ASCENT
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Autodesk® Vault Professional 2020 Data Management for Autodesk® Inventor® Users

Learning Guide

1st Edition

AUTODESK
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ASCENT - Center for Technical Knowledge®
Autodesk® Vault Professional 2020
Data Management for Autodesk® Inventor Users

1st Edition

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Preface

Autodesk® Vault Professional 2020: Data Management for Autodesk® Inventor® Users introduces the Autodesk Vault Professional 2020 software to Autodesk Inventor Users. This guide is intended for Autodesk Inventor users who need to access their design files from the Autodesk Vault software. It provides an introduction to the Autodesk Vault Professional software and focuses on Autodesk Vault's features for managing design projects with the Autodesk Inventor software from a user's perspective.

You can use the Autodesk Vault Professional 2020 software and should use the Autodesk Inventor 2020 software to complete the exercises in this guide. Note that this guide does not cover administrative functionality. Hands-on exercises are included to reinforce how to manage the design workflow process using the Autodesk Vault Professional software. Included with this guide is a training Vault that can be used alongside a production Vault, to ensure that both Vaults can be accessed from the Autodesk Vault software.

Topics Covered

- Introduction to Autodesk Vault Features
- Using the Autodesk Vault client
- Searching the Vault
- Working with non-CAD Files in the Vault
- Working with Inventor Files in the Vault
- Customizing the User Interface
- Data Management and Reusing Design Data
- Items and Bill of Materials
- Change Management

Prerequisites

- Access to the 2020 version of the software. The practices and files included with this guide might not be compatible with prior versions.
- Good working knowledge of the Autodesk Inventor software.

Note on Software Setup

This guide assumes a standard installation of the software using the default preferences during installation. Lectures and practices use the standard software templates and default options for the Content Libraries.

Students and Educators can Access Free Autodesk Software and Resources

Autodesk challenges you to get started with free educational licenses for professional software and creativity apps used by millions of architects, engineers, designers, and hobbyists today. Bring Autodesk software into your classroom, studio, or workshop to learn, teach, and explore real-world design challenges the way professionals do.

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Note: Free products are subject to the terms and conditions of the end-user license and services agreement that accompanies the software. The software is for personal use for education purposes and is not intended for classroom or lab use.

Lead Contributor: Barb Nash

With extensive experience in project management and eLearning development, Barb's primary responsibilities include the design, development, and project management of courseware for Product Lifecycle Management (PLM) products such as Autodesk Vault and Autodesk Fusion Lifecycle. Her work also involves the development of custom training that is designed and configured to a company’s specific environment, processes, and roles.

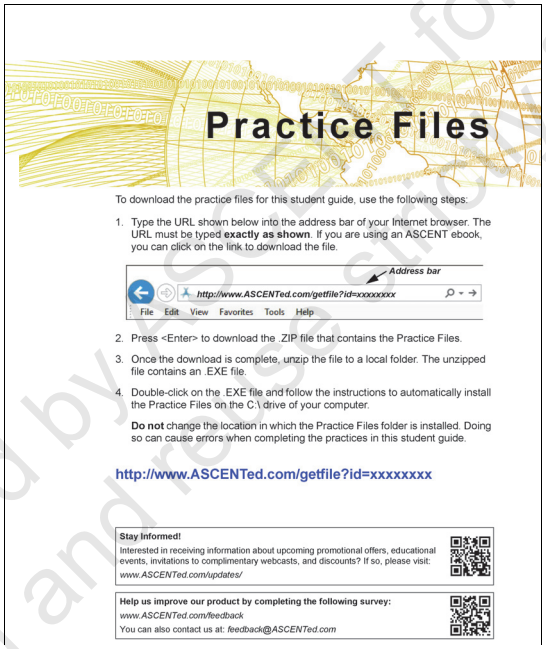
Prior to joining ASCENT in 2005, Barb managed a technical support team for 10 years supporting CAD and PDM/PLM software.

Barb is a Professional Engineer and holds a degree in Aerospace Engineering. She is also a certified Project Management Professional (PMP) and trained in Instructional Design.

Barb Nash has been the Lead Contributor for *Autodesk Vault Professional: Data Management for Autodesk Inventor Users* since its initial release in 2013.

In this Guide

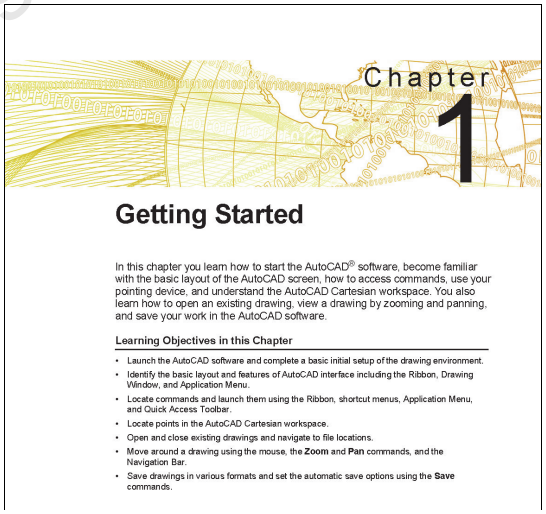
The following images highlight some of the features that can be found in this guide.



Practice Files

The Practice Files page tells you how to download and install the practice files that are provided with this guide.

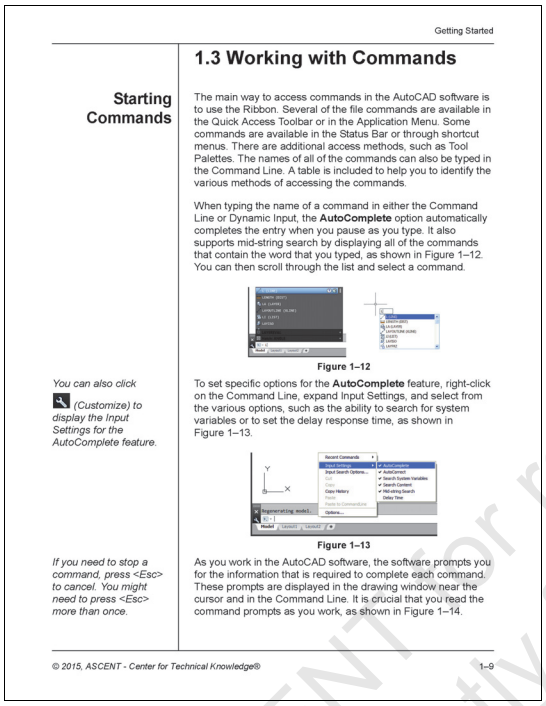
Link to the practice files



Chapters

Each chapter begins with a brief introduction and a list of the chapter's Learning Objectives.

Learning Objectives for the chapter



Getting Started

Starting Commands

1.3 Working with Commands

The main way to access commands in the AutoCAD software is to use the Ribbon. Several of the file commands are available in the Quick Access Toolbar or in the Application Menu. Some commands are available in the Status Bar or through shortcut menus. There are additional access methods, such as Tool Palettes. The names of all of the commands can also be typed in the Command Line. A table is included to help you to identify the various methods of accessing the commands.

When typing the name of a command in either the Command Line or Dynamic Input, the **AutoComplete** option automatically completes the entry when you pause as you type. It also supports mid-string search by displaying all of the commands that contain the word that you typed, as shown in Figure 1–12. You can then scroll through the list and select a command.

Figure 1–12

You can also click (Customize) to display the Input Settings for the AutoComplete feature.

To set specific options for the **AutoComplete** feature, right-click on the Command Line, expand Input Settings, and select from the various options, such as the ability to search for system variables or to set the delay response time, as shown in Figure 1–13.

Figure 1–13

If you need to stop a command, press <Esc> to cancel. You might need to press <Esc> more than once.

As you work in the AutoCAD software, the software prompts you for the information that is required to complete each command. These prompts are displayed in the drawing window near the cursor and in the Command Line. It is crucial that you read the command prompts as you work, as shown in Figure 1–14.

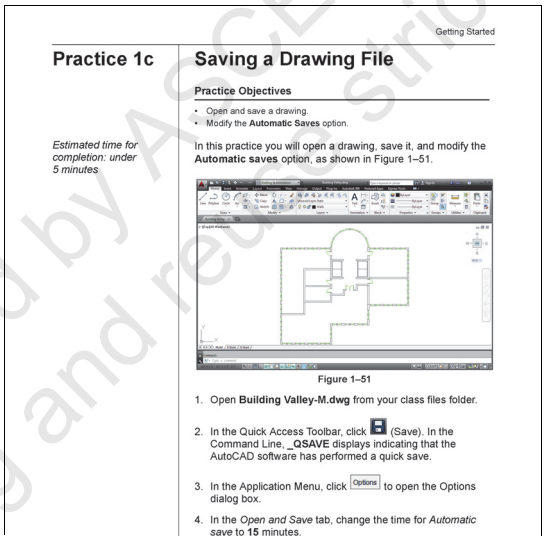
1–9

Side notes

Side notes are hints or additional information for the current topic.

Instructional Content

Each chapter is split into a series of sections of instructional content on specific topics. These lectures include the descriptions, step-by-step procedures, figures, hints, and information you need to achieve the chapter's Learning Objectives.



Getting Started

Practice 1c

Saving a Drawing File

Practice Objectives

- Open and save a drawing.
- Modify the **Automatic Saves** option.

Estimated time for completion: under 5 minutes

In this practice you will open a drawing, save it, and modify the **Automatic saves** option, as shown in Figure 1–51.

Figure 1–51

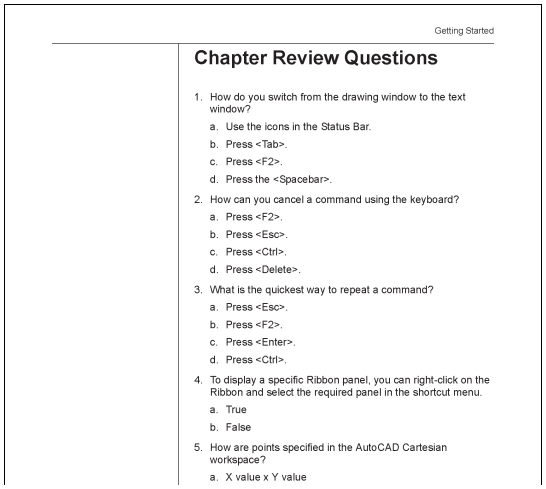
1. Open **Building Valley-M.dwg** from your class files folder.
2. In the Quick Access Toolbar, click (Save). In the Command Line, **_QSAVE** displays indicating that the AutoCAD software has performed a quick save.
3. In the Application Menu, click Options to open the Options dialog box.
4. In the *Open and Save* tab, change the time for *Automatic save* to **15** minutes.

Practice Objectives

Practices

Practices enable you to use the software to perform a hands-on review of a topic.

Some practices require you to use prepared practice files, which can be downloaded from the link found on the Practice Files page.



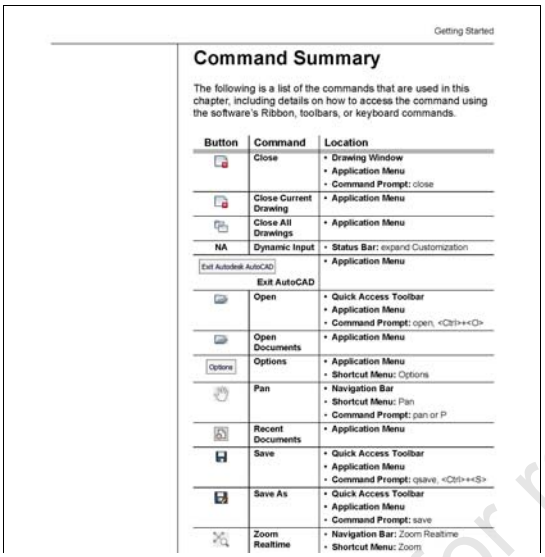
Getting Started

Chapter Review Questions

1. How do you switch from the drawing window to the text window?
   a. Use the icons in the Status Bar.
   b. Press <Tab>.
   c. Press <F2>.
   d. Press the <Spacebar>.
2. How can you cancel a command using the keyboard?
   a. Press <F2>.
   b. Press <Esc>.
   c. Press <Ctrl>.
   d. Press <Delete>.
3. What is the quickest way to repeat a command?
   a. Press <Esc>.
   b. Press <F2>.
   c. Press <Enter>.
   d. Press <Ctrl>.
4. To display a specific Ribbon panel, you can right-click on the Ribbon and select the required panel in the shortcut menu.
   a. True
   b. False
5. How are points specified in the AutoCAD Cartesian workspace?
   a. X value x Y value

Chapter Review Questions

Chapter review questions, located at the end of each chapter, enable you to review the key concepts and learning objectives of the chapter.



Getting Started

Command Summary

The following is a list of the commands that are used in this chapter, including details on how to access the command using the software's Ribbon, toolbars, or keyboard commands.

Button	Command	Location
	Close	• Drawing Window • Application Menu • Command Prompt: close
	Close Current Drawing	• Application Menu
	Close All Drawings	• Application Menu
NA	Dynamic Input	• Status Bar: expand Customization
Exit Autodesk AutoCAD	Exit AutoCAD	• Application Menu
	Open	• Quick Access Toolbar • Application Menu • Command Prompt: open, <Ctrl>+<O>
	Open Documents	• Application Menu
Options	Options	• Application Menu • Shortcut Menu: Options
	Pan	• Navigation Bar • Shortcut Menu: Pan • Command Prompt: pan or P
	Recent Documents	• Application Menu
	Save	• Quick Access Toolbar • Application Menu • Command Prompt: qsave, <Ctrl>+<S>
	Save As	• Quick Access Toolbar • Application Menu • Command Prompt: save
	Zoom Realtime	• Navigation Bar: Zoom Realtime • Shortcut Menu: Zoom

Command Summary

The Command Summary is located at the end of each chapter. It contains a list of the software commands that are used throughout the chapter, and provides information on where the command is found in the software.

Chapter 1

Introduction to Autodesk Vault

Autodesk® Vault is Product Lifecycle Management software (PLM) that enables you to secure, consolidate, and organize all product information for easy reference, sharing, and reuse. Autodesk Vault users can store and search both non-CAD data (such as Microsoft® Word and Microsoft® Excel® files) and CAD data (such as Autodesk® Inventor®, AutoCAD®, and DWF files). In this chapter, you learn about the features in the Autodesk Vault software to manage your Autodesk Inventor designs.

Learning Objectives in this Chapter

- Describe the key features and benefits of the Autodesk Vault software.
- Differentiate between terms used in the Autodesk Vault software.
- Identify the ways that Autodesk Vault functions can be accessed.

1.1 Autodesk Vault Features

Autodesk Vault is Product Lifecycle Management (PLM) software that manages the life of a design from conception to retirement. The files associated with the design are tracked and managed. The software also manages who is permitted to work with files at specific times.

The Autodesk Vault software's capabilities include:

- Central repository for data.
- Security access control to data.
- Protection against accidentally overwriting design data.
- Object relationship management.
- Tracks revision history.
- Search and view tools to easily find and view design data.
- Manages CAD and non-CAD data.
- Direct CAD Integration with Autodesk CAD products: Autodesk Inventor, AutoCAD, AutoCAD Mechanical, AutoCAD® Civil 3D®, and many more.
- Copy Design tool for copying an entire design, including all related files, and maintaining their relationships to each other in the new design.
- Change Management functionality.
- Items/Bill of Materials Management.

This learning guide focuses on the core functionality of the Autodesk Vault Professional software from a user's perspective.

1.2 Terms and Definitions

Before working with the software, it is recommended to become familiar with the fundamental terminology of the Autodesk Vault software. This section describes some of the commonly used Autodesk Vault terminology.

Object

Object is a generic term used to describe anything stored in the Autodesk Vault database, such as files and items.

File

File is the term used to describe files stored in the Autodesk Vault database. The vault can store any type of file, including Autodesk Inventor, Project files, AutoCAD, AutoCAD Mechanical, AutoCAD Civil 3D, Microsoft Excel, Microsoft Word, etc.

By default, files stored in the Autodesk Vault database do not require unique filenames. Select **Tools>Administration>Vault Settings** and select **Enforce Unique File Names** to ensure that the filenames are unique in the Autodesk Vault software, as shown in Figure 1–1.

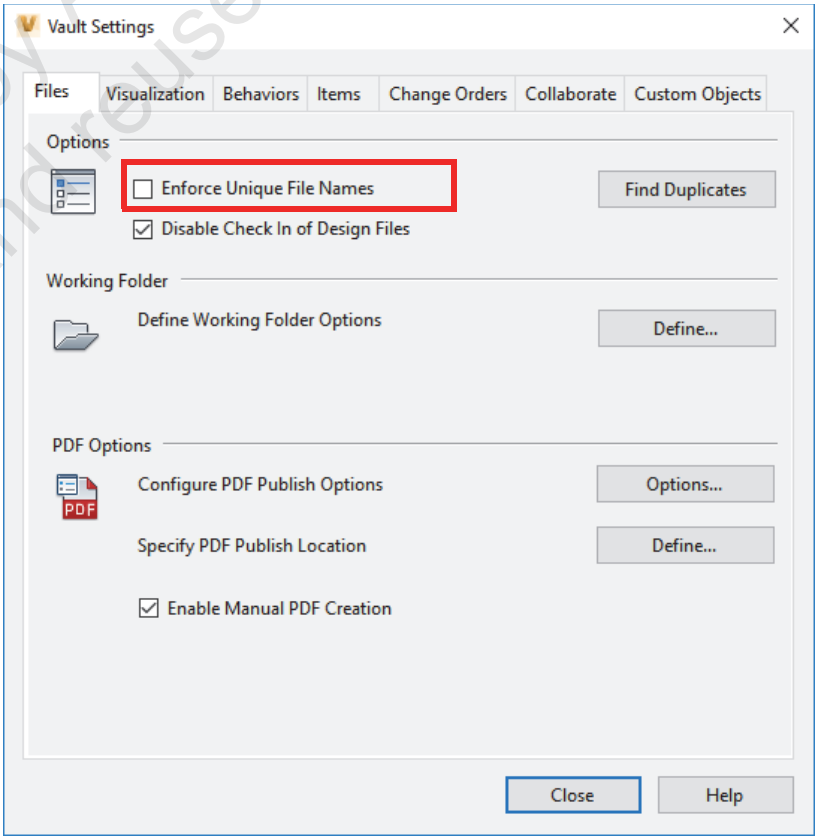


Figure 1–1

Best Practice: Using Unique Filenames

Enforcing unique filenames is a recommended best practice. If not previously enforced, you can search for duplicates by clicking **Find Duplicates**.

Item

An Item is an object type that represents all information related to the end item part. It is a container for data that can include Autodesk Inventor files (and other associated reference files), ECOs, and BOMs. Items refer to what a company manages, assembles, sells, and manufactures. An item is identified by its item number or part number. Not only can items represent parts and assemblies, they can also represent paint, lubricants, etc.

Change Order

A Change Order, also referred to as an ECO, is an object that describes why, how, and when changes are made to an Item and/or Inventor file. The result and purpose of a Change Order is to release these objects.

Properties / Metadata

Object properties refer to the information or metadata associated with a specific object in the Autodesk Vault database. Every object in the database has properties that include the object name, state, revision, version, and other attributes. Since the Autodesk Vault software stores these properties in the database, they can be searched for to locate an object.

File Management Terminology

Autodesk Vault's operations include recording the process of change in a file. The terminology related to these processes is described as follows:

Term	Description
Get	Downloads a copy of a file from the vault into a client's working folder. This option enables you to either get a read-only copy of the files, or mark the file as being worked on (checked out) so that you can make modifications. The Autodesk Vault software always contains the master copy of the file.
Check Out	Marks the file as being worked on (checked out) but does not download a copy to your working folder.
Undo Check Out	Checks the selected files back in, unmodified, without creating a new version and without uploading the files back to the vault.

Check In	Uploads a file from the client's working folder to the Autodesk Vault database. You are prompted to save a file before check in if you have not already done so.
Open	Opens the latest version of a file in the associated application. It downloads a copy of the file from the vault into a client's working folder.
Version	Defines the state of the file in the change process. It is an incremental numeric attribute that changes every time a file is changed and submitted (checked in) to the database.
Working Copy	A local copy of the file that has been downloaded from the vault and is located in a local directory or workspace on your machine. The downloading takes place during **Get** and **Open** operations.
File Status in Vault (Vault Status)	Defined by both the state of the file (checked in, checked out, etc.) and the state of the file in the vault compared to the local copy on the client's file system (newer, older, etc.).
Refresh	Updates the current state of the files in the vault.
Revision	Defines a collection of versions with a single character typically, such as A or B. A revision is created with the **Revise** command. Revisions can also be automatically generated through a Lifecycle State change.

Best Practice: Delete Working Copies

The vault contains all of the master files, which means you are working on a copy of the master file each time you check it out. When you check a file back into the Vault, it becomes the latest version of the master file. Consider your workspace or local working folders as a temporary location for your design files as they are being modified. A recommended best practice is to delete the working copies when you check them in.

Category

Categories are used to group objects and help to assign behaviors and rules to each group of objects. A category can automatically assign user-defined properties to objects in the Vault. Categories can also be used to automatically assign lifecycle definitions or revision values to files.

Lifecycle

Lifecycles are used to manage the stages of maturity of an object. Objects such as files, items and change orders move from state to state (e.g., Work in Progress > For Review > Released, etc.), as managed by the lifecycle definition. At each lifecycle state, an individual is responsible for performing some type of work. An example of a file or item lifecycle is shown in Figure 1–2. An example of a change order object or ECO lifecycle is shown in Figure 1–3.

File or Item Lifecycle Example

Figure 1–2

ECO (Change Order) Lifecycle Example

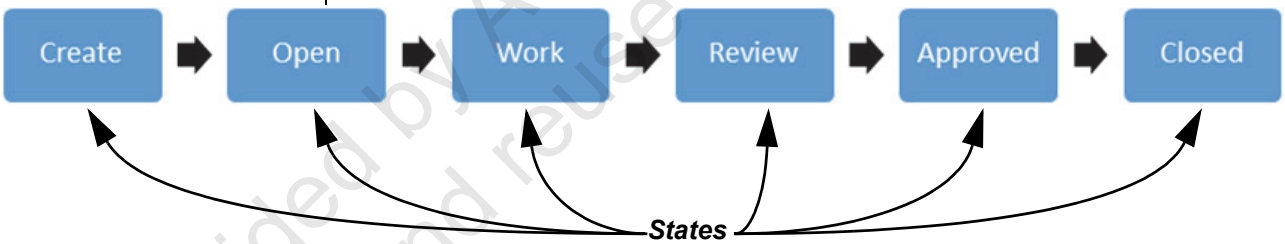


Figure 1–3

1.3 Accessing Autodesk Vault

There are two ways of accessing Autodesk Vault functions:

- Logging in to the Autodesk Vault client.
- Logging in from Autodesk Inventor to use the Autodesk Inventor Vault Add-in.

Autodesk Vault Client

The Autodesk Vault client (also referred to as Autodesk Vault Explorer), provides the user interface for accessing data in the vault. Tasks performed in the Autodesk Vault client software include searching the vault, viewing file status and history, and checking files in and out. The Autodesk Vault software can also be launched and accessed from the Autodesk Inventor software.

The Autodesk Vault client software displays a complete view of the data in the vault. The main window includes the Navigation pane, Main table, Preview pane, and Properties grid, as shown in Figure 1–4.

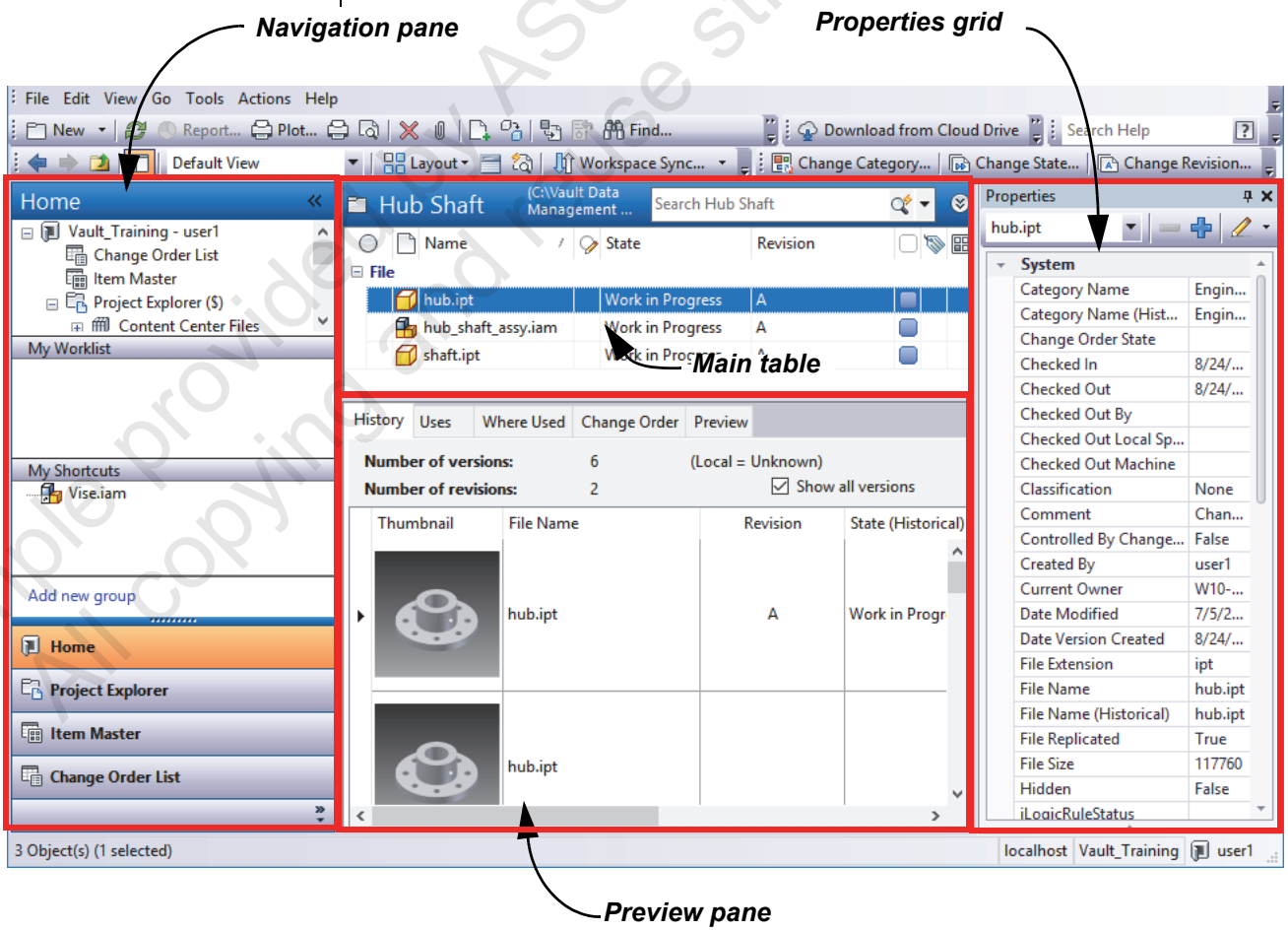


Figure 1–4

Autodesk Inventor Vault Add-in

The Autodesk Inventor software has a direct integration with Autodesk Vault using the Autodesk Inventor Vault Add-in. This means that the Autodesk Inventor software has a Vault menu or tab in its interface, providing quick access to the Autodesk Vault options. File operations, such as Check In and Check Out, can be performed from within the Autodesk Inventor interface to maintain file relationship integrity. The integration interface showing the Vault menu is shown in Figure 1–5.

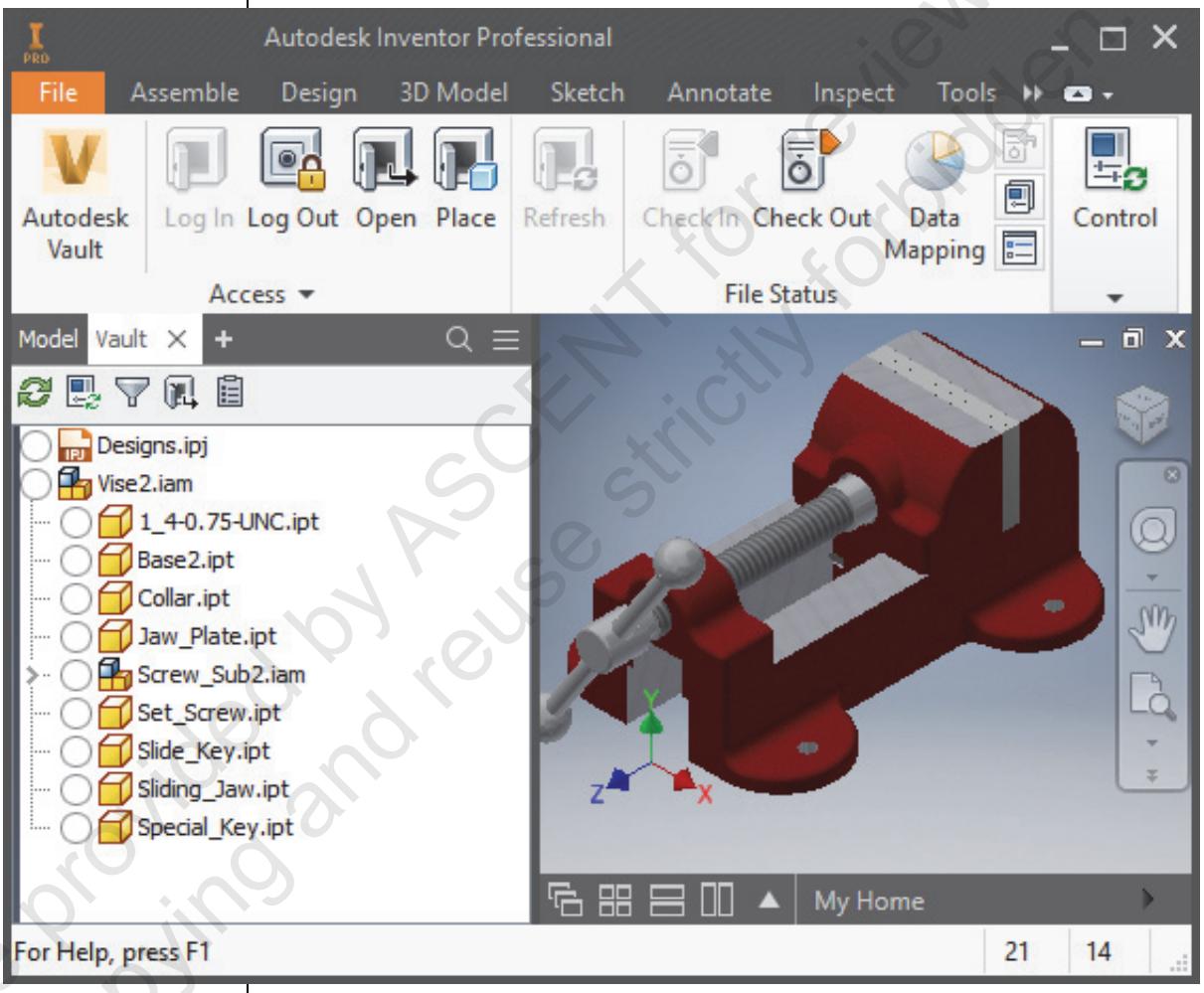


Figure 1–5

Chapter Review Questions

1. What are some of the key features and benefits of the Autodesk Vault software?
   a. Central repository for data.
   b. Protection against accidentally overwriting design data.
   c. Search and display tools to easily find and view design data.
   d. All of the above.
2. What term is used to describe the stages of maturity of an object?
   a. Item
   b. Change Order
   c. Lifecycle
   d. Revision
3. The **Check Out** command downloads a copy of a file from the vault into a client's working folder.
   a. True
   b. False
4. Which of the following provides a complete view of all of the data files in the vault?
   a. Autodesk Vault Client (also known as Autodesk Vault Explorer)
   b. Autodesk Data Management Console
   c. Autodesk Inventor
   d. Vault Add-in
5. What term relates to the incremental numeric attribute that changes every time a file is changed, submitted, and checked in to the database?
   a. State
   b. Revision
   c. Version
   d. File Status

6. In Figure 1–6, what is the name of the highlighted area?
   a. Navigation Pane
   b. Preview Pane
   c. Main Table
   d. Properties Grid

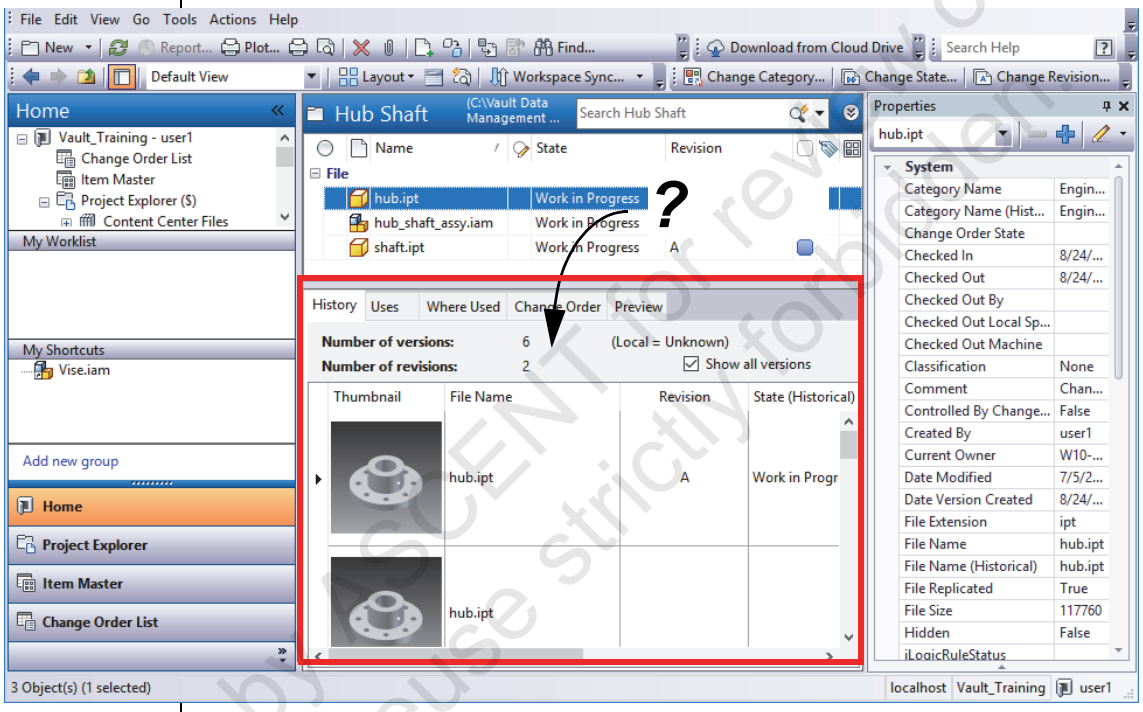


Figure 1–6