Altair Access Desktop 2022.2.0

Administrator's Guide

Updated: 11/29/2022

Intellectual Property Rights Notice

Copyrights, trademarks, trade secrets, patents and third party software licenses.

Altair PBS Works™ v. 2022.2.0 Copyright © 1994-2022.

This Intellectual Property Rights Notice is exemplary, and therefore not exhaustive, of intellectual property rights held by Altair Engineering Inc. or its affiliates. Software, other products, and materials of Altair Engineering Inc. or its affiliates are protected under laws of the United States and laws of other jurisdictions. In addition to intellectual property rights indicated herein, such software, other products, and materials of Altair Engineering Inc. or its affiliates may be further protected by patents, additional copyrights, additional trademarks, trade secrets, and additional other intellectual property rights. For avoidance of doubt, copyright notice does not imply publication. Copyrights in the below are held by Altair Engineering Inc. or its affiliates. Additionally, all non-Altair marks are the property of their respective owners.

This Intellectual Property Rights Notice does not give you any right to any product, such as software, or underlying intellectual property rights of Altair Engineering Inc. or its affiliates. Usage, for example, of software of Altair Engineering Inc. or its affiliates is governed by and dependent on a valid license agreement.

Altair HPC & Cloud Products

Altair® PBS Professional® ©1994-2022

Altair® PBS Works™ © 2022

Altair® Control™ ©2008-2022

Altair® Access™ ©2008-2022

Altair® Accelerator™ ©1995-2022

Altair® Accelerator™ Plus ©1995-2022

Altair® FlowTracer™ ©1995-2022

Altair® Allocator™ ©1995-2022

Altair® Monitor™ ©1995-2022

Altair® Hero™ ©1995-2022

Altair® Software Asset Optimization (SAO) ©2007-2022

Altair Mistral™ ©2022

Altair® Grid Engine® ©2001, 2011-2022

Altair® DesignAI™ ©2022

Altair Breeze™ ©2022

Altair® NavOps® © 2022

Altair® Unlimited™ © 2022

Altair Simulation Products

Altair® AcuSolve® ©1997-2022

Altair Activate®©1989-2022

Altair® Battery Designer™ ©2019-2022

Altair Compose®©2007-2022

Altair® ConnectMe™ ©2014-2022

Altair® EDEM™ © 2005-2022

Altair® ElectroFlo™ ©1992-2022

Altair Embed® ©1989-2022

Altair Embed® SE ©1989-2022

Altair Embed®/Digital Power Designer ©2012-2022

Altair Embed® Viewer ©1996-2022

Altair® ESAComp® ©1992-2022

Altair® Feko® ©1999-2022

Altair® Flow Simulator™©2016-2022

Altair® Flux® ©1983-2022

Altair® FluxMotor® ©2017-2022

Altair® HyperCrash® ©2001-2022

Altair® HyperGraph® ©1995-2022

Altair® HyperLife® ©1990-2022

Altair® HyperMesh® ©1990-2022

Altair® HyperStudy® ©1999-2022

Altair® HyperView® ©1999-2022

Altair® HyperWorks® ©1990-2022

Altair® HyperXtrude® ©1999-2022

Altair® Inspire™ ©2009-2022

Altair® Inspire™ Cast ©2011-2022

Altair® Inspire™ Extrude Metal ©1996-2022

Altair® Inspire™ Extrude Polymer ©1996-2022

Altair® Inspire™ Form ©1998-2022

Altair® Inspire™ Mold ©2009-2022

Altair® Inspire™ PolyFoam ©2009-2022

Altair® Inspire™ Print3D ©2022

Altair® Inspire ™ Render ©1993-2022

Altair® Inspire™ Studio ©1993-2022

Altair® Material Data Center™ ©2019-2022

Altair® MotionSolve® ©2002-2022

Altair® MotionView® ©1993-2022

Altair® Multiscale Designer® ©2011-2022

Altair® nanoFluidX® ©2013-2022

Altair® OptiStruct® ©1996-2022

Altair® PollEx™ ©2003-2022

Altair® PSIM™ © 2022

Altair® Pulse™ ©2020-2022

Altair® Radioss® ©1986-2022

Altair® romAI™ © 2022

Altair® SEAM® © 1985-2022

Altair® SimLab® ©2004-2022

Altair® SimLab® ST © 2019-2022

Altair SimSolid® ©2015-2022

Altair® ultraFluidX® ©2010-2022

Altair® Virtual Wind Tunnel™ ©2012-2022

Altair® WinProp™ ©2000-2022

Altair® WRAP™ ©1998-2022

Altair® S-FRAME® © 1995-2022

Altair® S-STEEL™ © 1995-2022

Altair® S-PAD™ © 1995-2022

Altair® S-CONCRETE™ © 1995-2022

Altair® S-LINE™ © 1995-2022

Altair® S-TIMBER™ © 1995-2022

Altair® S-FOUNDATION™ © 1995-2022

Altair® S-CALC™ © 1995-2022

Altair® S-VIEW™ © 1995-2022

Altair® Structural Office™ © 2022

Altair® HyperViewPlayer® © 2022

Altair Packaged Solution Offerings (PSOs)

Altair® Automated Reporting Director™ ©2008-2022

Altair® e-Motor Director™ ©2019-2022

Altair® Geomechanics Director™ ©2011-2022

Altair® Impact Simulation Director™ ©2010-2022

Altair® Model Mesher Director™ ©2010-2022

Altair® NVH Director™ ©2010-2022

Altair® NVH Full Vehicle™ © 2022

Altair® NVH Standard™ © 2022

Altair® Squeak and Rattle Director™ ©2012-2022

Altair® Virtual Gauge Director™ ©2012-2022

Altair® Weld Certification Director™ ©2014-2022

Altair® Multi-Disciplinary Optimization Director™ ©2012-2022

Altair Data Analytics Products

Altair Analytics Workbench™ © 2002-2022

Altair® Knowledge Studio® © 1994-2022

Altair® Knowledge Studio® for Apache Spark © 1994-2022

Altair® Knowledge Seeker™ © 1994-2022

Altair® Knowledge Hub™ © 2017-2022

Altair® Monarch® © 1996-2022

Altair® Panopticon™ © 2004-2022

Altair® SmartWorks™ © 2021-2022

Altair SLC™ ©2002-2022

Altair SmartWorks Hub™ ©2002-2022

Third party software licenses

AcuConsole contains material licensed from Intelligent Light (www.ilight.com) and used by permission.

Software Security Measures:

Altair Engineering Inc. and its subsidiaries and affiliates reserve the right to embed software security mechanisms in the Software for the purpose of detecting the installation and/or use of illegal copies of the Software. The Software may collect and transmit non-proprietary data about those illegal copies. Data collected will not include any customer data created by or used in connection with the Software and will not be provided to any third party, except as may be required by law or legal process or to enforce our rights with respect to the use of any illegal copies of the Software. By using the Software, each user consents to such detection and collection of data, as well as its transmission and use if an illegal copy of the Software is detected. No steps may be taken to avoid or detect the purpose of any such security mechanisms.

Technical Support

Altair provides comprehensive software support via web FAQs, tutorials, training classes, telephone, and e-mail.

Altair One Customer Portal

Altair One (https://altairone.com/) is Altair's customer portal giving you access to product downloads, a Knowledge Base, and customer support. We recommend that all users create an Altair One account and use it as their primary portal for everything Altair.

When your Altair One account is set up, you can access the Altair support page via this link: www.altair.com/customer-support/

Altair Community

Participate in an online community where you can share insights, collaborate with colleagues and peers, and find more ways to take full advantage of Altair's products.

Visit the Altair Community (https://community.altair.com/community) where you can access online discussions, a knowledge base of product information, and an online form to contact Support. After you login to the Altair Community, subscribe to the forums and user groups to get up-to-date information about release updates, upcoming events, and questions asked by your fellow members.

These valuable resources help you discover, learn and grow, all while having the opportunity to network with fellow explorers like yourself.

Altair Training Classes

Altair's in-person, online, and self-paced trainings provide hands-on introduction to our products, focusing on overall functionality. Trainings are conducted at our corporate and regional offices or at your facility.

For more information visit: https://learn.altair.com/.

If you are interested in training at your facility, contact your account manager for more details. If you do not know who your account manager is, contact your local support office and they will connect you with your account manager.

Telephone and E-mail

If you are unable to contact Altair support via the customer portal, you may reach out to technical support via phone or e-mail. Use the following table as a reference to locate the support office for your region.

When contacting Altair support, specify the product and version number you are using along with a detailed description of the problem. It is beneficial for the support engineer to know what type of workstation, operating system, RAM, and graphics board you have, so include that in your communication.

To contact an Altair support representative, refer the following table.

Location	Telephone	E-mail
Australia	+61 3 9866 5557	anz-pbssupport@altair.com
Brazil	+55 113 884 0414	
Canada	+1 416 447 6463	
China	+86 400 619 6186	pbs@altair.com.cn
France	+33 141 33 0992	pbssupport@europe.altair.com
Germany	+49 703 162 0822	pbssupport@europe.altair.com
Greece	+30 231 047 3311	
India	+91 806 629 4500 +1 800 425 0234 (Toll Free)	pbs-support@india.altair.com
Israel		
Italy	+39 800 905 595	pbssupport@europe.altair.com
Japan	+81 3 6225 5830	pbs@altairjp.co.jp
Malaysia	+60 32 742 7890	pbs-support@india.altair.com
Mexico	+52 55 5658 6808	
New Zealand	+64 9 413 7981	
South Africa	+27 21 831 1500	pbssupport@europe.altair.com
South Korea	+82 704 050 9200	br_support@altair.com
Spain	+34 910 810 080	
Sweden	+46 46 460 2828	
United Kingdom	+44 192 646 8600	pbssupport@europe.altair.com
United States	+1 248 614 2425	

If your company is being serviced by an Altair partner, you can find that information on our web site at https://www.altair.com/PartnerSearch/.

See www.altair.com for complete information on Altair, our team, and our products.

Contents

What's New

1

Latest features available with Altair Access™ Desktop.

OpenID Connect for Single Sign-On

OpenID Connect (OIDC) is an authentication layer built on top of the OAuth authorization protocol used by Access Web. By integrating with Okta, the OIDC application provides user authentication and single sign-on (SSO) functionality. This new authentication process is followed for HTTPS Cluster registration in Access Desktop.

Refresh Application Definitions using RefreshOnUpdate tag

To ensure consistency in refreshing the application definitions, the LocalRefresh functionality has been replaced with RefreshOnUpdate.

Security Vulnerabilities

Third-party libraries are updated to the most recent stable versions in order to address library-related security issues.

Overview

2

Use Access Desktop to submit jobs to a Workload Manager.

This chapter covers the following:

2.1 About Access Desktop

Altair Access Desktop provides a simple, powerful and consistent interface for submitting and monitoring jobs.

Engineers and researchers can focus on core activities instead of learning how to run applications or moving data around. You can download and analyze animations using the Altair HyperView Player.

Key Benefits

Easy-to-Use Desktop Application - Give your engineers, scientists, and researchers access to high-performance computing (HPC) – no IT expertise needed – to run solvers, view progress and manage data from the familiar interface of Windows File Explorer.

Time and Resource Savings - Spend more time focused on core work and not IT tasks, with quick and easy job submission and management thanks to a powerful GUI with a smart, simple interface.

Consistent Access User Experience - Users get a simple, powerful user experience that's consistent across desktop, web, and mobile.

Optimized Resource Management - Integration with Altair® PBS Professional® allows optimized application provisioning on computing resources for maximum utilization.

Open Architecture - Because Access is built on an open architecture, you can use third-party applications without needing additional software development.

2.2 Document Conventions

Common typographical conventions for Altair Access Desktop™ technical publications.

PAD_HOME
: The Access Desktop home directory which contains configuration and logging files. Default location is `%USERPROFILE%\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 `%USERPROFILE%\AppData\Local\altair\Altair Access\2022.2.0\exec\`, however this can be overridden during the installation of Access Desktop.

PA_HOME
: The Access Desktop home directory which contains configuration, data, and logging files. Default location is: `/var/spool/pbsworks/2022.2.0/access/home`. However, this can be overridden during the installation of Access Desktop.

PA_EXEC
: The Access Desktop execution directory which contains binaries and scripts. Default location is: `/opt/altair/pbsworks/2022.2.0/access/exec`. However, this can be overridden during the installation of Access Desktop.

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/`

2.3 System Requirements

Supported platforms and hardware requirements for using Access Desktop.

Supported Platforms

Access Desktop is supported on the following:

- Windows 10 64-bit platform
- Linux

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

2.4 Supported Product Configurations

Supported product configurations for using Access Desktop.

The currently supported Access Desktop product configurations are:

Access Desktop	PBS Professional
2022.2.0	• 2022.1.0, 2021.1.3, 2021.1.2, 2021.1.1, 2021.1.0 • 2020.1.4, 2020.1.3

Small engineering groups often require the ability to submit jobs without installing the full-blown HPC management stack. To enable this, a common, single computer (with sufficient specifications) can be used. Access Desktop can connect to such shared workgroup computers over SSH and enable users to submit, monitor, and manage their jobs.

Alternately, you can configure a Workgroup computer for smaller sites without a High Performance Computing (HPC) setup.

Note: Altair License Server 14.5.1 or newer is required for Access Desktop 2022.2.0.

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 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.

Note: Alternately, you can configure a Workgroup computer for smaller sites without a HPC setup.

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.

Deployment Option 4 - Prepare and Distribute a Preconfigured Installer through Access Web

In this deployment option Access Desktop is distributed through Access Web. This option requires a system administrator to install Access Desktop, and register clusters through SSH and HTTPS. The

installation configuration, including clusters, application definitions and profiles, is exported to a configuration zip file. Prepare a product zip file with the Access Desktop installer and the configuration zip file to place it the Access Web download area. This zip file is now available through the Get Access Desktop feature in Access Web.

2.6 Configure Workgroup Computer

To submit jobs to a Workgroup computer, establish an SSH connection with the Workgroup computer and configure the Python path. For Windows, additional steps are required to add a list of users or groups in the Windows Management Instrumentation (WMI).

Prerequisites:

- Users should be able to connect to the Workgroup computer using SSH.
- Win32 modules in Python 3 must be configured and resolvable from the command line for all users. Use "`pip install pypiwin32`" to install Win32 modules in Python 3.

  > **Note:** If the Python 3 path is configured or modified after configuring SSH on Windows, you must restart the Workgroup computer.

On Linux, update the Python path in `/etc/bashrc` for all users.

On Windows, perform the following steps to configure the Workgroup computer:

1. Configure permissions for users and groups:
   a) Click **Start** > **Run** and type `wmimgmt.msc` to open the WMI control.
   b) Right click **WMI control (Local)** and choose **Properties**.
   c) Click the **Security** tab.
   d) Click **Security**.
   e) Click **Advanced**.
   f) Click **Add**.
   g) Enter the user name or group name.
   h) In the Permission Entry for Root window, select Type as `Allow`, Applies to as `This namespaces and subnamespaces`. Also, select all the permissions listed in the Permissions section.

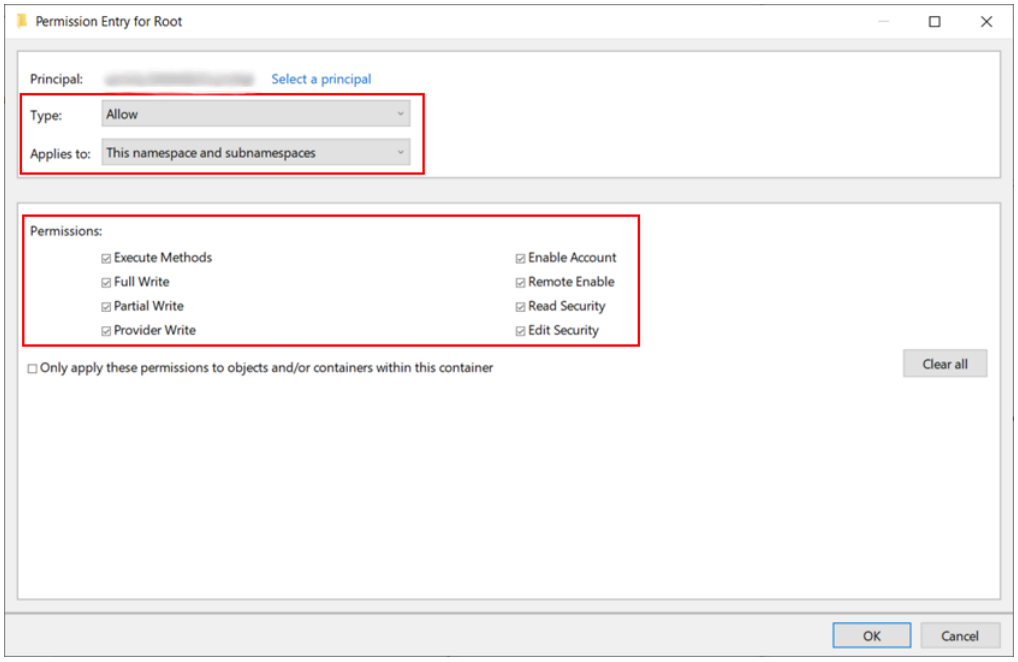


Figure 1: Permission Entry for Root

i) Click **OK** on all open windows to provide permissions.

2. Disable User Access Control (UAC) to ensure executables are not blocked.

a) To disable UAC, Open **Control Panel**

b) Navigate to **User Accounts and Family Safety\User Accounts**.

c) Click **Change User Account Control Settings**.

d) Change it to **Never Notify**.

e) Click **OK**.

f) Press **Windows + R** key to open the **Run Dialog box**.

g) Type **regedit** and press enter.

h) Navigate to `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System\`

i) Set the value of **EnableLUA DWORD** to 0.

Create the **EnableLUA DWORD** key if it is not available.

3. Restart the Workgroup computer.

2.7 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.

Altair License Server

Altair License Server version 14.5.1 or newer must be installed prior to installing Access Desktop.

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 used with Access Desktop and can be obtained through your 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.

2.8 PBS Works License

Licensing model for Access Desktop.

Access Desktop supports both PBSWorksUsers and HyperWorksUnits (HWU) licenses. Licenses must be installed and available via a Altair License Server version 14.5.1 or newer. This can be installed in the same server or in separate servers.

Licenses consumed by Access Desktop are:

PBSWorksUsers
: Access Desktop first checks for PBSWorksUsers license. Each user who logs in checks out one PBSWorksUsers license.

HyperWorksUnits
: If the PBSWorksUsers license is not available, Access Desktop will checkout one HWU of JSMMUser license.

Install Access Desktop

3

Install Access Desktop based on your chosen deployment option.

This chapter covers the following:

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.

To perform a silent installation, create a file called `access_desktop.properties` in the same location as the installer and add the following entries:

```
ALTAIR_SPM_LICENSE_PATH=<port@hostname>
USER_INSTALL_DIR=%USERPROFILE%\\AppData\\local\\altair\\Altair Access\\2022.2.0
ACCEPT_EULA=YES
```

To install Access Desktop:

1. Choose one of the following options:
   - In GUI mode, double-click the installer executable file.
   - In silent mode, open a command prompt in the same location as the installer and enter the command:

     ```
     <INSTALLER_NAME>.exe -i silent -f access_desktop.properties
     ```

     For example: `AltairAccessDesktop_2021.1.2_18_20210616_174019.exe -i silent -f access_desktop.properties`

     Alternatively, you can skip using the `access_desktop.properties` file use the following command:

     ```
     <INSTALLER_NAME>.exe -i silent -DUSER_INSTALL_DIR="<INSTALL_PATH>" -DALTAIR_SPM_LICENSE_PATH=<PORT@HOSTNAME> -DACCEPT_EULA=YES
     ```

     `<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.

     For example: `AltairAccessDesktop_2021.1.2_18_20210616_174019.exe -i silent -DUSER_INSTALL_DIR="C:\Users\john\AppData\Local\altair\Altair Access" -DALTAIR_SPM_LICENSE_PATH=6200@172.16.81.45 -DACCEPT_EULA=YES`
2. Follow the installation instructions.

Once the installation is complete, a desktop shortcut is created.

3.1.2 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 or a Workgroup. 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.

Workgroup
Small engineering groups often require the ability to submit jobs without installing the full-blown HPC management stack. To enable this, a common, single computer (with sufficient specifications) can be used. Access Desktop can connect to such shared workgroup computers over SSH and enable users to submit, monitor, and manage their jobs.

Add a Cluster Using SSH

Add and establish a connection to the HPC or Workgroup 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 or the Workgroup computer.

Select the **Skip this next time** option while registering a cluster to resume file uploads, downloads, and jobs after a network disconnection.

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

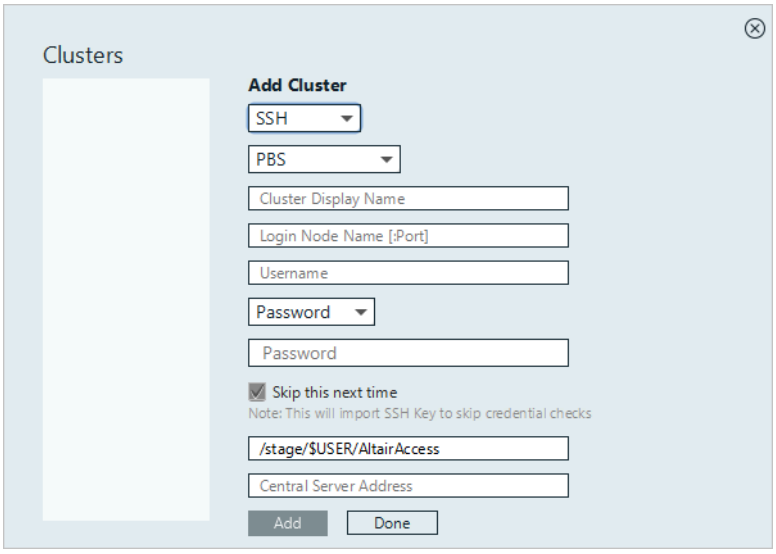
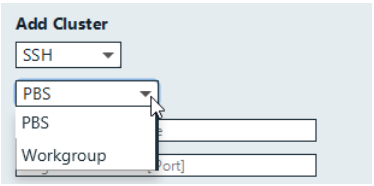


Figure 2: Add Cluster

5. Choose one of the following options:
   - Select PBS to add a PBS Server.
   - Select Workgroup to add a Workgroup computer.



6. For Cluster Display Name, enter a name for the cluster as it is displayed within Access Desktop.
7. For Login Node Name, enter the host name of the machine where the PBS Server is installed.

> **Note:** The default port number for SSH is 22. If SSH is configured to use a different port number add it along with the host name.

8. For Username, enter your user name.
9. 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 private SSH key file.
10. 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.
11. Enter the location on the PBS Server where job files are staged when a job is running.
12. 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.

13. Click **Add**.

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

14. Click **Done**.
    The cluster is added successfully and a green check mark is displayed next to the cluster name.

Add a Cluster Using HTTPS

Add and connect to Access Web server using HTTPS to submit and monitor jobs.

You will need the URL of an Access Web server as well as a valid set of credentials to add a cluster via HTTPS. All communication between Access Desktop and Access Web is encrypted.

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** from the drop-down list.

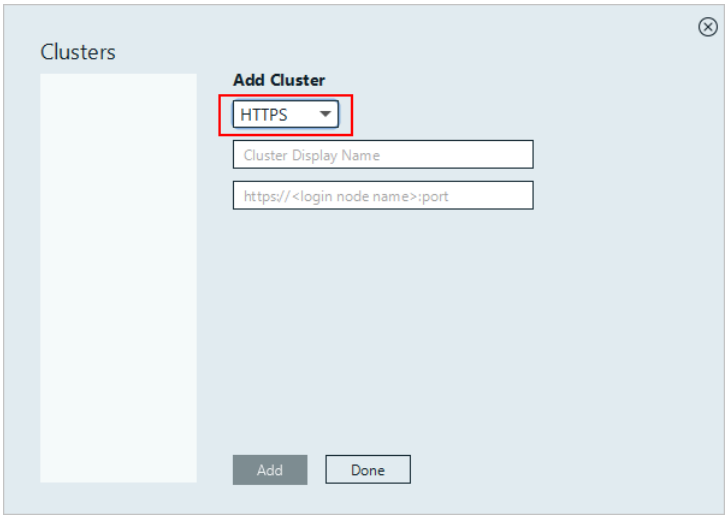


Figure 3: Adding a Cluster

6. Enter a **Cluster Display Name**.

> **Note:** You can use alphanumeric characters for a cluster display name.

7. Enter the Access Web URL in the format `https://<hostname>:4443`. Hostname is the machine where Access Web is installed.

> **Note:** If a hostname is provided during the Access Web installation enter the Access Web URL using the hostname to register the HTTPS cluster. Similarly follow the same if IP address is provided.

8. Click **Add**.
A new web browser is launched and authenticates the user using the OpenID Connect (OIDC) and provides an authenticate code.

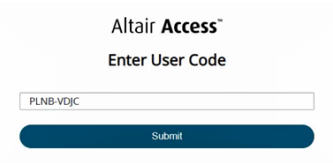


Figure 4: OIDC Authentication

9. Click **Submit**.
The Access login page is displayed.
10. Enter your credentials.

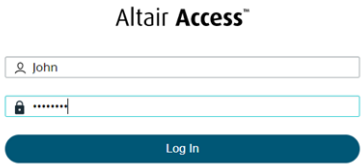


Figure 5: Access Web Login

11. Click **Log In**.

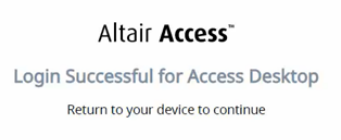


Figure 6: Successful Login

12. Close the browser. Return to the Access Desktop application; the cluster is added, and a green check mark is displayed next to the cluster name.

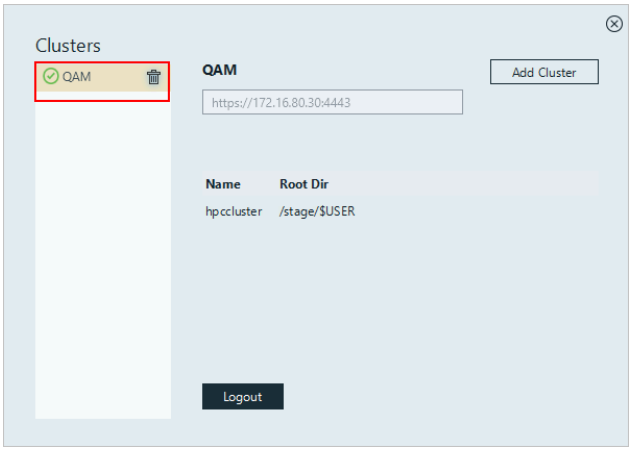


Figure 7: HTTPS Cluster Register

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

3.1.3 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.

Application definitions now need to be compatible with Python 3.

Note: Python usage in application definitions is usually minimal and straightforward. Validate the updated application definitions before using it.

1. Navigate to the following location on the workstation:`%USERPROFILE%\Altair_Access\home\apps\PAS\data\pas\targets\`.
   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 specified 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 `%USERPROFILE%\Altair_Access\home\apps\PAS\data\pas\targets\<CLUSTER_DISPLAY_NAME>\repository\`

where `<CLUSTER_DISPLAY_NAME>` is the name specified 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.

3.1.4 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.
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.

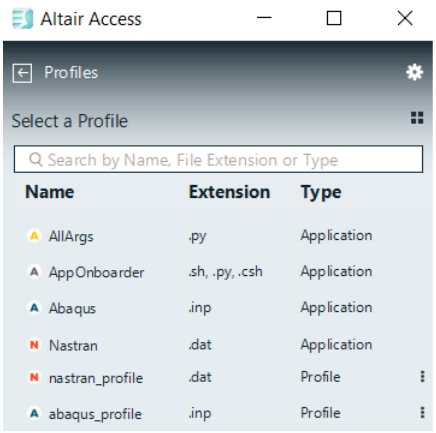


Figure 8: New Job Profile

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.

To perform a silent installation, create a file called `access_desktop.properties` in the same location as the installer and add the following entries:

```
ALTAIR_SPM_LICENSE_PATH=<port@hostname>
USER_INSTALL_DIR=%USERPROFILE%\\AppData\\local\\altair\\Altair Access\\2022.2.0
ACCEPT_EULA=YES
```

To install Access Desktop:

1. Choose one of the following options:
   - In GUI mode, double-click the installer executable file.
   - In silent mode, open a command prompt in the same location as the installer and enter the command:

     ```
     <INSTALLER_NAME>.exe -i silent -f access_desktop.properties
     ```

     For example: `AltairAccessDesktop_2021.1.2_18_20210616_174019.exe -i silent -f access_desktop.properties`

     Alternatively, you can skip using the `access_desktop.properties` file use the following command:

     ```
     <INSTALLER_NAME>.exe -i silent -DUSER_INSTALL_DIR="<INSTALL_PATH>" -DALTAIR_SPM_LICENSE_PATH=<PORT@HOSTNAME> -DACCEPT_EULA=YES
     ```

     `<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.

For example: `AltairAccessDesktop_2021.1.2_18_20210616_174019.exe -i silent -DUSER_INSTALL_DIR="C:\Users\john\AppData\Local\altair\Altair Access" -DALTAIR_SPM_LICENSE_PATH=6200@172.16.81.45 -DACCEPT_EULA=YES`

2. Follow the installation instructions.

Once the installation is complete, a desktop shortcut is created.

3.2.2 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 or a Workgroup. 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.

Workgroup
Small engineering groups often require the ability to submit jobs without installing the full-blown HPC management stack. To enable this, a common, single computer (with sufficient specifications) can be used. Access Desktop can connect to such shared workgroup computers over SSH and enable users to submit, monitor, and manage their jobs.

Add a Cluster Using SSH

Add and establish a connection to the HPC or Workgroup 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 or the Workgroup computer.

Select the **Skip this next time** option while registering a cluster to resume file uploads, downloads, and jobs after a network disconnection.

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

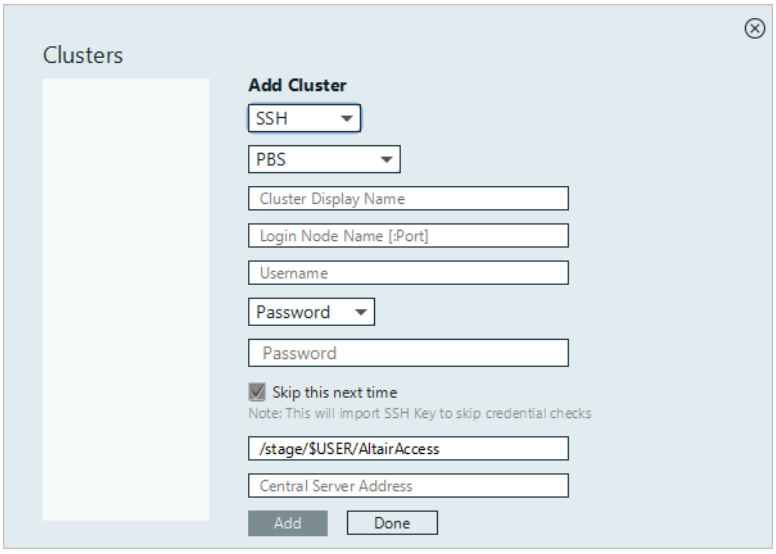
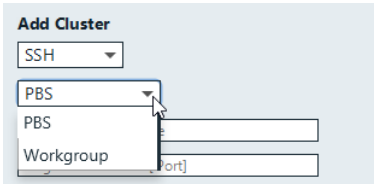


Figure 9: Add Cluster

5. Choose one of the following options:
   - Select PBS to add a PBS Server.
   - Select Workgroup to add a Workgroup computer.



6. For Cluster Display Name, enter a name for the cluster as it is displayed within Access Desktop.
7. For Login Node Name, enter the host name of the machine where the PBS Server is installed.

> **Note:** The default port number for SSH is 22. If SSH is configured to use a different port number add it along with the host name.

8. For Username, enter your user name.
9. 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 private SSH key file.
10. 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.
11. Enter the location on the PBS Server where job files are staged when a job is running.
12. 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.

13. Click **Add**.

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

14. Click **Done**.
    The cluster is added successfully and a green check mark is displayed next to the cluster name.

Add a Cluster Using HTTPS

Add and connect to Access Web server using HTTPS to submit and monitor jobs.

You will need the URL of an Access Web server as well as a valid set of credentials to add a cluster via HTTPS. All communication between Access Desktop and Access Web is encrypted.

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** from the drop-down list.

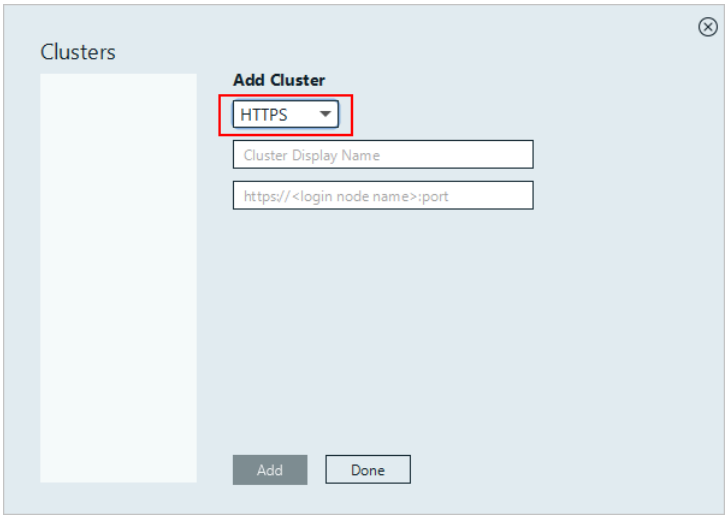


Figure 10: Adding a Cluster

6. Enter a **Cluster Display Name**.

> **Note:** You can use alphanumeric characters for a cluster display name.

7. Enter the Access Web URL in the format `https://<hostname>:4443`. Hostname is the machine where Access Web is installed.

> **Note:** If a hostname is provided during the Access Web installation enter the Access Web URL using the hostname to register the HTTPS cluster. Similarly follow the same if IP address is provided.

8. Click **Add**.
A new web browser is launched and authenticates the user using the OpenID Connect (OIDC) and provides an authenticate code.

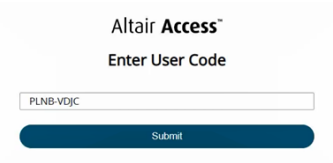


Figure 11: OIDC Authentication

9. Click **Submit**.
The Access login page is displayed.
10. Enter your credentials.

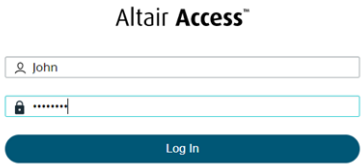


Figure 12: Access Web Login

11. Click **Log In**.

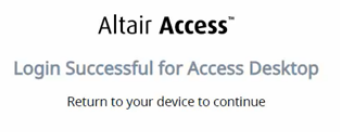


Figure 13: Successful Login

12. Close the browser. Return to the Access Desktop application; the cluster is added, and a green check mark is displayed next to the cluster name.

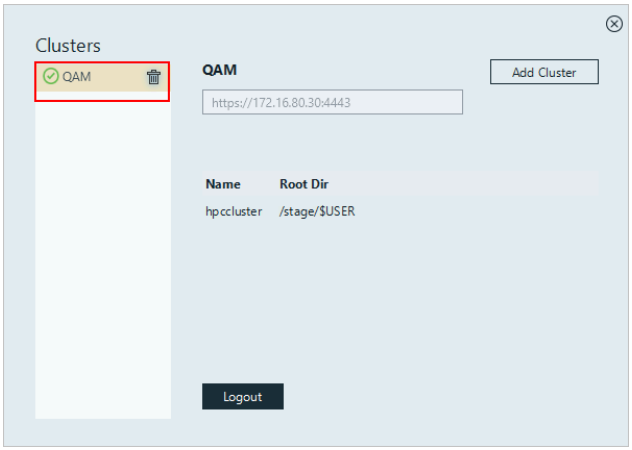


Figure 14: HTTPS Cluster Register

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

3.2.3 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.

Application definitions now need to be compatible with Python 3.

Note: Python usage in application definitions is usually minimal and straightforward. Validate the updated application definitions before using it.

1. Navigate to the following location on the workstation:`%USERPROFILE%\Altair_Access\home\apps\PAS\data\pas\targets\`.
   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 specified 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 `%USERPROFILE%\Altair_Access\home\apps\PAS\data\pas\targets\<CLUSTER_DISPLAY_NAME>\repository\`

where `<CLUSTER_DISPLAY_NAME>` is the name specified 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.

3.2.4 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.
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.

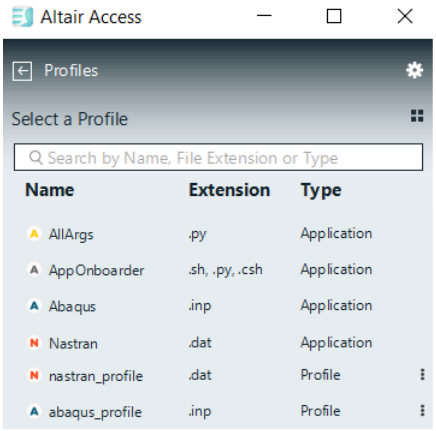


Figure 15: New Job Profile

3.2.5 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.

3.2.6 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, double-click the installer, the executable file.
   - To install from the command line in silent mode, open a command prompt as a Windows administrator and enter the command:

     ```
     <INSTALLER_NAME>.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.
5. Follow the installation instructions.

   Once the installation is complete, a shortcut is created..

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 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.

To perform a silent installation, create a file called `access_desktop.properties` in the same location as the installer and add the following entries:

```
ALTAIR_SPM_LICENSE_PATH=<port@hostname>
USER_INSTALL_DIR=%USERPROFILE%\\AppData\\local\\altair\\Altair Access\\2022.2.0
ACCEPT_EULA=YES
```

To install Access Desktop:

1. Choose one of the following options:
   - In GUI mode, double-click the installer executable file.
   - In silent mode, open a command prompt in the same location as the installer and enter the command:

```
<INSTALLER_NAME>.exe -i silent -f access_desktop.properties
```

For example: `AltairAccessDesktop_2021.1.2_18_20210616_174019.exe -i silent -f access_desktop.properties`

Alternatively, you can skip using the `access_desktop.properties` file use the following command:

```
<INSTALLER_NAME>.exe -i silent -DUSER_INSTALL_DIR="<INSTALL_PATH>" -DALTAIR_SPM_LICENSE_PATH=<PORT@HOSTNAME> -DACCEPT_EULA=YES
```

`<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.

For example: `AltairAccessDesktop_2021.1.2_18_20210616_174019.exe -i silent -DUSER_INSTALL_DIR="C:\Users\john\AppData\Local\altair\Altair Access" -DALTAIR_SPM_LICENSE_PATH=6200@172.16.81.45 -DACCEPT_EULA=YES`

2. Follow the installation instructions.

Once the installation is complete, a desktop shortcut is created.

3.3.3 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 or a Workgroup. 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.

Workgroup
Small engineering groups often require the ability to submit jobs without installing the full-blown HPC management stack. To enable this, a common, single computer (with sufficient specifications) can be used. Access Desktop can connect to such shared workgroup computers over SSH and enable users to submit, monitor, and manage their jobs.

Add a Cluster Using SSH

Add and establish a connection to the HPC or Workgroup 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 or the Workgroup computer.

Select the **Skip this next time** option while registering a cluster to resume file uploads, downloads, and jobs after a network disconnection.

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

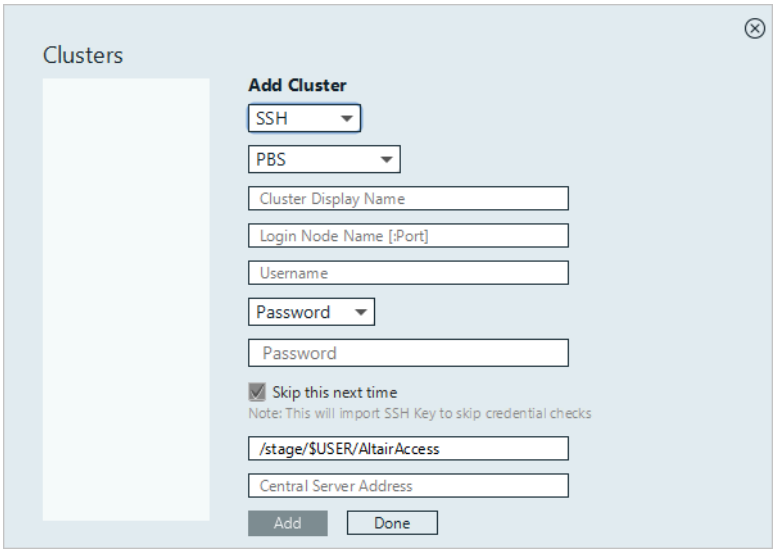
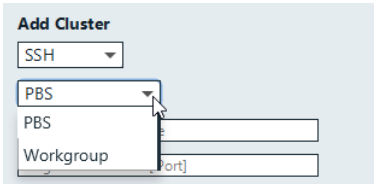


Figure 16: Add Cluster

5. Choose one of the following options:
   - Select PBS to add a PBS Server.
   - Select Workgroup to add a Workgroup computer.



6. For Cluster Display Name, enter a name for the cluster as it is displayed within Access Desktop.
7. For Login Node Name, enter the host name of the machine where the PBS Server is installed.

> **Note:** The default port number for SSH is 22. If SSH is configured to use a different port number add it along with the host name.

8. For Username, enter your user name.
9. 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 private SSH key file.
10. 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.

11. Enter the location on the PBS Server where job files are staged when a job is running.
12. 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.
13. Click **Add**.

    Tip: Repeat the previous steps to add additional clusters.

14. Click **Done**.
    The cluster is added successfully and a green check mark is displayed next to the cluster name.

Add a Cluster Using HTTPS

Add and connect to Access Web server using HTTPS to submit and monitor jobs.

You will need the URL of an Access Web server as well as a valid set of credentials to add a cluster via HTTPS. All communication between Access Desktop and Access Web is encrypted.

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** from the drop-down list.

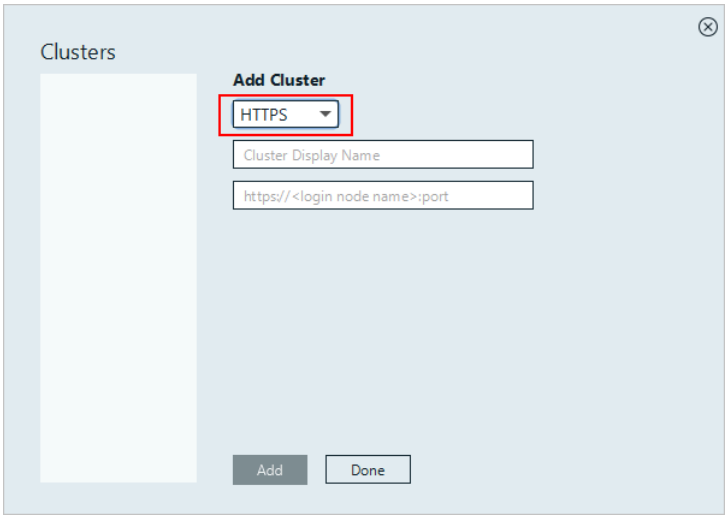


Figure 17: Adding a Cluster

6. Enter a **Cluster Display Name**.

> **Note:** You can use alphanumeric characters for a cluster display name.

7. Enter the Access Web URL in the format `https://<hostname>:4443`. Hostname is the machine where Access Web is installed.

> **Note:** If a hostname is provided during the Access Web installation enter the Access Web URL using the hostname to register the HTTPS cluster. Similarly follow the same if IP address is provided.

8. Click **Add**.
A new web browser is launched and authenticates the user using the OpenID Connect (OIDC) and provides an authenticate code.

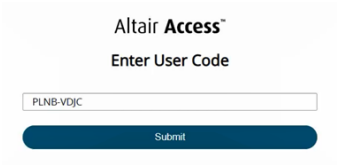


Figure 18: OIDC Authentication

9. Click **Submit**.
The Access login page is displayed.
10. Enter your credentials.

Figure 19: Access Web Login

11. Click **Log In**.

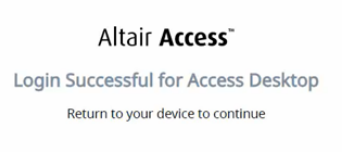


Figure 20: Successful Login

12. Close the browser. Return to the Access Desktop application; the cluster is added, and a green check mark is displayed next to the cluster name.

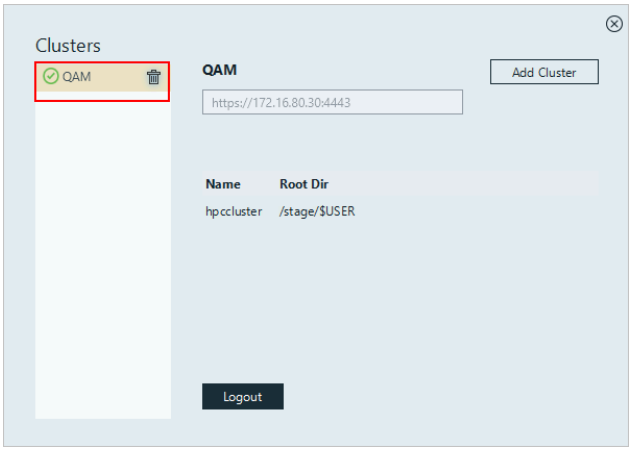


Figure 21: HTTPS Cluster Register

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

3.3.4 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. Application definitions now need to be compatible with Python 3.

> **Note:** Python usage in application definitions is usually minimal and straightforward. Validate the updated application definitions before using it.

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 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_options=(
                         'option=("api_gateway")'
                         'option=("database")'
                         'option=("message_broker")'
                         'option=("ams,license")'
                         'option=("pa,storage,preferences,credentials")'
                         'option=("executor")'
                         'option=("displaymanager")'
                         'option=("resultmanager")'
                         'option=("pas_message_broker")'
                         'option=("jobprofiles")'
                       )

     resultservice_deploy_options=('option=("resultservice")')

     pas_deploy_options=('option=("pas,joboperation")')
     ```
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
    ```

3.3.5 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.
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.

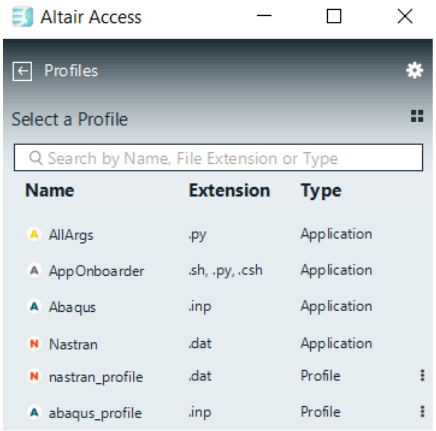


Figure 22: New Job Profile

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, double-click the installer, the executable file.
   - To install from the command line in silent mode, open a command prompt as a Windows administrator and enter the command:

     ```
     <INSTALLER_NAME>.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.

5. Follow the installation instructions.

   Once the installation is complete, a shortcut is created..

3.4 Install Access Desktop for Deployment Option 4

Install Access Desktop by downloading a zip file from Access Web.

In this deployment option Access Desktop is distributed through Access Web. This option requires a system administrator to install Access Desktop, and register clusters through SSH and HTTPS. The installation configuration, including clusters, application definitions and profiles, is exported to a configuration zip file. Prepare a product zip file with the Access Desktop installer and the configuration zip file to place it in the Access Web. download area. This installer is now available through the Get Access Desktop feature in Access Web. Download the product zip file to install the preconfigured Access Desktop, this eliminates the need to add clusters and application definitions at a workstation.

3.4.1 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.

To perform a silent installation, create a file called `access_desktop.properties` in the same location as the installer and add the following entries:

```
ALTAIR_SPM_LICENSE_PATH=<port@hostname>
USER_INSTALL_DIR=%USERPROFILE%\\AppData\\local\\altair\\Altair Access\\2022.2.0
ACCEPT_EULA=YES
```

To install Access Desktop:

1. Choose one of the following options:
   - In GUI mode, double-click the installer executable file.
   - In silent mode, open a command prompt in the same location as the installer and enter the command:

     ```
     <INSTALLER_NAME>.exe -i silent -f access_desktop.properties
     ```

     For example: `AltairAccessDesktop_2021.1.2_18_20210616_174019.exe -i silent -f access_desktop.properties`

     Alternatively, you can skip using the `access_desktop.properties` file use the following command:

     ```
     <INSTALLER_NAME>.exe -i silent -DUSER_INSTALL_DIR="<INSTALL_PATH>" -
     DALTAIR_SPM_LICENSE_PATH=<PORT@HOSTNAME> -DACCEPT_EULA=YES
     ```

     `<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.

     For example: `AltairAccessDesktop_2021.1.2_18_20210616_174019.exe -i silent -DUSER_INSTALL_DIR="C:\Users\john\AppData\Local\altair\Altair Access" -DALTAIR_SPM_LICENSE_PATH=6200@172.16.81.45 -DACCEPT_EULA=YES`
2. Follow the installation instructions.

Once the installation is complete, a desktop shortcut is created.

3.4.2 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 or a Workgroup. 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.

Workgroup
Small engineering groups often require the ability to submit jobs without installing the full-blown HPC management stack. To enable this, a common, single computer (with sufficient specifications) can be used. Access Desktop can connect to such shared workgroup computers over SSH and enable users to submit, monitor, and manage their jobs.

Add a Cluster Using SSH

Add and establish a connection to the HPC or Workgroup 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 or the Workgroup computer.

Select the **Skip this next time** option while registering a cluster to resume file uploads, downloads, and jobs after a network disconnection.

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

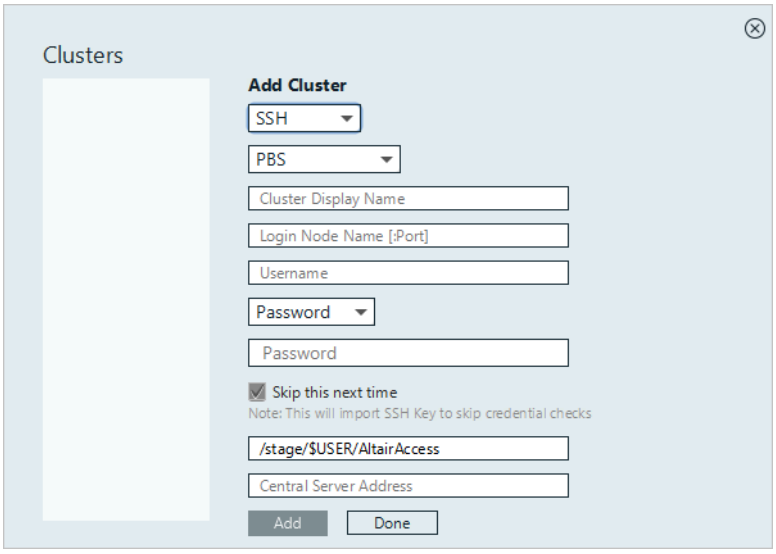
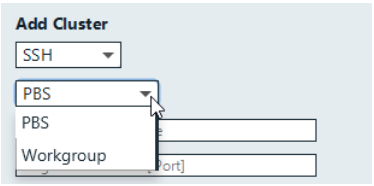


Figure 23: Add Cluster

5. Choose one of the following options:
   - Select PBS to add a PBS Server.
   - Select Workgroup to add a Workgroup computer.



6. For Cluster Display Name, enter a name for the cluster as it is displayed within Access Desktop.
7. For Login Node Name, enter the host name of the machine where the PBS Server is installed.

> **Note:** The default port number for SSH is 22. If SSH is configured to use a different port number add it along with the host name.

8. For Username, enter your user name.
9. 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 private SSH key file.
10. 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.
11. Enter the location on the PBS Server where job files are staged when a job is running.
12. 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.

13. Click **Add**.

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

14. Click **Done**.
    The cluster is added successfully and a green check mark is displayed next to the cluster name.

Add a Cluster Using HTTPS

Add and connect to Access Web server using HTTPS to submit and monitor jobs.

You will need the URL of an Access Web server as well as a valid set of credentials to add a cluster via HTTPS. All communication between Access Desktop and Access Web is encrypted.

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** from the drop-down list.

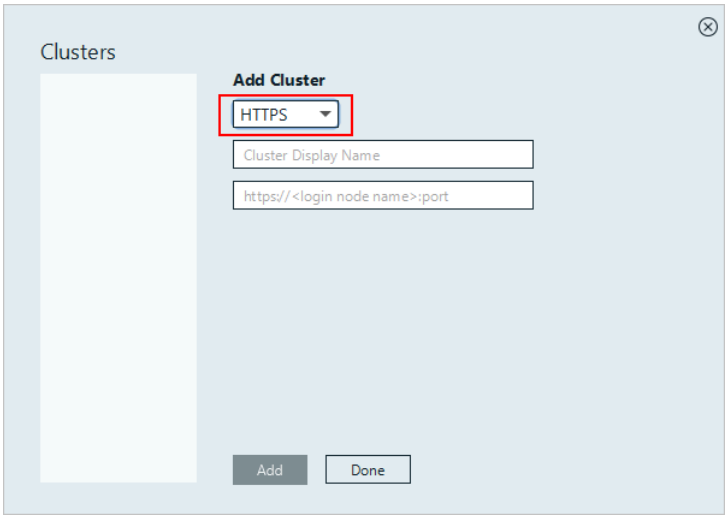


Figure 24: Adding a Cluster

6. Enter a **Cluster Display Name**.

> **Note:** You can use alphanumeric characters for a cluster display name.

7. Enter the Access Web URL in the format `https://<hostname>:4443`. Hostname is the machine where Access Web is installed.

> **Note:** If a hostname is provided during the Access Web installation enter the Access Web URL using the hostname to register the HTTPS cluster. Similarly follow the same if IP address is provided.

8. Click **Add**.
A new web browser is launched and authenticates the user using the OpenID Connect (OIDC) and provides an authenticate code.

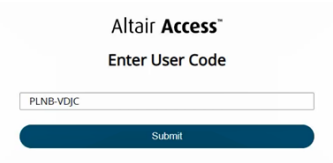


Figure 25: OIDC Authentication

9. Click **Submit**.
The Access login page is displayed.
10. Enter your credentials.

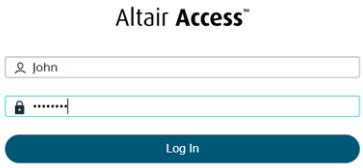


Figure 26: Access Web Login

11. Click **Log In**.

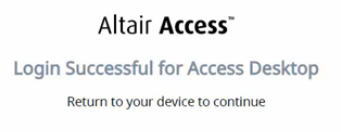


Figure 27: Successful Login

12. Close the browser. Return to the Access Desktop application; the cluster is added, and a green check mark is displayed next to the cluster name.

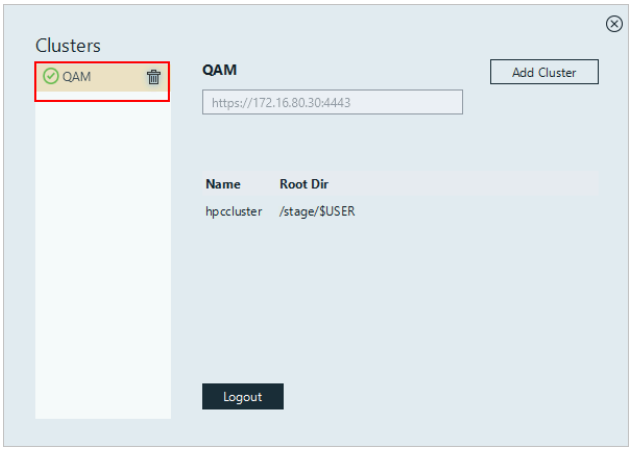


Figure 28: HTTPS Cluster Register

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

3.4.3 Onboard an Application Definition

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

Application definitions now need to be compatible with Python 3.

Note: Python usage in application definitions is usually minimal and straightforward. Validate the updated application definitions before using it.

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

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 `%USERPROFILE%\Altair_Access\home\apps\PBSAccessDesktop\config\applicationmapping.json`
6. Add the following code:

```
[{
    "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.

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.

3.4.4 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.

Application definitions now need to be compatible with Python 3.

> **Note:** Python usage in application definitions is usually minimal and straightforward. Validate the updated application definitions before using it.

1. Navigate to the following location on the workstation: `%USERPROFILE%\Altair_Access\home\apps\PAS\data\pas\targets\`.
   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 specified 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 `%USERPROFILE%\Altair_Access\home\apps\PAS\data\pas\targets\<CLUSTER_DISPLAY_NAME>\repository\`
   where `<CLUSTER_DISPLAY_NAME>` is the name specified 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.

3.4.5 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.

3.4.6 Prepare Access Desktop Installer Zip File

The product zip file contains Access Desktop installer and the exported configuration zip file.

- Compile Access Desktop installer and the exported configuration zip file (by default, the name of the configuration file is `AltairAccessConfig.zip`).

3.4.7 Enable Product Promotion from Access Web

Enable product promotion of Access Desktop from the About Access Web menu.

By default, the promotion screens are disabled in Access Web. Administrators can enable the promotion screens, so that the promotion screen is displayed in the user interface.

For example, if Access Desktop is enabled, then its promotion is displayed under About Access Web.

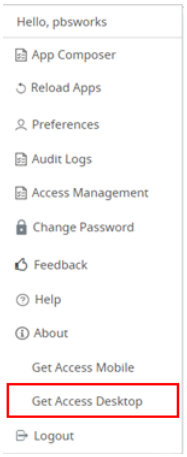


Figure 29: About Access Web Menu

If you click on **Get Access Desktop**, then the following promotion screen is displayed:

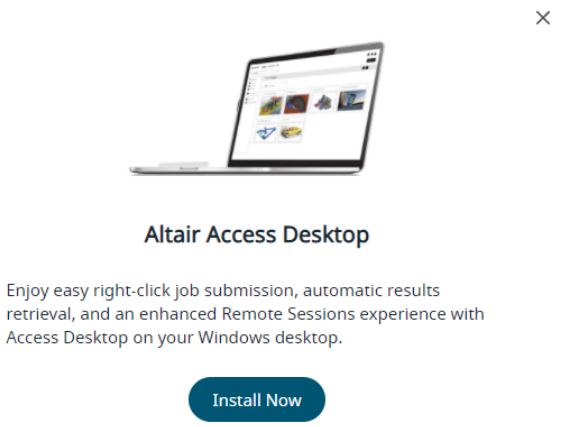


Figure 30: Access Desktop Promotion Screen

1. Login to the machine where Access Web is installed as root or as a user with sudo permissions.
2. Source the Access Web configuration file to set up the environment variables `PA_HOME` and `PA_EXEC`:
   ```
   source /etc/pbsworks-pa.conf
   ```
3. Edit the file `PA_HOME/config/pa/configurations.json`
   ```
   vi $PA_HOME/config/pa/configurations.json
   ```
   ```
   "promotions": [
        {
           "name": "Get Access Desktop",
           "config": "/config/pa/promotions/desktop/accessdesktop.json",
           "enable": false
         }
       ]
   ```
4. To enable the Access Desktop promotion screen, set the value of *enable* to true.
5. Refresh the browser to reflect the changes.

3.4.8 Configure Product Zip File Location in Access Web

Place the product zip file, which includes Access Desktop installer and the configuration zip file in the product promotion download area in Access Web.

1. Login to the machine where Access Web is installed as root or as a user with sudo permissions.
2. Copy the product zip file using `scp`, `WinSCP` or some other kind of copy mechanism to the location `$PA_HOME/config/pa/promotions/desktop`.
3. Source the Access Web configuration file to set up the environment variables `PA_HOME` and `PA_EXEC`:
   ```
   source /etc/pbsworks-pa.conf
   ```
4. Edit the file `PA_HOME/config/pa/promotions/desktop/accessdesktop.json`
   ```
   vi $PA_HOME/config/pa/promotions/desktop/accessdesktop.json
   ```
5. Update the value of `downloadUrl` to point to the product zip file that was copied in step 2. For example, the product zip file provided is as follows:
   ```
   "downloadUrl": "/pbsworks/config/pa/promotions/desktop/AltairAccessDesktop.zip",
   ```

3.4.9 Download Product Zip file to Install

View information about other Altair products such as Access Desktop.

Installing Access Desktop via the About Access Web menu requires special configuration by your site's Administrator. If this configuration has not been completed, the following error is displayed when attempting to install Access Desktop:

```
Requested API has thrown 400 error.
```

By default, the promotion screens are disabled in Access Web. Contact your Administrator if you cannot view information about Access Desktop.

1. Login to Access Web.
2. Click .

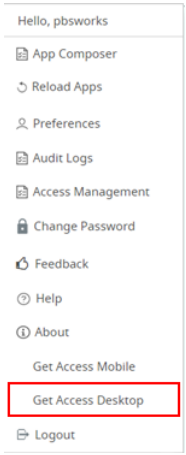


Figure 31: About Access Web Menu

3. Click **Get Access Desktop** to view information about Access Desktop.

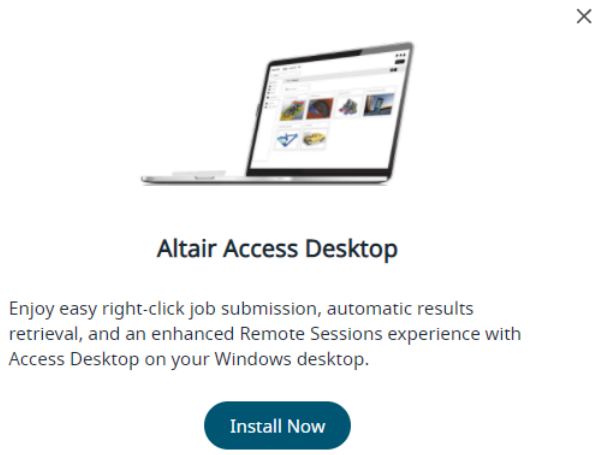


Figure 32: Access Desktop Promotion Screen

4. Click **Install Now** to download the Access Desktop zip file.

3.4.10 UnZip and Install Access Desktop

Unzip the product zip file and install Access Desktop .

Before you begin, download the product zip file from Access Web.

1. Unzip the product zip file that you downloaded from Access Web.
   The product zip file contains Access Desktop executable binary file and the configuration zip file (`AltairAccessConfig.zip`).
2. Choose one of the following options:
   - To install in GUI mode, double-click the installer, the executable file.
   - To install from the command line in silent mode, open a command prompt as a Windows administrator and enter the command:

```
installer.exe -isilent
 -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.

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

3.5 Install Access Desktop on Linux

Install Access Desktop on a Linux workstation.

Prerequisites:

- Install Python 3 and Java on the Linux machine.

Obtain the `AccessEmbedded.zip` file from the usual Altair support channels.

To install Access Desktop on the Linux machine:

1. Download the installation file `AccessEmbedded.zip` on your Linux machine.
2. Create an installation directory `pad`

   For example: `/opt/pad`
3. Create directories in the installation directory and name them as `exec` and `home`.

   For example:`/opt/pad/exec` and `/opt/pad/home`
4. Unzip `AccessEmbedded.zip` to `/opt/pad/exec` directory.
5. Navigate to `/opt/pad/exec/config/`
6. Backup `PBSWorks-PAD.conf`
7. Rename `PBSWorks-PAD-Linux.conf` to `PBSWorks-PAD.conf`
8. Open `PBSWorks-PAD.conf` and update the `ADF_EXEC` file path as `/opt/pad/exec/`
9. Update the `ADF_HOME` file path as `opt/pad/home/`

   Note: Full access permission should be available for the user at this location.
10. Update `PAS_PYTHON_PATH` with the Python installation path.
11. Update `ALTAIR_JAVA_HOME` with the Java installation path.
12. Start Access Desktop by executing the command: `./opt/pad/exec/scripts/adfportal.sh`

Onboard an Application Definition

4

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:

Application definitions now need to be compatible with Python 3.

> **Note:** Python usage in application definitions is usually minimal and straightforward. Validate the updated application definitions before using it.

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 `%USERPROFILE%\Altair_Access\home\apps\PBSAccessDesktop\config\applicationmapping.json`
6. Add the following code:

```
[{
    "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

5

Advanced configurations for Access Desktop.

This chapter covers the following:

5.1 Configure Remote Drive

Map or add a name to the Webdav drive in your local machine so that the files in the job's running directory on the HPC complex can be accessed and viewed.

Once the status of the job changes from Running to Downloading, the files disappear from this remote drive and the result files are downloaded to the same location as the job input files.

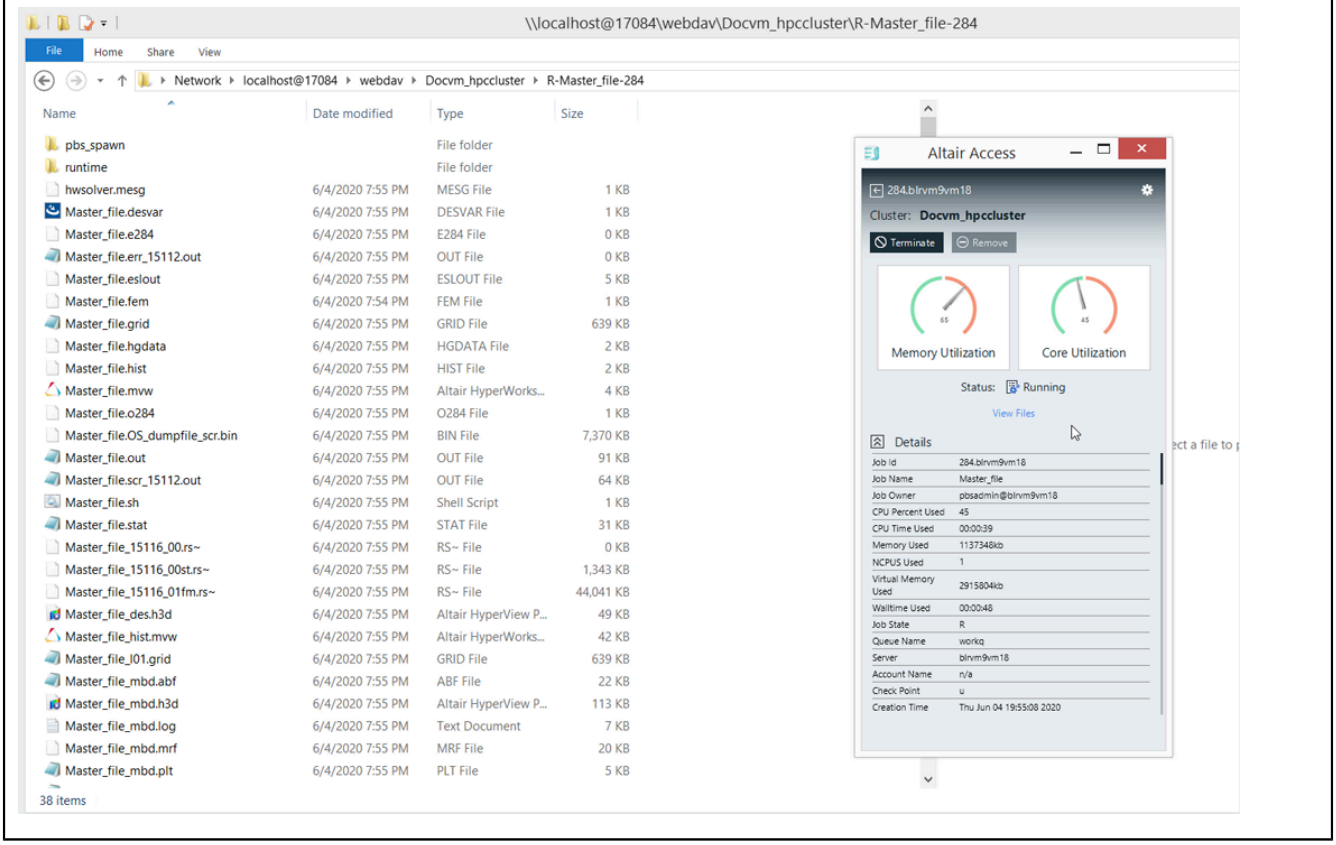
By default, the Webdav drive sets a random drive letters on restart. If specified the Webdav drive name remains, on every restart.

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.

> **Tip:** Provide any letter from A - Z to name the drive.

The network drive is added and displayed in Windows Explorer.

Here is the running job files view from the configured remote drive for the running job.



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 `%USERPROFILE%\Altair_Access\home\apps\PAS\config\pas\conf\`.
2. Edit `serverData.xml`.
3. Change the value of the XML element from `<property key="useCentralRepo">true</property>` to `<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.

Application definitions now need to be compatible with Python 3.

> **Note:** Python usage in application definitions is usually minimal and straightforward. Validate the updated application definitions before using it.

1. Navigate to the following location on the workstation:`%USERPROFILE%\Altair_Access\home\apps\PAS\data\pas\targets\`.
   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 specified 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 `%USERPROFILE%\Altair_Access\home\apps\PAS\data\pas\targets\<CLUSTER_DISPLAY_NAME>\repository\`

where `<CLUSTER_DISPLAY_NAME>` is the name specified 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.

1. Edit the file `PBSWorks-PAD.conf`.

   By default it is located at `%USERPROFILE%\AppData\Local\altair\Altair Access \2022.2.0\exec\config\`.
2. 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@cntrlicsrv03
   ```
3. 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 Central 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 `AccessEmbedded-runtime.zip` file at `PA_HOME/data/access_desktop_updates/`

   The latest Access Desktop `AccessEmbedded-runtime.zip` file will be available in the following location: `<Release_Desktop_Build_Location>/artifacts/AccessEmbedded-runtime.zip`
5. Create a JSON file and name it as `access_desktop_upgrade.json`
6. Edit the JSON file.
7. Add the following line:

   ```
   {
   "buildid":VERSION
   }
   ```

   Where *VERSION* denotes the version of Access Desktop that you wish to upgrade to.

   For example set the buildid to *2022.2.0* for the current version.
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.

To avoid copying the `runtime` and `pbsspawn` directories in share file system, update the parameters in `PA_HOME/config/pas/conf/server.conf` mentioned below:

IS_APPLICATION_STAGEIN_REQUIRED
: Specifies if stage in of application runtime and pbsspawn directories is required. By default, this is set to true.
If it is disabled, then the APPLICATION_DEFINITION_EXECUTION_NODE_PATH specified is used for application definition related files.

APPLICATION_DEFINITION_EXECUTION_NODE_PATH
: Location of application definitions on the execution node. User must deploy application definitions under the application folder. PAS will look for the application definitions specified in this path if IS_APPLICATION_STAGEIN_REQUIRED is disabled. This location should be available on all the execution nodes.

STAGEOUT_ENABLED
: By default, the value is set to true indicating that the location for stage out files is taken care by Access Desktop.
Set the value to false, if you want to maintain a different stage out location (example, Shared File Systems).

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.

View Logs

6

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: `%USERPROFILE%\Altair_Access\home\logs`

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

7

Uninstall old or unused versions of Access Desktop.

Exit from Access Desktop before you uninstall.

1. Navigate to `%USERPROFILE%\AppData\Local\altair\Altair Access\2022.2.0\_Altair Access Desktop_installation\`
2. Double-click the *Change Access Desktop Installation* executable file.
3. Follow the instructions for uninstalling.

Manage Clusters

8

Add, update, or delete HPC clusters.

This chapter covers the following:

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 or a Workgroup. 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.

Workgroup
Small engineering groups often require the ability to submit jobs without installing the full-blown HPC management stack. To enable this, a common, single computer (with sufficient specifications) can be used. Access Desktop can connect to such shared workgroup computers over SSH and enable users to submit, monitor, and manage their jobs.

8.1.1 Add a Cluster Using SSH

Add and establish a connection to the HPC or Workgroup 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 or the Workgroup computer.

Select the **Skip this next time** option while registering a cluster to resume file uploads, downloads, and jobs after a network disconnection.

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

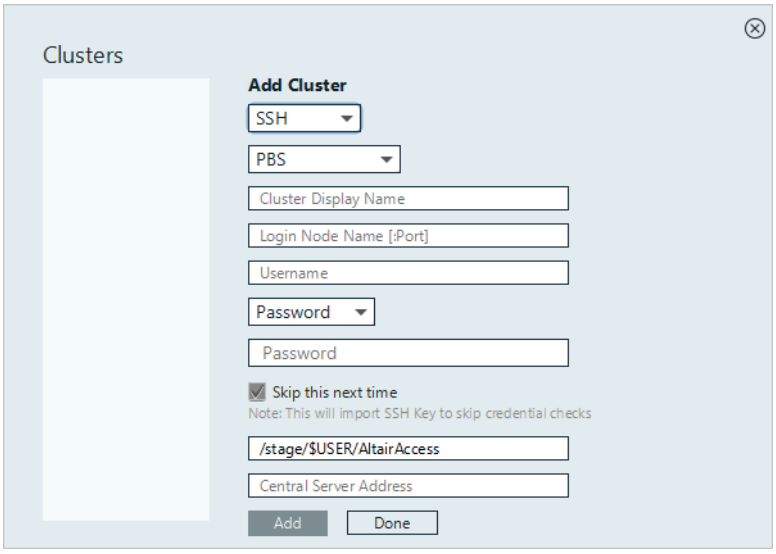
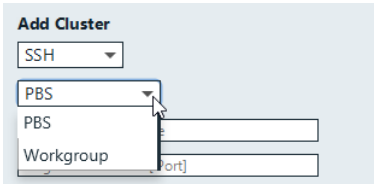


Figure 33: Add Cluster

5. Choose one of the following options:
   - Select PBS to add a PBS Server.
   - Select Workgroup to add a Workgroup computer.



6. For Cluster Display Name, enter a name for the cluster as it is displayed within Access Desktop.
7. For Login Node Name, enter the host name of the machine where the PBS Server is installed.

> **Note:** The default port number for SSH is 22. If SSH is configured to use a different port number add it along with the host name.

8. For Username, enter your user name.
9. 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 private SSH key file.
10. 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.
11. Enter the location on the PBS Server where job files are staged when a job is running.
12. 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.

13. Click **Add**.

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

14. Click **Done**.
    The cluster is added successfully and a green check mark is displayed next to the cluster name.

8.1.2 Add a Cluster Using HTTPS

Add and connect to Access Web server using HTTPS to submit and monitor jobs.

You will need the URL of an Access Web server as well as a valid set of credentials to add a cluster via HTTPS. All communication between Access Desktop and Access Web is encrypted.

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** from the drop-down list.

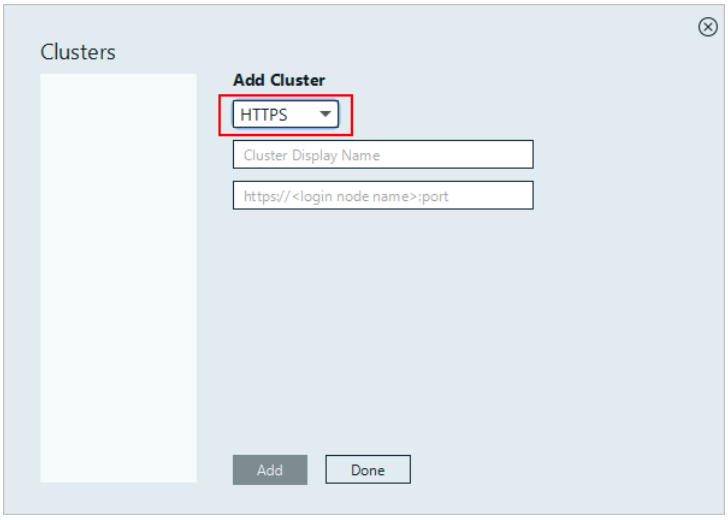


Figure 34: Adding a Cluster

6. Enter a **Cluster Display Name**.

> **Note:** You can use alphanumeric characters for a cluster display name.

7. Enter the Access Web URL in the format `https://<hostname>:4443`. Hostname is the machine where Access Web is installed.

> **Note:** If a hostname is provided during the Access Web installation enter the Access Web URL using the hostname to register the HTTPS cluster. Similarly follow the same if IP address is provided.

8. Click **Add**.
A new web browser is launched and authenticates the user using the OpenID Connect (OIDC) and provides an authenticate code.

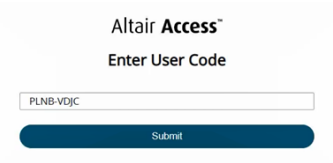


Figure 35: OIDC Authentication

9. Click **Submit**.
The Access login page is displayed.
10. Enter your credentials.

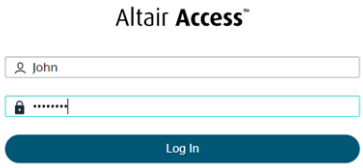


Figure 36: Access Web Login

11. Click **Log In**.

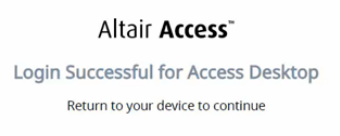


Figure 37: Successful Login

12. Close the browser. Return to the Access Desktop application; the cluster is added, and a green check mark is displayed next to the cluster name.

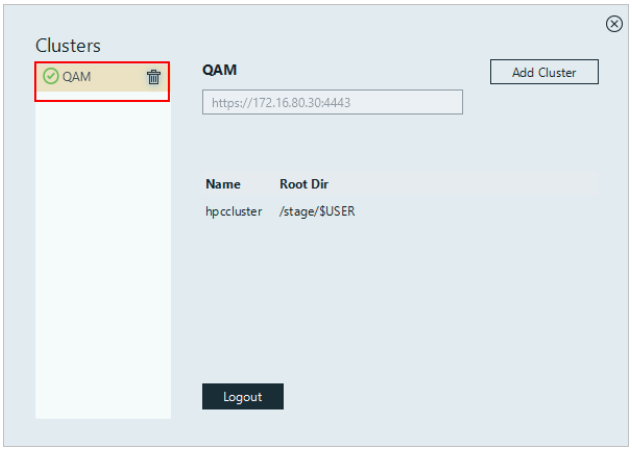


Figure 38: HTTPS Cluster Register

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

8.2 Edit Cluster Details

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

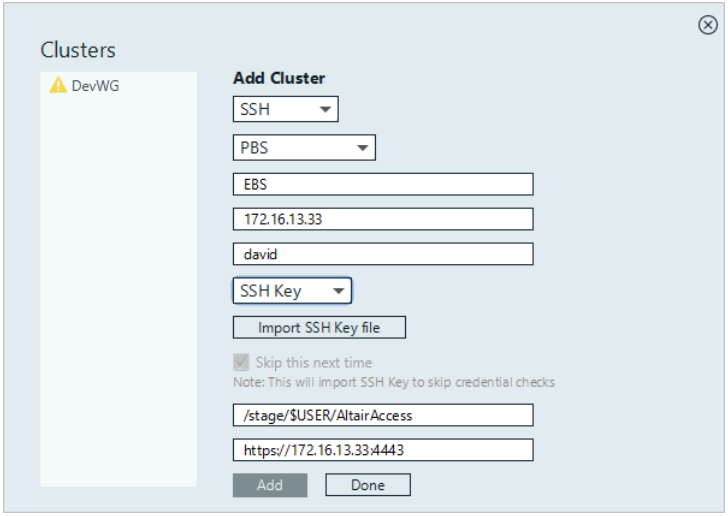
To edit a cluster, you must first log out of it.

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 User name, 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.

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

10. Enter the location on the PBS Server where job files are 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.

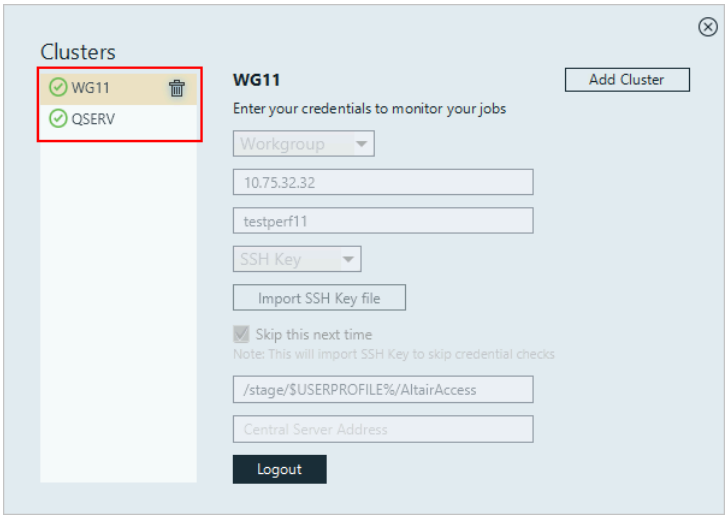


Figure 39: Clusters

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

Manage Application Definitions 9

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:

The applications available in Access Desktop are deployed as PAS application definitions. Application definitions now need to be compatible with Python 3.

> **Note:** Python usage in application definitions is usually minimal and straightforward. Validate the updated application definitions before using it.

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/2022.2.0/access/home/data/pas/targets/<PBS_SERVER_HOSTNAME>/repository/applications/`

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

`%USERPROFILE%\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 `%USERPROFILE%\Altair_Access\home\apps\PAS\data\pas\targets\<CLUSTER_DISPLAY_NAME>\repository\applications\`

   where <CLUSTER_DISPLAY_NAME> is the specified 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 extensions separated by a `;` (semicolon).

   - 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 extensions separated by a ; (semicolon).

9.5 Display a Custom 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.

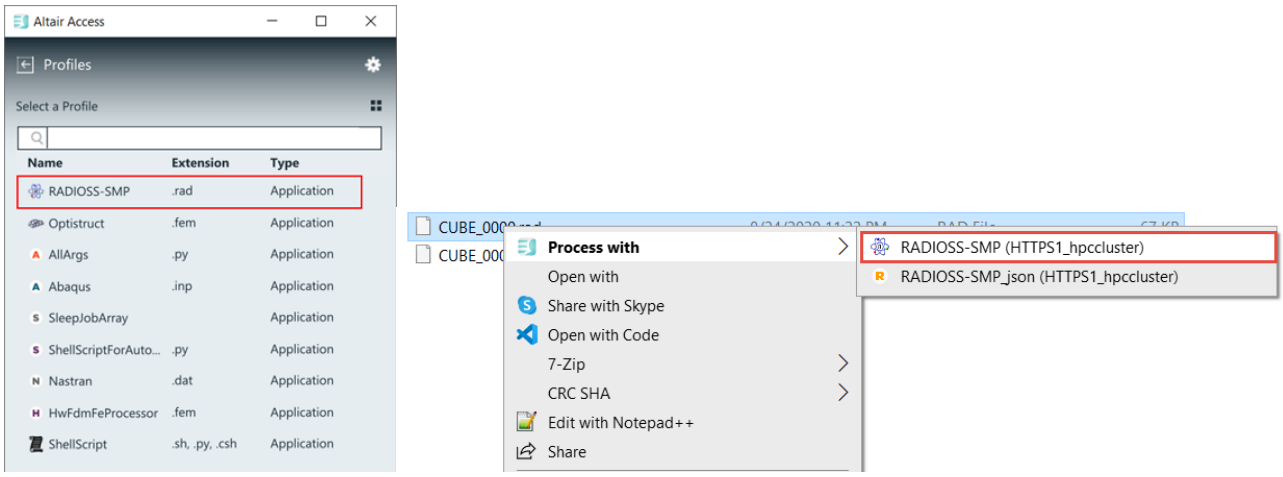


Figure 40: Custom Application Icon in Application List and Context Menu

To maintain backward compatibility, application definitions with the following XML elements `<ApplicationIconSmall>` (icon size 16x16), `<ApplicationIconMedium>` (icon size 48x48), `<ApplicationIconRegular>` (icon size 24x24) for the context menu and application list is still valid.

1. Log in to the machine where Access Desktop is installed.
2. Navigate to the required application directory to place the application icon.

`%USERPROFILE%\Altair_Access\home\apps\PAS\data\pas\targets\<cluster name>\repository\applications\<application name>`

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.

9.6 Update Custom Icon for an Application

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

The Access Desktop allows you to display a custom icon for each of the applications listed in the user interface. You can also update the custom icon by replacing it with a new one in the *avatar* folder.

For more information on how the custom icon is displayed for an application or solver, refer to Display a Custom Icon for an Application.

1. Log in to the application where the Access Desktop is installed.
2. Navigate to the required application directory.

   `%USERPROFILE%\Altair_Access\home\apps\PAS\data\pas\targets\<cluster name>\repository\applications\<application name>\avatar`
3. Delete the existing custom icons.
4. Place the new custom icon with the file name `application.png`.
5. Navigate to the following location.

   `%USERPROFILE%\Altair_Access\home\apps\PAS\data\pas\targets\<cluster name>\repository\applications\<application name>`
6. Edit the `app-inp-<application name>.xml` file.
7. Delete the following lines.

   ```
   <ApplicationIconSmall><application name>-16.png</ApplicationIconSmall>
   <ApplicationIconMedium><application name>-48.png</ApplicationIconMedium>
   <ApplicationIconRegular><application name>-24.png</ApplicationIconRegular>
   <ApplicationIconIco><application name>.ico</ApplicationIconIco>
   ```
8. Restart Access Desktop.
   The new 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 `%USERPROFILE%\AppData\Local\altair\Altair Access\2022.2.0\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=%USERPROFILE%/AppData/Local/altair/Altair Access/2022.2.0/exec/documents/webhelp/index.htm
   ```
6. Restart Access Desktop application.

Troubleshooting Access Desktop

11

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

This chapter covers the following:

11.1 Produce Log Summary Report

Execute the log analysis script to generate a log summary report for further analysis and troubleshooting.

The log analysis report can be shared with the Altair Support team for troubleshooting issues.

The Analysis folder includes a date timestamped `Globalsummary_yyyymmddhhmmss.csv` file. The CSV file includes all error and info logs based on the errors and the information collected. The CSV file also includes the count of how many times a particular error or info has occurred.

Table 1: Access Desktop Log Categories

Log Category	Description
catalina/host-manager/localhost/manager	These logs are related to Tomcat.
adf	These logs are related to framework.
pas-server and desktop	These logs are related to server and desktop.

1. Navigate to `%USERPROFILE%\AppData\Local\altair\AltairAccess\2022.2.0\exec\scripts`
2. Open the command prompt in the scripts directory.
3. Execute the following command:

   ```
   "%USERPROFILE%\AppData\Local\altair\Altair Access\2022.2.0\exec\thirdparty
   \python\python.exe" LogAnalysis.py
   ```

   After execution of the script, the global summary report is created at `%USERPROFILE%\Altair_Access\home\logs\Analysis`.

11.2 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)`.

   `%USERPROFILE%\Altair_Access\home\logs\`
7. View the log file to determine what is causing the login failure.

11.3 Remove Old Clusters from the Context Menu

Condition

The right-click context menu in Access Desktop continues to show old clusters that were removed.

Cause

Registered clusters were not removed completely during uninstallation.

Remedy

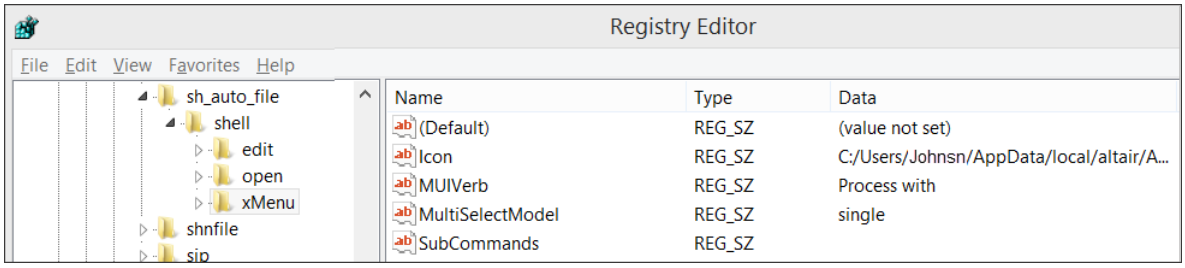
Use the Windows Registry Editor to manually delete the clusters that were removed.

> **Note:** Backup your registry before performing these steps.

1. Open the **Run** program.
2. Enter `regedit`.
   The **Registry Editor** is displayed.
3. Navigate to `HKEY_CURRENT_USER\Software\Classes`.
4. Search for a file extension for which you see the old and the removed clusters. For example: .fem, .py, .sh etc.,

   > **Note:** If the file extension is not available at this location search for it under `HKEY_CURRENT_ROOT`. Copy the default data value of the file extension.

5. Choose one of the following options:
   - Select the model file extension.
   - Use the file extension's default data value and search in `HKEY_CURRENT_USER`.
6. Expand the solver extension values.
   The registered information for the solver is displayed as shown in the image here:



7. Select *xMenu* .
   This will show you the old and current registered cluster information.
8. Right-click *xMenu* and select **Delete**.
9. Repeat steps 3 through 8 for all solvers.
10. Restart Access Desktop.
    The clusters that were deleted do not get displayed in the right-click context menu.