



# ARC5 and ARC6

## a summary of changes

Flordio Paganelli, Lund University

EGI Webinar: Rolling out ARC6 CE  
6 July 2020

# Warning: ARC5 End Of Life!

- From [www.nordugrid.org](http://www.nordugrid.org):  
*"Please note that we are getting close to the end of support of ARC 5. As of June 2020 we will not be providing any security fixes to ARC 5, and we are of course neither providing any bug fixes or doing other development for ARC 5."*
- For more details, please visit arc6.6 release notes:
  - [http://www.nordugrid.org/arc/releases/6.6/release\\_notes\\_6.6.html](http://www.nordugrid.org/arc/releases/6.6/release_notes_6.6.html)
- For an overview of arc releases, see:
  - <http://www.nordugrid.org/arc/releases/>



# Changes: Abandoned components

- **EGIIS** ldap-based index service **completely removed**.
  - Exception: ARC6 clients can still use it.
  - Replaced by **ARCHERY**, see new features
- Cleanup of some endpoint/protocols that were never used (made code more robust)



# Changes: Deprecated components

These are components that are in ARC 5 and have been kept for backward compatibility in ARC 6 , but **will be removed** in ARC 7 and higher.

If possible they should NOT be used any longer.

- **Glue1 and NorduGRID information schema**
  - Can be used, but WLCG and experiments agreed to move to GLUE2.
    - RECOMMENDED to use and enable GLUE2
- **GridFTP job submission interface**
  - Still in use by most experiments, so should be enabled
- **grid-mapfiles** for authentication are deprecated. See new authorization for details.
  - the **nordugridmap** utility that used to generate grid-mapfiles is also still present but should be avoided.



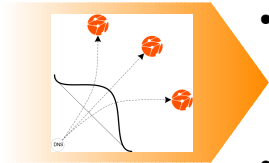
# Changes: Improvements

- **Configuration:** complete rewrite
  - ARC 5 configuration **will not work** with ARC 6
  - <http://www.nordugrid.org/documents/arc6/admins/reference.html>
- **Run Time Environments (RTE):** complete redesign
  - **Do not reuse ARC 5 RTEs in ARC 6.** You will need to update the code if really needed.
  - RTE code now **embedded in submission scripts**, no need for the rte folder to be shared with worker nodes
  - <http://www.nordugrid.org/documents/arc6/admins/details/rtes.html>
- **Accounting:** complete redesign
  - If you're moving from ARC 5 to ARC 6, the database records might need to be migrated, please follow the link below.
  - <http://www.nordugrid.org/documents/arc6/admins/details/accounting-ng.html>
- **Documentation:** all online
  - ARC 5 was mostly PDFs, now you can browse the new docs online
  - <http://www.nordugrid.org/documents/arc6/>
- **Performance:** Event-driven internal job database updates instead of polling will allow us to scale up number of jobs.



# Changes: New features

- **Zeroconf setup** to bring up an arc6 system in minutes
  - ARC 5 was not so trivial to setup...
  - see video link in Balazs presentation
- **ARCHERY**, a DNS based information system
  - Replaces old ldap-based EGIIS in ARC 5. **Removed all config items relevant for egiis.**
  - <http://www.nordugrid.org/documents/arc6/admins/archery/index.html>
- **arcctl** one-tool-to-rule-them-all sysadmin swiss knife
  - See Andrii's presentation
  - <http://www.nordugrid.org/documents/arc6/admins/commands/arcctl.html>
- **Default RTEs** distributed with ARC (ENV/PROXY, SINGULARITY and more)
- Technology preview of **REST** interface and http-based information system
  - WIP, not suitable for production!
  - <http://www.nordugrid.org/documents/arc6/tech/rest/rest.html>
- Technology preview of **token-based** authentication
  - Not suitable for production!
  - [http://www.nordugrid.org/documents/arc6/misc/oidc\\_tokens.html](http://www.nordugrid.org/documents/arc6/misc/oidc_tokens.html)



# Config improvements highlights

**Modular, functional and transparent** approach. Many options have been removed and replaced with more useful ones. We want the sysadmin to have total control.

- **New ini-inspired syntax:** robust and consistent across all configuration
  - ATTENTION: no more quotes or double quotes!
  - ATTENTION: this is based on INI but does NOT follow all the INI specs.
- **Defaults** are now explicitly documented, read and applied by every subsystem
- **config-block-enabled functionalities:** the presence of a config block in the config file means “enable that functionality”
  - Example: the presence of the block `[infosys/ldap]` means “enable the ldap subsystem with default options”
- Config **validation** at service startup
- New **authentication, authorization** and unix ID **mapping** options that replace the old, poorly understood system
- dedicated block for **batch** system (LRMS) config
- **Per queue** authorization and LRMS config
- Simplified **accounting** options



# Quick auth example

We want members of the ATLAS VO to access our CE using all the production interfaces.

```
# Define a group of users taken from a voms server
[authgroup:atlasusers]
voms = atlas * * *
...

# all members of atlas voms should run as the local unix user atlas01
[mapping]
map_to_user = atlasusers atlas01
...

# allow atlas users to submit jobs and interact using gridftp and arc native web service
interface
[gridftp/jobs]
allowaccess = atlasusers
...

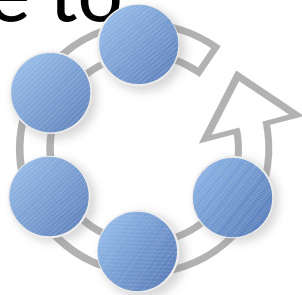
[arex/ws/jobs]
allowaccess = atlasusers
...
```





# New development cycle

- Based on git and CI/CD
  - <https://source.coderefinery.org/nordugrid/arc>
- No more bugfix releases, just major and minor. Minors include bugfixes
- Opensource as always. Contact us to contribute to the codebase!



# ARC5 to ARC6 migration checklist:

From <http://www.nordugrid.org/documents/arc6/admins/migrating5to6.html> :

- 1) Rewrite your `arc.conf`: you can send your configuration to us and we will help to rework it for ARC6.
- 2) Learn about the ARC6 **packages** and **services names**.
- 3) Get familiar with ARC Control Tool `arcctl` that will simplify your life as an ARC6 administrator.
- 4) Don't forget to enable RunTime Environments (**RTE**) with `arcctl rte enable`.
- 5) Be aware of **accounting subsystem changes**.
- 6) Say "Good Bye!" to EGIS, and welcome the DNS-based **ARCHERY** system



# Support

- Open a GGUS ticket if you want your arc.conf from ARC 5 converted to ARC 6
  - No ARC experience? We have no CREAM expertise but we can help crafting an arc.conf that does what you need for production.
- Various mailing lists
  - Official nordugrid discussion:
    - <https://mail.nordugrid.org/mailman/listinfo/nordugrid-discuss>
  - WLCG ARC CE support at CERN:
    - [wlcg-arc-ce-discuss@cern.ch](mailto:wlcg-arc-ce-discuss@cern.ch)
- Always-open skype channel to discuss and solve problems on-the-fly with both devs and sysadmins
  - <https://join.skype.com/dyf3A6Uutjy2>



# Picture reference

- <https://www.nintendo.co.uk/Games/Arcade/Ghosts-n-Goblins-277435.html>
- <https://segadoes.com/wp-content/uploads/2016/03/ghouls-n-ghosts-ue-rev01-000.jpg>
- <https://img.ibxk.com.br/2019/11/26/26110348338273.jpg>
- <https://memegenerator.net/instance/84791005/monty-python-bridge-troll-what-is-your-vo>
- LibreOffice Gallery

