



ALTAIR

Altair Access 2020.2

Command Line Interface Guide

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What's New

1

Latest features available with Altair Access™ Command Line Interface.

There are no new features in this release.

Use the Command Line Interface for job submission and monitoring, file operations, and managing servers.

This chapter covers the following:

- [2.1 Document Conventions](#) (p. 12)
- [2.2 Prerequisites](#) (p. 13)
- [2.3 Command Line Interface Path](#) (p. 14)
- [2.4 Commands Quick Reference](#) (p. 15)

The Access Command Line Interface (CLI) allows users to access the power of PBS Professional from the command-line without using a graphical user interface, while leveraging the capabilities of Access and application definitions. The CLI is available with Access 2020.2 and later releases.

A variety of commands are available to assist user's with job submission and monitoring activities, as well as file operations. Additionally, server and administrative commands are available.

2.1 Document Conventions

Common typographical conventions for Altair Access Command Line Interface™ technical publications.

PA_HOME

The Access Command Line Interface home directory which contains configuration, data, and logging files. Default location is:

- on Linux: `/var/spool/pbsworks/2020.2/access/home`
- on Windows Docker: `/opt/altair/access/home`

However, this can be overridden during the installation of Access Command Line Interface.

PA_EXEC

The Access Command Line Interface execution directory which contains binaries and scripts. Default location is:

- on Linux: `/opt/altair/pbsworks/2020.2/access/exec`
- on Windows Docker: `/opt/altair/access/exec`

However, this can be overridden during the installation of Access Command Line Interface.

PBS_HOME

The location where the PBS Professional daemon/service configuration files, accounting logs, etc. are installed. Default is:

`/var/spool/pbs`

PBS_EXEC

The location where the PBS Professional executable programs are installed. Default is:

`/opt/pbs/`

PAS_HOME

The Windows PAS home directory which contains configuration, data, and logging files. Default location is: `C:\Program Files\altair\pas\2020.2\PAS\home`, however this can be overridden during the installation of PAS on Windows.

PAS_EXEC

The Windows PAS execution directory which contains binaries and scripts. Default location is: `C:\Program Files\altair\pas\2020.2\PAS\exec`, however this can be overridden during the installation of PAS on Windows.

2.2 Prerequisites

Prerequisites and planning to run Command Line Interface.

Access Desktop

Before you can use the CLI to submit and monitor jobs, administer a cluster, or manage files you must establish a connection to an HPC cluster. Establish the connection by using the Access user interface or by issuing the `pas-add-server` command. The first cluster that is registered is considered the default server. Any CLI commands issued after adding the cluster, are made against this cluster unless otherwise explicitly specified. Most commands provide an option to specify a non-default server.

- Access Desktop must be installed and running.
- A connection to an HPC cluster must be established by registering the cluster via Access Desktop or by using the `pas-server-add` command.
- The first time a CLI command is issued after installation, you will be asked for your credentials. You can use the `pas-passwd` command to set the password credentials.
- Users of the CLI will need to add the path to the CLI to their search path.

Access Web

- Access Web must be installed and running.
- A connection to an HPC cluster must be established by registering the cluster via Access Web UI or by using the `pas-server-add` command.
- The first time a CLI command is issued after installation, you will be asked for your credentials. You can use the `pas-passwd` command to set the password credentials.
- Users of the CLI will need to add the path to the CLI to their search path.

2.3 Command Line Interface Path

Default location of Command Line Interface path.

Access Desktop

C:\Users\\AppData\Local\Altair\Altair Access\2020.2\exec\bin\commandline\

Access Web

/opt/altair/pbsworks/2020.2/access/exec/bin/commandline/

2.4 Commands Quick Reference

List of access commands.

The following is a list of all commands and a link to each of the commands.

Table 1: Administration Commands

| Command | Description |
|-----------------------------------|---|
| pas-ping | Checks if the server is up or down. |
| pas-getsrv | Displays information about the server. |
| pas-ver | Displays server version and build information. |
| pas-server-add | Add a server in the Access Desktop application. |
| pas-server-list | Deletes a server from the Access Desktop application. |
| pas-server-delete | Returns a list of all the server added in the Access Desktop application. |
| pas-admin | Determines if the user has administrative privileges on the server. |
| pas-getsroot | Returns the root directory of the staging area on the server. |
| pas-passwd | Set the user's password. |

Table 2: Job Submission and Monitoring Commands

| Command | Description |
|-----------------------------|---|
| pas-getapps | Returns a list of all applications known to the server. |
| pas-getapp | Returns a list of all parameters available for the specified application as defined by the application definition on the server. |
| pas-submit | Submits a job to the server. |
| pas-stat | Displays the status of a job. You can display the status of a particular job or the status of all jobs. |
| pas-sum | Displays a summary of the job information. You can displays a summary of job information for a specific job, or all jobs on the server. |

| Command | Description |
|---|--|
| pas-getres | Downloads the files related to the given job identifier. |
| pas-del | Deletes a job from the Workload Management System. |
| pas-custom-action-list | Get a list of available custom action of a job. |
| pas-execute-custom-action | Execute a custom action for a job. |

Table 3: File Management Commands

| Command | Description |
|----------------------------|---|
| pas-fmkdir | Creates a directory on the server. |
| pas-fup | Uploads a file. |
| pas-fdown | Downloads a file. |
| pas-fdel | Deletes a file from the server. |
| pas-fcompr | Compresses a file on the server. |
| pas-flist | Displays a list of files on the server. |

Commands to help with the administrative tasks.

This chapter covers the following:

- [3.1 Determine if Server is Up and Running](#) (p. 18)
- [3.2 Get Server Information](#) (p. 20)
- [3.3 Get Server Version and Build Information](#) (p. 21)
- [3.4 Add a Server](#) (p. 23)
- [3.5 List Servers](#) (p. 26)
- [3.6 Delete a Server](#) (p. 28)
- [3.7 Determine if a User is an Administrator](#) (p. 29)
- [3.8 Getting the Staging Area Root Directory](#) (p. 30)
- [3.9 Set the User's Password](#) (p. 31)

All commands will connect to the first server (cluster) registered after installation (this server is considered the default server). Most commands provide an option to specify a non-default PAS server.

3.1 Determine if Server is Up and Running

Check if the PAS server (cluster) is up or down.

Name

pas-ping

Description

Use the `pas-ping` command to check if the PAS server (cluster) is up or down. This command will return a message indicating the status of the server:

PAS server at *machine name* is up/down.

Syntax

```
pas-ping [ options ]
```

Options

- h**
Display help for the command.
- s *SERVERNAME***
Ping the PAS server specified by *SERVERNAME*. *SERVERNAME* is the name of server (cluster) provided while adding the server (cluster) using Access. If this option is not specified, then the default PAS server will be pinged.

 **Note:** The `-s SERVERNAME` option is not supported for Access Desktop.

- F *JSON***
Print the output format in JSON.

Command Examples

Ping the default PAS server

```
pas-ping
```

Ping a non-default PAS server

```
pas-ping -s 192.168.4.123
```

Ping a PAS server and get the output in JSON format

```
pas-ping -s 192.168.4.123 -F JSON
```

Command Output Example

```
pas-ping
```

```
PAS server at localhost is up
```

```
pas-ping -s 192.168.4.123 -F JSON  
{u'data': {u'host': u'localhost', u'id': u'localhost', u'isDefault': False},  
u'success': True, u'exitCode': u'0'}
```

3.2 Get Server Information

Display the hostname and port number of a server.

Name

pas-getsrv

Description

Use the `pas-getsrv` command to display the hostname and port number of a server.

Syntax

```
pas-getsrv [ options ]
```

Options

- h**
Display help for the command.
- s *SERVERNAME***
Returns the hostname and port number of the PAS server specified by *SERVERNAME*. If this option is not specified, then the default server and its port information is displayed.

 **Note:** The `-s SERVERNAME` option is not supported for Access Desktop.

Command Example

Get information about the default server

```
pas-getsrv
```

Command Output Example

```
pas-getsrv
Server=localhost
Port=17084
```

3.3 Get Server Version and Build Information

Display server version and build information.

Name

pas-ver

Description

Use the `pas-ver` command to display server version and build information.

Syntax

`pas-ver [options]`

Options

- h**
Display help for the command.
- s *SERVERNAME***
Display version and build information for the PAS server specified by *SERVERNAME*. If this option is not specified, then the default server and its port information is displayed.

 **Note:** The `-s SERVERNAME` option is not supported for Access Desktop.

- F *JSON***
Print the output format in JSON.

Command Examples

Display the server version and build information for the default server

```
pas-ver
```

Display the server version and build information for a non-default server

```
pas-ver -s 192.168.4.123
```

Display the server version in JSON format

```
pas-ver -s 192.168.4.123 -F JSON
```

Command Output Example

```
pas-ver
  majorVersionNumber :: 2018
  minorVersionNumber :: 2
  patchNumber       :: 0
  buildId           :: 20180624
```

```
platform :: Linux-x86_64  
arch :: amd64
```

```
pas-ver -s 192.168.4.123 -F JSON
```

```
{"majorVersionNumber": 2018, "patchNumber": 0, "buildId": "20180624", "arch":  
"amd64", "platform": "Linux-x86_64", "minorVersionNumber": 2}
```

3.4 Add a Server

Add a service cluster using SSH or an Access Web server using HTTPS.

Name

pas-server-add

Description

Use the `pas-server-add` command to add a service cluster (i.e. a PBS Professional complex) using SSH or an Access Web server using HTTPS.

Use the `pas-server-add` command to add a service cluster (i.e. a PBS Professional complex) using SSH by providing:

- **SERVERNAME**, the name by which the server will be known within Altair Access. The special characters allowed while providing the **SERVERNAME** are dot, underscore, hyphen, and space. The **SERVERNAME** should not end with white space.
- **HOSTNAME** or **IPADDRESS** of the server.
- **Port Number** of the server (Optional). This is the gateway port which is by default 4443.
- **USERNAME** and either a **PASSWORD** or an **SSHKEYPATH**. The credentials of the user should be available in the server.

Use the `pas-server-add` command to add an Access Web server using HTTPS by providing:

- **SERVERNAME**, the name by which the server will be known within Altair Access. The special characters allowed while providing the **SERVERNAME** are dot, underscore, hyphen, and space. The **SERVERNAME** should not end with white space.
- **Access Web URL**, the Access Web server URL should be provided in the format `https://<HOSTNAME>:<PORT>` and the port number is the gateway port.
- **USERNAME** and a **PASSWORD**. The credentials of the user should be available in the server.
- **-a PBS_COMMAND_LINE_ADAPTOR** - The Adaptor type option used for adding Access Web server.

 **Note:** This command is valid for Access Desktop only.

By default, the user who issues this command is logged into the **SERVER**.

Syntax

```
pas-server-add -s SERVERNAME -n { HOSTNAME:port | IP ADDRESS:port } -u USERNAME  
-p { PASSWORD | -l SSHKEYPATH }
```

Syntax for adding a service cluster using SSH

```
pas-server-add -s SERVERNAME -n { https:// HOSTNAME : port | IP ADDRESS : port } -u  
USERNAME -p PASSWORD -a PBS_COMMAND_LINE_ADAPTOR
```

Syntax for adding an Access Web server using HTTPS

Options

- h** Display help for the command.
- L** Skip logging in while adding a server.
- r** Set the stage root directory. By default, the stage root directory is set to `/stage/$USER/AltairAccess`.
The staging directory is where the necessary job files are transferred after job submission via a client for execution.
- c URL** Set the central repository URL using this parameter.
If your site has chosen to store application definitions in a central repository rather than on the local workstation, enter the URL for accessing the central repository in the format `https://<HOSTNAME>:<PORT>`. `<HOSTNAME>` is the hostname of the machine where Access Web is installed and `<PORT>` is the gateway port which is by default 4443.
- a** The Adaptor type option specifies how Access Desktop should communicate with the server. The adaptor types supported are:
- `PBS_SSH_ADAPTOR` - used to communicate to the server using SSH. This is the default option.
 - `PBS_COMMAND_LINE_ADAPTOR` - used to communicate to the server using HTTPS.
 - `LOCAL_DESKTOP_QUEUE_ADAPTOR` - used to communicate for local queue, mostly used in case of local job submissions (Inspire).
- P** Provide the server properties. The information provided is updated in the `serverData.xml` file. You can provide the server properties like Copy Backup, Scheduler Cycle Time, and others. The valid input format is `<key>=<value>[,<key>=<value>...]`.
- g** Use this option to prevent an SSH key from being generated. By default, the command generates a SSH key so that on subsequent logins, a username and password do not need to be provided. This option is applicable only for Access Desktop.

Command Examples

Adding a service cluster with username and password

```
pas-server-add -s cluster -n 192.168.4.123 -u dave -p evad&234
```

Adding an Access Web server with username and password

```
pas-server-add -s web_cluster -n https://172.16.82.23:17034 -u dave -p evad&234 -  
a PBS_COMMAND_LINE_ADAPTOR
```

Adding a server using SSH key

```
pas-server-add -s cluster -n 192.168.4.123 -u dave -l "C:\Users\Privatekey"
```

Adding a server using a non-default port number

```
pas-server-add -s cluster -n 192.168.2.23:17034 -u dave -l "C:\Users\Privatekey"
```

Adding a server with the properties

```
pas-server-add -s cluster -n 192.168.4.123 -u dave -p evad&234 -P  
COPY_BACK_SCHEDULER_CYCLE_TIME=300,COPY_BACK_THREAD_POOL_SIZE=5,  
JOB_S_FILE_OVERRIDE=true
```

Adding a server with Central Repository

```
pas-server-add -s cluster -n 192.168.4.123 -u dave -p evad&234  
-c https://192.168.4.124:17084
```

Command Output Example

```
pas-server-add -s cluster -n 192.168.4.123 -u dave -p evad&234
```

```
Server: cluster added and User logged in successfully
```

```
pas-server-add -s web_cluster -n https://172.16.82.23:17034 -u dave -p evad&234 -  
a PBS_COMMAND_LINE_ADAPTOR
```

```
Server: web_cluster added and User logged in successfully
```

3.5 List Servers

Display the list of servers or clusters added.

Name

pas-server-list

Description

Use the `pas-server-list` command to fetch the list of servers (clusters) that have either been added via the Access UI or the `pas-server-add` command.

 **Note:** This command is valid for Access Desktop only.

Syntax

```
pas-server-list [ options ]
```

Options

- h** Display help for the command.
- d** Return the details for the default server (cluster).
- F JSON** Print the output format in JSON.

Command Examples

List the available servers

```
pas-server-list
```

To get the default server details

```
pas-server-list -d
```

Command Output Example

```
pas-server-list
  ServerId : cluster Host : altvm10vm1
  ServerId : web_cluster Host : localhost
  ServerId : cluster_qa Host : altvm10vm14
  ServerId : cluster_rm Host : altvm10vm3
```

```
pas-server-list -d
```

```
ServerId : cluster Host : altvm10vm1
```

3.6 Delete a Server

Delete a server (cluster) by specifying its SERVERNAME

Name

pas-server-delete

Description

Use the `pas-server-delete` command to delete a server (cluster) by specifying its **SERVERNAME**. **SERVERNAME** is the name of the cluster as it is known within Access.

 **Note:** This command is valid for Access Desktop only.

Syntax

```
pas-server-delete -s SERVERNAME [ options ]
```

Options

`-h`
Display help for the command.

Command Examples

Delete a server (cluster)

```
pas-server-delete -s cluster
```

Command Output Examples

```
pas-server-delete -s cluster  
Server: cluster deleted Successfully
```

3.7 Determine if a User is an Administrator

Determine if the effective user has administrative privileges for a server.

Name

pas-admin

Description

Use the `pas-admin` command to determine if the effective user has administrative privileges for a server. The command will return *true* when the user is an administrator and *false* when the user is not a server administrator.

Syntax

```
pas-admin [ options ]
```

Options

-h

Display help for the command.

-s *SERVERNAME*

Determine if the effective user has administrative privileges for PAS server specified by *SERVERNAME*. If this option is not specified, then the default server will be assumed.

 **Note:** The `-s SERVERNAME` option is not supported for Access Desktop.

Command Examples

Determine if the effective user has administrative privileges for the default server

```
pas-admin
```

Determine if the effective user has administrative privileges for a non-default server

```
pas-admin -s 192.168.4.123
```

Command Output Examples

```
pas-admin
```

```
true
```

3.8 Getting the Staging Area Root Directory

Return the root directory of the staging area set.

Name

pas-getsroot

Description

Use the `pas-getsroot` command to return the root directory of the staging area set during the installation.

Syntax

```
pas-getsroot [ options ]
```

Options

- h**
Display help for the command.
- s *SERVERNAME***
Returns the staging area root directory of the PAS server specified by *SERVERNAME*. If this option is not specified, then the default server will be assumed.

Command Examples

Get the staging area root directory of the default server

```
pas-getsroot
```

Get the staging area root directory of a non-default server

```
pas-getsroot -s 192.168.4.123
```

Command Output Examples

```
pas-getsroot  
/stage
```

3.9 Set the User's Password

Set your CLI password.

Name

pas-passwd

Description

Use the `pas-passwd` command to set your CLI password. Once this command is issued, you will be asked to enter a password, and then re-enter it for verification. Once the password is set, it will be used for all subsequent CLI requests.

Syntax in Access Desktop

```
pas-passwd [ option ]
```

Syntax in Access Web

```
pas-passwd -s SERVERNAME -u USERNAME [ option ]
```

Options

- h**
Display help for the command.
- s SERVERNAME**
Set the CLI password for the PAS server specified by *SERVERNAME*. If this option is not specified, then the default server will be assumed.
- u USERNAME**
Set the password for the specified *USERNAME*. By default, it is the current user.
- p PASSWORD**
Specify the user's current password.
- l PATHNAME**
Location of the SSH public key file for the user. This can be used if you do not want to specify the password. The SSH key file path should be provided in quotes.

 **Note:** The `-l PATHNAME` option is not supported for Access Web.
- F JSON**
Print the output format in JSON.
- g**
Use this option to disable generating SSH Key. By default, the command will generate a SSH Key which enables the user not to provide username and password for subsequent logins. This option is applicable only for Access Desktop.

Command Examples

Set the user's password

```
pas-passwd
```

Set the user's password by providing the username and password

```
pas-passwd -s 192.168.4.123 -u dave -p evad&123
```

Set the user's password by providing the SSH key location

```
pas-passwd -s 192.168.4.123 -u dave -l "C:\Users\Privatekey"
```

Command Output Examples

```
pas-passwd  
Enter user's password:xxxxxxx  
Retype password:xxxxxxx  
Changed user root's password on server <localhost>
```

Job Submission and Monitoring Commands

4

Commands for job submission, job monitoring, and obtaining job results.

This chapter covers the following:

- [4.1 List of all Applications](#) (p. 34)
- [4.2 List of Application Parameters](#) (p. 36)
- [4.3 Submit a Job](#) (p. 38)
- [4.4 Check the Status of a Job](#) (p. 40)
- [4.6 Download Job Results](#) (p. 42)
- [4.7 Delete a Job](#) (p. 44)
- [4.8 List of Custom Actions](#) (p. 46)
- [4.9 Execute a Custom Action for a Job](#) (p. 48)

All commands will connect to the first server (cluster) registered after installation (this server is considered the default server). Most commands provide an option to specify a non-default PAS server.

A simple workflow for submitting a job is:

1. Get a list of the available applications on the server using the `pas-getapps` command.
2. Once you have determined which application to run, get a list of application parameters using the `pas-getapp` command.
3. Upload the job input files to the server using the `pas-fup` command.
4. Submit a job to the server using the `pas-submit` command.
5. Check the status of your job using the `pas-stat` command.
6. Download the job result files using the `pas-getres` command.

4.1 List of all Applications

Display a list of all applications.

Name

pas-getapps

Description

Use the `pas-getapps` command to return a list of all applications known to the PAS server.

Syntax

```
pas-getapps [ option ]
```

Options

- h**
Display help for the command.
- s *SERVERNAME***
Retrieve a list of all applications known to the PAS server specified by *SERVERNAME*. If this option is not specified, then the default server will be assumed.
- F *JSON***
Print the output format in JSON. This will also provide the timestamp of when the application definition was last updated in the cluster. The timestamp that is displayed is in Hash format.

Command Examples

Get a list of all application known to the default server

```
pas-getapps
```

Get a list of all applications known to a non-default server

```
pas-getapps -s 192.168.4.123
```

Get a list of all applications from Access Web server

```
pas-getapps -s web_cluster
```

Print the output in JSON format

```
pas-getapps -F JSON
```

Command Output Examples

```
pas-getapps  
ShellScript2  
RADIOSS
```

```
Sleeper
JobArray
ShellScript
OptiStruct
Signal Trap
ShellScript
```

```
pas-getapps -s 192.168.4.123
```

```
RADIOSS
ShellScript
OptiStruct
```

```
pas-getapps -F JSON
```

```
{"time_stamp":
  "96f44fd54d5f8178d5b4c0d06ebd0a3d1377db97c04cb4b12007da64a4bd74a3",
"data": [{"definitions": {"file": {"required": ["value"], "type": "object",
"properties": {"dname": {"type": "string"}, "required": {"type": "boolean"},
"upload": {"type": "boolean"}, "value": {"type": "string"}}}},
"$schema": "http://json-schema.org/draft-04/schema#",
"required": ["NCPUS", "MEMORY", "PRIMARY_FILE"], "type": "object",
"properties": {"FILES": {"items": {"$ref": "#/definitions/file"},
"DisplayName": "Job Files", "type": "array", "Displayable": true,
"Description": "Files to be included with the Job Script.",
"MEMORY_PLACEMENT": {"DisplayName": "Memory Per Chunk",
"Description": "The physical memory requested per chunk.",
"enum": ["true", "false"], "Displayable": true, "value": "true",
"type": "string"}, "NCPUS": {"DisplayName": "Number of Processors",
"Description": "The total number of processors.",
"Displayable": true, "value": 1, "minimum": 1, "type": "integer"},
"JOB_ARGS": {"DisplayName": "Job Script Arguments", "type": "string",
"Displayable": true, "Description": "Pass specific arguments to the
Job Script."}, "QUEUE": {"DisplayName": "Queue", "type": "string",
"Displayable": true, "Description": "Queue to which job must be submitted"},
"SUBMISSION_DIRECTORY": {"Description": "Result files will be placed
here by PBS Desktop.", "isDirectory": true, "DisplayName": "Output Directory",
"Displayable": true, "$ref": "#/definitions/file"},
"PRIMARY_FILE": {"Description": "The Job Script to run.",
"DisplayName": "Job Script", "Displayable": true,
"$ref": "#/definitions/file"}, "CHUNK_PLACEMENT": {"DisplayName": "Placement
of Chunks", "Description": "The placement of job chunks.",
"enum": ["pack", "free", "scatter"], "Displayable": true, "value": "free",
"type": "string"}, "MEMORY": {"DisplayName": "Amount of Memory (MB)",
"Description": "The total physical memory requested.",
"Displayable": true, "value": 10, "minimum": 10, "type": "integer"},
"CHUNKS": {"DisplayName": "Number of Chunks", "Description": "The total
number of job chunks.", "Displayable": true, "value": 1, "minimum": 1,
"type": "integer"}, "ApplicationId": {"type": "string", "Displayable": false,
"value": "ShellScript"}, "JOB_NAME": {"DisplayName": "Job Name",
"type": "string", "Displayable": true, "Description": "The name of the job."},
"ApplicationFileExtension": {"items": {"type": "string"}, "type": "array",
"Displayable": false, "value": [".sh", ".py", ".csh"]}}}],
"success": true, "exitCode": "0"}
```

4.2 List of Application Parameters

Display the list of application parameters.

Name

pas-getapp

Description

Use the `pas-getapp` command to return a list of all parameters available for the specified **APPNAME**. This command will also provide information on whether the application parameter is mandatory or optional. The output of this command can be redirected to a file.

Syntax

```
pas-getapp -a APPNAME [ option ]
```

Options

- h**
Display help for the command.
- s SERVERNAME**
Retrieve application parameters for **APPNAME** for the server specified by **SERVERNAME**. If the option is not specified, then the default server will be assumed.
- F JSON**
Print the output format in JSON.

Command Examples

Get the parameters available for the application "optistruct" on the default server

```
pas-getapp -a optistruct
```

Get the parameters available for the application "optistruct" on a non-default server

```
pas-getapp -a optistruct -s 192.168.4.123
```

Get the parameters available for the application "optistruct" on Access Web server

```
pas-getapp -a optistruct -s web_cluster
```

Get the parameters available for the application "optistruct" and redirect the output to a file called /tmp/optistruct_params

```
pas-getapp -a optistruct > /tmp/optistruct_params
```

Command Output Examples

```
pas-getapp -a ShellScript
```

```
ApplicationId=ShellScript
ApplicationName=ShellScript
FILES(false) (FileNameMulti)
MEMORY_PLACEMENT(false) (StringEnumerated) (Value=true)
  [Options:true,false]
NCPUS(true) (Int) (Min:1) (Value=1)
JOB_ARGS(false) (String)
QUEUE(false) (String)
SUBMISSION_DIRECTORY(false) (DirectoryName)
PRIMARY_FILE(true) (File)
CHUNK_PLACEMENT(false) (StringEnumerated) (Value=free)
  [Options:pack,free,scatter]
MEMORY(true) (Int) (Min:10) (Value=10)
CHUNKS(false) (Int) (Min:1) (Value=1)
JOB_NAME(false) (String)
```

4.3 Submit a Job

Submit a job to PBS Professional.

Name

pas-submit

Description

Use the `pas-submit` command to submit a job. Upon successful submission of the job, this command will return the PBS Professional job identifier. The `pas-submit` command accepts input file paths relative to the PAS server location, therefore you must upload job input files to the server before submitting a job. Use the `pas-fup` command to upload any job input files to the server in Access Web.

There are two ways to submit a job using this command:

- The application parameters can be entered manually on the command line.
- The application parameters can be stored in a file. Use the `pas-getapp` command to generate a list of the application parameters, and then edit this list to fill in the appropriate parameter values.

Syntax

```
pas-submit [ option ]
```

Options

- h**
Display help for the command.
- f FILEPATH**
Specify the path of the file that contains the application parameters. Use the `pas-getapp` command to generate this file.
- s SERVERNAME**
Submit a job to the server specified by *SERVERNAME*. If the server is not specified, then the default server will be assumed.
- w**
Use this option to wait until the job is completed and result files are downloaded.

 **Note:** The `-w` option is valid for Access Web only.

- F JSON**
Print the output format in JSON.

Command Examples

These examples assume that the job input files have already been uploaded to the server.

Submit a job to the server *blrec166* by entering all application parameters at the command line

```
pas-submit ApplicationId=ShellScript ApplicationName=ShellScript
```

```
JOB_NAME=hello_world PRIMARY_FILE=/home/tsmith/hello_world.sh MEMORY=100 NCPUS=1
```

Submit a job by specifying the path to the file containing the application parameters

```
pas-submit -f /tmp/parm_file
```

Submit a job to a non-default server

```
pas-submit -f /tmp/parm_file -s 192.168.4.123
```

Submit a job to the Access Web server

```
pas-submit -f /tmp/parm_file -s web_cluster
```

Submit a job to the server hwesuse113-01 passing an application argument of datetime

```
pas-submit ApplicationId=MyApp ApplicationName=MyApp JOB_NAME=MyApp_test  
EXECUTION_TIME='2014-07-30;13:40:00' SHELL_SCRIPT=/home/user1/hello_world.sh  
SUBMISSION_DIRECTORY=/home/user1
```

Submit a job to the Server hwesuse113-01 passing an application argument of boolean

```
pas-submit ApplicationId=MyApp ApplicationName=MyApp JOB_NAME=MyApp_test  
LOGGING=true SHELL_SCRIPT=/home/user1/hello_world.sh  
SUBMISSION_DIRECTORY=/home/user1
```

Command Output Examples

```
pas-submit ApplicationId=ShellScript ApplicationName=ShellScript  
JOB_NAME=ShellScript_test MEMORY=10 NCPUS=1 JOB_SCRIPT=/tmp/hello_world.sh  
SUBMISSION_DIRECTORY=/tmp/PAS_output
```

```
Response from server  
149.hwesuse113-01
```

4.4 Check the Status of a Job

Display the status of a job.

Name

pas-stat

Description

Use the `pas-stat` command to display the status of a job (similar to the PBS Professional command `qstat -f`). You can display the status of a particular job or the status of all jobs.

Syntax

```
pas-stat [ option ]
```

Options

- h**
Display help for the command.
- j *JOBID***
Get the status of *JOBID*. If this option is not specified, then the status of all jobs will be returned.
- s *SERVERNAME***
Get the status of a job on the server specified by *SERVERNAME*. If this option is not specified, then the default server will be assumed.
- F *JSON***
Print the output format in JSON.

Command Examples

Check the status of a specific job on the default server

```
pas-stat -j 248.blrec166
```

Check the status of all jobs on the default server

```
pas-stat
```

Check the status of all jobs on a non-default server

```
pas-stat -s 192.168.4.90
```

Check the status of a specific job on a non-default server

```
pas-stat -j 248.blrec166 -s 192.168.4.90
```

Command Output Examples

```
pas-stat -j 129.hwesuse113-01
```

```
Job Id: 129.hwesuse113-01
pbs_job_state : Q
pbs_server : hwesuse113-01
pbs_Account_Name : n/a
pbs_Job_Name : test1
pbs_Job_Owner : ebleicher@hwesuse113-01.prog.altair.com
pbs_Checkpoint : u
pbs_ctime : Wed Mar 12 13:51:37 2014
pbs_Error_Path : hwesuse113-01.prog.altair.com:/var/spool/pas/temp/test1.er
pbs_exec_host : n/a
pbs_exec_vnode : n/a
pbs_Hold_Types : n
pbs_Join_Path : n
pbs_Keep_Files : oe
pbs_Mail_Points : a
pbs_mtime : Wed Mar 12 13:51:38 2014
pbs_Output_Path : hwesuse113-01.prog.altair.com:/var/spool/pas/temp/test1.ou
pbs_Priority : 0
pbs_qtime : Wed Mar 12 13:51:38 2014
pbs_Rerunable : True
pbs_stime : n/a
pbs_session_id : 0
pbs_sandbox : private
pbs_jobdir : n/a
pbs_stagein : runtime@hwesuse113-01:/var/spool/pas/repository/applications/
ShellScript/runtime,pbs_spawn@hwesuse113-01:/opt/altair/pas/2020.2/pas/
pbs_spawn,hello_world.sh@hwesuse113-01:/users/ebleicher/hello_world.sh
pbs_stageout : *@hwesuse113-01:/stage/ebleicher/test1
pbs_Variable_List :
PAS_APPLICATION=ShellScript,PAS_CHUNKS=1,PAS_CLIENT_HOST=127.0.0.2,
PYTHONPATH=/opt/pbs/default/bin/pbs_python,
PAS_SUBMISSION_DIRECTORY=pbscp://hwesuse113-01/stage/ebleicher/test1,
JOB_ARGS=,AIF_MODE=enterprise,
PAS_JOB_SCRIPT=pbscp://hwesuse113-01/users/ebleicher/hello_world.sh,
PAS_SERVER_PORT=17084,PAS_MEMORY=1000,PAS_CHUNK_PLACEMENT=free,
JOB_SCRIPT=pbscp://hwesuse113-01/users/ebleicher/hello_world.sh,
PAS_MEMORY_PLACEMENT=true,PBS_HOME=/var/spool/PBS,
PAS_HPCBP_ARGUMENTS=runtime/start.py,PAS_JOB_NAME=test1,
PAS_HPCBP_EXECUTABLE=/opt/pbs/default/bin/pbs_python,
PAS_PYTHON_PATH=/opt/pbs/default/bin/pbs_python,PAS_JOB_NAME=test1,
PAS_NCPUS=10,PAS_SERVER_VERSION=2020.2,AIF_USER=ebleicher,
PBS_O_QUEUE=workq,PBS_O_HOST=hwesuse113-01.prog.altair.com
pbs_comment : Can Never Run: Insufficient amount of resource
ncpus (R: 10 A: 1 T: 1)
pbs_etime : Wed Mar 12 13:51:38 2014
pbs_SubStatus : 11
pbs_array : n/a
pbs_array_state_count : n/a
pbs_array_indices_submitted : n/a
pbs_array_indices_remaining : n/a
```

4.6 Download Job Results

Download the files related to the given *JOBID* to the *TARGET_LOCATION*.

Name

pas-getres

Description

Use the `pas-getres` command to download the files related to the given *JOBID* to the *TARGET_LOCATION*. The job must be in a running or finished state to execute this command. If the job was submitted through Altair Access the job submission directory will be zipped and downloaded. Otherwise the standard output file, standard error file, and any other files specified in the stage-out list will be zipped.

 **Note:** This command is valid for Access Web only.

Syntax

```
pas-getres -j JOBID -o TARGET_LOCATION [ option ]
```

 **Note:** *TARGET_LOCATION* must have an ending slash or backslash:

```
c:\temp\  
/home/user1/temp/
```

Options

-h
Display help for the command.

-s *SERVERNAME*
Download job results for a job on the server specified by *SERVERNAME*. If the server is not specified, then the default server will be assumed.

Command Examples

 **Note:** Executing these commands will download the job results files and create a zip file called `C:\download\results\176-blrec166.zip` on the client host.

Download the job results of a given job to the specified target location

```
pas-getres -j 176.blrec166 -o C:\download\results\  
_____
```

Download the job results of a given job on a non-default server

```
pas-getres -j 176.blrec166 -o C:\download\results\  
_____ -s 192.168.4.123
```

Command Output Examples

```
pas-getres -j 176.blrec166 -o C:\download\results\  
Job Id 176.blrec166 downloaded successfully
```

4.7 Delete a Job

Delete a given *JOBID* from the Workload Management System.

Name

pas-del

Description

Use the `pas-del` command to delete a given *JOBID* from the Workload Management System. The job can be in any of the following states:

Table 4: Valid job states for deleting a job

| Job State | Description |
|-----------|---|
| B | Job arrays only: job array has begun. |
| H | Job is held. A job is put into a held state by the server or by a user or administrator. A job stays in a held state until it is released by a user or administrator. |
| Q | Job is queued, eligible to run or be routed. |
| R | Job is running. |
| W | Job is waiting for its requested execution time to be reached or job specified a staging request which failed for some reason. |

Syntax

```
pas-del -j JOBID [ option ]
```

Options

-h

Display help for the command.

-s *SERVERNAME*

Delete a job from the server specified by *SERVERNAME*. If the server is not specified, then the default server will be assumed.

Command Examples

Delete a job from the default server

```
pas-del -j 243.blrec166
```

Delete a job from a non-default server

```
pas-del -j 243.blrec166 -s 192.168.4.123
```

Command Output Examples

```
pas-del -j 151.hwesuse113-01
```

```
Job(151.hwesuse113-01) deleted successfully
```

4.8 List of Custom Actions

Get the list of available custom action.

Name

pas-custom-action-list

Description

Use the `pas-custom-action-list` command to get the list of available custom actions for the *JOBID*.

 **Note:** This command is valid for Access Desktop only.

Syntax

```
pas-custom-action-list -j JOBID [ option ]
```

Options

- h**
Display help for the command.
- s *SERVERNAME***
Get a list of custom actions associated with a job from the PAS server specified by *SERVERNAME*. If the server is not specified, then the default server will be assumed.
- F *JSON***
Print the output format in JSON.

Command Examples

Get a list of custom actions associated with a job from the default server

```
pas-custom-action-list -j 243.blrec166
```

Get a list of custom actions associated with a job from a non-default server

```
pas-custom-action-list -j 243.blrec166 -s 192.168.4.123
```

Command Output Examples

```
pas-custom-action-list -j 151.hwesuse113-01
```

```
ApplicationId : CustomActionApp
CustomActions:
  CustomAction:
    Executable :
      Name : SendSignal.py
      Language : PYTHON
    DisplayName : Send Signal
    Name : SEND_SIGNAL
    Arguments :
```

```
SIGNAL :  
  DisplayName : SIGNAL  
  type : string  
  required : [SIGNAL]  
ShowOutput : True  
JobStates : [RUNNING, RUNNING, WAITING, FINISHED, QUEUED, SUCCEEDED]  
Description : Send Signal
```

4.9 Execute a Custom Action for a Job

Execute a custom action for a job.

Name

pas-execute-custom-action

Description

Use the `pas-execute-custom-action` command to execute a *CUSTOMACTION* for a *JOBID*.

 **Note:** This command is valid for Access Desktop only.

Syntax

```
pas-execute-custom-action -j JOBID -N CUSTOMACTION [ argument_name=value,  
argument_name=value ... ] [ option ]
```

 **Note:** The *argument_name=value* are the arguments that are being passed to the custom action, for example, *SEND_SIGNAL=STOP*. Not every custom action will have arguments, so they are optional.

Options

-h

Display help for the command.

-s *SERVERNAME*

Execute the custom action for a job that has been submitted to the server specified by *SERVERNAME*. If the server is not specified, then the default server will be assumed.

-F *JSON*

Print the output format in JSON.

Command Examples

Execute custom action list for a job from the default server

```
pas-execute-custom-action -j 243.blrec166  
-N SEND_SIGNAL SIGNAL=STOP
```

Execute custom action for a job from a non-default server

```
pas-execute-custom-action -j 243.blrec166 -s 192.168.4.123  
-N SEND_SIGNAL SIGNAL=STOP
```

Command Output Examples

```
pas-execute-custom-action -j 4461 -N SEND_SIGNAL SIGNAL=STOP -s 192.168.4.123
```

```
isStdErrTruncated : False
isStdOutTruncated : False
stdOut:RXhlY3V0aW5nIHNjcmlwdDogL3Zhci9zcG9vbC9wYnN3b3Jrcy9wYXMvMjAxOC4y
L2hvbWUvZGF0YS9wYXMvdGFyZ2V0cy9sb2NhbGhvc3Qvcml2YXRlL2dlbm
VyYXRlZC9qc29uLWFwcGxpY2F0aW9ucy9DdXN0b21BY3Rpb25BcHAv3VibW10dGltZS9TZW5k
U2lnbmFsLnB5IHdpdGggc2lnbmFsIDog U1RPUAo=
exitCode : 0
```

Commands for Altair Access file operations.

This chapter covers the following:

- [5.1 Create a Directory](#) (p. 51)
- [5.2 Upload a File](#) (p. 52)
- [5.3 Download a File](#) (p. 53)
- [5.4 Delete a File](#) (p. 55)
- [5.5 Compress a File](#) (p. 56)
- [5.6 List of Files](#) (p. 57)

All commands will connect to the first server (cluster) registered after installation (this server is considered the default server). Most commands provide an option to specify a nondefault PAS server.

5.1 Create a Directory

Create a directory on a server.

Name

pas-fmkdir

Description

Use the `pas-fmkdir` command to create a *DIRECTORY* on a server.

Syntax

```
pas-fmkdir -d DIRECTORY [ option ]
```

Options

- h**
Display help for the command.
- j *JOBID***
Make the *DIRECTORY* in the *JOBID*'s execution directory. The *JOBID* must be in a running state.
- s *SERVERNAME***
Create a directory on the server specified by *SERVERNAME*. If this option is not specified, then the default server will be assumed.
- F *JSON***
Print the output format in JSON.

Command Examples

Create a directory on the default server

```
pas-fmkdir -d /users/tsmith/ShellScript_output
```

Create a directory on a non-default server

```
pas-fmkdir -d /users/tsmith/ShellScript_output -s 192.168.4.123
```

Create a directory in the running job's execution directory

```
pas-fmkdir -d ShellScript_output -j 347.hwesuse113-01
```

Command Output Examples

```
pas-fmkdir -d C:\testDir  
Directory <C:\testDir> Created successfully
```

5.2 Upload a File

Upload a file to a directory.

Name

pas-fup

Description

Use the `pas-fup` command to upload a **FILE** to a **DEST** on a server.

Syntax

```
pas-fup -f FILE -o DEST [ option ]
```

Options

-h

Display help for the command.

-j JOBID

Upload a **FILE** to the **JOBID**'s execution directory.

-s SERVERNAME

Upload a **FILE** to the server specified by **SERVERNAME**. If this option is not specified, then the default server will be assumed.

Command Examples

Upload a file to the default server

```
pas-fup -f C:\foobar.txt -o /users/tsmith/foobar.txt
```

Upload a file to a non-default server

```
pas-fup -f C:\foobar.txt -o /users/tsmith/foobar.txt -s 192.168.4.123
```

Upload a file to the job's execution directory

```
pas-fup -j 87.blrec3vm12 -f /stage/vis.zip -o vis.zip
```

Command Output Examples

```
pas-fup -f C:\foobar.txt -o /users/tsmith/foobar.txt
```

```
Uploaded successfully
```

5.3 Download a File

Download a file from a server.

Name

pas-fdown

Description

Use the `pas-fdown` command to download a **FILE** from a server.

Syntax

```
pas-fdown -f FILE [ option ]
```

Options

- h**
Display help for the command.
- j JOBID**
Download a **FILE** from the **JOBID**'s execution directory. The job must be in a running state.
- o DEST**
Download a **FILE** from the server to the target location **DEST**. If this option is not specified, the **FILE** will be downloaded to the current working directory.
- s SERVERNAME**
Download a **FILE** from the server specified by **SERVERNAME**. If this option is not specified, then the default server will be assumed.

Command Examples

Download a file from the default server

```
pas-fdown -f /users/tsmith/results.out -o c:\temp\results.out
```

Download a file from a non-default server

```
pas-fdown -f /users/tsmith/results.out -o c:\temp\results.out  
-s 192.168.4.123
```

Download a file from a running job's execution directory

```
pas-fdown -f ShellScript_test.o325 -o c:\temp\ShellScript_test.o325  
-j 325.blrec166
```

Command Output Examples

```
pas-fdown -f /users/tsmith/results.out -o c:\temp\results.out
```

Downloaded successfully

5.4 Delete a File

Delete a file from a server.

Name

pas-fdel

Description

Use the `pas-fdel` command to delete a **FILE** located on the server.

Syntax

```
pas-fdel -f FILE [ option ]
```

Options

- h**
Display help for the command.
- j JOBID**
Delete a **FILE** located in the **JOBID**'s execution directory. The job must be in a running state.
- s SERVERNAME**
Delete a **FILE** located on the server specified by **SERVERNAME**. If this option is not specified, then the default server will be assumed.

Command Examples

Delete a file located on the default server

```
pas-fdel -f /users/tsmith/bartest.fem
```

Delete a file located on the non-default server

```
pas-fdel -f /users/tsmith/bartest.fem -s 192.168.4.123
```

Delete a file located in a running job's execution directory

```
pas-fdel -f hello_world.sh -j 329.hwesuse113-01
```

Command Output Examples

```
pas-fdel -f /tmp/PAS_output/ShellScript_test/ShellScript_test.e149  
File (/tmp/PAS_output/ShellScript_test/ShellScript_test.e149)  
deleted successfully
```

5.5 Compress a File

Compress a file located on a server and save the compressed file to a specified destination.

Name

pas-fcompr

Description

Use the `pas-fcompr` command to compress a **FILE** located on a server to **DEST**.

Syntax

```
pas-fcompr -f FILE -o DEST [ option ]
```

Options

- h**
Display help for the command.
- j JOBID**
Compress a **FILE** located in the **JOBID**'s execution directory. The job must be in a running state.
- s SERVERNAME**
Compress a **FILE** located on the server specified by **SERVERNAME**. If this option is not specified, then the default server will be assumed.

Command Examples

Compress a file located on the default server and create a zip file on the default server

```
pas-fcompr -f /users/tsmith/bar.fem -o /users/tsmith/bar.zip
```

Compress a file located on a non-default server and create a zip file on that server

```
pas-fcompr -f /users/tsmith/bar.fem -o /users/tsmith/bar.zip  
-s 192.168.4.123
```

Compress a file located in a running job's execution directory and created a zip file on the default server

```
pas-fcompr -f ShellScriptTest.o332 -o /users/tsmith/ShellScriptTest.zip  
-j 332.blrec166
```

Command Output Examples

```
pas-fcompr -f /tmp/PAS_output/ShellScript_test/ShellScript_test.o149  
-o /tmp/j149.zip
```

```
File(/tmp/PAS_output/ShellScript_test/ShellScript_test.o149)  
compressed successfully
```

5.6 List of Files

Display a list of files from the server.

Name

pas-flist

Description

Use the `pas-flist` command to display a list of **FILES** located on the server.

Syntax

```
pas-flist -f FILE [ option ]
```

Options

- h**
Display help for the command.
- j JOBID**
List **FILES** in the job's execution directory. The job must be in a running state.
- s SERVERNAME**
List **FILES** located on the server specified by **SERVERNAME**. If the option is not specified, then the default server will be assumed.
- F JSON**
Print the output format in JSON.

Command Examples

List files in a directory located on the default server

```
pas-flist -f /stage/tsmith/test1
```

List files in a directory located on a non-default server

```
pas-flist -f /stage/tsmith/test1 -s 192.168.4.123
```

List a specific file located on the default server

```
pas-flist -f /stage/tsmith/test1/test1.o2
```

List a specific file in the job's execution directory

```
pas-flist -f dirlistener.e361 -j 248.blrec166
```

List all files in the job's execution directory

```
pas-flist -f . -j 248.blrec166
```

Command Output Examples

```
pas-flist -f . -j 335.hwesuse113-01  
hello_world.sh  
pbsjob.env  
pbs_spawn  
ShellScript_test.e335  
runtime  
ShellScript_test.o335
```