

## ARC CE 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)
  - ◆ arched
- Init scripts and options (start|stop|restart|...):
  - ◆ gridftpd - starts a-rex gridftpd daemon
  - ◆ a-rex - starts arched daemon - container for ARC services - with A-REX service
- Configuration files location with example or template:
  - ◆ /etc/arc.conf - default location of configuration file
  - ◆ /usr/share/arc/examples/arc.conf.reference - explanation and examples of configuration options
- Logfile locations (and management) and other useful audit information:
  - ◆ /var/log/arc/gridftpd.log - default location of log file of gridftpd daemon
  - ◆ /var/log/arc/grid-manager.log - default location of grid-manager daemon and of arched daemon started through a-rex script
  - ◆ /var/log/arc/infopvider.log - default location of log file for scripts providing job and service information to information system
  - ◆ /var/log/arc/cache-clean.log - 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) - listening on 443 TCP (configurable), 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 ARC CE, `arctest` utility is distributed with 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)
- Where is service state held (and can it be rebuilt): Services are mostly stateless. Jobs handled by A-REX 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:
  - ◆ `fetch-crl` - (3rd party) periodically updates CRLs of installed CAs
  - ◆ `nordugridmap` - periodically updates grid-mapfile for sites which base their authorization on that technique
- Security information
  - ◆ Access control Mechanism description (authentication & 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
  - ◊ More detailed information is provided in the System Administrator Guide found at <http://www.nordugrid.org/documents/>
- ◆ 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>
- Location of reference documentation for developers: <http://www.nordugrid.org/documents/code>

## Service Reference Cards Links

Reference Link	Service Name
AMGA	AMGA Metadata Catalog
glite-APEL APEL parsers	APEL Accounting Service
ARC-CE	ARC Computing Element
ARC-classicSE	ARC Classic Storage Element
ARC-LDAP	ARC LDAP-based InfoSystem
ARGUS	ARGUS Authorization Service
BDII	Berkeley Database Information Index - gLite InformationSystem
creamCE	CREAM ComputingElement - gLiteJobManagement
-	dCache (?)
DGAS	DGAS Client
gliteDPM	Disk Pool Manager - CERN DataManagement
GLexec	gLExec - gLite Security
gliteFTS	File Transfer Service - CERN DataManagement
gliteLFC	LCG File Catalog - CERN DataManagement
gliteLB	Logging and Bookkeeping service
-	StoRM
UNICORE gateway	UNICORE gateway

## ArcCeSRC < EMI < TWiki

UNICORE/X server	UNICORE/X server
UNICORE TSI	UNICORE TSI
UNICORE XUADB	UNICORE XUADB
VOMS	Virtual Organisation Membership System - VOMS
WMS	Workload Management Service - gLiteJobManagement

-- DoinaCristinaAiftimiei - 13-Aug-2010

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