

Altair Access Desktop 2020.1

# Administrator's Guide



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PBS Desktop™ ©2008-2012 is now part of Altair Access, specifically Altair Access desktop, which also has Altair Access web and Altair Access mobile

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Latest features available with Altair Access™ Desktop.

## **Connect to Access Web via HTTPS**

You can connect to Access Web over HTTPS and it allows you to submit and monitor jobs.



**Note:** This is introduced as a beta feature in Access Desktop 2020.1.

## **Display icon for the applications**

Access Desktop can now resize and convert the custom icon set for an application to display in the application GUI and in the context menu.

## **Hand off session to a Desktop Viewer**

Remote Sessions opened via Access Web can be handed off to Access Desktop when Access Desktop is installed on the local machine. Running sessions from the local machine improves performance and allows tuning of the session image quality and compression level.



**Note:** This is introduced as a beta feature in Access Desktop 2020.1.

Use Access Desktop to submit jobs to a Workload Manager.

This chapter covers the following:

- [2.1 About Access Desktop](#) (p. 5)
- [2.2 System Requirements](#) (p. 6)
- [2.3 Supported Product Configurations](#) (p. 7)
- [2.4 Document Conventions](#) (p. 8)
- [2.5 Deployment Options](#) (p. 9)
- [2.6 Prerequisites for Installing Access Desktop](#) (p. 10)

## 2.1 About Access Desktop

Use to submit jobs to a Workload Manager.

Altair Access Desktop provides a simple, powerful, and consistent interface for submitting and monitoring jobs on remote clusters, clouds, or other resources. Engineers and researchers can now focus on core activities and spend less time learning how to run applications or moving data around. The Access Desktop remote visualization and collaboration capabilities bring access to an expensive, highend 3D visualization datacenter hardware right to the user. Access Desktop provides an ability to visualize the results by extracting plot and animation data. You can view plots for running jobs as well as for jobs which have been successfully completed. You can download and analyze animations using the Altair HyperView Player.

### Features

- Novice to Expert: simple and powerful
- Same UX: desktop and web
- Secure: protected access to HPC resources
- End-to-end: submit, monitor progress, steer, fix, and rerun jobs
- Save time: Simplify job submission and management thanks to a powerful GUI with smart, simplified interfaces
- Be more productive: Spend more time focused on work and not IT tasks - for example, monitor jobs graphically without having to download huge job files
- Increase ROI: Consolidate access to applications and optimize license availability
- Reduce errors and improve consistency: Embed your company's best-practice "know how" directly into Application Definitions used for job submission

## 2.2 System Requirements

Supported platforms and hardware requirements for using Access Desktop.

### Supported Platforms

Access Desktop is supported on the following Windows 64-bit platforms:

- Windows 7
- Windows 10

### Hardware Requirements

Access Desktop requires a minimum hardware configuration:

Hardware	Minimum Requirement	Recommended
CPU	2 CPU cores with a minimum speed of 2.5 GHz	4 CPU cores with a minimum speed of 2.5 GHz
Memory (Physical)	2 GB	8 GB
Disk Space	2 GB	4 GB

## 2.3 Supported Product Configurations

Supported product configurations for using Access Desktop.

The currently supported Access Desktop product configurations are:

Access Desktop	PBS Professional
2020.1	<ul style="list-style-type: none"><li>• 19.2.5</li><li>• 19.2.4</li><li>• 19.2.3</li><li>• 19.2.2</li><li>• 19.1.1</li><li>• 18.2.4</li></ul>



## 2.4 Document Conventions

Common typographical conventions for Access Desktop technical publications.

### *PAD\_HOME*

The Access Desktop home directory which contains configuration and logging files. Default location is `C:\Users\<user name>\Altair_Access\home\`, however this can be overridden during the installation of Access Desktop.

### *PAD\_EXEC*

The Access Desktop execution directory which contains binaries and scripts. Default location is `C:\Program Files\altair\Altair Access\2020.1\exec\`, however this can be overridden during the installation of Access Desktop.

### *PA\_HOME*

The Altair Access Web home directory which contains configuration and logging files. Default location is `/var/spool/pbsworks/2020.1/access/home/`, however this can be overridden during the installation of Access Web.

### *PA\_EXEC*

The Altair Access Web execution directory which contains binaries and scripts. Default location is `/opt/altair/pbsworks/2020.1/access/exec/`, however this can be overridden during the installation of Access Web.

## 2.5 Deployment Options

There are three deployment options. Review the following sections to determine which deployment option best suits your site's needs:

To use Access Desktop a supported version of PBS Professional must be running on your HPC cluster. Additionally, application definitions must be installed (the location where these application definitions are installed varies depending upon the deployment option chosen). Legacy application definitions can be used with Access Desktop, however some specific changes are required. Alternately, Altair provides a number of default application definitions that can be used with Access Desktop and can be obtained through your normal Altair support channels. Before you can login and submit jobs, a cluster must be added to Access Desktop through its user interface.

### **Deployment Option 1 - Install and Configure Access Desktop on a Single Workstation**

This deployment option is best suited for sites where only a single user will be using Access Desktop. For this option, Access Desktop is installed on the user's workstation, clusters are added via the user interface, and then application definitions are copied to a specific location on the workstation. This option requires some level of familiarity about PBS Professional and application definitions to add clusters and onboard application definitions.

### **Deployment Option 2 - Install and Configure Access Desktop and Export the Configuration for a Multi-User Site**

This deployment option is best suited for multi-user sites. This option requires a system administrator to install Access Desktop, add clusters, and onboard application definitions (see Deployment Option 1). Then the installation configuration, including clusters and application definitions, is exported to a zip file. The zip file is then used to install Access Desktop on all the other user's workstations eliminating the need to add clusters and application definitions at each workstation. An advantage of this option is that a non-administrative user can perform the install using the zip file without assistance. A disadvantage for this option is that whenever an application definition is changed, all workstations will need to be updated with the change.

### **Deployment Option 3 - Central Application Definition Server Deployment**

This deployment option allows the application definitions to be stored and maintained in a central repository. This option requires that Access Web be installed on a Linux machine (typically the PBS Professional Server). Application definitions are copied to a specific location on this machine which is considered the central repository. A multi-user deployment can then be performed with a slight change to the workflow - when clusters are added to Access Desktop, the location of the central repository must be provided.

## 2.6 Prerequisites for Installing Access Desktop

Prerequisites for installing Access Desktop.

### **PBS Professional**

Ensure that a supported version of PBS Professional is installed and running on your HPC cluster.

### **Application Definitions**

Legacy application definitions can be used with Access Desktop, however some specific changes are required. Alternately, Altair provides a number of default application definitions that can be used with Access Desktop and can be obtained through your normal Altair support channels. Refer to *Diving Into Application Definitions* for information about application definitions.

### **Central Repository of Application Definitions**

If you are deploying Access Desktop using a central repository of application definitions, then a supported version of Access Web must be installed and running properly.

### **Previous Versions of Access Desktop**

Uninstall previous versions of Access Desktop.

Install Access Desktop based on your chosen deployment option.

This chapter covers the following:

- [3.1 Install Access Desktop for Deployment Option 1](#) (p. 12)
- [3.2 Install Access Desktop for Deployment Option 2](#) (p. 19)
- [3.3 Install Access Desktop for Deployment Option 3](#) (p. 30)

## 3.1 Install Access Desktop for Deployment Option 1

Install in a single user environment.

Install Access Desktop on the user's workstation, add clusters, and then copy application definitions for each cluster. You can also create job profiles, a customized shortcut for submitting a job, for solvers that are used on a regular basis by your users.

### 3.1.1 Install Access Desktop

Install Access Desktop on a workstation.

To ensure a successful installation, review the [System Requirements](#).

Installation of Access Desktop is very simple and quick. A binary or executable needs to be downloaded or obtained using your usual Altair support channels. You will be asked to provide an installation directory and a license server to install the product.

1. Choose one of the following options:


- To install in GUI mode, right-click the installation executable and choose the **Run as administrator** option.
- To install from the command line in silent mode, open a command prompt as a Windows administrator and enter the command:

```
AltairAccessDesktop_<Version>_<Build  
ID>_<YYYYMMDD>_<Timestamp>.exe -i silent  
-DUSER_INSTALL_DIR="<INSTALL_PATH>"  
-DALTAIR_SPM_LICENSE_PATH=<PORT@HOSTNAME>
```



**Note:** Where <INSTALL\_PATH> is where the binaries will be installed (make sure that the installation directory is surrounded by double quotes) and <PORT@HOSTAME> is the license server in the format port@hostname.

2. Follow the installation instructions.


Once the installation is complete, a shortcut is created and appears on the desktop represented by the icon .


### 3.1.2 Add a Cluster Using SSH

Add and establish a connection to the HPC cluster using SSH by registering it so that you may begin submitting and monitoring jobs.

To add a cluster using SSH you will need:

- A valid set of credentials to connect to the PBS Server.

1. Open the Windows system tray.
2. Double-click the Access Desktop icon .

3. Click .
4. Select **Clusters**.  
A **Clusters** dialog box is displayed.

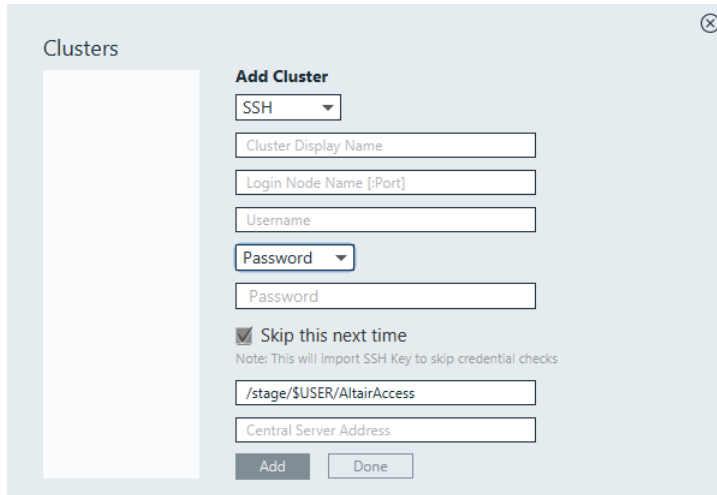


Figure 1: Add Cluster

5. For Cluster Display Name, enter a name for the cluster as it will be known within Access Desktop.
6. For Login Node Name, enter the hostname of the machine where the PBS Server is installed.



**Note:** If the SSH port is different from the default port number: 22, then please add the port number along with the hostname of the PBS Server.

7. For Username, enter your username.
8. Choose one of the following options:
  - Select Password from the drop down box and enter your password.
  - Select SSH Key from the drop down menu and import the RSA private SSH key file.
9. Optional: If you have chosen to enter your password, you may enable **Skip this next time**, so that you do not have to enter your credentials again.



**Note:** To make sure that **Skip this next time** works, ssh login using keys should work for your account on login node.

An SSH key is generated and stored allowing you to login to the cluster without having to enter your credentials.

10. Enter the location on the PBS Server where job files will be staged when a job is running.
11. Choose one of the following options:
  - If you have chosen to store your application definitions in a central repository rather than on your workstation, enter the URL for accessing the central repository in the format `https://<HOSTNAME>:4443` where <HOSTNAME> is the hostname of the machine where Access Web is installed.



**Note:** If the central repository is being hosted on the PBS Server, then the URL is automatically populated.

- If you have chosen to store your application definitions locally, then remove the URL.

**12.** Click **Add**.



**Tip:** Repeat the previous steps to add additional clusters.

**13.** Click **Done**.

**14.** The cluster is added successfully and it displays with a green tick mark.



### 3.1.3 Add a Cluster Using HTTPS

Add and establish a connection to the Access Web server using HTTPS so that you may begin submitting and monitoring jobs.

To add a cluster using HTTPS you will need:

- The URL of an Access Web server with a valid set of credentials to connect.

This option uses HTTPS for all communication between Access Desktop and Access Web.

1. Open the Windows system tray.
2. Double-click the Access Desktop icon .
3. Click .
4. Select **Clusters**.  
A **Clusters** dialog box is displayed.
5. Select **HTTPS** using the drop down box.

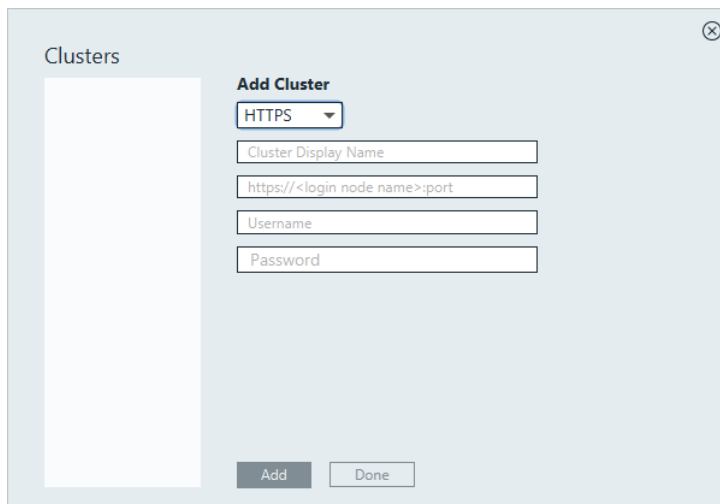


Figure 2: Clusters

6. For Cluster Display Name, enter a name for the cluster as it will be known within Access Desktop.

7. Enter the Access Web URL in the format `https://<login node name>:4443` where <LOGIN NODE NAME> is the hostname of the machine where Access Web is installed.
8. For Username, enter your username.
9. For Password, enter your password.
10. Click **Add**.




**Tip:** Repeat the previous steps to add an additional HTTPS cluster.

11. Click **Done**.

The cluster is added successfully and it displays with a green tick mark.

- 12.

Click  on the top-right corner.

The application updates the server and the solver applications automatically.

### 3.1.4 Copy Application Definitions to a Local Repository

Copy any application definitions required for an HPC cluster to a local repository.

Specific changes must be made to legacy application definitions to make use of all features of Access Desktop. For more information see [Onboard an Application Definition](#). Alternately, Altair provides a number of default application definitions that can be used with Access Desktop. These application definitions can be obtained through your normal Altair support channels.



1. Navigate to the following location on the workstation: `C:\Users\%username%\Altair_Access\home\apps\PAS\data\pas\targets\.`  
where %username% is the username of the user who logged into the workstation and added the cluster.  
There should be a directory for each cluster that was added to Access Desktop and the name of the directory should be the same as the Cluster Display Name that was entered when you added the cluster.
2. Navigate to `<CLUSTER_DISPLAY_NAME>\repository\applications\.`  
where <CLUSTER\_DISPLAY\_NAME> is the name that was entered for the cluster when it was added to Access Desktop.
3. Choose one of the following options:
  - Copy any legacy application definitions required for this HPC cluster to this location.
  - Copy any Altair default application definitions required for this HPC to this location.
4. Navigate to `C:\Users\%username%\Altair_Access\home\apps\PAS\data\pas\targets\<CLUSTER_DISPLAY_NAME>\repository\`  
where %username% is the username of the user who logged into the workstation and added the cluster and <CLUSTER\_DISPLAY\_NAME> is the name that was entered for the cluster when it was added to Access Desktop.
5. Choose one of the following options:
  - Copy the legacy site configuration file `site-config.xml` to this location.




- Copy the Altair default site configuration file `site-config.xml` to this location.

6. For each application in the site configuration file, update the value of the XML element `<Executable>` to the location of the application's executable.

```
<Application id="Abaqus">
  <ApplicationVersions>
    <ApplicationVersion>
      <Option>13.0</Option>
      <Executable>/opt/scripts/abaqus</Executable>
    </ApplicationVersion>
  </ApplicationVersions>
</Application>
```


7. Repeat steps 1 through 6 for all clusters that were added.
8. Open the Windows system tray.
9. Right-click the icon , and choose **Exit** from the menu.
10. Double-click the  shortcut that appears on the desktop.

 **Note:** The following steps are not required if you are logging in using an SSH key.

11. Login to a cluster by clicking its name from the cluster list located on the left of the Clusters dialog window.
12. Enter your login credentials and click **Login**.
13. Repeat steps 11 and 12 to login to additional clusters.
14. Click the **X** on the top-right corner of the Clusters dialog window.  
The application definitions associated with the cluster are now accessible to Access Desktop.

## 3.1.5 Create a Job Profile

Create a job profile, a customized shortcut for submitting a job.

Open the Windows system tray and double-click the Access Desktop icon .

If you submit multiple jobs to the same application with the same arguments, it makes sense for you to create a job profile that has these arguments pre-populated for you - streamlining the process of job submission.

1. Click .
2. Select **Show Job Profiles**.

A list of solvers (Type = Application) and job profiles (Type = Profile) are displayed.

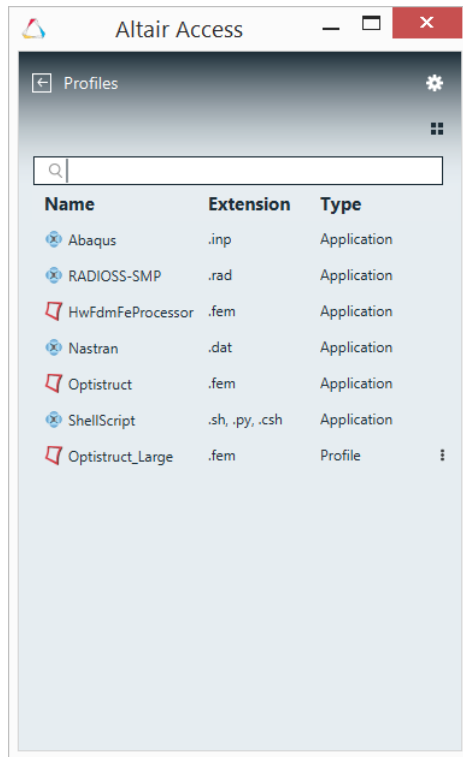


Figure 3: Profile List

3. Double-click a solver.

A job submission form is displayed containing the solver arguments.

4. Choose which cluster to add the job profile to by clicking the **Select server** menu and selecting a cluster.

5. Populate the solver arguments with values.

When you use a job profile to submit a job, solver arguments may be modified before the job is submitted. You can override any values that have been saved in the job profile or you can populate arguments that were not populated while creating the job profile.

6. Click **Save As Profile**.

7. Enter a name for the profile.

8. Click **OK**.

The job profile is saved and is displayed in the list.

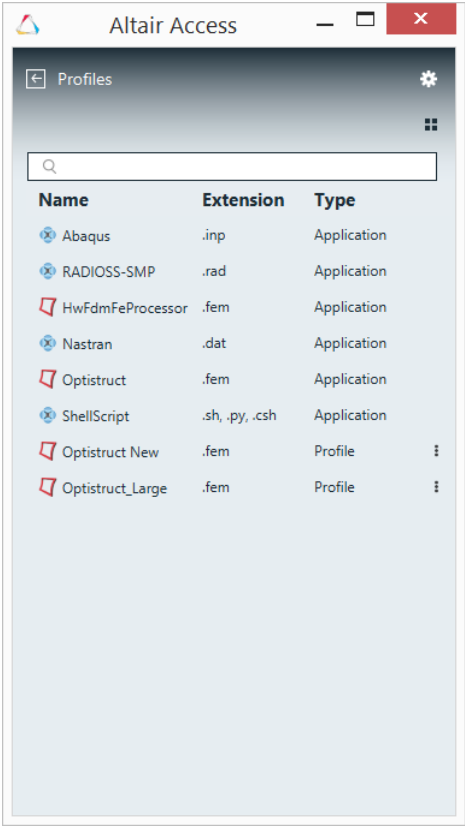



Figure 4: New Job Profile

## 3.2 Install Access Desktop for Deployment Option 2

Install in a multi-user environment.

This deployment option is best suited for sites where a small number of users will be using Access Desktop. For this option, a single user deployment is done on a workstation. Using Access Desktop, the installation configuration including clusters, application definitions and job profiles is exported to a zip file. The zip file is then used to install Access Desktop on all the other user's workstations eliminating the need to add clusters and application definitions at each workstation. One disadvantage for this deployment option is that whenever an application definition is changed, all workstations will need to be updated with the change.

 **Note:** The section 3.2.1 to 3.2.5 will be done by Application Definition Author and the section 3.2.6 can be done by a user.

### 3.2.1 Install Access Desktop

Install Access Desktop on a workstation.


To ensure a successful installation, review the [System Requirements](#).

Installation of Access Desktop is very simple and quick. A binary or executable needs to be downloaded or obtained using your usual Altair support channels. You will be asked to provide an installation directory and a license server to install the product.


1. Choose one of the following options:

- To install in GUI mode, right-click the installation executable and choose the **Run as administrator** option.
- To install from the command line in silent mode, open a command prompt as a Windows administrator and enter the command:

```
AltairAccessDesktop_<Version>_<Build  
ID>_<YYYYMMDD>_<Timestamp>.exe -i silent  
-DUSER_INSTALL_DIR="<INSTALL_PATH>"  
-DALTAIR_SPM_LICENSE_PATH=<PORT@HOSTNAME>
```

 **Note:** Where <INSTALL\_PATH> is where the binaries will be installed (make sure that the installation directory is surrounded by double quotes) and <PORT@HOSTAME> is the license server in the format port@hostname.

2. Follow the installation instructions.

Once the installation is complete, a shortcut is created and appears on the desktop represented by the icon .

## 3.2.2 Add an HPC Cluster

Connect to an HPC cluster so that you can monitor and administer the cluster.

To monitor jobs and nodes via the Monitor tab and configure Workload Manager settings via the Configure tab, you must first add an HPC cluster. Cluster management for the Monitor services and the Configure services are mutually exclusive, therefore you must manage the clusters for those services independently - i.e, if you add a cluster via the Monitor tab, that cluster is not available in the Configure tab and vice versa.

The user who adds a cluster via the Monitor tab is granted access to the cluster along with any users who have been given managerial privileges. No other users have access to that cluster unless a Manager grants a non-managerial role access to that cluster.

When a user adds a cluster via the Configure tab, all users are granted access to that cluster.

To access and connect to an HPC cluster, the cluster must first be added to Access Desktop. When you add a cluster, the hostname or IP address of the machine hosting the PBS Server must be provided, and then you can connect to the HPC by one of two options:

1. without providing the credentials of a user.



**Note:** Access Desktop assumes that SSH key-based authentication, between the machine where the Access Desktop services are installed and the machine hosting the PBS Server, has been configured for the user account that is the PBSWorks Service User (as defined during the installation of Access Desktop). Access Desktop attempts to connect to the machine hosting the PBS Server using the PBSWorks Service User username and SSH key. If the username or SSH key cannot be verified, an error message is displayed and the credentials of a valid user on the machine hosting the PBS Server must be entered (Option 2).

2. by providing the credentials of a valid user on the machine hosting the PBS Server.

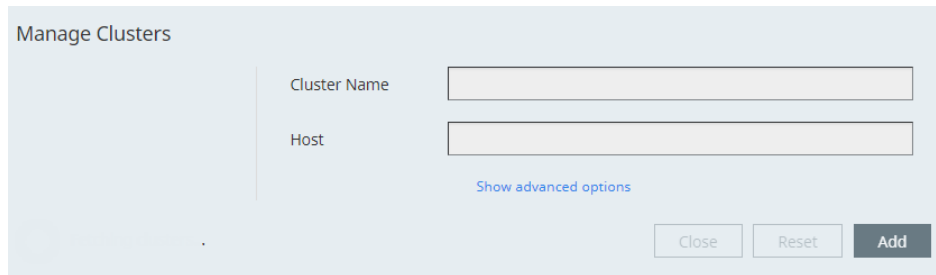
Once the cluster is added, subsequent administrative actions are performed as the credentials utilized while adding the cluster. It is recommended to add the cluster using the credentials of someone with PBS Manager privileges. Connecting to a cluster using non-managerial credentials will severely limit the administrative actions that can be performed, however monitoring capabilities will not be affected.



**Note:** If the machine hosting the PBS Server has been configured to run SSH on a non-default port (default is 22), additional information is necessary to add the cluster.

1. Choose one of the following options:
  - Click the **Monitor** tab to monitor and manage HPC cluster jobs and nodes.
  - Click the **Configure** tab to configure an HPC by changing Workload Manager settings, queues and resources.
2. Click **Manage Clusters**.

A dialog box appears where information about the cluster is entered.



Manage Clusters

Cluster Name

Host

[Show advanced options](#)

Figure 5: Manage Clusters

3. For Cluster Name, enter the name of the cluster as it will appear in the Access Desktop web application.

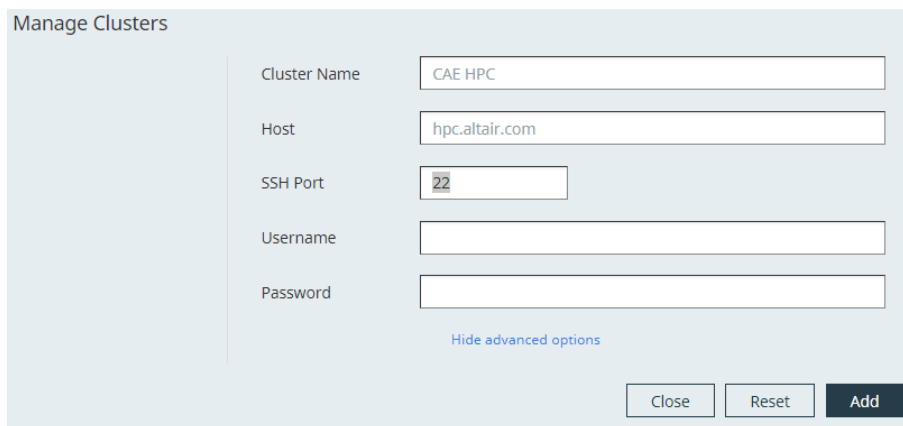
The cluster name must be 20 characters or less.

**Tip:** Use the unique name supplied during the installation of the Analyze Data Collector so that analytics data is tracked separately for PBS Complexes having the same Fully Qualified Domain Name (FQDN).

4. For Host, enter the cluster's host name by entering its:
  - IP address - a four-part number string such as 18.72.0.3.
  - Host name - a text string such as hpc.altair.com.
5. Click **Add**.

Access Desktop attempts to add the cluster as the PBSWorks Service User using an SSH key. If the username or SSH key is not valid or the machine hosting the PBS Server has been configured to run SSH on a non-default port, follow these steps:

- a) Click **Show advanced options**.



Manage Clusters

Cluster Name

Host

SSH Port

Username

Password

[Hide advanced options](#)

Figure 6: Additional Information Required

- b) For SSH Port, enter the SSH port that the machine hosting the PBS Server listens on. Change the SSH port if the machine hosting the PBS Server has been configured to run SSH on a non-default port.

- c) For Username and Password, enter the username and password of an authenticated user on the machine hosting the PBS Server.
- d) Click **Add**.

The cluster is added.

6. Choose one of the following options:

- Repeat Steps 3 through 5 to add another cluster.
- Click **Close** to close the Manage Clusters dialog box.

If the cluster was added via the Monitor tab, then you may now begin monitoring and managing the HPC cluster. If the cluster was added via the Configure tab, then you may now begin configuring the Workload Manager.

### 3.2.3 Add a Cluster

Add and establish a connection to the cluster so that you may begin submitting and monitoring jobs.



To submit and monitor jobs you must first add an HPC cluster. You can add a cluster using SSH or HTTPS.

- Choose one of the following options:
  - **SSH**: Connecting to a cluster using SSH is recommended for a smaller sites.
  - **HTTPS**: Connecting to a cluster using HTTPS is recommended for a larger sites and it requires an installation of Access Web. It uses the HTTPS for all the communication between Access Desktop and Access Web.

### Add a Cluster Using SSH

Add and establish a connection to the HPC cluster using SSH by registering it so that you may begin submitting and monitoring jobs.

To add a cluster using SSH you will need:

- A valid set of credentials to connect to the PBS Server.
1. Open the Windows system tray.
  2. Double-click the Access Desktop icon .
  3. Click .
  4. Select **Clusters**.  
A **Clusters** dialog box is displayed.

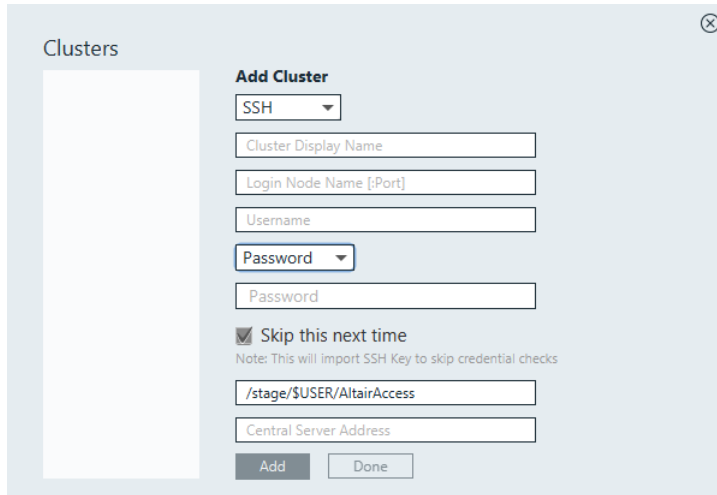


Figure 7: Add Cluster

5. For Cluster Display Name, enter a name for the cluster as it will be known within Access Desktop.
6. For Login Node Name, enter the hostname of the machine where the PBS Server is installed.



**Note:** If the SSH port is different from the default port number: 22, then please add the port number along with the hostname of the PBS Server.

7. For Username, enter your username.
8. Choose one of the following options:
  - Select Password from the drop down box and enter your password.
  - Select SSH Key from the drop down menu and import the RSA private SSH key file.
9. Optional: If you have chosen to enter your password, you may enable **Skip this next time**, so that you do not have to enter your credentials again.



**Note:** To make sure that **Skip this next time** works, ssh login using keys should work for your account on login node.

An SSH key is generated and stored allowing you to login to the cluster without having to enter your credentials.

10. Enter the location on the PBS Server where job files will be staged when a job is running.
11. Choose one of the following options:
  - If you have chosen to store your application definitions in a central repository rather than on your workstation, enter the URL for accessing the central repository in the format `https://<HOSTNAME>:4443` where <HOSTNAME> is the hostname of the machine where Access Web is installed.




**Note:** If the central repository is being hosted on the PBS Server, then the URL is automatically populated.

- If you have chosen to store your application definitions locally, then remove the URL.



12. Click **Add**.

 **Tip:** Repeat the previous steps to add additional clusters.

13. Click **Done**.

14. The cluster is added successfully and it displays with a green tick mark.



## Add a Cluster Using HTTPS

Add and establish a connection to the Access Web server using HTTPS so that you may begin submitting and monitoring jobs.

To add a cluster using HTTPS you will need:

- The URL of an Access Web server with a valid set of credentials to connect.

This option uses HTTPS for all communication between Access Desktop and Access Web.

1. Open the Windows system tray.
2. Double-click the Access Desktop icon .
3. Click .
4. Select **Clusters**.  
A **Clusters** dialog box is displayed.
5. Select **HTTPS** using the drop down box.

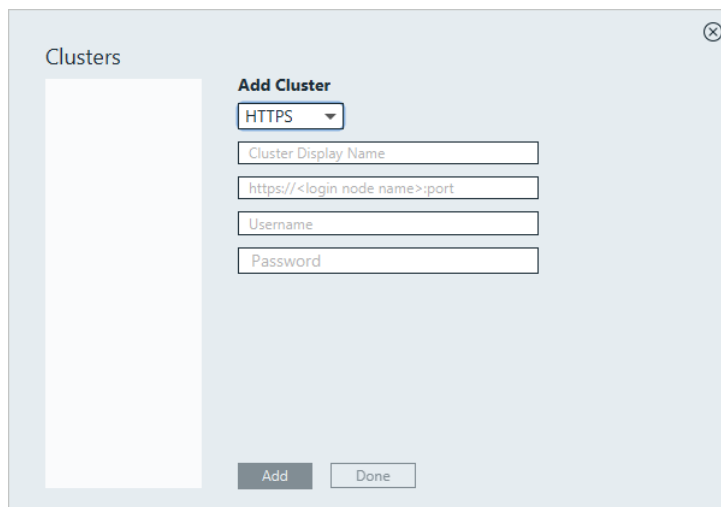


Figure 8: Clusters

6. For Cluster Display Name, enter a name for the cluster as it will be known within Access Desktop.
7. Enter the Access Web URL in the format `https://<login node name>:4443` where <LOGIN NODE NAME> is the hostname of the machine where Access Web is installed.
8. For Username, enter your username.
9. For Password, enter your password.
10. Click **Add**.




**Tip:** Repeat the previous steps to add an additional HTTPS cluster.

**11. Click Done.**

The cluster is added successfully and it displays with a green tick mark.

**12.**



Click  on the top-right corner.

The application updates the server and the solver applications automatically.

## 3.2.4 Copy Application Definitions to a Local Repository

Copy any application definitions required for an HPC cluster to a local repository.

Specific changes must be made to legacy application definitions to make use of all features of Access Desktop. For more information see [Onboard an Application Definition](#). Alternately, Altair provides a number of default application definitions that can be used with Access Desktop. These application definitions can be obtained through your normal Altair support channels.

1. Navigate to the following location on the workstation: `C:\Users\%username%\Altair_Access\home\apps\PAS\data\pas\targets\.`

where %username% is the username of the user who logged into the workstation and added the cluster.

There should be a directory for each cluster that was added to Access Desktop and the name of the directory should be the same as the Cluster Display Name that was entered when you added the cluster.

2. Navigate to `<CLUSTER_DISPLAY_NAME>\repository\applications\.`

where <CLUSTER\_DISPLAY\_NAME> is the name that was entered for the cluster when it was added to Access Desktop.

3. Choose one of the following options:

- Copy any legacy application definitions required for this HPC cluster to this location.
- Copy any Altair default application definitions required for this HPC to this location.

4. Navigate to `C:\Users\%username%\Altair_Access\home\apps\PAS\data\pas\targets\<CLUSTER_DISPLAY_NAME>\repository\`

where %username% is the username of the user who logged into the workstation and added the cluster and <CLUSTER\_DISPLAY\_NAME> is the name that was entered for the cluster when it was added to Access Desktop.



5. Choose one of the following options:


- Copy the legacy site configuration file `site-config.xml` to this location.
- Copy the Altair default site configuration file `site-config.xml` to this location.

6. For each application in the site configuration file, update the value of the XML element `<Executable>` to the location of the application's executable.

```
<Application id="Abaqus">
  <ApplicationVersions>
    <ApplicationVersion>
```

```
<Option>13.0</Option>  
<Executable>/opt/scripts/abaqus</Executable>  
</ApplicationVersion>  
</ApplicationVersions>  
</Application>
```


7. Repeat steps 1 through 6 for all clusters that were added.
8. Open the Windows system tray.
9. Right-click the icon , and choose **Exit** from the menu.
10. Double-click the  shortcut that appears on the desktop.

 **Note:** The following steps are not required if you are logging in using an SSH key.

11. Login to a cluster by clicking its name from the cluster list located on the left of the Clusters dialog window.
12. Enter your login credentials and click **Login**.
13. Repeat steps 11 and 12 to login to additional clusters.
14. Click the **X** on the top-right corner of the Clusters dialog window.  
The application definitions associated with the cluster are now accessible to Access Desktop.

## 3.2.5 Create a Job Profile

Create a job profile, a customized shortcut for submitting a job.

Open the Windows system tray and double-click the Access Desktop icon .

If you submit multiple jobs to the same application with the same arguments, it makes sense for you to create a job profile that has these arguments pre-populated for you - streamlining the process of job submission.

1. Click .
2. Select **Show Job Profiles**.

A list of solvers (Type = Application) and job profiles (Type = Profile) are displayed.

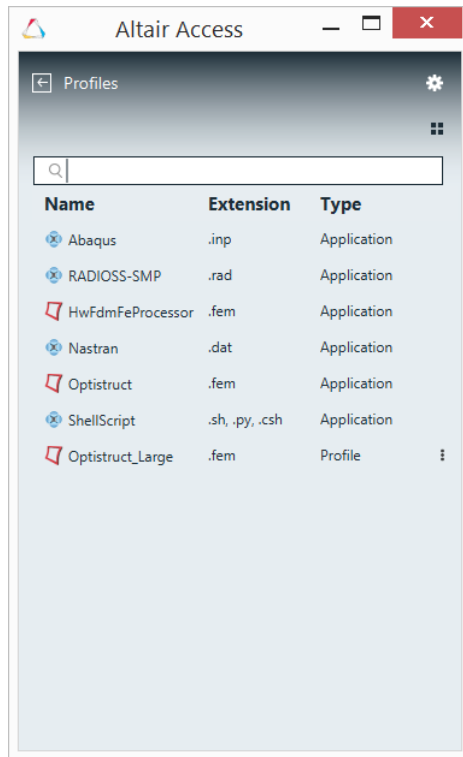


Figure 9: Profile List

3. Double-click a solver.

A job submission form is displayed containing the solver arguments.

4. Choose which cluster to add the job profile to by clicking the **Select server** menu and selecting a cluster.

5. Populate the solver arguments with values.

When you use a job profile to submit a job, solver arguments may be modified before the job is submitted. You can override any values that have been saved in the job profile or you can populate arguments that were not populated while creating the job profile.

6. Click **Save As Profile**.

7. Enter a name for the profile.

8. Click **OK**.

The job profile is saved and is displayed in the list.

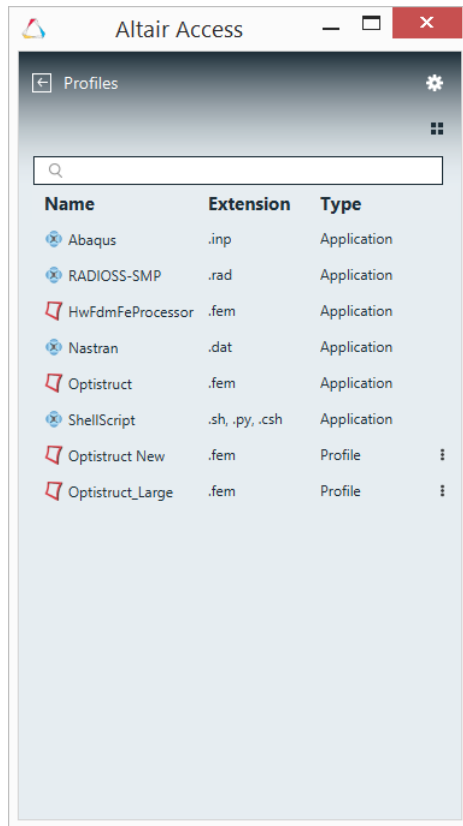




Figure 10: New Job Profile

### 3.2.6 Export the Installation Configuration

Export cluster, profile and application definition information to a zip file.

Create a zip file containing cluster, job profile and application definition information. The zip file can then be used to install Access Desktop on other workstations eliminating the need to add clusters, job profiles and application definitions at each workstation.

1. Open the Windows system tray.
2. Double-click the Access Desktop icon .
3. Click .
4. Select **Export Config** from the menu.
5. Select a folder where the exported configuration will be saved.

A zip file called AltairAccessConfig.zip is created in the selected folder.

## 3.2.7 Install Using the Exported Configuration Zip File

Install Access Desktop along with clusters, job profiles, and application definitions that were previously configured.

Using the zip file containing a previously configured Access Desktop installation, install the product at all other workstations at your site. You will be asked to provide an installation directory and a license server to install the product.

1. Login to a workstation.
2. Copy the Access Desktop installation executable to a directory on the workstation's hard drive.
3. Copy the `AltairAccessConfig.zip` file to the same directory as the installation executable.
4. Choose one of the following options:
  - To install in GUI mode, right-click the installation executable and choose the **Run as administrator** option.
  - To install from the command line in silent mode, open a command prompt as a Windows administrator and enter the command:

```
AltairAccessDesktop_<Version>_<Build  
ID>_<YYYYMMDD>_<Timestamp>.exe -i silent  
-DUSER_INSTALL_DIR="<INSTALL_PATH>"  
-DALTAIR_SPM_LICENSE_PATH=<PORT@HOSTNAME>
```



**Note:** Where <INSTALL\_PATH> is where the binaries will be installed (make sure that the installation directory is surrounded by double quotes) and <PORT@HOSTAME> is the license server in the format port@hostname.

5. Follow the installation instructions.  
Once the installation is complete, a shortcut is created and appears on the desktop represented by the icon .

## 3.3 Install Access Desktop for Deployment Option 3

Install Access Desktop so that it uses a central repository for storing the application definitions.

This deployment option allows the application definitions to be stored and maintained in a central repository. This deployment option requires that Access Web be installed on a Linux machine. Application definitions are copied to a specific location on this machine which is considered the central repository. A multi-user deployment can then be performed with a slight change to the workflow. When clusters are added to Access Desktop, the hostname of the machine hosting the central repository is provided.

### 3.3.1 Install Access Web

Install Access Web> on the machine that is going to host the central repository of application definitions.

Access Web can be installed on the same machine as the PBS Server or on a separate machine.

1. Login to the machine where you want to install Access Web and the application definitions (the central repository).
2. Install Access Web using the instructions documented in section *Installing Access Web* in the *Altair Access Web Administrator's Guide*.
3. Configure the Service user using the instructions documented in section *Configuring the Access Web Service User* in the *Altair Access Web Administrator's Guide*.
4. Configure the license server if it was not supplied during installation of Access Web using the instructions documented in section *Configuring the License Server* in the *Altair Access Web Administrator's Guide*.

### 3.3.2 Install Access Desktop


Install Access Desktop on a workstation.

To ensure a successful installation, review the [System Requirements](#).


Installation of Access Desktop is very simple and quick. A binary or executable needs to be downloaded or obtained using your usual Altair support channels. You will be asked to provide an installation directory and a license server to install the product.

1. Choose one of the following options:
  - To install in GUI mode, right-click the installation executable and choose the **Run as administrator** option.
  - To install from the command line in silent mode, open a command prompt as a Windows administrator and enter the command:

```
AltairAccessDesktop_<Version>_<Build  
ID>_<YYYYMMDD>_<Timestamp>.exe -i silent  
-DUSER_INSTALL_DIR="<INSTALL_PATH>"  
-DALTAIR_SPM_LICENSE_PATH=<PORT@HOSTNAME>
```

 **Note:** Where <INSTALL\_PATH> is where the binaries will be installed (make sure that the installation directory is surrounded by double quotes) and <PORT@HOSTNAME> is the license server in the format port@hostname.

2. Follow the installation instructions.

Once the installation is complete, a shortcut is created and appears on the desktop represented by the icon .

### 3.3.3 Configure the Access Web as Central Repository

Add application definitions to the central repository and configure Access Web so that it will administer the central repository.

This section assumes that you have a working version of Access Desktop and the required Application Definition which is verified.

Specific changes must be made to legacy application definitions to make use of all features of Access Desktop. For more information see [Onboard an Application Definition](#). Alternately, Altair provides a number of default application definitions that can be used with Access Desktop. These application definitions can be obtained through your normal Altair support channels.

1. Stop Access Web using the command:

```
service pbsworks-pa stop
```

2. Source /etc/pbsworks-pa.conf using the command:

```
source /etc/pbsworks-pa.conf
```

3. Navigate to: PA\_HOME/config/shared/



**CAUTION:** The deployment file name in Access Web 2018.3 is `pa_deployment.ini` and in the subsequent releases it is changed to `deployment.ini`.

4. Make a backup of the `deployment.ini` file.

5. Edit the file `deployment.ini`

6. Choose one of the following options:

- If you want Access Web to act only as a Central Repository, then replace `pa_deploy_option` with `pa_deploy_option=('option=("api_gateway" "jobprofiles")')`

```
pa_deploy_option=(  
  'option=("api_gateway") '  
  'option=("jobprofiles") '  
)
```

- If you want Access Web to act as a Central Repository and work on the Access Web application, then update `pa_deploy_option` with `'option=("jobprofiles")'`

```
pa_deploy_option=(  
  'option=("api_gateway") '  
  'option=("database") '  
  'option=("message_broker") '  
  'option=("pa" "ams" "storage" "license" "preferences") '
```



```
'option=("executor") '  
'option=("displaymanager") '  
'option=("resultmanager") '  
'option=("resultservice") '  
'option=("jobprofiles") '  
)
```

7. Save the file.



**Note:** The verified application definitions are authored in an existing installation of Access Desktop and these will be distributed to the user.

8. Export the verified application definitions from Access Desktop using the **Export Config** option available in the Access Desktop application.
  - a) Click
  - b) Select **Export Config** from the menu.
  - c) Select a folder where the exported configuration will be saved.

A zip file called `AltairAccessConfig.zip` is created in the selected folder.

9. Upload the `AltairAccessConfig.zip` file to Access Web machine.

10. Unzip the `AltairAccessConfig.zip` file in Access Web machine to temp directory by using the command:

```
unzip AltairAccessConfig.zip -d /tmp/AltairAccess
```

11. Copy the applications for the cluster that needs to be configured from `/tmp/AltairAccess/home/apps/PAS/data/pas/targets/` folder to targets folder by using the command:

```
cp -r /tmp/AltairAccess/home/apps/PAS/data/pas/targets/<Server_name> $PAS_REPO/targets/
```

where `<Server_name>` is the folder from the `/tmp/AltairAccess/home/apps/PAS/data/pas/targets/`.

12. Repeat Step 11 for every cluster that needs to be configured with central repository.
13. Start Access Web using the command:

```
service pbsworks-pa start
```

### 3.3.4 Register a Cluster

Establish a connection to the HPC cluster by registering it so that you may begin submitting and monitoring jobs.

- To register a cluster you will need to know the hostname of the machine where the PBS Server is installed and a valid set of credentials for that machine.
  - To make sure that **Skip this next time** works, ssh login using keys should work for your account on login node.
1. Double-click the Access Desktop shortcut on the Windows desktop.  
An Add Cluster dialog box is displayed.

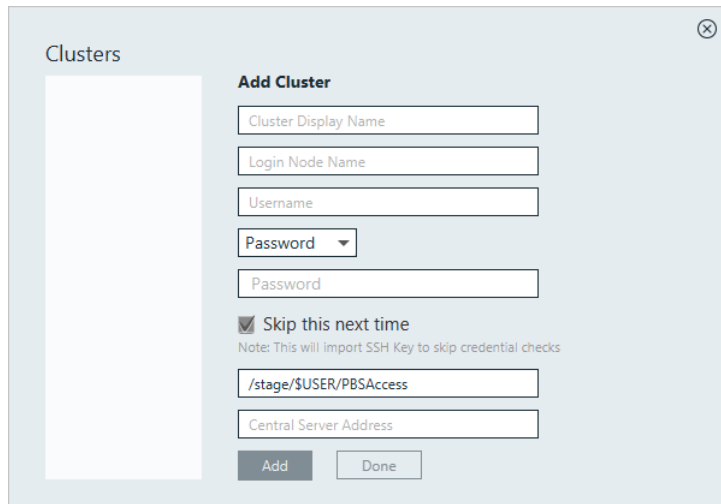




Figure 11: Add Cluster

2. For Cluster Display Name, enter a name for the cluster as it will be known within Access Desktop.
3. For Login Node Name, enter the hostname of the machine where the PBS Server is installed.
4. For Username, enter your username.
5. Choose one of the following options:
  - Select Password from the drop down menu and enter your password.
  - Select SSH Key from the drop down menu and import the RSA private SSH key file.
6. Optional: If you have chosen to enter your password, you may enable **Skip this next time**, so that you do not have to enter your credentials again.


 **Note:** To make sure that **Skip this next time** works, ssh login using keys should work for your account on login node.

An SSH key is generated and stored allowing you to login to the cluster without having to enter your credentials.

7. Enter the location on the PBS Server where job files will be staged when a job is running.
8. Choose on of the following options:
  - If you have chosen to store your application definitions in a central repository rather than on your workstation, enter the URL for accessing the central repository in the format `https://<HOSTNAME>:4443` where <HOSTNAME> is the hostname of the machine where Access Web is installed.

 **Note:** If the central repository is being hosted on the PBS Server, then the URL is automatically populated.


- If you have chosen to store your application definitions locally, then remove the URL.
9. Click **Add**.

 **Tip:** Repeat the previous steps add additional clusters.

10. Click **Done**.

### 3.3.5 Create a Job Profile

Create a job profile, a customized shortcut for submitting a job.

Open the Windows system tray and double-click the Access Desktop icon .

If you submit multiple jobs to the same application with the same arguments, it makes sense for you to create a job profile that has these arguments pre-populated for you - streamlining the process of job submission.

1. Click .
2. Select **Show Job Profiles**.

A list of solvers (Type = Application) and job profiles (Type = Profile) are displayed.

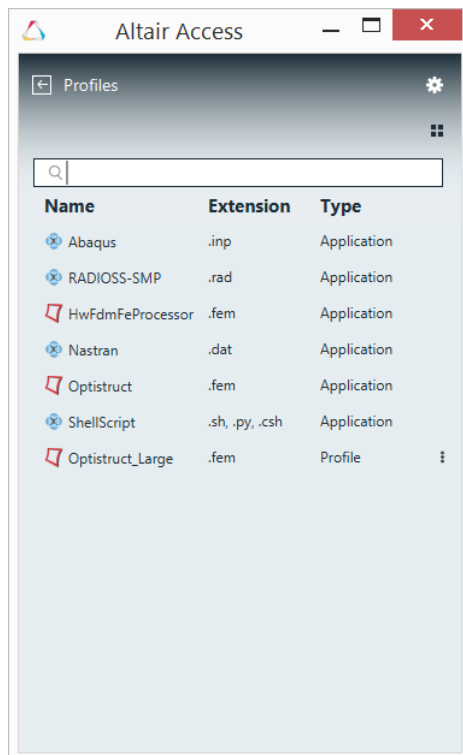


Figure 12: Profile List

3. Double-click a solver.  
A job submission form is displayed containing the solver arguments.
4. Choose which cluster to add the job profile to by clicking the **Select server** menu and selecting a cluster.
5. Populate the solver arguments with values.

When you use a job profile to submit a job, solver arguments may be modified before the job is submitted. You can override any values that have been saved in the job profile or you can populate arguments that were not populated while creating the job profile.

6. Click **Save As Profile**.
7. Enter a name for the profile.
8. Click **OK**.

The job profile is saved and is displayed in the list.

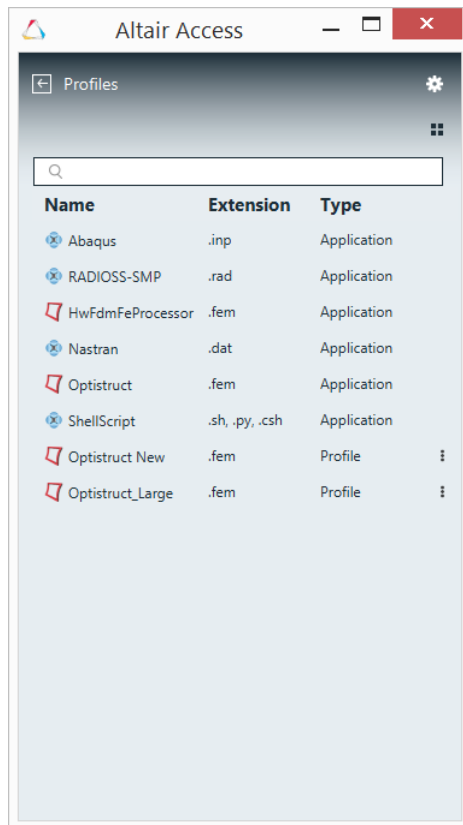




Figure 13: New Job Profile

### 3.3.6 Export the Installation Configuration

Export cluster, profile and application definition information to a zip file.

Create a zip file containing cluster, job profile and application definition information. The zip file can then be used to install Access Desktop on other workstations eliminating the need to add clusters, job profiles and application definitions at each workstation.

1. Open the Windows system tray.
2. Double-click the Access Desktop icon .
3. Click .
4. Select **Export Config** from the menu.

5. Select a folder where the exported configuration will be saved.

A zip file called `AltairAccessConfig.zip` is created in the selected folder.


### 3.3.7 Install Using the Exported Configuration Zip File


Install Access Desktop along with clusters, job profiles, and application definitions that were previously configured.

Using the zip file containing a previously configured Access Desktop installation, install the product at all other workstations at your site. You will be asked to provide an installation directory and a license server to install the product.

1. Login to a workstation.
2. Copy the Access Desktop installation executable to a directory on the workstation's hard drive.
3. Copy the `AltairAccessConfig.zip` file to the same directory as the installation executable.
4. Choose one of the following options:
  - To install in GUI mode, right-click the installation executable and choose the **Run as administrator** option.
  - To install from the command line in silent mode, open a command prompt as a Windows administrator and enter the command:

```
AltairAccessDesktop_<Version>_<Build  
ID>_<YYYYMMDD>_<Timestamp>.exe -i silent  
-DUSER_INSTALL_DIR="<INSTALL_PATH>"  
-DALTAIR_SPM_LICENSE_PATH=<PORT@HOSTNAME>
```

 **Note:** Where `<INSTALL_PATH>` is where the binaries will be installed (make sure that the installation directory is surrounded by double quotes) and `<PORT@HOSTAME>` is the license server in the format `port@hostname`.

5. Follow the installation instructions.  
Once the installation is complete, a shortcut is created and appears on the desktop represented by the icon .

# Onboard an Application Definition

Port an application definition from a legacy version of PBS Works so that it can be used by Access Desktop.

This chapter covers the following:

- [4.1 Integrate Right Click Context Menu of Access Desktop](#) (p. 38)
- [4.2 Master File Analyzer](#) (p. 41)

Access Desktop allows onboarding the legacy application definitions in a very easy way and it can be done at any time. The following options are available for onboarding legacy application definitions:

- Testing your legacy application definitions without making any change – The focus here is to use Job Submission form to submit jobs to a service cluster and verify if Access Desktop can render and work with your application definition correctly.
- Enriching your application definitions to use Access Desktop features - Access Desktop allows you to enhance your application definition by making some modification for using the following features of Access Desktop:
  - File System Right Click Context Menu Integration
  - Master File Analyzer
  - Adding a Refresh Script for Determining Include Files

## 4.1 Integrate Right Click Context Menu of Access Desktop

Enrich your legacy application definition to use the right click context menu integration feature of Access Desktop.

Right-click context menu feature links a job input file to a specific application or solver via the file extension. For example, the solver Optistruct is a structural analysis solver and can process input files with a .fem extension. The association between the file extension and the solver is done through the application definition and must be set up so that Access Desktop can determine which solvers are available for a file extension.

Access Desktop allows you to enhance your application definition by making some modification to use the right click context menu integration feature. You can use this feature by defining:

- PRIMARY\_FILE and QUEUE argument in application definition  
Application definitions must have a PRIMARY\_FILE argument defined in the application definition input file that represents the primary input file for the solver. If a legacy application definition calls the primary input file something other than PRIMARY\_FILE, then a mapping file must be updated to port the application definition. Additionally, if the legacy application definition contains an application argument that represents the queue to which the job is submitted, the name of the application argument must be QUEUE. If it is not, the mapping file must be updated.

- Update a solver's application definition to link it to a specific file extension.

Update a solver's application definition to link it to a specific file extension. Access Desktop links a job input file to a specific application or solver via the file's extension. For example, the solver Optistruct is a structural analysis solver and can process input files with a .fem extension. The association between the file extension and the solver is done through the application definition and must be set up so that Access Desktop can determine which solvers are available for a file extension.

1. Edit the solver's application input file `app-inp-application.xml`.
2. Link the file extension to the solver by adding the following XML:

```
<ApplicationExtension>file_extension</ApplicationExtension>
```

The below example links a file with the extension of .fem to the Optistruct solver.

```
<ApplicationId>Optistruct</ApplicationId>
<ApplicationName>Optistruct</ApplicationName>
<ApplicationExtension>.fem</ApplicationExtension>
```

3. Save the application input file.
4. Update the site configuration file `site-config.xml` with the appropriate application information such as versions and policies:

```
<Applications>
  <Application id="Optistruct">
    <ApplicationVersions>
      <ApplicationVersion>
        <Option>11.0</Option>
        <Executable>/opt/hyperworks/11.0/altair/scripts/optistruct</
Executable>
      <ApplicationVersion>
```

```
<ApplicationVersion>
  <Option>12.0</Option>
  <Executable>/opt/hyperworks/12.0/altair/scripts/optistruct</
Executable>
  <ApplicationVersion>
</ApplicationVersions>
</Application>
</Applications>
```

5. Edit the file C:\Users\<USERNAME>\Altair\_Access\home\apps\PBSAccessDesktop\config\applicationmapping.json

6. Add the following JSON between the bracket []

```
{
  "serverName": "server-1", "version": "13.1", "applications":
  [
    {
      "applicationName": "RADIOSS-SMP",
      "primaryFile": "MASTER_FILE",
      "queue": "Queues"
    }
  ]
}
```

7. Change the value of serverName to the name of the server provided when adding the service cluster to Access Desktop.

```
"serverName": "server-1",
```

8. Change the value of version to the legacy version of PBS Works that you are porting from.

```
"version": "13.1",
```

9. Change the value of applicationName to the name of the application that you want to port.

Denoted by the XML element <ApplicationName> in the legacy application definition. The legacy XML looks like this:

```
<ApplicationName>Optistruct</ApplicationName>
```

The JSON should look like this:

```
"applicationName": "Optistruct"
```

10. Change the value of primaryFile to the name of the application argument that represents the application input file for the solver.

Denoted by the XML element <Name> in the legacy application definition. The legacy XML looks like this:

```
<ArgumentChoice>
  <ArgumentFileName>
    <Name>MASTER_FILE</Name>
    <Description>Select your Optistruct Master file.</Description>
    <DisplayName>Master File</DisplayName>
    <InputRequired>true</InputRequired>
  </ArgumentFileName>
</ArgumentChoice>
```

The JSON should look like this:

```
"primaryFile": "MASTER_FILE"
```

11. Change the value of queue to the name of the application argument that represents the queue to which the job is submitted.



Denoted by the XML element <Name> in the legacy application definition. The legacy XML looks like this:

```
<ArgumentChoice>
  <ArgumentStringEnumerated>
    <Name>BATCH_QUEUE</Name>
    <Description>Select the batch queue you would like to submit to.</
Description>
    <DisplayName>Batch Queue</DisplayName>
    <InputRequired>>false</InputRequired>
    <Option>workq</Option>
    <Option>testq</Option>
    <DefaultValue>workq</DefaultValue>
  </ArgumentStringEnumerated>
</ArgumentChoice>
```

The JSON should look like this:

```
"queue": "BATCH_QUEUE"
```

- 12.** Add additional applications by repeating previous step 9-11 making sure that when you add the next application to the JSON mapping file you separate the applications using a comma.

```
"applications":
[
  {
    "applicationName": "ShellScript",
    "primaryFile": "JOB_SCRIPT"
  },
  {
    "applicationName": "Optistruct",
    "primaryFile": "MASTER"
  }
]
```

- 13.** Save the file.
- 14.** Copy your application definitions to the central repository or to your local repository.
- 15.** Restart Access Desktop.  
Once Access Desktop reloads, the new application definition is available.
- 16.** Right-click on a job input file that has the file extension that was just added to the application definition.
- 17.** Verify that the correct solver and job profiles are being displayed in the context menu.

## 4.2 Master File Analyzer

The Master File Analyzer identifies the list of include files from the input or master file that is required to submit a job.

This feature must be enabled in the application definition to dynamically identify the include files. The default application definitions with Master File Analyzer capabilities are provided to get you up and running quickly. Obtain them through your usual Altair support channels.

You can refer to *Diving Into Application Definitions* guide and the samples provided to convert or write application definitions to support Master File Analyzer.



Advanced configurations for Access Desktop.

This chapter covers the following:

- [5.1 Configure Remote Drive](#) (p. 43)
- [5.2 Switch from the Central Repository to a Local Repository](#) (p. 44)
- [5.3 Configure the License Server](#) (p. 46)
- [5.4 Configure Upgrade](#) (p. 47)
- [5.5 Shared File System Support](#) (p. 48)

## 5.1 Configure Remote Drive

Configure the remote drive to access the cluster and the job files.

1. Open the Windows system tray.
2. Double-click the Access Desktop icon .
3. Click .
4. Select **Configure Remote Drive**.
5. Enter the remote network drive name.

The remote network drive name is displayed in Windows Explorer.

## 5.2 Switch from the Central Repository to a Local Repository

Use local application definitions rather than those installed in the central repository.

### 5.2.1 Disable the Central Repository

Configure Access Desktop to discontinue using the central repository of application definitions.

Exit from Access Desktop before making these changes.

1. Navigate to `C:\Users\%username%\Altair_Access\home\apps\PAS\config\pas\conf\.`  
where %username% is the username of the user who logged into the workstation and added the cluster.
2. Edit `serverData.xml`.
3. Change the value of the XML `<property>` element having a `@key` equal to "useCentralRepo" to false.  

```
<property key="useCentralRepo">false</property>
```
4. Save the file.

### 5.2.2 Copy Application Definitions to a Local Repository

Copy any application definitions required for an HPC cluster to a local repository.

Specific changes must be made to legacy application definitions to make use of all features of Access Desktop. For more information see [Onboard an Application Definition](#). Alternately, Altair provides a number of default application definitions that can be used with Access Desktop. These application definitions can be obtained through your normal Altair support channels.

1. Navigate to the following location on the workstation: `C:\Users\%username%\Altair_Access\home\apps\PAS\data\pas\targets\.`  
where %username% is the username of the user who logged into the workstation and added the cluster.  
There should be a directory for each cluster that was added to Access Desktop and the name of the directory should be the same as the Cluster Display Name that was entered when you added the cluster.
2. Navigate to `<CLUSTER_DISPLAY_NAME>\repository\applications\.`  
where `<CLUSTER_DISPLAY_NAME>` is the name that was entered for the cluster when it was added to Access Desktop.
3. Choose one of the following options:
  - Copy any legacy application definitions required for this HPC cluster to this location.
  - Copy any Altair default application definitions required for this HPC to this location.

4. Navigate to `C:\Users\%username%\Altair_Access\home\apps\PAS\data\pas\targets\<CLUSTER_DISPLAY_NAME>\repository\`



where %username% is the username of the user who logged into the workstation and added the cluster and <CLUSTER\_DISPLAY\_NAME> is the name that was entered for the cluster when it was added to Access Desktop.


5. Choose one of the following options:

- Copy the legacy site configuration file `site-config.xml` to this location.
- Copy the Altair default site configuration file `site-config.xml` to this location.

6. For each application in the site configuration file, update the value of the XML element <Executable> to the location of the application's executable.

```
<Application id="Abaqus">
  <ApplicationVersions>
    <ApplicationVersion>
      <Option>13.0</Option>
      <Executable>opt/scripts/abaqus</Executable>
    </ApplicationVersion>
  </ApplicationVersions>
</Application>
```

7. Repeat steps 1 through 6 for all clusters that were added.
8. Open the Windows system tray.
9. Right-click the icon , and choose **Exit** from the menu.
10. Double-click the  shortcut that appears on the desktop.

 **Note:** The following steps are not required if you are logging in using an SSH key.

11. Login to a cluster by clicking its name from the cluster list located on the left of the Clusters dialog window.
12. Enter your login credentials and click **Login**.
13. Repeat steps 11 and 12 to login to additional clusters.
14. Click the **X** on the top-right corner of the Clusters dialog window.  
The application definitions associated with the cluster are now accessible to Access Desktop.

## 5.3 Configure the License Server

Configure the license servers post-installation.

During the installation Access Desktop, you are prompted to provide a license server in the format `port@hostname`. If this information is not provided at this time, then the license server must be configured post-installation.




**Note:** You must have administrative privileges to configure the Access Desktop license server.

1. Navigate to `C:\Program Files\altair\Altair Access\2020.1\exec\config\`.
2. Edit the file `PBSWorks-PAD.conf`.
3. Change the value of `LICENSE_SERVER_PATH` to the port and hostname of the license server in the format `port@hostname`.  
`LICENSE_SERVER_PATH=6200@cntrllicsrv03`
4. Restart Access Desktop for these changes to take effect.

## 5.4 Configure Upgrade

Update the Central Repository server so that upgrade notifications are automatically sent to users logged into Access Desktop.

To permit user's to receive upgrade notifications, the Access Desktop installation binary must be placed in a specific location on the Central Repository server. Additionally, a JSON file must be created indicating that an upgrade is available. Once this is complete, Access Desktop checks for an upgrade every five hours. When an upgrade is available, any users logged into a cluster connected to the Central Repository receives an upgrade notification.

 **Note:** The Access Web 2019.3 (Central Repository) is available to upgrade Access Desktop 2019.3 to future releases.

 **Note:** The Access Desktop 2019.3 upgrade will work only from 2019.3 and future releases.

1. Login into the Cental Repository server.
2. Navigate to `PA_HOME/data/`.
3. Create a directory and name it as: `access_desktop_updates`.
4. Place the latest Access Desktop `exec.zip` file at `PA_HOME/data/access_desktop_updates/`.

The latest Access Desktop `exec.zip` file will be available in the following location:

`<Release_Desktop_Build_Location>/artifacts/exec.zip`

5. Create a JSON file and name it as `access_desktop_upgrade.json`.
6. Edit the JSON file.
7. Add the following line:

```
{buuildid:<varname  
{  
  "buildid":VERSION  
}
```

Where *VERSION* denotes the version of Desktop to upgrade to. For example to upgrade from 2019.3 to 2019.4, set the value to `2019.4`.

8. Save the file.



## 5.5 Shared File System Support

Support for sites that have deployed a shared file system on their HPC cluster.

Organizations may deploy a shared file system on their HPC cluster such that the file system is shared between the PBS Server and the PBS execution nodes, eliminating the need to stage in and stage out job files. Applications that run on the HPC cluster and need access to the shared file system will require a change to their corresponding application definition to set the following environment variables in the submittime script (`presubmit.py`) and a change to the runtime script (`start.py`):

### **`ACCESS_INPUT_FILES`**

Environment variable used by Access to establish the job's input files.

### **`ACCESS_OUTPUT_FILES`**

Environment variable used by Access to establish the job output directory.

### **`ACCESS_RUNNING_FILES`**

Environment variable used by Access to establish the job running directory.



For example, a site may have `/shared` mounted on a share file system that is shared between the PBS Server and the PBS execution nodes. The user `tsmith` moves job files to the directory `/stage/tsmith/opti_test1` and submits an Optistruct job. For Access to support the use of the shared file system by the job, the application definition associated with the Optistruct solver must be updated to set these three environment variables in the `presubmit.py` script.

For more information about the specific changes that need to be made to the application definition see the recipe *How to Support a Shared File System in Diving Into Application Definitions*.

This feature is completely backward compatible. If your site is not using a shared file system, then your current application definitions do not require any changes.

Log files can be used for monitoring and troubleshooting the application.

To optimize storage space on the machine hosting Access Desktop, log files are stored for seven days.

1. Open the Windows system tray.
2. Double-click the Access Desktop icon .
3. Click .
4. Select **Show Logs**.

The folder containing the log files is opened in Windows Explorer.



**Note:** The default location of the log files is: `C:\Users\%username%\Altair_Access\home\logs\` where USERNAME is the username of the user who logged into the workstation and added the cluster.

The log files in the folder are:

- catalina, host-manager, localhost, and manager - related to Tomcat
- adf - related to framework
- pas-server and desktop - related to server

# Uninstall Access Desktop

Uninstall old or unused versions of Access Desktop.

Exit from Access Desktop before you uninstall.

1. Navigate to C:\Program Files\altair\Altair Access\2020.1\\_Altair Access Desktop\_installation\.
2. Right-click the *Change Access Desktop Installation* executable and choose the **Run as administrator** option.
3. Follow the instructions for uninstalling.

Add, update, or delete HPC clusters.

This chapter covers the following:

- [8.1 Add a Cluster](#) (p. 52)
- [8.2 Edit Cluster Details](#) (p. 55)
- [8.3 Delete a Cluster](#) (p. 57)

## 8.1 Add a Cluster

Add and establish a connection to the cluster so that you may begin submitting and monitoring jobs.

To submit and monitor jobs you must first add an HPC cluster. You can add a cluster using SSH or HTTPS.



- Choose one of the following options:
  - **SSH:** Connecting to a cluster using SSH is recommended for a smaller sites.
  - **HTTPS:** Connecting to a cluster using HTTPS is recommended for a larger sites and it requires an installation of Access Web. It uses the HTTPS for all the communication between Access Desktop and Access Web.

### 8.1.1 Add a Cluster Using SSH

Add and establish a connection to the HPC cluster using SSH by registering it so that you may begin submitting and monitoring jobs.

To add a cluster using SSH you will need:

- A valid set of credentials to connect to the PBS Server.

1. Open the Windows system tray.
2. Double-click the Access Desktop icon .
3. Click .
4. Select **Clusters**.  
A **Clusters** dialog box is displayed.

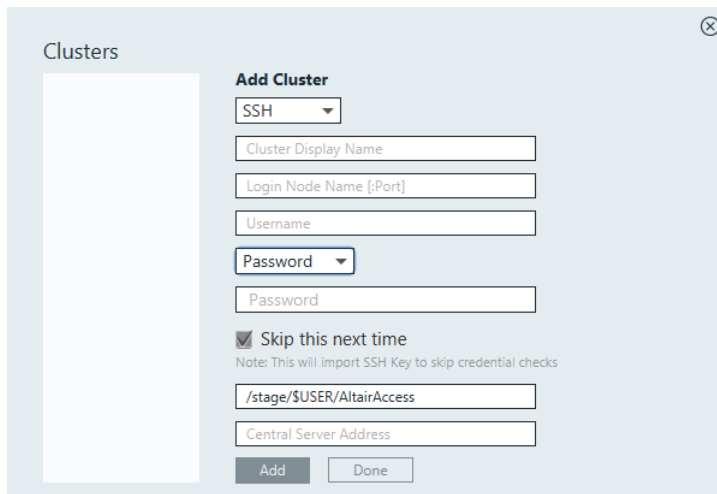




Figure 14: Add Cluster

5. For Cluster Display Name, enter a name for the cluster as it will be known within Access Desktop.
6. For Login Node Name, enter the hostname of the machine where the PBS Server is installed.


 **Note:** If the SSH port is different from the default port number: 22, then please add the port number along with the hostname of the PBS Server.

7. For Username, enter your username.
8. Choose one of the following options:
  - Select Password from the drop down box and enter your password.
  - Select SSH Key from the drop down menu and import the RSA private SSH key file.
9. Optional: If you have chosen to enter your password, you may enable **Skip this next time**, so that you do not have to enter your credentials again.

 **Note:** To make sure that **Skip this next time** works, ssh login using keys should work for your account on login node.


An SSH key is generated and stored allowing you to login to the cluster without having to enter your credentials.

10. Enter the location on the PBS Server where job files will be staged when a job is running.
11. Choose one of the following options:
  - If you have chosen to store your application definitions in a central repository rather than on your workstation, enter the URL for accessing the central repository in the format `https://<HOSTNAME>:4443` where `<HOSTNAME>` is the hostname of the machine where Access Web is installed.

 **Note:** If the central repository is being hosted on the PBS Server, then the URL is automatically populated.

- If you have chosen to store your application definitions locally, then remove the URL.

12. Click **Add**.

 **Tip:** Repeat the previous steps to add additional clusters.

13. Click **Done**.

14. The cluster is added successfully and it displays with a green tick mark.

## 8.1.2 Add a Cluster Using HTTPS



Add and establish a connection to the Access Web server using HTTPS so that you may begin submitting and monitoring jobs.

To add a cluster using HTTPS you will need:

- The URL of an Access Web server with a valid set of credentials to connect.

This option uses HTTPS for all communication between Access Desktop and Access Web.

1. Open the Windows system tray.

2. Double-click the Access Desktop icon .
3. Click .
4. Select **Clusters**.  
A **Clusters** dialog box is displayed.
5. Select **HTTPS** using the drop down box.

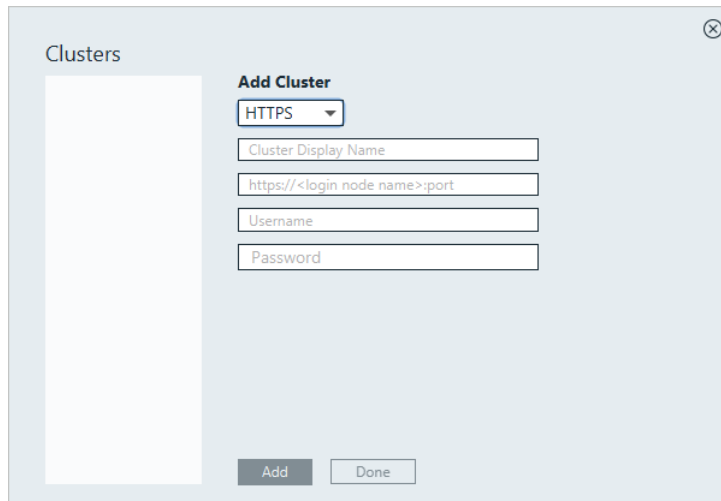




Figure 15: Clusters

6. For Cluster Display Name, enter a name for the cluster as it will be known within Access Desktop.
7. Enter the Access Web URL in the format `https://<login node name>:4443` where <LOGIN NODE NAME> is the hostname of the machine where Access Web is installed.
8. For Username, enter your username.
9. For Password, enter your password.
10. Click **Add**.

 **Tip:** Repeat the previous steps to add an additional HTTPS cluster.



11. Click **Done**.  
The cluster is added successfully and it displays with a green tick mark.
12. Click  on the top-right corner.  
The application updates the server and the solver applications automatically.


## 8.2 Edit Cluster Details

Update the staging location and the central repository server address details.

To edit a cluster, you must first log out of it.

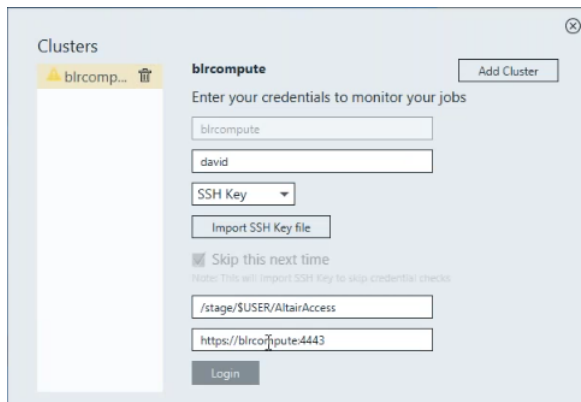
If you wish to change the staging folder location for your running jobs and move your Access Desktop setup from local to central repository server, follow the steps below:

1. Open the Windows system tray.
2. Double-click the Access Desktop icon .
3. Click .
4. Select **Clusters**.  
The **Clusters** dialog box is displayed.
5. If you have more than one cluster added, select the cluster that you wish to modify.


 **Note:** If only one cluster is added and then the cluster information is displayed as a default.

6. Click **Logout**.

The user login, Stage location and Central Repository server address fields are enabled to edit.



7. For Username, previously specified username is displayed.  
You may continue with the user if it is still valid or enter the new valid username to login.
8. Choose one of the following options:
  - Select Password from the drop down box and enter your password.
  - Select SSH Key from the drop down menu and import the RSA private SSH key file.
9. Optional: If you have chosen to enter your password, you may enable **Skip this next time**, so that you do not have to enter your credentials again.

 **Note:** To make sure that **Skip this next time** works, ssh login using keys should work for your account on login node.

An SSH key is generated and stored allowing you to login to the cluster without having to enter your credentials.



The below steps are specific to editing a cluster added using SSH:

**10.** Enter the location on the PBS Server where job files will be staged when a job is running.

**11.** Choose one of the following options:

- If you have chosen to store your application definitions in a central repository rather than on your workstation, enter the URL for accessing the central repository in the format `https://<HOSTNAME>:4443` where `<HOSTNAME>` is the hostname of the machine where Access Web is installed.





**Note:** If the central repository is being hosted on the PBS Server, then the URL is automatically populated.

- If you have chosen to store your application definitions locally, then remove the URL.

## 8.3 Delete a Cluster

Remove a cluster when you no longer want to submit and manage jobs on that cluster.

1. Open the Windows system tray.
2. Double-click the Access Desktop icon .
3. Click .
4. Select **Clusters** from the menu.

A list of clusters that are registered and available is displayed.

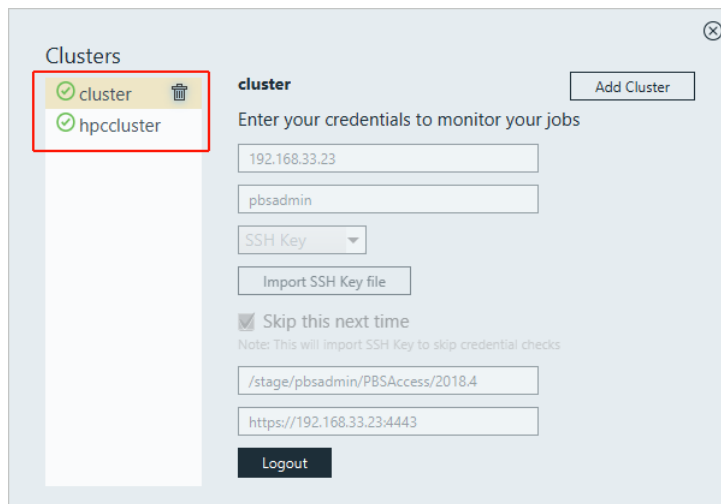



Figure 16: Clusters

5. Find the cluster you want to remove and click  next to its name.  
The cluster is removed.

Application definitions are a predefined set of instructions to describe application parameters, store responses and prepare responses for job execution.

This chapter covers the following:

- [9.1 Components of Application Definitions](#) (p. 59)
- [9.2 Location of Application Definitions](#) (p. 60)
- [9.3 Add a New Application](#) (p. 61)
- [9.4 Specify the Types of Result Files to Download](#) (p. 63)
- [9.5 Display an Icon for an Application](#) (p. 65)

The applications available in Access Desktop are deployed as PAS application definitions.

More comprehensive information regarding application definitions is available in the *Altair Access Web Administrator's Guide* and the *Diving Into Application Definitions Guide*.

## 9.1 Components of Application Definitions

Main components of application definitions.

An interactive application definition consists of the following components:

- An **Application input file** (`app-inp-Optistruct.xml`). The valid arguments for the application is specified in this file.
- An **Application converter file** (`app-conv-Optistruct.xml`). The values received through the input file are converted and communicated to the PAS and PBS through this file. The Job submission environment is configured in this file.
- The **Site Configuration file** (`site-config.xml`). The information stored in this file can be referenced by any application definition. Applications, Application versions, Job projects and policies are some common settings that can be defined in the site configuration file.



**Note:** For any new application definitions that is added, the `site-config.xml` file needs to be updated manually.



**Note:** From the current version, the software doesn't keep a backup of `site-config.xml` file. So, if you delete this file, you need to create it manually.

## 9.2 Location of Application Definitions

Locate the application definition in central server and in your local system.

Application definitions can be stored either on the local desktop or in a central repository.



Access Desktop UI will be updated with any changes in local application definition after removing the time stamp (`time_stamp.txt`). Notification will also be displayed about the application definition update.

When they are stored in a central repository, then the application definitions are stored on the server host Access Web in the location: :

```
/var/spool/pbsworks/2020.1/access/home/data/pas/targets/<PBS_SERVER_HOSTNAME>/  
repository/applications/
```

When they are being stored locally, the application definitions are stored at:

```
C:\Users\<user name>\Altair_Access\home\apps\PAS\data\pas\targets\<cluster name>  
\repository\applications\
```

1. Open the Windows system tray.
2. Double-click the Access Desktop icon .
3. Click .
4. Select **Show Applications**.  
The folder containing the cluster or PBS Server registered is opened in Windows Explorer.
5. Select the `<PBS_SERVER_HOSTNAME>` or `<localhost>` directory.
6. Navigate to the `repository` directory.
7. Navigate to the `applicatons` directory.  
The list of application definition will be displayed.

## 9.3 Add a New Application

Procedure of copying and modifying the default application definition which is available as part of the application installation.

Exit from the Access Desktop before you add new application definition.

Verify the [location of application definition](#).



**Note:** The default application definition directory that is available is ShellScript.

1. In the application definitions directory, copy the ShellScript application definition directory and rename it to the name of the application. For example, let's assume that we are adding Optistruct application definition.

2. Rename the ShellScript application definition files to the name of the new application.

app-conv-ShellScript.xml to app-conv-Optistruct.xml

app-inp-ShellScript.xml to app-inp-Optistruct.xml

3. Edit the app-inp-AppName file (e.g. app-inp-Optistruct.xml).

- a) Change the `<ApplicationId>ShellScript</ApplicationId>` entry to the application ID.

```
<ApplicationId>Optistruct</ApplicationId>
```

- b) Change the `<ApplicationName>ShellScript</ApplicationName>` entry to the application name.

```
<ApplicationName>Optistruct</ApplicationName>
```

- c) Change the `<ApplicationExtension>.sh</ApplicationExtension>` entry to the application extension.

```
<ApplicationExtension>.fem</ApplicationExtension>
```

- d) Locate the `VERSION` category. In the `xpath1` value, update the `Application@id` to the AppName

```
<ArgumentChoice>
  <ArgumentStringEnumerated>
    <Name>VERSION</NAME>
    <Description> Version of the interactive application you
      selected to start </Description>
    <DisplayName>Version</DisplayName>
    <xi:include href="site-config.xml" pointer="xpath1
      (//Application[@id='Optistruct']/ApplicationVersions//Option) " /
  >
  <ArgumentStringEnumerated>
</ArgumentChoice>
```

4. Edit the app-conv-AppName file (e.g. app-conv-Optistruct.xml).

- a) Change the `<ApplicationId>ShellScript</ApplicationId>` entry to the application ID.

```
<ApplicationId>Optistruct</ApplicationId>
```

- b) Change the `<ApplicationName>ShellScript</ApplicationName>` entry to the application name.

```
<ApplicationName>Optistruct</ApplicationName>
```

- c) Change the `<Software>ShellScript</Software>` entry to the application software.

```
<Software>Optistruct</Software>
```

5. Remove the time stamp file for the services to pick up the updated files.
6. In the `site-config.xml` file located in the application definitions directory, add an entry for the application in the `<Applications>` section.

```
<Application id="Optistruct">
  <ApplicationVersions>
    <ApplicationVersion>
      <Option>13.2</Option>
      <Executable>/altair/Optistruct/13.2/altair/scripts/OV</Executable>
    </ApplicationVersion>
  </ApplicationVersions>
</Application>
```



**Note:** You can also define multiple executable versions for the application definition.

Example to define multiple executable versions of the application definition:

```
<Application id="Optistruct">
  <ApplicationVersions>
    <ApplicationVersion>
      <Option>13.1</Option>
      <Executable>/altair/hw/13.1/altair/scripts/hv</Executable>
    </ApplicationVersion>

    <ApplicationVersion>
      <Option>13.2</Option>
      <Executable>/altair/hw/13.2/altair/scripts/hv</Executable>
    </ApplicationVersion>
  </ApplicationVersions>
</Application>
```

7. Restart Access Desktop for these changes to take effect.  
The new application definition will be listed in Access Desktop.

## 9.4 Specify the Types of Result Files to Download

Choose to include or exclude result files from being downloaded based on a pattern defined in the application definition.

By adding the result file download pattern parameters in the application definition, it is easy to view only those result files that are needed for further analysis.

The files that must be downloaded can be based on the following parameters:

- `RESULT_FILE_DOWNLOAD_IGNORE_PATTERN`
- `RESULT_FILE_DOWNLOAD_ACCEPT_PATTERN`

The `RESULT_FILE_DOWNLOAD_IGNORE_PATTERN` parameter value defined in the application definition will not download the result files with the file extension values mentioned.

The `RESULT_FILE_DOWNLOAD_ACCEPT_PATTERN` parameter value defined in the application definition will download the result files with the file extension values mentioned.

 **Note:** If both the parameters are mentioned in the application definition, then `RESULT_FILE_DOWNLOAD_ACCEPT_PATTERN` parameter value would take precedence.

1. Navigate to `C:\Users\<USERNAME>\Altair_Access\home\apps\PAS\data\pas\targets\<CLUSTER_DISPLAY_NAME>\repository\applications\`


where `<USERNAME>` is the username of the user who logged into the workstation and added the cluster and `<CLUSTER_DISPLAY_NAME>` is the name that was entered for the cluster when it was added to Access Desktop.

For example, let us update the `Optistruct` application with the result file download pattern parameters.

2. Choose one of the following options:

- If you want to download the result files with the extension `.out`, then edit the `app-inp-AppName` file (e.g. `app-inp-Optistruct.xml`) and update the value of `RESULT_FILE_DOWNLOAD_ACCEPT_PATTERN` parameter value as `*.out`.

```
<ArgumentChoice>
  <ArgumentString>
    <Name>RESULT_FILE_DOWNLOAD_ACCEPT_PATTERN</Name>
    <Description>Result file download accept pattern</Description>
    <DisplayName>RESULT_FILE_DOWNLOAD_ACCEPT_PATTERN</DisplayName>
    <InputRequired>false</InputRequired>
    <Value>*.out</Value>
  <ArgumentString>
</ArgumentChoice>
```

 **Note:** You can add multiple file extension values separated by a comma.



- If you do not want to download the result files with the extension `.fem`, then edit the `app-inp-AppName` file (e.g. `app-inp-Optistruct.xml`) and update the value of `RESULT_FILE_DOWNLOAD_IGNORE_PATTERN` parameter value as `*.fem`.

```
<ArgumentChoice>
  <ArgumentString>
    <Name>RESULT_FILE_DOWNLOAD_IGNORE_PATTERN</Name>
    <Description>Result file download ignore pattern</Description>
    <DisplayName>RESULT_FILE_DOWNLOAD_IGNORE_PATTERN</DisplayName>
    <InputRequired>false</InputRequired>
    <Value>*.fem</Value>
  <ArgumentString>
</ArgumentChoice>
```



**Note:** You can add multiple file extension values separated by a comma.

## 9.5 Display an Icon for an Application

Provide a custom icon to represent an application or solver in the Access Desktop user interface.

By default, Access Desktop generates a unique generic icon for each of the application for visual distinction. The generic icon is displayed in the Access Desktop user interface when displaying the list of available applications/solvers for submitting a job. To display a custom icon, place the icon in a special application definition directory.

A directory called `avatar` must be created in the application definition directory and the custom icon must be placed in this directory.

The custom icon should meet the following criteria:

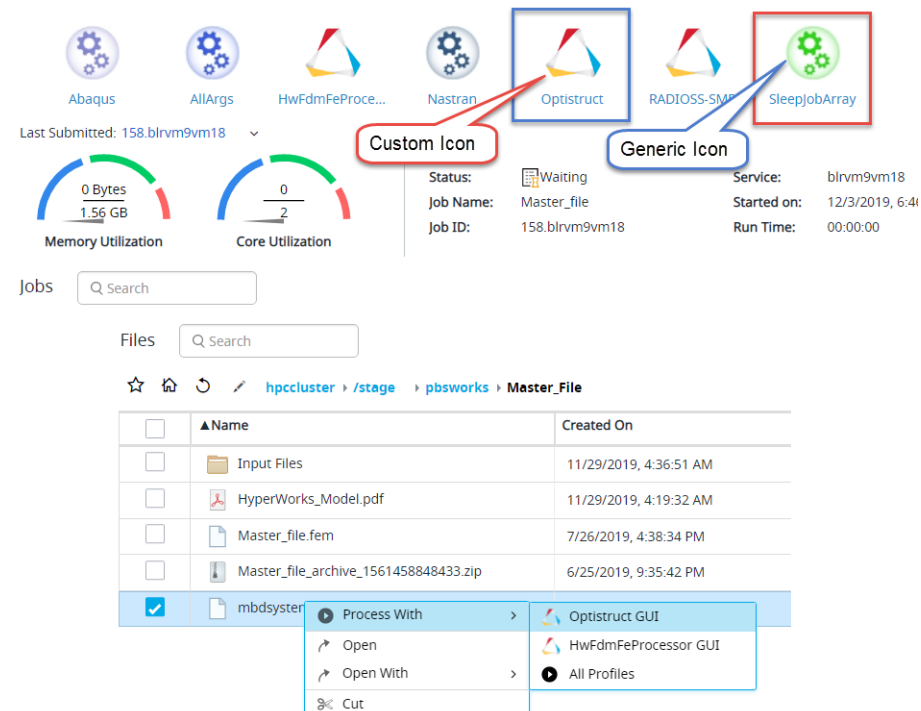
- supported icon formats are JPG, JPEG and PNG.
- the name of the custom icon must be `application.jpg`, `application.jpeg`, or `application.png`.
- minimum size of the icon should be 48x48 pixels.

The custom icon placed in the `avatar` directory gets converted to the following application icon set:

- `ApplicationName-16.png`
- `ApplicationName-24.png`
- `ApplicationName-48.png`
- `ApplicationName.ico`

The custom icon will be resized dynamically and it will be displayed in the application list menu and in the context menu.

Figure 17: Application Icon in Job List and Context Menu



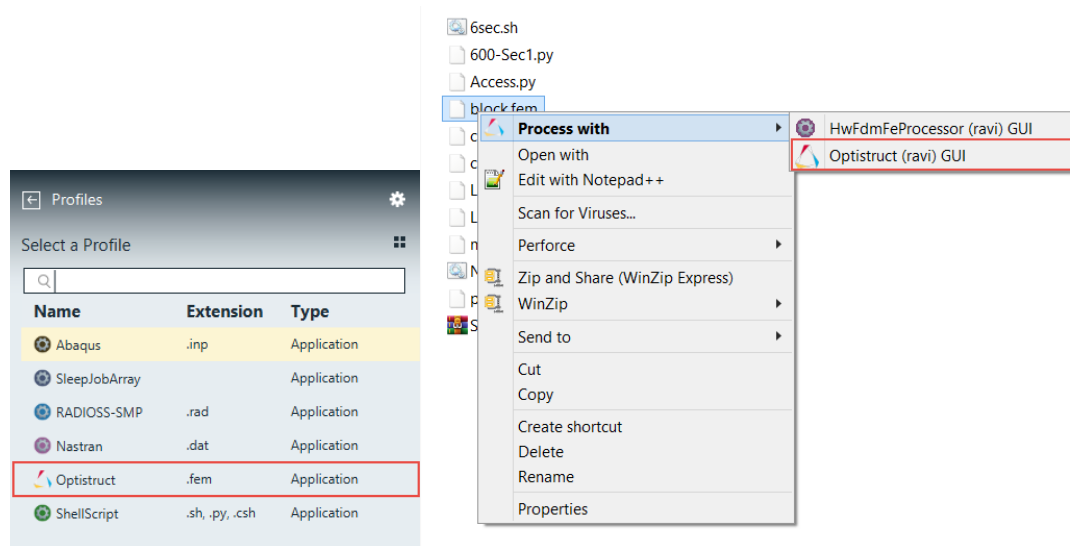


Figure 18: Custom Application Icon in Application List and Context Menu

To maintain backward compatibility, application definitions with the following XML elements `<ApplicationIconSmall>` (icon size 16x16) and `<ApplicationIconMedium>` (icon size 48x48) for the context menu and application list are still valid.

1. Login to the machine where Access Desktop is installed.
  2. Navigate to the required application directory to place the application icon.
  3. Create an *avatar* directory.
  4. Copy the custom icon to the *avatar* directory.
  5. Repeat steps 2 through 4 for all applications.
  6. Restart Access Desktop.
- The custom icon displays for the application in context menu and in the application list.

# Configure to use a Local Copy of WebHelp

10

Configure to use a local copy of help when Altair Connect WebHelp is not reachable.

Download or obtain the Access Desktop Help using your Altair support channels.

Access Desktop will now fetch and display the latest version of the User Guide (WebHelp) from Altair Connect. As a fall back, the application can also be configured to use a local copy of the help.

Perform these steps to configure and view the local copy of the help.

1. Unzip the Access Desktop Help Zip file.
2. Create a folder, `webhelp` in the following location `PAD_EXEC\documents\`.
3. Copy the files from the unzipped `webhelp` folder to `PAD_EXEC\documents\webhelp\`.
4. Edit the `C:\Program Files\altair\Altair Access\2020.1\exec\config\PBSWorks-PAD.conf` file.
5. Update the `ACCESS_HELP_URL` path of the local `webhelp` folder path.



**Note:** By default, the `ACCESS_HELP_URL` path mentioned is the Altair Connect path.

Change the Altair Connect default path to the local `webhelp` folder path as follows:

```
ACCESS_HELP_URL=file:///C:/Progra~1/altair/Altair~1/2020.1/exec/documents/webhelp/index.htm
```

6. Restart Access Desktop application.

# Troubleshooting Access Desktop

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**11**

The following section provides the troubleshooting information and steps for Access Desktop.

This chapter covers the following:

- [11.1 Unable to Login to the Registered Cluster](#) (p. 69)

## 11.1 Unable to Login to the Registered Cluster

I am attempting to login to the registered cluster but it fails.

### Cause

The user profile on the registered cluster may have been corrupted causing the login to fail.

### Remedy

Fixing the user profile.

1. Login to the registered cluster using a SSH client such as PuTTY using the same credentials that were used to login to the registered cluster via Access Desktop.
2. Execute the command: `ssh username@hostname date`.  
This command will display the user's last login date and time. It may also display additional information and any other corrupted information in the configuration file (`.bash_profile`, `.bashrc`).
3. If the login failure is due to a corrupted configuration file, correct the appropriate file.  
If this issue persists, then configure Access Desktop to log SSH errors to the PAS Server log file (`pas-server.log`).

### Remedy

Configure Access Desktop to log SSH errors to the PAS Server log file.

1. Navigate to `%userprofile%\Altair_Access\home\apps\pas\config\pas\conf/`.
2. Open the file `server.conf`.
3. Change `SSH_LOGGER_ENABLE=false` to `SSH_LOGGER_ENABLE=true`.
4. Restart Access Desktop.
5. Login to the registered cluster.  
SSH errors will be displayed in the PAS Server log file.
6. Navigate to the PAS Server log file (`pas-server.log`).  
`C:\Users\%username%\Altair_Access\home\logs\`
7. View the log file to determine what is causing the login failure.