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GlideinWMS

Marco Mambelli

Stakeholders Meeting

July 10, 2019

Overview

- Project updates since last stakeholders meeting
- Completed and Upcoming releases
- GlideinWMS roadmap
- Developers spotlight
- Reference slides
 - GlideinWMS Architecture
 - Quick Facts

Project Updates Since Last Stakeholders Meeting

- Announcements
 - Parag left the project, Marco Mambelli will be also project lead
 - [GlideinWMS v3.4.5-2](#) available in OSG 3.4.31
 - GlideinWMS v3.5 in OSG upcoming testing
 - GlideinWMS v3.4.6 (production) expected end of July
 - GlideinWMS v3.5.1 (development/upcoming) expected by mid August
 - Seeking stakeholders input for future GlideinWMS releases: Dropping tar file distributions, requiring HTCondor Python bindings
- Project Effort (2.75 FTE)
 - Project Management: 0.15 FTE
 - Development & Support: 2.60 FTE
- Short term effort (~6 months total)
 - 3 Summer Interns and 1 on-call collaborator

Action Items from Previous Stakeholders Meeting

Action Items	Status
Send info on ticket related to "Pilots not terminating at certain sites" - #22509	Completed
Look at the comments on GlideinWMS release notes made by Brian Lin and get back to him	In progress
Get back to Edgar on topic related to Singularity and WAN	In progress
Advertise if a Glidein can use privileged or unprivileged singularity. Open a ticket with more details	In progress, #22875
Coordinate monitoring related tasks with Edgar based on the work done by students	In progress

Completed and Next Planned Releases

- Released
 - GlideinWMS v3.5 (development release) was released on June 7 and is in OSG upcoming testing.
- We have 2 releases in the pipeline
 - V3.4.6 production series release
 - v3.5.1 in the development series, for OSG upcoming, planned for end of August.

Completed Release, v3.5

- v3_5 in OSG upcoming testing
 - Dropped Globus GRAM (GT2/5) support
 - Single-user Factory
 - Automate the generation of factory configuration via CRIC
 - Frontend matching performance improvement

https://cdcv.sfnal.gov/redmine/projects/glideinwms/issues?query_id=186

Completed Release, v3.4.6

- v3_4_6 OSG production, expected for end of July
 - Invoke Singularity via HTCondor
 - Condor now allows custom parameters that will allow this
 - Will allow condor_ssh_to_job if unprivileged Singularity is used
 - Fix problem with DNs including commas
 - Backport: GlideinWMS proxy renewal service broken for Xenon

https://cdcv.s.fnal.gov/redmine/projects/glideinwms/issues?query_id=26

Next Planned Release, v3.5.1

- v3_5_1 OSG upcoming, expected for mid of August
 - Include 3.4.6 features
 - Black hole prevention
 - Automate the generation of factory configuration via CRIC
 - Improve attributes' properties
 - Fix glidein_off problems
 - Move monitoring pages to HTTPs
 - Increase use of HTCondor Python bindings

https://cdcv.s.fnal.gov/redmine/projects/glideinwms/issues?query_id=53

GlideinWMS Roadmap – dropping support for...

- Proposed for 3.5.2
 - TAR files distribution
 - Add requirement for HTCondor Python binding
 - Make collectors shared ports the default
- Planned for 3.6 (possibly some 3.5.x - Summer)
 - GLExec
 - Separate User collector ports (only shared port)
- Planned for 3.7 (late Summer - 3.6 will be in parallel until late Fall)
 - Python2

GlideinWMS Roadmap – high priority

- Move to Python 3
 - Branch with Python 3 migration (branch_v3_7)
 - Have a Python 3 version in OSG upcoming by late Summer 2019
- Factory supporting multiple frontend like services
 - Decision Engine support started in 3.4.4
- Collaboration with HTCondor
 - Black hole prevention (3.5.1)
 - Singularity invocation (3.4.6)
 - Use of tokens (security without x509 certificates)
 - Support new HPC sites with stricter policies (e.g. no outbound connection except gateways, MFA)
- Automatic Factory configuration generation, via CRIC (3.5.1)
<https://cdcv.s.fnal.gov/redmine/projects/glideinwms/wiki/RoadmapSummary>

GlideinWMS Roadmap - other

- Monitoring Modernization
 - Retire GlideinWMS monitoring pages
 - Move to grafana/graphite/elastic search based solution
- Move of the documentation to Jekyll (Summer program)
 - Use of templates will ease page maintenance
- Deploy GlideinWMS in containers

Developers Spotlight

Marco Mambelli

- FIFE-Containers working group (Fermilab)
- Monthly code discussion and challenge of the month
- Summer projects
 - Monitoring
 - Improved Glidein functionality (error reporting)
 - Migrating documentation to Jekyll
- Development topics
 - Multi-glideins
 - Singularity
 - invocation via HTCondor in 3.5
 - Easy VO scripts for testing and setup

Marco Mascheroni

- Generation of factory entries configuration from CRIC is now used in production
 - 20 entries automatically generated right now
 - Prototype constantly improving (adding/removing entry attributes, logging...)
 - Provided feedback to CRIC developers team
 - Making the code production ready to add it to 3.5.1 (unit tests, logging, pylint...)
- Added possibility to customize pilot start expression
 - To allow CMS (and other VOs”) frontend validation script to modify pilot start expression
 - GLIDEIN_Custom_Start attribute added to the pilot start expression (default *True*)
 - Tested in CMS ITB factory (manually patched), ready for production
- Manual_glidein_submit improvements
 - Command now accepts frontend mapped user instead of request. As simple as:
manual_glidein_submit --fe-name fegluex --entry-name GLUEX_US_UConn_cedar
 - Fixed issue where test pilots were removed upon request from the frontend
- Glideins in a vacuum now used by the “Dynamic On Demand Analysis Service” project
 - Will improve management of attribute publishing for 3.5.1 (e.g.: GLIDEIN_CMSSite cannot be overridden by manually started pilots)

Dennis Box

Lorena Lobato

- Removal of dependency from condor_root_switchboard: Now Single user Factory (**GWMS 3.5**)
- Collaboration with Diego Davila - Periodic scripts using prefix
- Mentoring Summer Intern: Building new website for GlideinWMS – Kiana will give further details
- FIFE ITB Frontend to test configurations changes and containers
- Working on blackhole detection (**expected for 3.5.1**)
 - Collaboration with HTCondor team and discussions with other users at HTCondor Week 2019

Kiana Mohammadian

Quarknet Research Project

H.S. Summer Intern

Designing and building the new GlideinWMS website

First steps:

- familiarized myself with GlideinWMS & HTCondor

Currently:

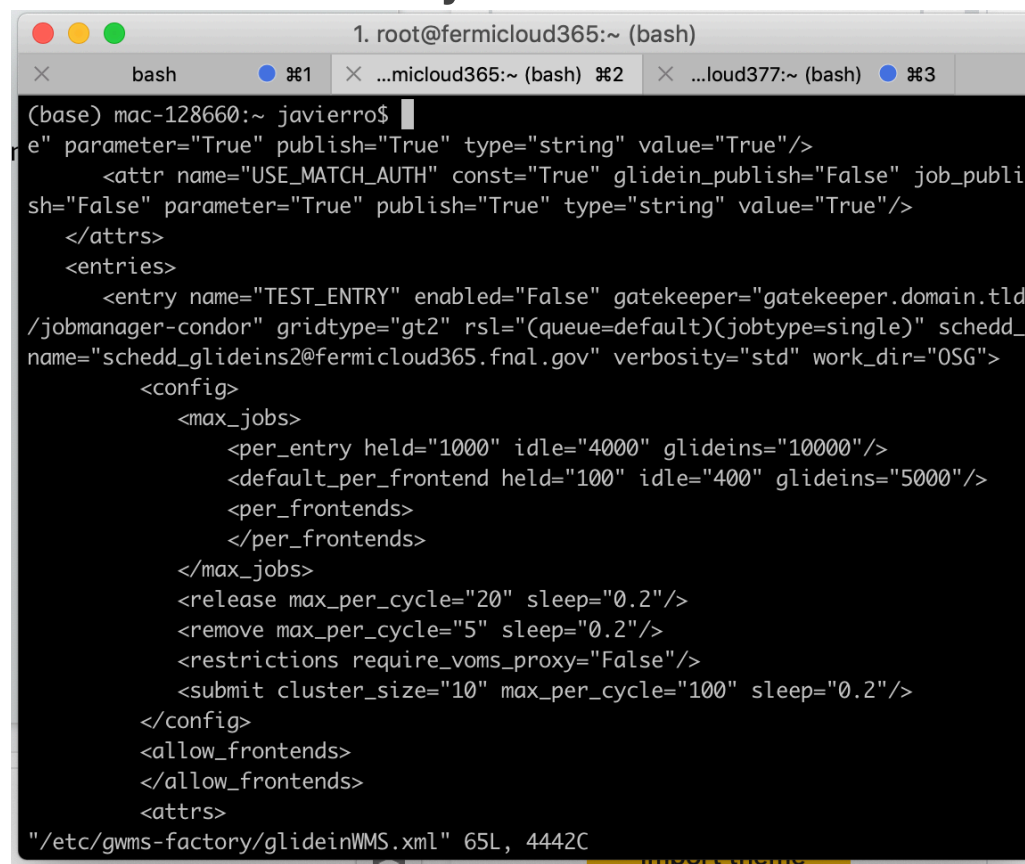
- Evaluating web technologies that best suit our needs
- Exploring concepts associated with web design

Goal:

- Create a developer and user-friendly site
 - easily updatable with new version releases
 - reactively-designed to be better compatible with mobile devices
 - efficient navigation
 - clear, appealing design

Javier Rodriguez - Extended TARGET High School Student

- Python classes
 - Teach TARGET students and help with any questions they may have, during or after the classes.
 - Revise and improve class material from last year
- GlideinWMS
 - Learn to manage VMs on Fermicloud
 - Learning about GlideinWMS and how it works
 - Learn how to install and run a Factory and Frontend
 - Start to get familiar with Github



```
1. root@fermicloud365:~ (bash)
bash 1 2 3
(base) mac-128660:~ javierro$
e" parameter="True" publish="True" type="string" value="True"/>
  <attr name="USE_MATCH_AUTH" const="True" glidein_publish="False" job_publish="False" parameter="True" publish="True" type="string" value="True"/>
</attrs>
<entries>
  <entry name="TEST_ENTRY" enabled="False" gatekeeper="gatekeeper.domain.tld/jobmanager-condor" gridtype="gt2" rsl="(queue=default)(jobtype=single)" schedd_name="schedd_glideins2@fermicloud365.fnal.gov" verbosity="std" work_dir="OSG">
    <config>
      <max_jobs>
        <per_entry held="1000" idle="4000" glideins="10000"/>
        <default_per_frontend held="100" idle="400" glideins="5000"/>
        <per_frontends>
        </per_frontends>
      </max_jobs>
      <release max_per_cycle="20" sleep="0.2"/>
      <remove max_per_cycle="5" sleep="0.2"/>
      <restrictions require_voms_proxy="False"/>
      <submit cluster_size="10" max_per_cycle="100" sleep="0.2"/>
    </config>
    <allow_frontends>
    </allow_frontends>
  </entry>
</entries>
</attrs>
"/etc/gwms-factory/glideinWMS.xml" 65L, 4442C
```

Thomas Hein

- Computer Science at the University of Illinois at Chicago
- Part of the American Institute of Aeronautics and Astronautics
 - Electronics Lead of the Rocketry Branch and Treasurer of the Org
 - NAR and Tripoli Level 2 High-Power Rocketry Certifications
- Working with GlideinWMS previous two summers
 - Ported GlideinWMS from Python version 2 to Python version 3
 - Restructured monitoring to a more modular approach and added InfluxDB as an additional monitoring source
- Currently working on Feature 22848
 - Improve Glidein monitoring and troubleshooting
 - Provides Factory Operators with output and troubleshoot information from Glidein's
 - Wrapped in an easy to view webpage with proper Kerberos authentication



Questions/Comments

Reference Slides

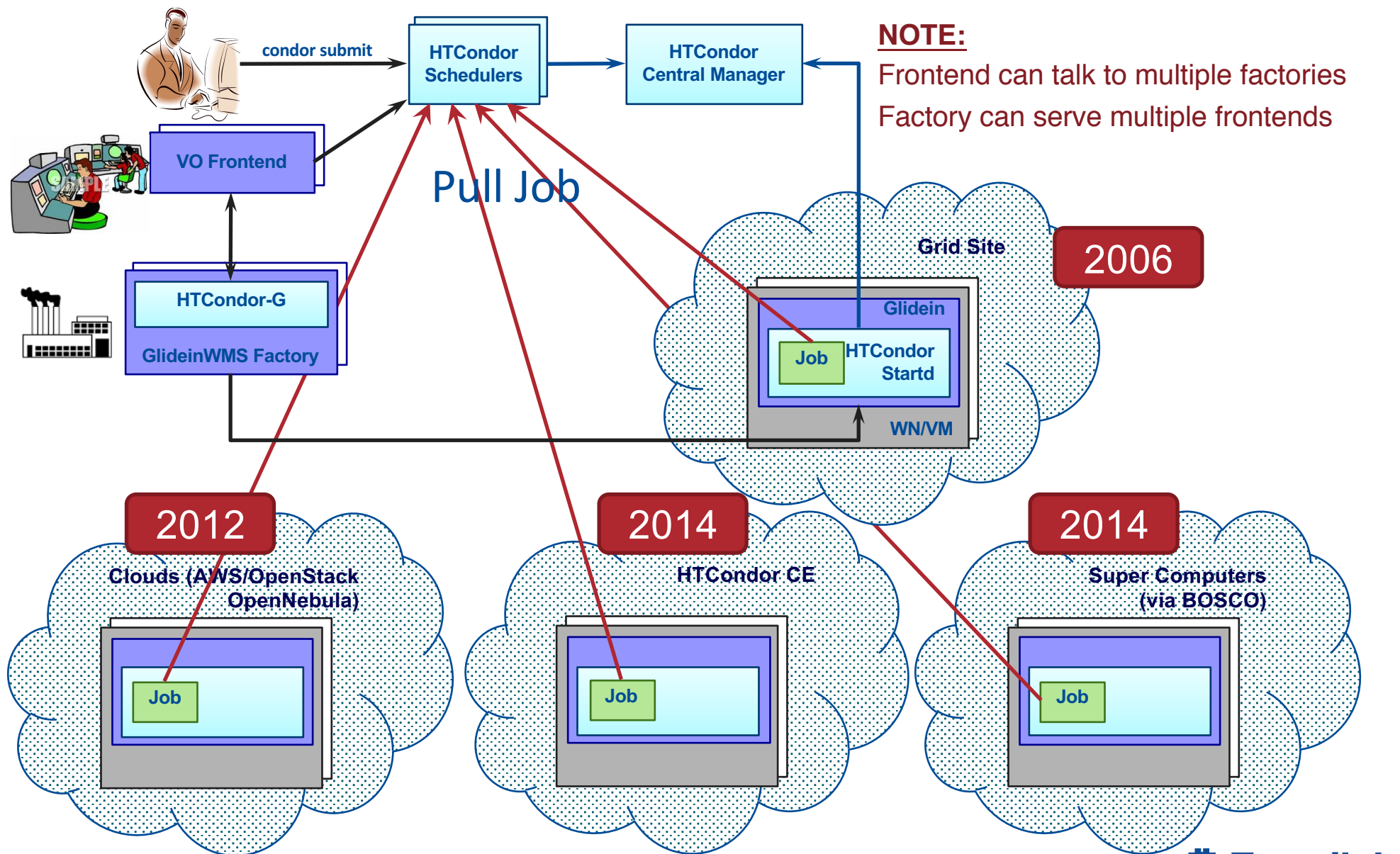
Completed Release, v3.4.5 – NOTES DETAIL

- For new Singularity features introduced in GlideinWMS 3.4.1, all factories and frontends need to be $\geq 3.4.1$.
 - OSG GlideinWMS factories are running at least 3.4.1
 - If some of the connected Factories are $\leq 3.4.1$ you will see an error during reconfig/upgrade if you try to use features that require a newer Factory. To start using Singularity via GlideinWMS, see:
 - <https://glideinwms.fnal.gov/doc/prd/frontend/configuration.html#singularity>
 - <https://glideinwms.fnal.gov/doc/prd/factory/configuration.html#singularity>
 - https://glideinwms.fnal.gov/doc/prd/factory/custom_vars.html#singularity_vars
- Upgrades may require merging /etc/condor/config.d/*.rpmnew files and a restart of HTCondor (check /etc/condor/config.d). Or updating of your separate HTCondor config
- Enables shared port, allowing to require only port 9618. To ease the transition to shared port, the User Collector secondary collectors and CCBs support both shared and separate, individual ports. To start using shared port, change the secondary collectors lines and the CCBs lines (if any) in /etc/gwms-frontend/frontend.xml, changing the address to include the shared port sinful string:
 - `<collector DN="/DC=org/DC=opensciencegrid/O=Open Science Grid/OU=Services/CN=gwms-frontend.domain" group="default" node="gwms-frontend.domain:9618?sock=collector0-40" secondary="True"/>`
 - Replacing gwms-frontend-domain with the hostname of your GlideinWMS frontend. See the [GlideinWMS documentation](#) for details.

Move to single user Factory

- Will be in the next release, v3.5
- All Glideins will run using the factory user, no more separate users per-VO
 - Currently different VOs (Frontend groups) can use different users to improve isolation
- It is safe
 - The HTCondor team assured us that once we remove Globus GRAM support, the other Gridmanager clients cannot decide which file to retrieve from the Factory (it is HTCondor on the Factory deciding what to send), so will be safe to run as a single user
- The directory structure will remain the same
 - Only the ownership will change
 - Your log files will be in the same place
- Migration:
 - GWMS will provide instructions and tools to ease it: change the files ownership, ...
 - if you use HTCondor < 8.7.2 you can upgrade GWMS when convenient for you
 - if you need HTCondor >= 8.7.2 (including 8.8) we recommend to upgrade
 - but if you want to delay the change to 3.5 you can still do that if you are comfortable in using the glideinwms-root-switchboard RPM that we built and tested, but is not supported by OSG.

GlideinWMS



Quick Facts: Releases & Support Structure

- Releases
 - Issues tracked in redmine issue tracker
 - <https://cdcvcs.fnal.gov/redmine/projects/glideinwms/issues>
 - Categorized and prioritized based on impact, urgency and requester
 - Issues are now associated with respective stakeholders
 - Issues are assigned based on developer's expertise and other workload
 - Roadmap for upcoming releases available in redmine (See reference slides)
 - SCM
 - All releases are version controlled and tagged
 - <http://glideinwms.fnal.gov/doc.prn/download.html>
 - Release notes & history
 - <http://glideinwms.fnal.gov/doc.prn/history.html>
- Support
 - Entire development team is responsible for support

Quick Facts: Project Status & Communication Channels

- Project meeting: Wednesdays 10 – 11 am
 - Technical discussions & status updates
 - Regular stakeholder participation
 - Contact Parag Mhashilkar if you need invite for this meeting
- Stakeholders Meeting every two months
- Project Management
 - Project Status reported monthly at CS Project status meetings

Area of Interest	Mailing Lists
Support	glideinwms-support@fnal.gov
Stakeholders	glideinwms-stakeholders@fnal.gov
Release Announcements	glideinwms-support@fnal.gov cms-dct-wms@fnal.gov glideinwms-stakeholders@fnal.gov
Future Release plans	See next slide
Discussions	glideinwms-discuss@fnal.gov
Code commits	glideinwms-commit@fnal.gov Twitter Tag: @glideinwms

Tracking Releases in Redmine

1. Visit the redmine issues tab for GlideinWMS or the URL

2. Click custom query for stakeholder or version roadmap

glideinWMS

Overview Activity Roadmap **Issues** New Issue Gantt Calendar Documents Wiki Files Repository Code reviews Settings

OSG Tickets

Filters

Options

Apply Clear

#	Tracker	Target version	Status	Priority	Subject	Assignee	Updated	
v3_2_10 7								
2409	Feature	v3_2_10	New	High	Support validation scripts to run periodically (not just at pilot start)	Marco Mambelli	05/13/2015 01:26 PM	OSG VO
6897	Bug	v3_2_10	Feedback	High	Partitionable glideins not accounted for correctly	Parag Mhashilkar	05/12/2015 04:42 PM	OSG
7927	Feature	v3_2_10	New	High	Per-frontend unique idle job counts	Marco Mambelli	04/13/2015 04:16 AM	OSG
4904	Feature	v3_2_10	Assigned	Normal	Specify a default for GWMS_XSLT_PLUGIN_DIR	Marco Mambelli	04/01/2015 01:43 PM	OSG
4846	Feature	v3_2_10	Assigned	Normal	Include GWMS_XSLT_PLUGIN_DIR setting in generated {factory,frontend}_startup	Marco Mambelli	04/01/2015 01:42 PM	OSG
7807	Feature	v3_2_10	New	Normal	Support CONDORCE_COLLECTOR_HOST for OSG sites	Parag Mhashilkar	04/13/2015 03:21 AM	OSG
8437	Feature	v3_2_10	New	Normal	Split entry configuration from main factory config	Parag Mhashilkar	04/27/2015 12:13 PM	OSG, CMS
v3_2_x 12								
4587	Bug	v3_2_x	Assigned	Normal	OSG: Automate / fix HTCondor-CE issues	Burt Holzman	02/03/2015 02:44 PM	OSG
6732	Bug	v3_2_x	New	Normal	Glideins report 100% success rate even if startd fails to start/run a matched job.	Marco Mambelli	03/04/2015 04:47 PM	CMS, OSG
3203	Feature	v3_2_x	Assigned	Normal	OSG: condor analyze	Burt	02/03/2015 02:44 PM	OSG

Issues

View all issues

Summary

Calendar

Gantt

My custom queries

Issues Awaiting My Feedback

My Unclosed Issues

Custom queries

- CMS Tickets
- FIFE Tickets
- OSG Tickets
- One Facility Tickets
- Operations Tickets
- CMS Master Ticket
- Igor Sfiligoi's Tickets
- Issues Awaiting Developer Feedback
- Issues by Age
- John Weigand's Tickets
- List With Due Date
- My Open Issues
- Not Closed + Grouped by Assigned To
- Not Closed + Grouped by Target Version
- Open Bugs: High Priority
- Series v2.7.x
- Series v3.2.x
- Series v3.x
- Stakeholder Requests
- Tickets with no version
- Unassigned Tickets
- v3.2.10: Roadmap
- v3.2.9: Open Issues
- v3.2.9: Road Map
- v3.3: Road Map