down
- All jobs are stuck in the 'Pending' state on channel X
 - The associated channel agent is down
 - The channel is simply busy (check for active URLCOPY jobs in the process) – i.e. be patient
 - The VO share is too low for the given VO

- Jobs failed with “No channel found or VO not authorized”
 - No channel setup to serve these sites
 - No VO share defined on the channel for your VO
- Jobs failed with “No site found for host ...”
 - Rerun sd2cache (restart the agents if necessary)
 - DO NOT add resources by hand into the file

- Cannot contact web-service
 - Various TCP connect messages, e.g.
 - Failed to determine the interface version of the service: getInterfaceVersion: SOAP fault: SOAP-ENV:Client - CGI-gSOAP: Could not open connection ! (TCP get host by name failed in tcp_connect())
 - Web-service is down
 - Bad host in connection or bad endpoint
 - run CLI with `-v` option to check
- FTS has “correctly failed”™ the job
 - Chase the problem with the SRMs (either your SRM or the other site’s SRM)

- “Failed to start a new transfer: error creating file for memmap /var/tmp/glite-url-copy-edguser/xxx.mem: No such file or directory”
 - Check that the folder exists
 - Check that user edguser has write access to the folder

- “None of my files transfer”
 - Can you submit a job?
 - Can you query a job?
 - Do you mean your job (after submission) doesn't process (i.e. is stuck in one state?)
 - Which state is it stuck in?
 - Do you mean the jobs “correctly fail”™ ?
 - i.e. an SRM isn't working somewhere

- All release information and guides:
 - <https://twiki.cern.ch/twiki/bin/view/LCG/FtsRelease21>
- FTS procedures (upgrading, moving, cleaning)
 - <https://twiki.cern.ch/twiki/bin/view/LCG/FtsProcedures20>
- FTS FAQ
 - <https://twiki.cern.ch/twiki/bin/view/EGEE/DMFtsSupport>