



connect

Tutorial

Using the service

Kenyi Hurtado



Introduction

- We have already seen how to submit condor jobs.
- CMS Connect is not a normal HTCondor Pool though, it flock jobs to the CMS Global Pool and is integrated with CMS services (and its requirements).
- These slides will show you how to use this service.



Covered in this tutorial

- Account creation
- Transferring proxy certificates
- Submitting to specific resources
- Dashboard reporting
- Stash

Service Details: Signing up

- Portal: <http://connect.uscms.org/signup>



The image shows a screenshot of the CMS Connect sign-up page. The browser address bar shows `connect.uscms.org/signup`. The page title is "Sign up for CMS Connect". Below the title, there is a paragraph: "To join CMS Connect, you will need to possess a Globus ID. the process of creating a Globus ID or using your existing Globus ID". A list of steps follows: "Step 1. Visit [CMS Connect sign up page](#) (opens a new window) and click on the **Continue** button. This takes you to the Globus sign up page which will let you create a Globus ID or log in if you already have an existing ID." Below this text, there is a blue link: "e.g. university, national lab, facility, project, Google or [Globus ID](#)". A speech bubble points to this link with the text "Click Globus ID". Below the link, there is a note: "(Your Globus username and password used prior to February 13, 2016 is now Globus ID)". In the top right corner of the page, there is a "Sign In/Sign Up" dropdown menu, which is circled in red. A red arrow points from this menu to the "Continue" button mentioned in the text. In the bottom right corner, there is a red-bordered box containing the text: "Uses Globus ID for registration: An identity provider operated by Globus". Below this box is the "globus ID" logo.

Sign up for CMS Connect

To join CMS Connect, you will need to possess a Globus ID. the process of creating a Globus ID or using your existing Globus ID

- **Step 1.** Visit [CMS Connect sign up page](#) (opens a new window) and click on the **Continue** button. This takes you to the Globus sign up page which will let you create a Globus ID or log in if you already have an existing ID.

e.g. university, national lab, facility, project, Google or [Globus ID](#)

(Your Globus username and password used prior to February 13, 2016 is now Globus ID)

Click Globus ID

Uses Globus ID for registration: An identity provider operated by Globus

globus ID



Service Details: Signing up

- Portal: <http://connect.uscms.org/signup>

Create a Globus ID

The client **Globus Auth** is requesting access to your **globusid.org** account for accessing a third-party website or application located at **auth.globusid.org** account to continue.

Username

username

Not available, but these are: [username1](#) [username2](#)

Usernames may contain both letters and numbers

NOTE: this is an ID you are creating — not a word

Password

••••••••

E-mail

user@myInstitution.edu

- Provide your CMS affiliated University/Institution email.
- After a user is approved, the login account for the submission machine is created within a few hours.

Uses Globus ID for registration:
An identity provider operated by Globus





Account creation

- After being approved, CI-Connect will take care of creating a user account in the submission machine. Give it a few minutes before trying...
- You can then login via ssh

```
$ ssh <user>@login.uscms.org
```



Proxy Certificates

- Just like in Ixplus machines, one of the first things you need to do is to be sure you have your user CMS VO certificates in the machine.
- If you don't have certificates, follow the Twiki
- If you already have certificates installed on Ixplus or somewhere else, you can use the **copy_certificates** utility

<http://docs.uscms.org/Proxy+Certificates>



Proxy Certificates

```
$ copy_certificates
```

This script checks if you have globus certificates or lets you copy them from another machine otherwise (default: lxplus.cern.ch)

Check for certificates in `/home/yourusername/.globus`

Enter hostname of machine to login: **lxplus.cern.ch**

Enter username for lxplus.cern.ch: **yourusername**

Password:

All Done...

<http://docs.uscms.org/Proxy+Certificates>



Create a proxy

```
$ voms-proxy-init --voms cms -valid 192:00
```

```
Your identity: /DC=ch/DC=cern/OU=Organic Units/OU=Users/CN=khurtado/CN=764581/CN=Kenyi Paolo Hurtado  
Anampa
```

```
Creating temporary proxy ..... Done
```

```
Contacting voms2.cern.ch:15002 [/DC=ch/DC=cern/OU=computers/CN=voms2.cern.ch] "cms" Done
```

```
Creating proxy ..... Done
```

```
Your proxy is valid until Fri Jun 24 12:58:27 2016
```



Projects or Groups

- Each user is added to a group Institution. This is mostly used for accounting in the CI Connect platform and can also be used for Internal organization.
- You can check what projects you belong to from here:

<https://portal.uscms.org/globus-app/groups>

- Or from the login machine:

```
$ connect show-projects
```



Projects or Groups

- To see what your default project is:
 - Login to login.uscms.org

```
$ connect project  
#Might give problems on MACs
```

Alternatively:

```
$ cat ~/.ciconnect/defaultproject  
cms-org-nd
```

Selecting Sites

- You can select the Tier Sites you wish to run your jobs at.
- All US Tier Sites are selected by default. You can change the default Sites in your shell session with:

```
$ source /etc/ciconnect/set_condor_sites.sh <pattern>
```

Examples:

- All Sites: `set_condor_sites T*`
- T2 Sites: `set_condor_sites T2_*`
- Tier US Sites: `set_condor_sites T?_US_*`



Selecting Sites

- You can also add +DESIRED_Sites in your submission file to make it permanent on a particular workflow, but wildcards are not supported there.

```
#submit.jdl  
+DESIRED_Sites="T2_US_Caltech,T2_US_Florida,T2_US_MIT"
```

- You can get a list of sites with **get_condor_sites** **<pattern>**

```
$ get_condor_sites T3_UK_*  
T3_UK_SGrid_Oxford,T3_UK_London_QMUL,T3_UK_ScotGrid_GLA,T3_UK_London_UCL
```



Let's submit a job!

Using all sites available...

```
$ source /etc/ciconnect/set_condor_sites.sh T*
```

```
$ tutorial quickstart
```

Installing quickstart (master)...

Tutorial files installed in ./tutorial-quickstart.

Running setup in ./tutorial-quickstart...

```
$ cd tutorial-quickstart
```

```
$ mkdir log
```

```
$ condor_submit tutorial03.submit
```

Submitting job(s).....

100 job(s) submitted to cluster 482503.



CMS Dashboard Reporting

- CRAB implements CMS dashboard reporting
- As mentioned before, CMS-Connect is oriented for non-CRAB job workflows though...
 - But it is important to measure Site Activity coming from CMS-Connect to standard CMS monitoring services.
- We can report condor regular jobs, DAGMan jobs don't support dashboard reporting at the moment.



CMS Dashboard Reporting

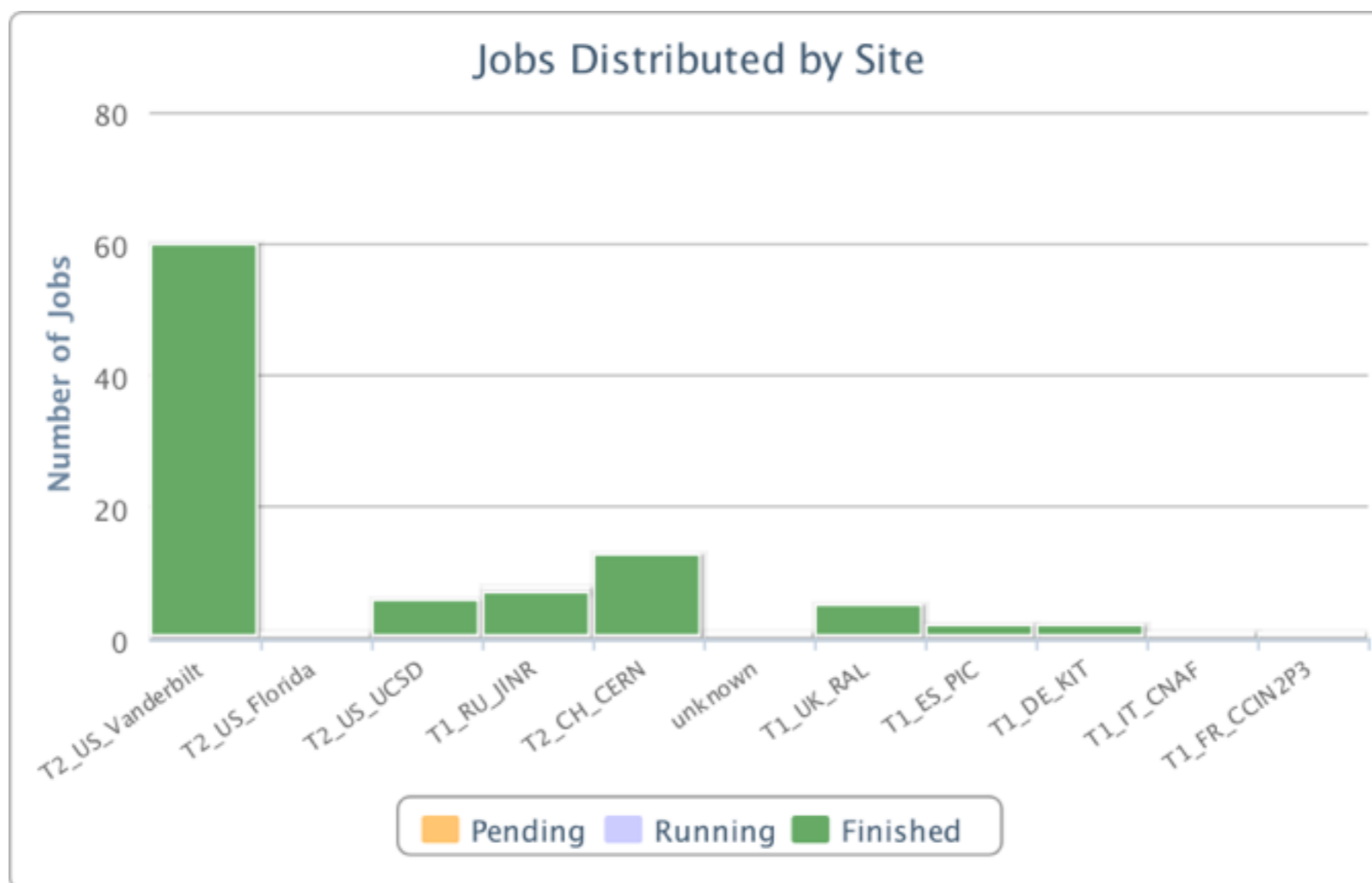
- If you go to the Dashboard Site you should be able to see your task by date
- If you would like to know your task name, look for the **Dashboard_taskid** Class Ad in your jobs.

```
$ condor_q 482503.99 -af Dashboard_taskid  
cmsconnect_khurtado_tutorial03_cbdfd1d15cb4f654
```




CMS Dashboard Reporting

tutorial03 jobs Distributed By Site

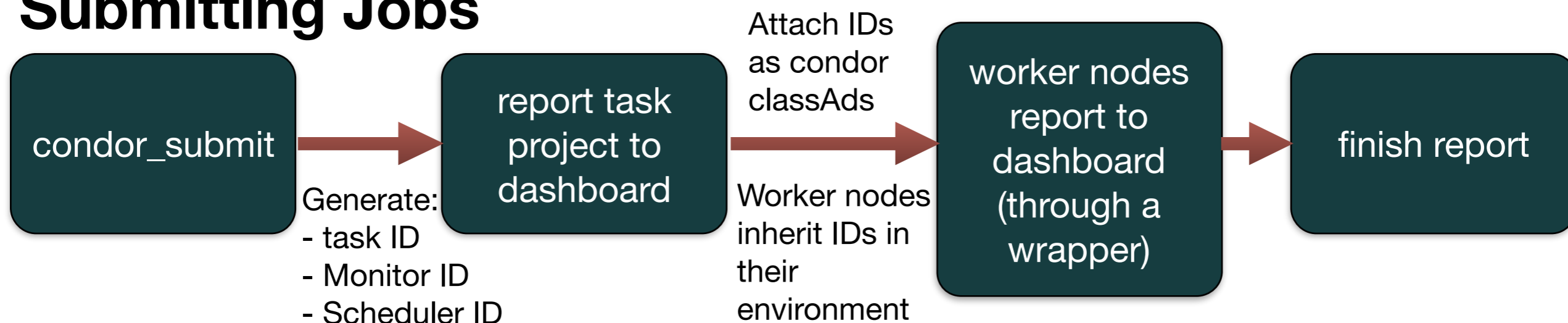


Integrated CMS Dashboard monitoring with condor job submission

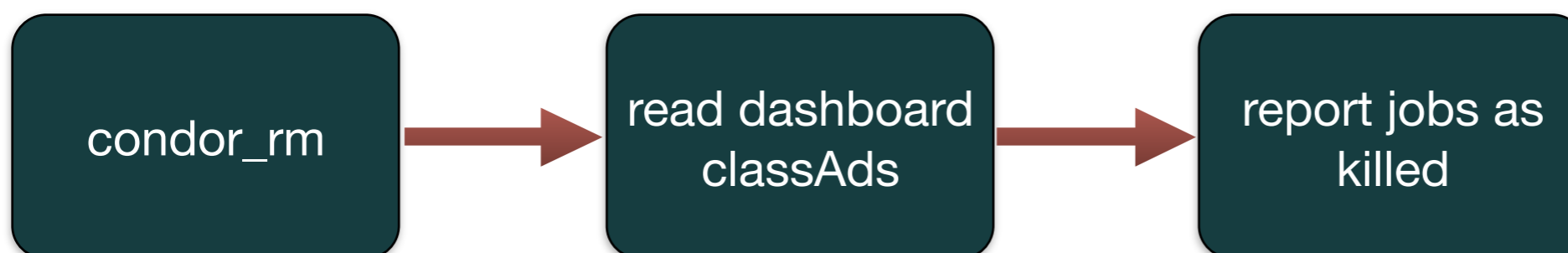
CMS Dashboard Reporting

- Current reporting model:

Submitting Jobs



Deleting Jobs





CMS Dashboard Reporting

- **What can be reported?**
 - As opposed to regular CRAB workflows, users are responsible in terms of workflow tools, stage-out, error codes, etc.
 - To get the "full dashboard experience", the user can include extra bits in their scripts to inform e.g the number of events in the job, storage element name, stage-out time and exit code, etc.
 - However, even **if the user doesn't do anything, the basic level of details is still handled by the CMS-Connect wrappers**. E.g.- Application times and exit code, hostname, computing element name, etc.

[Dashboard full reporting documentation](#)



CMS Dashboard Reporting

- Condor jobs are submitted with “cmsconnect” as the name of the submission tool.
- **Supporting other submission tools in CMS-Connect**
 - In principle, other submission tools could be used for the user’s convenience too (e.g. grid-control, farmout, lobster, etc).
 - The integrated dashboard would be disabled via the environment variable `CONDOR_CMS_DASHBOARD=False`
 - Such tools would report with their own tool names. A dashboard API would be created in order to see all jobs from all submission tools submitted from CMS-Connect in that case.



A Virtual CMS analysis Cluster

- Users should not expect to run jobs with data or software stored in their home directories.
- Instead, use CVMFS, XRootD, HTCondor transfer mechanisms, etc to ensure the worker nodes can read them.

Service Details: Stash

- Stash: The OSG Connect storage service
 - Temporary data storage solution.
 - To assist with pre-stage job input data files, write output files for later use, etc
 - Currently no user quota. When space becomes tight, files are removed on a simple least-recently-used basis.

```
$ df -H
Filesystem      Size  Used Avail Use% Mounted on
/dev/vda2      264G   46G  206G  19% /
tmpfs          20G    0    20G   0% /dev/shm
/dev/vda1       98M   78M   15M  84% /boot
192.170.227.117:/connect
                3.2P  2.4P  801T  75% /stash2
```



Service Details: Stash HTTP

/stash2/user/<user>public

<http://stash2.ci-connect.net/+<user>/>



Support ▾

Resources ▾

Connect ▾

Transfer ▾

khurtado ▾

Search:

Type ▲	Name	Kind	Changed	Size
	chart_pie_1730159.html	text/html	Sat, 03 Jan 2015 11:00	1956
	data_app.tar.gz	application/x-tar	Mon, 05 Jan 2015 13:13	250
	oasis_app.tar.gz	application/x-tar	Mon, 05 Jan 2015 14:51	511
	parrot.tar.gz	application/x-tar	Fri, 06 Mar 2015 18:46	4792.87 k
	pset_tutorial_MC_generation.py	text/x-python	Fri, 06 Mar 2015 18:44	5713
	pset_tutorial_analysis.py	text/x-python	Fri, 23 Jan 2015 17:08	756
	siteconfig.tar.gz	application/x-tar	Fri, 06 Mar 2015 18:49	887

Showing 1 to 7 of 7 entries

generated in 0.994s

Can be used to e.g transfer sandboxes easily without depending on HTCondor transfer mechanisms, etc...



Acknowledgements

- UChicago OSG Team:
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 - David Champion



connect



CI Logon



globus



Open Science Grid



XRootD

