

# EMI

## Service Reference Card

ARC CE

---

Document identifier:	<b>EMI-.....</b>
Document version:	<b>1.1.0</b>
Date:	<b>April 2, 2011</b>
Document status:	<b>DRAFT</b>
Document link:	<b><a href="http://www.nordugrid.org/documents/emi/arc-ce-src-1.1.0.pdf">http://www.nordugrid.org/documents/emi/arc-ce-src-1.1.0.pdf</a></b>

---

Abstract: ARC CE EMI component refers to ARC Compute Element and necessary auxilliary services, such as Janitor as ARIS

## **CONTENTS**

### **1 SERVICE REFERENCE CARD**

**3**

## 1 SERVICE REFERENCE CARD

- Functional description: Provision of Grid execution service, including interfacing to various flavours of underlying LRMS, data staging and caching, application environment management and usage record publishing
- Daemons running:
  - gridftpd (to be phased out)
  - grid-manager(to be phased out)
  - arched
- Init scripts and options (start—stop—restart—...):
  - grid-manager - starts grid-manager daemon of older distributions
  - gridftpd - starts gridftpd daemon of older distributions
  - a-rex - starts arched daemon - container for new ARC services - with A-REX service
  - a-rex-gridftpd - starts a-rex-gridftpd.bin daemon - replacement of gridftpd from newer distributions
- Configuration files location with example or template:
  - /etc/arc.conf - default location of configuration file
  - Examples of configuration options can be found in template at <http://svn.nordugrid.org/trac/nordugrid/browser/arc0/trunk/doc/arc.conf.template>
  - Janitor configuration template can be found in <http://svn.nordugrid.org/trac/nordugrid/browser/arc1/trunk/src/services/janitor/resources/conf/arc.conf>
- Logfile locations (and management) and other useful audit information:
  - /var/log/gridftpd.log - default location of log file of gridftpd daemon
  - /var/log/grid-manager.log - default location of grid-manager daemon and of arched daemon started through a-rex script
  - /var/log/janitor/janitor.log and /var/log/janitor/janitor\_error.log - default Janitor log files
  - control directory/job.cache-clean.errors - information from automatic CE cache management
- Open ports:
  - GridFTP communication (gridftpd daemon) - listening on 2811 TCP, listening on range of TCP ports for data communication (configurable in configuration file), outgoing TCP connections from arbitrary ports.
  - WS communication (a-rex) - not yet used - listening on 60000 TCP, outgoing connections to arbitrary ports for various authentication/authorization services.
  - Job processing - outgoing connections to arbitrary ports for data staging, job usage reporting and other possible plugins. In case of FTP-like connection incoming connection on range of pre-configurable TCP ports may be needed.
- Possible unit test of the service: (not unit tests, but service functionality tests):

- Standard ARC-CE SAM tests and their Nagios analogs
- For Grid Manager based ARC CE, `ngtest` utility is distributed with production ARC clients
- An arbitrary test job can be submitted directly to any ARC CE from an ARC-compatible client (native ARC client or any tool built on ARC client libraries)
- For Grid-Manager based ARC CE, an arbitrary test job can be submitted via `gLite WMS` configured with NorduGrid Universe (or directly from Condor to ARC CE)
- Where is service state held (and can it be rebuilt): Services are mostly stateless. Jobs handled by A-REX and grid-manager have their states stored on local filesystem. Those are continuously synchronized with in-memory states. In case of service restart states are read from filesystem.
- Cron jobs:
  - `grid-update-crls` - periodically updates CRLs of installed CAs
  - `nordugridmap` - periodically updates `grid-mapfile` for sites which base their authorization on that technique
  - `janitor` - sweep
- Security information
  - Access control Mechanism description (authentication and authorization): GSIFTP, TLS, VOMS, LCAS/LCMAPS, GACL
    - \* Authentication is based on Subject Name of client's X.509 certificate and other attributes of credentials
    - \* Authentication mapping (from Grid identity to local identity) happens through various options:
      - `grid-mapfile`
      - embedded configurable algorithms
      - LCMAPS
      - external generic executables
    - \* Authorization happens through various options:
      - `grid-mapfile`
      - embedded configurable algorithms
      - LCAS
      - external generic executables
  - How to block/ban a user:
    - \* Revoke user's certificate
    - \* Exclude user from `grid-mapfile` by changing configuration of `nordugridmap`
    - \* Changing configuration of `gridftpd/a-rex` to exclude specific user. Alternatively configuration can be crafted in a way to allow adding banned users to some local list dynamically
    - \* Through external plugin - LCAS or generic one
  - Network Usage: multiple incoming and outgoing connections, see section "Open ports"
  - Firewall configuration: see section "Open ports"
  - Security recommendations: be careful; as much as possible deploy services as a non-privileged user
  - Security incompatibilities: undefined

- List of externals (packages are NOT maintained by Red Hat): none
- Other security relevant comments: see documentation
- Utility scripts:
  - Not exactly script but utility - gm-jobs - if run on front-end prints managed jobs and statistics
  - cache-clean - run automatically by A-REX to keep CE cache within configured size limits, but may be run interactively to clean cache or display statistics
  - cache-list - lists files in CE cache
- Location of reference documentation for users: not applicable
- Location of reference documentation for administrators: <http://www.nordugrid.org/documents>