

# OSG 3.6 and Token Transition

Brian Lin  
OSG Software Area Coordinator  
University of Wisconsin–Madison

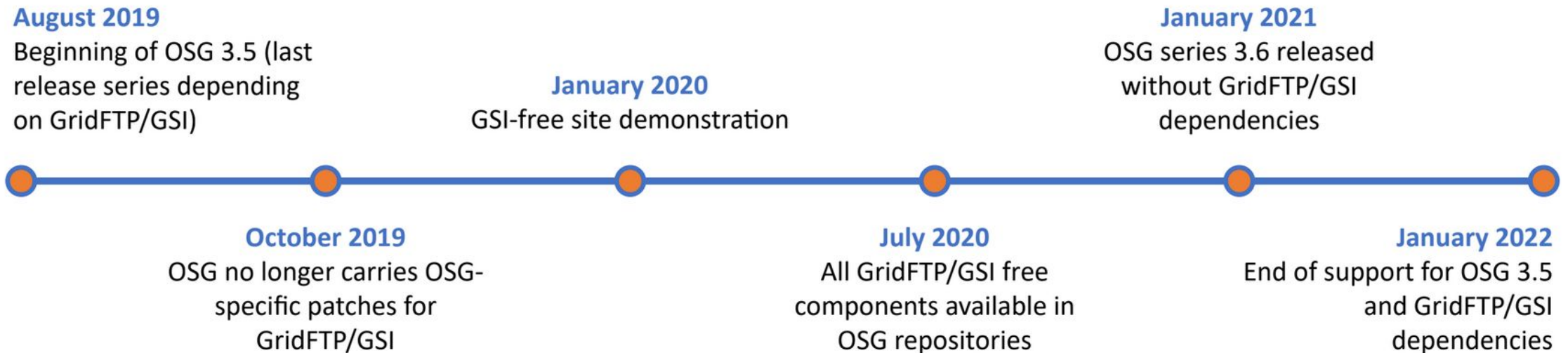


# Background

- Communications in OSG secured with X.509 certificates and proxies via Globus Security Infrastructure (GSI)
- GridFTP was a common solution used by collaborations for remote storage access
- In June 2017, Globus announced the end of support for its open source Toolkit
- In October 2017, the Grid Community Forum was established to continue support of the Toolkit (<https://gridcf.org/>)
- OSG Software Team's central mission is to provide a robust and stable software stack

# Transition Plan

- OSG releases 2019 plan to transition towards bearer tokens and WebDAV-based file transfer  
<https://opensciencegrid.org/technology/policy/gridftp-gsi-migration/>
- Timeline circa Feb 2020



# Transition Plan

- OSG releases 2019 plan to transition towards bearer tokens and WebDAV-based file transfer  
<https://opensciencegrid.org/technology/policy/gridftp-gsi-migration/>
- Timeline circa Feb 2020



# “New” Technologies

- New to the OSG context but familiar to all Internet users
- WebDAV: extension to HTTP/S allowing for **D**istributed **A**uthoring and **V**ersioning of files
- Bearer Tokens in the OSG
  - Capability-based vs identity-based credentials
  - JSON Web Tokens (JWTs) describe capabilities through **claims**
  - OSG supports claims for the SciTokens and WLCG JWT profiles

HEADER: ALGORITHM & TOKEN TYPE

```
{  
  "typ": "JWT",  
  "alg": "RS256",  
  "kid": "key-rs256"  
}
```

PAYLOAD: DATA

```
{  
  "ver": "scitoken:2.0",  
  "aud": "https://demo.scitokens.org",  
  "iss": "https://demo.scitokens.org",  
  "exp": 1647443193,  
  "iat": 1647442593,  
  "nbf": 1647442593,  
  "jti": "df4ccdd5-4a0b-40c5-b63f-8a40c8ffb1b4"  
}
```

# Token Documentation

Token overview for sites:

<https://opensciencegrid.org/docs/security/tokens/overview/>

- Introduction to bearer tokens
- Definitions of important token claims
- Details about SciTokens vs WLCG JWT
- Tables of collaborations and status of token/WebDAV support

# Token Documentation

Using tokens:

<https://opensciencegrid.org/docs/security/tokens/using-tokens>

- How to get tokens based on your provider (or lack of one!)
- Validating tokens and inspecting their contents



# Token Documentation

Token overview for collaborations:

<https://opensciencegrid.org/technology/policy/collab-bearer-tokens>

- Describes token issuer options; direct signing vs OpenID Connect (OIDC) provider
- How to populate claims for compatibility with OSG sites



# Token Documentation

Updating to OSG 3.6

<https://opensciencegrid.org/docs/release/updating-to-osg-36/>

- An overview of token/WebDAV considerations for OSG services
- Service-specific instructions for updating to OSG 3.6

# OSG 3.6

- OSG 3.5 end-of-life extended through May 1, 2022
- Packages no longer available in OSG 3.6
  - GridFTP
  - GSI
  - Hadoop
  - LCMAPS
- HTCSS (HTCondor, HTCondor-CE): no GSI job submission, proxy delegation still works
- XRootD: supports GSI natively, no LCMAPS
- New **3.6-release** and **3.6-release-DATE** container tags

# Updating Compute Entrypoints

- **Only update to OSG 3.6 if your collaborations support tokens!** Otherwise, update to OSG 3.5 upcoming and consult your collaborations for their timelines
- Important packages and versions:
  - scitokens-cpp  $\geq$  0.7.0
  - osg-scitokens-mapfile  $\geq$  6
- Simplified Gratia accounting – data dirs have changed!
- Cleaned up osg-configure configuration – watch out for .rpmsave/.rpmnew files

<https://opensciencegrid.org/docs/release/updating-to-osg-36/#updating-your-osg-compute-entrypoint>

# Updating Other Services

Service	Action
OSG XRootD	Native GSI and VOMS instead of LCMAPS; watch out for .rpmnew/.rpmsave
GridFTP	Install OSG XRootD standalone
HTCondor Pool	Follow update instructions
Frontier Squid	Yum update
Worker Node Client	Yum update

<https://opensciencegrid.org/docs/release/updating-to-osg-36/>

# Questions?

- Join us in the afternoon discussion room (2:40-3:30 PM Central)!
- Reach out in #software on Slack or send us email at [help@opensciencegrid.org](mailto:help@opensciencegrid.org)

This material is based upon work supported by the National Science Foundation under Grant Nos. 1148698, 1836650 and 2030508. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

# Backup

# Token Technology Glossary

- JSON Web Tokens (JWTs): digitally signed, self-describing bearer tokens
- OAuth2: authorization framework optionally using JWTs
- OpenID Connect (OIDC): identity layer on top of OAuth2

See more:

<https://indico.fnal.gov/event/50597/contributions/225838/attachments/148365/190592/20211014-Basney-OSG-Tokens.pdf>



# The WLCG Picture

- Per-collaboration Indigo IAM instances (<https://atlas-auth.web.cern.ch/>, <https://cms-auth.web.cern.ch/>)
  - CERN currently provides 8/5, 8/7 by May 1, 24/7 in the future
  - Token lifetimes will be temporarily extended to handle weekend outages
    - CE hosts need scitokens-cpp-0.7.0
    - ATLAS has extended production pilot token lifetimes
    - CMS has extended ITB pilot token lifetimes
- GridFTP mostly phased out from the WLCG collaboration perspective
  - Jobs can still use X.509 proxies for data access (all CEs still delegate proxies)
  - GCT to receive best-effort support post May 1

<https://indico.cern.ch/event/1096028/contributions/4761502/attachments/2404855/4113577/Token-Transition-Timeline-220309.pdf>