NORDUGRID

Grid Solution for Wide Area
Computing and Data Handling

ARC Control Tool

“One Tool to rule them all,
One Tool to find them,
One Tool to bring them all
and in the darkness bind them”

Andrii Salnikov

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One Tool to rule them all

- ARC Control Tool (a.k.a. **`arcctl`**) designed to simplify ARC operations for typical use-cases
  - single entry point to different ARC and third-party components OPS
  - hides ARC complexities and internals to help admins new to ARC
  - shortcuts to wrap typical OPS complexities for experienced admins
  - modular and extensible (*feature requests are welcomed in Bugzilla*)

One Tool to find them

- **`arcctl`** designed with BASH-completion in mind
  - completes subsystem names, arguments, jobIDs, certificate DNs, RTE names, etc
  - relies on `python-argcomplete`

```
[root ~]# yum install bash-completion \
                      python-argcomplete
[root ~]# activate-global-python-argcomplete
```

One Tool to bring them all: Deploy

- Deploy VOMS list-of-certificates files:

```
arcctl deploy voms-lsc (--vomsv VOMS |
--egi-vo) VO
```

- Deploy IGTF CA certificates:

```
arcctl deploy igtf-ca
[-i {igtf,egi-trustanchors,nordugrid}]
[{classic,iota,mics,slcs} …]
```

- Generate iptables config:

```
arcctl deploy iptables-config [--any-state]
[--multiport]
```

One Tool to bring them all: Jobs OPS

- A-REX job info via helper `gm-jobs` command (cached for 30 seconds if >1000 jobs)
- Additional logs and controldir data parsing

```
arcctl job [-t CACHETTL] ACTION ...
```

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One Tool to bring them all: Job Info

- List available A-REX jobs:

  `arcctl job list [--long] [-s STATE] [-o OWNER]`

- Display job info:

  `arcctl job info JOBID`

- Get job attribute:

  `arcctl job attr JOBID [ATTR]`

- Show jobs statistics:

  `arcctl job stats [--no-states] [--total] [--data-staging] [--long]`

One Tool to bring them all: Job Logs

- Job lifecycle log (data staging, submission, etc)

```
arcctl job log JOBID
```

- Include generated jobscript for LRMS:

```
arcctl job log JOBID --lrms
```

- Follow job log:

```
arcctl job log JOBID --follow
```

- Show ARC CE logs containing the jobID:

```
arcctl job log JOBID --service
```

One Tool to bring them all: Job Actions

- Killing the jobs:

```
arcctl job kill [-h] jobid [jobid …]
arcctl job killall [-s STATE] [-o OWNER]
```

- Cleaning jobs data:

```
arcctl job clean [-h] jobid [jobid …]
arcctl job cleanall [-s STATE] [-o OWNER]
```

One Tool to bring them all: Accounting

- Show archived records statistics:

```
arcctl accounting stats -t {apel,sgas} [-b
START_FROM][-e END_TILL][--filter-vo FILTER_VO]
[--filter-user FILTER_USER] [-j|-w|-c|-v|-u]
```

- Show accounting logs:

```
arcctl accounting logs [--ssm]
```

- Fetch available APEL brokers from GLUE2 Top-BDII:

```
arcctl accounting apel-brokers [-t TOP_BDII]
[--ssl]
```

One Tool to bring them all: Accounting

- **Republish** archived usage records!

```
arcctl accounting republish
   -b START_FROM -e END_TILL
  (-a APEL_URL | -s SGAS_URL)
  [-t APELTOPIC]
```

One Tool to bring them all: Config

- Print configuration brief points:

```
arcctl config brief [-t {storage,logs}]
```

- Dump ARC CE running configuration:

```
arcctl config dump
```

- Print configuration option value:

```
arcctl config get BLOCK OPTION
```

- Describe configuration option:

```
arcctl config describe BLOCK OPTION
```

- Change configuration option value:

```
arcctl config set [--override] [--dry-run]
BLOCK OPTION VALUE [VALUE …]
```

One Tool to bring them all: Test CA

- Generate self-signed TestCA files:

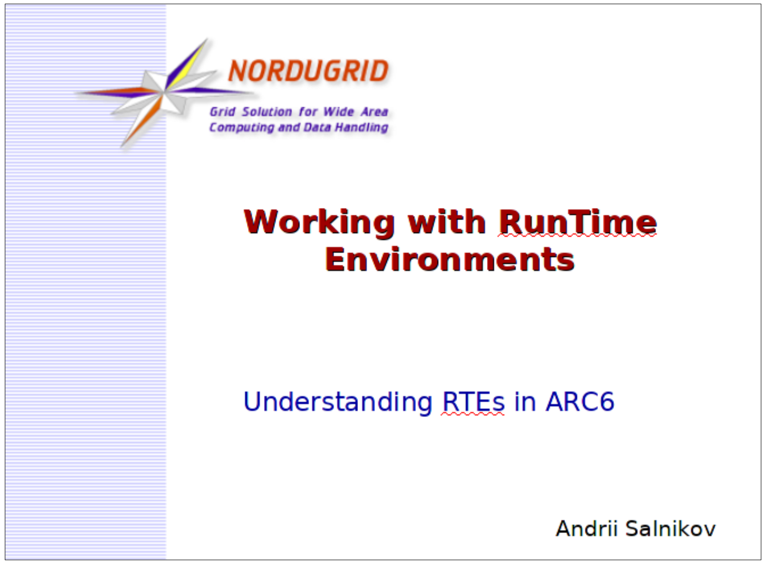
```
arcctl test-ca init [-d DIGEST] [-v
VALIDITY] [--force]
```

- Generate and sign testing host certificate:
- `arcctl test-ca hostcert [-n HOSTNAME]`
- Generate and sign testing user certificate:

```
arcctl test-ca usercert [-n USERNAME] [-i
INSTALL_USER] [--export-tar] [--authgroup
[AUTHGROUP]]
```

One Tool to bring them all: RTEs

```
[root ~]# arcctl rte list
<output omitted>
APPS/HEP/ATLAS-20.8.0-X86_64-SLC6-GCC48-OPT (user, enabled)
APPS/HEP/ATLAS-20.8.1-X86_64-SLC6-GCC48-OPT (user, enabled)
APPS/HEP/ATLAS-20.8.2-X86_64-SLC6-GCC49-OPT (user, enabled)
<output omitted>
ENV/LRMS-SCRATCH                  (system, default)
ENV/PROXY                         (system, masked, disabled)
ENV/PROXY                         (user, enabled)
ENV/RTE                           (system, disabled)
ENV/RUNTIME/ALIEN-2.17            (user, enabled)
VO-biomed-CVMFS                   (dummy, enabled)
```



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Working with RunTime Environments

Understanding RTEs in ARC6

Andrii Salnikov

and in the darkness bind them: Enable and run ARC services

- Enable and run ARC services as configured:
  `arcctl service enable --now --as-configured`
- Parse `arc.conf`⇒detect what is configured ⇒install missing packages⇒ enable ARC services⇒run ARC services
  - Wrappers to `systemctl`/Init scripts
  - Wrappers to `YUM/APT` commands
  - Targeted for and tested on CentOS, Ubuntu
- Magic is limited - you still need to “`yum install`” optional plugins (like xrootd) manually

and in the darkness bind them: ARC Services OPS

- Enable/Disable ARC CE services:

```
arcctl service enable/disable [--now] (--as-configured | -s SERVICE)
```

- Start/Stop/Restart ARC CE services:

```
arcctl service start/stop/restart (--as-configured | -s SERVICE)
```

- List ARC CE services and their states:

```
arcctl service list [--installed | --enabled | --active]
```

Thank you for kind attention!