

Authorizing Remote Placement with the PlacementD

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Throughput Week 2026

CHTC

HTCCondor
Software Suite

PATH

What is Remote Placement?

- The ability to submit, remove, hold, get results of, or otherwise manipulate your jobs on an Access Point, without shell access on the Access Point

Why Remote Placement – the Admin View (1)

- Access Point is a shared resource
- Easy to misuse it – examples:
 - Filling up `/tmp` with program output or container builds
 - Remote VSCode sessions using CPU and memory
 - AI agents using CPU and memory
- No feedback on the stress you're putting on the machine
- Misuse hurts other users

Why Remote Placement – the Admin View (2)

- `curl root-exploit-of-the-week.sh | bash`
- Rash of local privilege exploits make locking down access more appealing

Why Remote Placement – the User View

- Don't want to cause trouble
- Unfamiliar environment
 - Missing favorite tools
 - No GUI – shell only
- VSCode remote access "feels like" your local machine

Challenges with Remote Placement

- Getting the tools
- Configuring the client
- Copying data to/from the AP
- Authorization <- the focus of this talk

Auth Needed for Remote Placement

- User needs a credential which the AP accepts for running job management commands
- Credential should be short-lived to limit damage if it gets compromised
- User should be able to get the credential by themselves

PlacementD and Placement Tokens

- Added "Placement Daemon" (PlacementD) that creates Placement Tokens
- Placement Tokens are short-lived (~1 day) credentials that the AP accepts for job management tasks
- The PlacementD works together with a web application so it can use Single Sign On to get an identifier for the user
- OAuth2 Device Flow clients let the user start a request from a command-line or Jupyter Notebook

Device Flow (1)

CLI client

```
$ placement-request demo-ap.chtc.wisc.edu  
  
Token requested; please go to  
  
    https://demo-ap.chtc.wisc.edu/auth/code?user_code=PWLP-GMFX  
  
and use the code "PWLP-GMFX".  
(The code will expire at 2026-06-10 21:22:03.)
```

Jupyter Notebook widget client


```
▶ DeviceWidgets("demo-ap.chtc.wisc.edu").display_widgets()  
[2] ✓ 0.0s  
... Token requested; please follow the link to complete the procedure.  
...  
Please go to the following link:  
https://demo-ap.chtc.wisc.edu/auth/code  
and use the code QZDL-DNNJ  
... Request in progress, will expire in 29:59
```

Device Flow (2)



Login

NetID [Forgot NetID](#)

Password [Forgot password](#) 

Request a Token

This page allows you to request a Placement Token for performing authenticated actions on CHTC Demo AP.

Going to this page was requested by *Placement Client*.

The Placement Token will be provided to it after your request is successful.

Please select the project your token will be used for.

CHTC-Staff 

Please select the permissions for your token. You are allowed to select from the permissions below.

- Read: Get a list of jobs, examine jobs
- Write: Place jobs, remove jobs, modify jobs

Device Flow (3)

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Make Request

Cancel

Token Granted

Welcome, Matyas Selmecei. You have successfully logged in to CHTC Demo AP and have been granted a token, the details of which are below.

Name	Matyas Selmecei
AP Identifier	matyas
AP Host	demo-ap.chtc.wisc.edu
Issued At	less than a minute ago
Expires At	1 day from now
Project	CHTC-Staff
Permissions	Get a list of jobs, examine jobs; Place jobs, remove jobs, modify jobs;

The token will be provided to Placement Client. You may close this tab and return there.

To use the Placement Token, edit `~/condor/user_config`, creating it if necessary, then add:

```
SCHEDD_HOST = demo-ap-condor.chtcdev.chtc.io  
COLLECTOR_HOST = demo-ap-condor.chtcdev.chtc.io
```

Copy lines to clipboard

Request successful!

Token has been installed at `/home/matyas/condor/tokens.d/Placement.token`

First-Class Projects (1)

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Make Request

Cancel

- Placement Tokens can be linked to "Projects"
- A token selected for project A can only be used to place jobs that have ``project_name="A"```
- Frequent use case – now a first-class entity in the SchedD

First-Class Projects (2)

- Projects, like users, have their own records and statistics
 - TotalCompletedJobs, CompletedJobsCpuTime, etc.
- Projects, like users, can be "suspended", keeping jobs from being placed or starting
- Provides an extra level of tracking and management

Admin Overview

Issued Tokens

Requester	AP User ID	User Name	Expiration Date	Authorizations	Project	Token ID
mselmeci@wisc.edu	matyas@demo-ap.chtc.wisc.edu	mselmeci@wisc.edu	2026-06-11 20:08	read,write	CHTC-Staff	55d782a...
mselmeci@wisc.edu	matyas@demo-ap.chtc.wisc.edu	mselmeci@wisc.edu	2026-06-11 20:11	read,write	CHTC-Staff	78071fa...
mselmeci@wisc.edu	matyas@demo-ap.chtc.wisc.edu	mselmeci@wisc.edu	2026-06-11 20:12	read,write	CHTC-Staff	0497da5...

Users

AP User ID	User Name	Authorizations	Projects	Token Expiration Date
matyas@demo-ap.chtc.wisc.edu	mselmeci@wisc.edu	READ,WRITE,WEBADMIN	CHTC-Staff	2026-06-11 20:12

User Job Statistics

User			Queue					History	
AP ID	OS User	Suspended	Idle	Running	Held	Other	Total	Completed	Removed
matyas@demo-ap.chtc.wisc.edu		No	0	0	0	0	0	0	0

Project Job Statistics

Project		Queue					History	
Name	Suspended	Idle	Running	Held	Other	Total	Completed	Removed
CHTC-Staff	No	0	0	0	0	0	0	0

Summary

- Giving users shell access on an Access Point can be dangerous
- Remote placement provides a way to let users get their work done without shell but requires approachable auth
- PlacementD can solve auth problem by issuing short-lived credentials with a Single Sign-On-backed identifier
- Device Flow client can make credential acquisition straightforward for the user
- First-class projects give admins multi-level control over authorizing job placement

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