



TIBCO Data Virtualization[®]

Installation and Upgrade Guide

Version 8.4

Last Updated: March 9, 2021

Important Information

SOME TIBCO SOFTWARE EMBEDS OR BUNDLES OTHER TIBCO SOFTWARE. USE OF SUCH EMBEDDED OR BUNDLED TIBCO SOFTWARE IS SOLELY TO ENABLE THE FUNCTIONALITY (OR PROVIDE LIMITED ADD-ON FUNCTIONALITY) OF THE LICENSED TIBCO SOFTWARE. THE EMBEDDED OR BUNDLED SOFTWARE IS NOT LICENSED TO BE USED OR ACCESSED BY ANY OTHER TIBCO SOFTWARE OR FOR ANY OTHER PURPOSE.

USE OF TIBCO SOFTWARE AND THIS DOCUMENTATION IS SUBJECT TO THE TERMS AND CONDITIONS OF A LICENSE AGREEMENT FOUND IN EITHER A SEPARATELY EXECUTED SOFTWARE LICENSE AGREEMENT, OR, IF THERE IS NO SUCH SEPARATE AGREEMENT, THE CLICKWRAP END USER LICENSE AGREEMENT WHICH IS DISPLAYED DURING DOWNLOAD OR INSTALLATION OF THE SOFTWARE (AND WHICH IS DUPLICATED IN THE LICENSE FILE) OR IF THERE IS NO SUCH SOFTWARE LICENSE AGREEMENT OR CLICKWRAP END USER LICENSE AGREEMENT, THE LICENSE(S) LOCATED IN THE "LICENSE" FILE(S) OF THE SOFTWARE. USE OF THIS DOCUMENTATION IS SUBJECT TO THOSE TERMS AND CONDITIONS, AND YOUR USE HEREOF SHALL CONSTITUTE ACCEPTANCE OF AND AN AGREEMENT TO BE BOUND BY THE SAME.

This document is subject to U.S. and international copyright laws and treaties. No part of this document may be reproduced in any form without the written authorization of TIBCO Software Inc.

TIBCO and the TIBCO logo are either registered trademarks or trademarks of TIBCO Software Inc. in the United States and/or other countries

TIBCO, Two-Second Advantage, TIBCO Spotfire, TIBCO ActiveSpaces, TIBCO Spotfire Developer, TIBCO EMS, TIBCO Spotfire Automation Services, TIBCO Enterprise Runtime for R, TIBCO Spotfire Server, TIBCO Spotfire Web Player, TIBCO Spotfire Statistics Services, S-PLUS, and TIBCO Spotfire S+ are either registered trademarks or trademarks of TIBCO Software Inc. in the United States and/or other countries.

All other product and company names and marks mentioned in this document are the property of their respective owners and are mentioned for identification purposes only.

THIS SOFTWARE MAY BE AVAILABLE ON MULTIPLE OPERATING SYSTEMS. HOWEVER, NOT ALL OPERATING SYSTEM PLATFORMS FOR A SPECIFIC SOFTWARE VERSION ARE RELEASED AT THE SAME TIME. SEE THE README FILE FOR THE AVAILABILITY OF THIS SOFTWARE VERSION ON A SPECIFIC OPERATING SYSTEM PLATFORM.

THIS DOCUMENTATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

THIS DOCUMENTATION COULD INCLUDE TECHNICAL INACCURACIES OR TYPOGRAPHICAL ERRORS. CHANGES ARE PERIODICALLY ADDED TO THE INFORMATION HEREIN; THESE CHANGES WILL BE INCORPORATED IN NEW EDITIONS OF THIS DOCUMENTATION. TIBCO SOFTWARE INC. MAY MAKE IMPROVEMENTS AND/OR CHANGES IN THE PRODUCT(S) AND/OR THE PROGRAM(S) DESCRIBED IN THIS DOCUMENTATION AT ANY TIME.

THE CONTENTS OF THIS DOCUMENTATION MAY BE MODIFIED AND/OR QUALIFIED, DIRECTLY OR INDIRECTLY, BY OTHER DOCUMENTATION WHICH ACCOMPANIES THIS SOFTWARE, INCLUDING BUT NOT LIMITED TO ANY RELEASE NOTES AND "READ ME" FILES.

Copyright © 2002-2021 TIBCO Software Inc. ALL RIGHTS RESERVED.

TIBCO Software Inc. Confidential Information

Contents

Preface	11
Product-Specific Documentation	11
How to Access TIBCO Documentation	12
How to Contact TIBCO Support	12
How to Join TIBCO Community	12
Preparing for Installation	15
Software Components for Installation	15
Overview of Installation	16
Tracking and Documenting Your Install or Upgrade	16
Installation Requirements and Support Information	17
Disk Space and Physical Memory Requirements	18
Minimum Installation Requirements	18
Additional storage configuration	18
Sizing Guidelines for TDV	19
Port Requirements	20
TDV ports	21
BD ports	22
MPP Engine ports	23
Studio and Server Connectivity and Installer Limitations	23
TDV Supported Platforms	24
Java Support	25
Operating System Support for Studio	25
Operating System Support for Server	26
MPP Engine OS Support	27
Support for Virtualization Environments	27
Driver Support	28
SNMP Support	29
Web Service Protocols	29
Directory Services Support for LDAP	30
Options and Features Supported for Use with TDV	30
Web Browser Support	31
Browsers and Kerberos Support	32
Directory Services Support for Kerberos	32
Supported Data Sources	32
Supported Add-On Adapters	37
Supported Advanced Data Source Adapters	38

Supported Cache Targets	41
Data Ship Source and Target Support	45
TDV DDL Feature Support	48
Support for DDL Clauses	48
Supported Client Applications	49
Client Application Target Framework	49
Enterprise Service Buses	50
Client-Side ADO.NET Driver Support	50
Data Sources Supported for Kerberos Token Pass-through	50
Security Features	51
Support and Maintenance Policies for TIBCO Products	52
Limitations for TDV Discovery	53
Installing TDV, Studio, and Drivers	55
Overview of Installation Steps	55
Installation Overview for New TDV Software Customers	55
Installation Overview for Existing Customers Upgrading from a Previous Release	56
Preparing Your System for Installation	57
Preparing UNIX for TDV Installation	58
Preparing Microsoft Windows for TDV Installation	60
Installing on Windows	60
Running the TDV Server Installer	60
Running the Studio Installer	62
Installing the Drivers	62
Installing on UNIX	63
Installing TDV Server on UNIX	63
Installing Drivers on UNIX	65
Setting the TDV Server to Start Automatically on UNIX	66
Installing on Amazon Web Service	67
About TDV Software Patches	68
About the Installed TDV Services	69
Importing Metadata into the New TDV Instance	69
Tips from an Expert if the Server Does Not Start	69
Where to Go After Installation	70
Silent Mode Installation	71
Creating the Options File for a Silent Installation	71
Running the Installer in Silent Mode	72
TDV Docker Container	75

Prerequisites	75
Docker	76
TDV	76
Resource Requirements for TDV	76
Building TDV Docker Images.....	77
Publishing TDV Docker Images.....	78
Launching TDV Containers (Single Node).....	78
General example for launching a single node TDV Docker container.....	79
Linux.....	80
MacOS.....	80
Windows.....	81
Launching TDV Containers (Cluster).....	82
General example for launching two TDV Docker containers to create a TDV Cluster	82
Linux.....	84
MacOS.....	85
Windows.....	86
Runtime TDV Container Configuration - Common Examples	87
Best Practices	94
Quick Reference of use Docker Commands for TDV Containers	95
TDV for AWS Marketplace	97
Prerequisites	97
Launching TDV Server on AWS Marketplace	97
Launching a TDV Windows Image on AWS Marketplace.....	97
Connecting to the TDV Windows Instance	98
Connecting to the TDV Server Application	99
Launching a TDV Linux Image on AWS Marketplace.....	100
Connecting to the TDV Server Application	100
TDV Server Configuration	101
TDV Instance Id	101
TDV Admin Password.....	102
Default TDV Security Group Configuration.....	102
TDV Security Group	102
Review Security Group (TDV Ports for inbound/outbound traffic).....	102
Additional Port Configuration.....	103
Additional TDV Security Configuration	103
Additional Firewall changes.....	104
Data Source Driver Management.....	105
TDV Updates and Bundled TDV Software.....	105
TDV for Microsoft Azure Marketplace	107

Prerequisites	107
Launching TDV Server on Azure Marketplace	107
Launching a TDV Windows Image on Azure	107
Connecting to the TDV Windows Instance	108
Connecting to the TDV Server Application	109
Launching a TDV Linux Image on Azure	110
Connecting to the TDV Server Application	110
TDV Server Configuration	111
TDV Instance Id	111
TDV Admin Password	112
Default TDV Security Group Configuration	112
TDV Security Group	112
Review Security Group (TDV Ports for inbound/outbound traffic)	112
Additional Port Configuration	113
Additional TDV Security Configuration	113
Additional Firewall changes	114
Data Source Driver Management	115
TDV Updates and Bundled TDV Software	115
Installing Optional TDV Products	117
Version Support	117
Installation Requirements	117
Add-On Adapter Installation Requirements	117
Active Cluster Installation Requirements	118
Installing an Optional TDV Product	119
Installing the Advanced Adapters	119
Auto Deployment	119
Manual Deployment	120
Installing the TDV Client Drivers that are Distributed with TDV	121
Importing Resources Defined in an Earlier Release	122
Manage Active Cluster Security	122
Updating the Digital Certificate to Secure Cluster Communication	123
Set Access Privileges	123
TDV and Business Directory Product Maintenance	125
Upgrade, Downgrade, and Rollback	125
About Hotfix Maintenance	126
Applying the Hotfix to TDV Server, Studio, and Business Directory	126
About Service Pack Maintenance	127
Applying the Service Pack to TDV Server, Studio, and Business Directory	127
Applying the Service Pack or Hotfix to Active Cluster	128

Upgrading from an Earlier Release and Migrating The Metadata	129
Documenting the Existing TDV Instance	130
Considerations for Upgrading to TDV 8.X	131
Exporting Metadata from the Existing TDV Instance	131
Installing the New Version of TDV	132
Importing Metadata into the New TDV Instance	132
Verifying a Successful Installation	133
Downgrade/Rollback	134
Maintaining TDV-to-Client Application Connections	136
Updating an ODBC Client Application	136
Updating a JDBC Client Application	137
Uninstalling TDV	139
Uninstalling TDV on Windows	139
Uninstalling TDV on UNIX	139
Preparing for Uninstalling on UNIX	139
Uninstalling TDV On UNIX	140
.....	140

Preface

Documentation for this and other TIBCO products is available on the TIBCO Documentation site. This site is updated more frequently than any documentation that might be included with the product. To ensure that you are accessing the latest available help topics, please visit:

- <https://docs.tibco.com>

Product-Specific Documentation

The following documents form the TIBCO® Data Virtualization(TDV) documentation set:

- **Users**
 - TDV Getting Started Guide
 - TDV User Guide
 - TDV Client Interfaces Guide
 - TDV Tutorial Guide
 - TDV Northbay Example
- **Administration**
 - TDV Installation and Upgrade Guide
 - TDV Administration Guide
 - TDV Active Cluster Guide
 - TDV Security Features Guide
- **Data Sources**
 - TDV Adapter Guides
 - TDV Data Source Toolkit Guide (Formerly Extensibility Guide)
- **References**
 - TDV Reference Guide
 - TDV Application Programming Interface Guide

- **Other**
 - TDV Business Directory Guide
 - TDV Discovery Guide
- *TIBCO TDV and Business Directory Release Notes* Read the release notes for a list of new and changed features. This document also contains lists of known issues and closed issues for this release.

How to Access TIBCO Documentation

Documentation for TIBCO products is available on the TIBCO Product Documentation website mainly in the HTML and PDF formats.

The TIBCO Product Documentation website is updated frequently and is more current than any other documentation included with the product. To access the latest documentation, visit <https://docs.tibco.com>.

Documentation for TIBCO Data Virtualization is available on <https://docs.tibco.com/products/tibco-data-virtualization-server>.

How to Contact TIBCO Support

You can contact TIBCO Support in the following ways:

- For an overview of TIBCO Support, visit <https://www.tibco.com/services/support>.
- For accessing the Support Knowledge Base and getting personalized content about products you are interested in, visit the TIBCO Support portal at <https://support.tibco.com>.
- For creating a Support case, you must have a valid maintenance or support contract with TIBCO. You also need a user name and password to log in to <https://support.tibco.com>. If you do not have a user name, you can request one by clicking **Register** on the website.

How to Join TIBCO Community

TIBCO Community is the official channel for TIBCO customers, partners, and employee subject matter experts to share and access their collective experience. TIBCO Community offers access to Q&A forums, product wikis, and best practices. It also offers access to extensions, adapters, solution accelerators, and tools that extend and enable customers to gain full value from TIBCO products. In addition, users can submit and vote on feature requests from within the [TIBCO Ideas Portal](#). For a free registration, go to <https://community.tibco.com>.

Preparing for Installation

Read the sections described in this chapter, prior to installing the Data Virtualization Platform:

- [Software Components for Installation, page 15](#)
- [Overview of Installation, page 16](#)
- [Tracking and Documenting Your Install or Upgrade, page 16](#)

Software Components for Installation

TDV provides the following installers for the Data Virtualization software components:

Installer	Included in the installer	
Server	Server Studio Deployment Manager Repository Java Monitor Discovery Web UI	Active Cluster Salesforce.com Adapter SAP Adapter SAPBW and BEx Adapters Oracle EBS Adapter Siebel Adapter Default cache database Advanced Data Sources Adapters
Studio	Studio	Java
Client	ODBC ADO.Net SSIS Power BI	JDBC
Business Directory Server	BD Server BD Repository	BD web application Java

Overview of Installation

Before you install Tibco Data Virtualization, review the new features and bug fixes as documented in the *TDV and Business Directory Release Notes*. You can view it at <https://docs.tibco.com/products/tibco-data-virtualization>

Choose one of the options below:

1. For a new TDV installation, refer to the chapter [Installing TDV, Studio, and Drivers, page 55](#).

Note: After TDV 8.x is installed, you can proceed with installation of hotfix or service packs. Refer to the sections [About Hotfix Maintenance, page 126](#) and [About Service Pack Maintenance, page 127](#) for more information on how to do this.

2. If you are upgrading within the same major version (for example, 8.x to 8.(x+1)), refer to the section [About Service Pack Maintenance, page 127](#).
3. If you are upgrading from an earlier TDV major version (for example, 7.x to 8.x), and also want to migrate the metadata created in the earlier TDV version, refer to [Upgrading from an Earlier Release and Migrating The Metadata, page 129](#).

Note: If you do not need to migrate the metadata, follow the steps as outlined in the chapter [Installing TDV, Studio, and Drivers, page 55](#) to install a new version of TDV.

4. If you need to apply a hotfix, follow the steps as outlined in the section [About Hotfix Maintenance, page 126](#).

Tracking and Documenting Your Install or Upgrade

We recommend that you document the issues that you encounter during an upgrade and document all customizations made to your new TDV system, to help ensure that your next upgrade goes smoothly.

Before beginning your install, be aware that Java and PostgreSQL customizations are not preserved through the installation process. After install you must redo the customizations.

Installation Requirements and Support Information

This topic describes installation requirements and what TIBCO® Data Virtualization (TDV) supports. It includes the following topics:

- [Disk Space and Physical Memory Requirements, page 18](#)
- [Port Requirements, page 20](#)
- [Studio and Server Connectivity and Installer Limitations, page 23](#)
- [TDV Supported Platforms, page 24](#)
 - [Java Support, page 25](#)
 - [Operating System Support for Studio, page 25](#)
 - [Operating System Support for Server, page 26](#)
 - [Support for Virtualization Environments, page 27](#)
 - [Driver Support, page 28](#)
 - [SNMP Support, page 29](#)
 - [Web Service Protocols, page 29](#)
 - [Directory Services Support for LDAP, page 30](#)
- [Options and Features Supported for Use with TDV, page 30](#)
 - [Web Browser Support, page 31](#)
 - [Supported Data Sources, page 32](#)
 - [Supported Add-On Adapters, page 37](#)
 - [Supported Advanced Data Source Adapters, page 38](#)
 - [Supported Cache Targets, page 41](#)
 - [Data Ship Source and Target Support, page 45](#)
 - [Client Application Target Framework, page 49](#)
 - [Enterprise Service Buses, page 50](#)
 - [Client-Side ADO.NET Driver Support, page 50](#)
 - [Data Sources Supported for Kerberos Token Pass-through, page 50](#)
- [Security Features, page 51](#)
- [Support and Maintenance Policies for TIBCO Products, page 52](#)
- [Limitations for TDV Discovery, page 53](#)

Disk Space and Physical Memory Requirements

TDV performance depends on processor speeds, available memory, network bandwidth, data source response times, query join types, the complexity of views, and many other implementation factors. Fast response times and support for a large active user base and large loads are achieved with:

- Fast multi-core CPUs
- Large amounts of RAM
- Ample disk space
- GB Ethernet network connections on the same subnet as the most heavily trafficked data source

If hardware configurations are less than optimal, TDV functions equally well, although more slowly, for most development tasks.

Minimum Installation Requirements

TDV has these resource requirement

- **Disk Space:** Minimum of 8 GB read/write, persistent storage.
 - 2.0 GB for TDV installation
 - 1.0 GB for the TDV repository database
 - 5.0 GB for future growth (e.g. default TDV temp directory, TDV VCS data, logs, file cached data, and future TDV patch/Java/repository software updates)
- **Memory:** Minimum of 8 GB memory.
- **CPU:** Minimum of 2 CPUs/cores.

For larger TDV deployments, please refer to [Sizing Guidelines for TDV, page 19](#). Additionally, larger TDV deployment above the “small” configuration will need to consider if changes to the following areas are required or not.

Additional storage configuration

This section discusses the additional storage configuration required for TDV, beyond the default installation configuration.

TDV temp directory

By default, TDV creates a temp directory under the TDV installation directory.

For production TDV configurations, you should ensure the TDV temp directory has access to at least 10GB of storage or more in order to better handle large query processing, file caching, etc. For information about those configuration parameters, see the TDV Administration Guide.

TDV Version Control System (VCS) directory:

By default, TDV creates a VCS directory under the TDV installation directory.

For development or production DV deployments that use VCS, the following additional storage requirements need to be met.

Note: If your TDV deployment doesn't meet the storage requirements for VCS then you will need to reconfigure it to point to another storage location. Refer to the Administration Guide, chapter "Using Version Control and TDV" for instructions on how to manage the TDV data directory.

- 1.2 GB of additional free space per TDV user is required for this setting. Different types of resources require different amounts of space to store. We recommend that you use 12KB per resource as a rough storage guideline.
- The following guidelines will help you figure out how to calculate your VCS directory storage needs.
 - If you have 100,000 resources, we recommend 1.2GB of space available for storing resources.
 - If you expect a large amount of check-ins to the VCS directory, we recommend that you allocate additional space in the VCS directory area which lives under the TDV installation (INSTALL_DIR\data\vcs). Typically, changes within version control systems are stored as textual diffs. Textual diffs can add up over time.

Sizing Guidelines for TDV

For the TDV Cloud offerings (AWS, Azure) and Docker, use the following TDV sizing guidelines. Keep in mind that these are starting point recommendations to begin with for each configuration. It is OK to exceed these recommendations for a given configuration.

small configuration (poc/demo) : 2 CPUs/cores, 8 GB of memory, 8 GB of readable/writable persistent storage

medium configuratuon (development): 4 CPUs/cores, 16 GB of memory, 16 GB of readable/writable persistent storage

large configuration (production): 8 CPUs/cores, 32 GB of memory, 32 GB of readable/writable persistent storage:

x-large configuration (production with MPP Engine): 16 CPUs/cores, 64 GB of memory, 64 GB of readable/writable persistent storage

Note: For x-large TDV instances running MPPE, the minimum requirement calls for 2 clustered 8-core instances.

Port Requirements

By default, TDV Server listens to port 9401 for ODBC connections. The ODBC port number is always one greater than the server's web services HTTP base port which by default, is 9400. So the ODBC default port number is 9401. If SSL is used (encrypt is set to true), the ODBC driver automatically adds 2 to the port value so that the 9403 port is used. To determine the actual ODBC port settings, refer to the Client Interfaces Guide, section "TDV Port Settings for Client Connections to TDV".

Changing the HTTP base port value also changes the value of all derived ports after the next TDV restart (with the exception of the Repository and Cache database ports, which will remain the same).

Port number availability for TDV and Business Directory:

TDV ports

TDV Ports Default	Description
9400	Web services HTTP port ← port needs to be exposed for non SSL TDV http access
9401	JDBC, ODBC, and ADO.NET ← port needs to be exposed for non SSL TDV client access
9402	Web services HTTP SSL ← port needs to be exposed for SSL TDV http access
9403	JDBC SSL, ODBC SSL, and ADO.NET SSL ← port needs to be exposed for SSL TDV client access
9404	Default caching database port
9405	JMX/RMI port for Monitor collector
9406	Monitor Daemon
9407	Active Cluster - JGroups (when installed)
9408	Repository
9409	Monitor RMI registry + JMX/RMI port for Monitor daemon

BD ports

Business Directory Ports Default	Description
9500	Web services HTTP port
9501	JDBC, ODBC, and ADO.NET
9502	Web services HTTP SSL
9503	JDBC SSL, ODBC SSL, and ADO.NET SSL
9504	[reserved]
9505	JMX/RMI port for Monitor collector
9506	Monitor Daemon
9507	[reserved]
9508	Repository
9509	Monitor RMI registry + JMX/RMI port for Monitor daemon

MPP Engine ports

TDV Ports Default	Description
9300	Zookeeper Quorum port
9301	Zookeeper Election port
9302	Zookeeper Client Port
9303	Drill HTTP (web console) Port
9304	Drill User Port
9305	Drill Server Bit Ports
9306	Drill Server Bit Ports

Note: The above ports are only active on operating systems that support MPP engine. (Refer to [MPP Engine OS Support, page 27](#))

Studio and Server Connectivity and Installer Limitations

You can sometimes mix versions of Studio and Server as follows within a major release.

Studio Version	Server Version	Support
older	newer	Active
newer	older	Not active

For example:

- Connecting a 8.0.0 Studio with a 8.2.1 or 8.2.2 Server is supported.
- Connecting a 8.2.1 Studio with a 8.2.0 Server is not supported.

Business Directory and Deployment Manager Limitations

You can sometimes mix versions of Business Directory, Deployment Manager, and TDV as follows.

BD/DM Web UI Version	TDV Version	Support
older	newer	Active
newer	older	Limited, Not active

For example:

- Business Directory 8.0.2 and 8.0.3 clients are not compatible with published resources from TDV 8.0.1.
- The use of Business Directory 8.0.3 clients with published resources from TDV 8.0.2 is supported.

Installer Limitations

- 64-bit installers are supported only on 64-bit platforms.
- Linux and Windows installers are available only on the x86 hardware platform..

Type of Client	Requirements
64-bit Studio client	<ul style="list-style-type: none"> • They are at the same TDV version and patch level. • The Server version is newer than the Studio version and they are both within the same major TDV version.

TDV Supported Platforms

Studio can be installed and run on all Microsoft Windows platforms, but is not available for any UNIX platforms. Business Directory is supported on Windows and UNIX platforms only.

64-bit installers are provided for each of the Windows and UNIX platforms. In addition, separate java versions are provided for each platform (see [Java Support](#), page 25).

- [Java Support](#), page 25
- [Operating System Support for Studio](#), page 25
- [Operating System Support for Server](#), page 26
- [Support for Virtualization Environments](#), page 27
- [Driver Support](#), page 28
- [SNMP Support](#), page 29
- [Web Service Protocols](#), page 29
- [Directory Services Support for LDAP](#), page 30

Java Support

The JDK required for TDV for each platform is listed in the following table.

Platform	Required
AIX (TDV Server)	openjdk version "11.0.8" 2020-07-14
Linux (TDV Server, TDV Business Directory)	java version "11.0.8.0.4" 2020-09-09 LTS
Windows (TDV Server, TDV Business Directory, TDV Studio)	java version "11.0.8.0.4" 2020-09-09 LTS

Operating System Support for Studio

Client-platform operating system support and patch levels are listed in the following table.

Operating System (Client)	Patch	TDV Support	Notes
Microsoft Windows 7		Active	x64
Microsoft Windows 8	SP1	Active	x64
Microsoft Windows 10		Active	x64

There is a known limitation of Windows OS that can result in a UNC error when using TDV. The known issue is that:

- The Windows service process can't see any mapped network driver of a front end user session, because the Windows service is running under a different credential, and the mapped network driver is valid in the user session only.
- The Windows service process can see SYSTEM ODBC DSN only, any USER ODBC DSN is not visible to the Windows service.

To work around for this known issue, use the UNC path for TDV to access remote files.

Operating System Support for Server

Server platform operating system support and patch levels are listed in the following table:

Operating System (Server)	Patch	TDV and BD Support	Notes
AIX 7.1 (PowerPC) or higher	7100-04 or higher	Active	Not supported for Business Directory
CentOS version 6.5 or higher in 6.x		Active	64-bit versions are supported. TDV deploys in native 64-bit JVM on all supported 64-bit operating systems. x64 architecture. Also supported for BD.
CentOS version 7 or higher in 7.x		Active	64-bit versions are supported. TDV deploys in native 64-bit JVM on all supported 64-bit operating systems. x64 architecture. Also supported for BD.
Microsoft Windows 10		Active	
Microsoft Windows Server 2012 Standard		Active	x64.
Microsoft Windows Server 2012 R2 Standard		Active	
Microsoft Windows Server 2016 Standard		Active	x64
Microsoft Windows Server 2019 Standard		Active	x64

Operating System (Server)	Patch	TDV and BD Support	Notes
Oracle Linux 6.5 or higher in Red Hat compatibility mode		Active	x64.
Red Hat Enterprise Linux v6.5 or higher in 6.x	N/A	Active	64-bit versions are supported. TDV deploys in native 64-bit JVM on all supported 64-bit operating systems. x64.
Red Hat Enterprise Linux v7.0 or higher in 7.x	N/A	Active	Red Hat provides a 64bit OS image for RHEL 7 that provides 64bit application support for TDV.
SUSE Enterprise Linux v11.3 or higher in 11.x	N/A	Active	
SUSE Enterprise Linux v12 or higher in 12.x	N/A	Active	

MPP Engine OS Support

MPP Engine is supported on Linux platforms only with the following pre-installed 3rd party software:

- a. Network Security Service (NSS) Package version 3.28.4 x86_64 or higher (package name: nss).
- b. CentOS/RedHat/Oracle Linux versions 6.5 or higher are supported for this feature.
- c. SUSE Linux version 12 and above is supported for this feature.

Support for Virtualization Environments

The TDV Server is fully supported and can be hosted in operation systems run on virtualization platforms such as Red Hat Enterprise Virtualization, Hyper-V, VMware Fusion and Oracle VirtualBox as long as the Server is run on a supported OS platform and version that is listed in the section [Operating System Support for Server, page 26](#)

Driver Support

Driver	Server Version	TDV Support
ODBC	iODBC Driver Manager v3.52.12 for AIX and Linux	Active
ODBC	Windows Driver Manager The Windows Driver Manager is part of your Windows Operating System. Refer to the section <i>Operating System Support for Server</i> in the <i>TDV Installation and Upgrade Guide</i> for a list of supported OS.	Active
ODBC	DataDirect Driver Manager v8.0 Note: DataDirect Driver Manager is supported on Linux and AIX platforms. There is no extra configuration needed for using TDV ODBC driver with DataDirect Driver Manager	Active
ODBC	unixODBC Driver Manager(v2.3.1) Note: unixODBC Driver Manager is supported on Linux and AIX platforms. For using TDV ODBC driver with the unixODBC Driver Manager, set the environment variable TDV_ODBC_UODBC to TRUE for the applications that use TDV ODBC Driver. <code>set TDV_ODBC_UODBC=TRUE</code>	Active
JDBC	JRE v11 (csjdbc.jar) and conforms to JDBC API 4.0	Active
JDBC	JRE v1.8 (csjdbc8.jar) and conforms to JDBC API 4.0 Example: If you are running a client using JRE 8(also known as 1.8), you would include csjdbc8.jar in the CLASSPATH as shown below: <code>"C:\Program Files\Java\jdk1.8.0_211\bin\java" -classpath ;.\csjdbc8.jar Test</code>	Active
ADO.NET	ADO.NET (32-bit and 64-bit)	Active
Power BI Data Connector	20.0.7656	Active
SSIS	20.0.7668	Active

Driver	Server Version	TDV Support
ADO.Net	ADO.Net 2021 Data Provider - v20.0.7656	Active

SNMP Support

The TDV system supports SNMP v3.

Web Service Protocols

Web Service Protocols	TDV Support
SOAP v1.1	Active
SOAP v1.2	Active
WSDL v1.1	Active
WSI-Basic Profile v1.0	Active
WSI-Basic Profile v1.1	Active
XPath v1.0	Inactive
XPath v2.0	Inactive
XPath v3.0	Active
XQuery v1.0	Inactive
XQuery v3.0	Active
XSLT v1.1	Active
XSLT v2.0	Active

Directory Services Support for LDAP

The following LDAP directory services are compatible for the TIBCO Data Virtualization to use as a secure authentication service.

Directory Service	TDV Support	Notes
Active Directory 2012	Active	LDAP, LDAPS, Kerberos
Azure Active Directory	Active	LDAP, LDAPS
Novell eDirectory 9.2	Active	LDAP
Oracle Directory Server Enterprise Edition 11.1	Active	LDAP, LDAPS

Options and Features Supported for Use with TDV

The TDV product suite supports a large collection of data sources, connection protocols, features, and client interfaces that grows with each service pack and release. The following topics catalogs many of these items:

- [Web Browser Support, page 31](#)
- [Directory Services Support for Kerberos, page 32](#)
- [Supported Data Sources, page 32](#)
- [Supported Data Sources, page 32](#)
- [Supported Add-On Adapters, page 37](#)
- [Supported Cache Targets, page 41](#)
- [Data Ship Source and Target Support, page 45](#)
- [TDV DDL Feature Support, page 48](#)
- [Supported Client Applications, page 49](#)
- [Client Application Target Framework, page 49](#)
- [Enterprise Service Buses, page 50](#)
- [Client-Side ADO.NET Driver Support, page 50](#)
- [Data Sources Supported for Kerberos Token Pass-through, page 50](#)

Web Browser Support

Online help (and long lists in Manager) might not display as expected in Chrome.

Web Browsers	TDV Support	Notes
Mozilla Firefox	Active	Business Directory, Deployment Manager and Web Manager support Mozilla Firefox v85.0 on Windows 10 and macOS Sierra 10.
Chrome	Active	Business Directory, Deployment Manager and Web Manager support Chrome v87.0 on Windows 10 and macOS Sierra 10.
Safari	Active	Not supported for web service API calls. Not supported for TDV Web UI. Business Directory, Deployment Manager and Web Manager support v12.0.3.
Edge	Active	Business Directory, Deployment Manager and Web Manager support v88.0 on Windows 10.

For the Deployment Manager client web applications to function properly, the machine that is running a compatible browser must be running on a machine with Windows 7 or higher. For Windows 8, if you are using IE, then make sure all compatibility settings are enabled or specifically configure it for compatibility view for each of the TDV web based products. Occasionally the login screen for these web applications does not close automatically, you can close it and continue using the product or you can choose to run in a different browser.

For best results, when running Business Directory and Deployment Manager concurrently, use different browsers.

The TDV and Business Directory servers require a secure connection. So when you first connect a browser to any TDV web-based application, you might get a warning about connecting to an untrusted site.

Depending on your browser:

- You might be asked to allow the connection process to continue.
- You might want to configure it to trust the site so that warning messages no longer appear. For some site configurations this might require configuration of SSL connections for your entire TDV environment.

OAuth 2.0 Compatible Browsers

- OAuth 2.0 is compatible with the Chrome browser.

Browsers and Kerberos Support

Different browsers have different settings to enable Kerberos support. TIBCO recommends that you search the web to confirm the instructions to enable Kerberos SPNEGO authentication and credential delegation for your browser and operating system.

For example in Firefox, add the url to both `network.negotiate-auth.trusted-uris` and `network.negotiate-auth.delegation-uris` and switch `network.negotiate-auth.allow-non-fqdn` to true.

Directory Services Support for Kerberos

The following LDAP directory services are compatible for the TIBCO Data Virtualization to use as a secure authentication service.

Directory Service	TDV Support	Notes
Active Directory 2012	Active	LDAP, LDAPS, Kerberos

Supported Data Sources

TDV supports these data sources.

TDV supports OAuth 2.0 for HTTP-based data sources: SOAP, REST, WSDL, and XML-HTTP. It is also available for several Advanced Adapter data sources.

For other supported data sources and applications, see these sections:

- [Supported Add-On Adapters, page 37](#)
- [Supported Advanced Data Source Adapters, page 38](#)

Refer to the Adapter Guides for more details about each of the adapters.

Select Data Source Adapter field	TDV Support	Versions, Compatibility, and Notes
Apache Drill	Active	CAST AS functions are not supported.

Select Data Source Adapter field	TDV Support	Versions, Compatibility, and Notes
Cloud File System	Active	Amazon AWS S3 Microsoft Azure Data Lake Storage Local File Storage
Composite	Active	
ComputeDB	Active	Version 1.2
Custom Java Procedure	Active	
DB2 V10.5 (Type4)	Active	
DB2 z/OS Version 10 (Type 4)	Active	
DB2 z/OS Version 11	Active	
Data Direct Mainframe	Active	The Shadow RTE Server (version 6.1.4.7606 or later) must be installed on the DataDirect Mainframe computer and the Shadow RTE Client (version 6.1.1.1080 or later) must be installed locally on the computer hosting the TDV Server.
File (cache, delimited, and XML)	Active	For data sources that access a file share, the TDV service user account needs to have permission to read the file share.
Greenplum 3.3	Active	TDV capabilities with Greenplum have been developed and tested with a single node license.
Greenplum 4.1	Active	
Greenplum 4.3	Active	
HBase 0.98 (Apache Phoenix Driver)	Active	Introspection of HBase databases retrieves information from the system tables. User created tables are only introspected if they have been created using the Apache Phoenix shell. Requires installation of Apache Phoenix JDBC drivers, specifically those in phoenix-4.1.0-bin.tar.gz. For more information see the TDV Administration Guide.
HSQldb 2.2.9	Active	

Select Data Source Adapter field	TDV Support	Versions, Compatibility, and Notes
Hive 1.1.0	Active	Cloudera CDH5.3. Hortonworks 2.2. Kerberos is supported. Trusted Delegation is not supported. For Hive data sources, TDV introspects tables and columns only.
Hive 2.1.1	Active	
Impala 2.0	Active	For Hive data sources, TDV introspects tables and columns only.
Informix 9.x	Active	
LDAP	Active	v3
Microsoft Access	Active	Windows platforms only
Microsoft Access (non-ODBC)	Active	Windows platforms only
Microsoft Excel	Active	2000
Microsoft Excel (non-ODBC)	Active	2000
Microsoft SQL Server 2008	Active	Kerberos authentication is supported.
Microsoft SQL Server 2012	Active	Kerberos authentication is supported with the 2008 driver.
Microsoft SQL Server 2014	Active	Kerberos authentication is supported.
Microsoft SQL Server 2016	Active	Kerberos authentication is supported.
Microsoft SQL Server 2019	Active	Kerberos authentication is supported.
MySQL 5.1	Active	
MySQL 5.5	Active	
Neoview 2.3	Active	

Select Data Source Adapter field	TDV Support	Versions, Compatibility, and Notes
Neoview 2.4	Active	
Netezza 6.0	Active	NPS
Netezza 7.0	Active	NPS
OData	Active	Provides for some limited access to SharePoint data.
Oracle 11g (OCI Driver)	Active	11g R1, 11g R2, Oracle RAC Kerberos authentication is supported with thin driver version 11.2.0.4.
Oracle 11g (Thin Driver)	Active	11g R1, 11g R2, Oracle RAC Kerberos authentication is supported with thin driver version 11.2.0.4.
Oracle 12c (OCI Driver)	Active	Oracle RAC
Oracle 12c (Thin Driver)	Active	Oracle RAC
Oracle 19c (OCI Driver)	Active	
Oracle 19c (Thin Driver)	Active	
PostgreSQL 9.0	Active	
PostgreSQL 9.1	Active	
PostgreSQL 9.2.3	Active	
REST	Active	Kerberos authentication is supported. NTLM authentication is supported.
RSS	Active	
Redshift	Read-only	New datasources cannot be created. The following trigonometric functions should not be pushed to Redshift data sources, because they might return incorrect results: SIN, COS, TAN, ASIN, ACOS, COT.

Select Data Source Adapter field	TDV Support	Versions, Compatibility, and Notes
SOAP	Active	1.1, 1.2 Kerberos authentication is supported. NTLM authentication is supported.
SAP HANA SPS 09	Active	Support is for on premise SAP HANA deployments.
Sybase 12	Active	12.5 ASE
Sybase 15	Active	15 and 15.5 ASE Kerberos authentication is supported.
Sybase IQ	Active	15
Sybase IQ (Type 2)	Active	15.2
Teradata 13	Active	13 and 13.10 Support for query band.
Teradata 14	Active	14.10 Might require installation of a Teradata 15 driver. Support for query band.
Teradata 15	Active	FastExport is not supported. The JDBC driver does not support CLOB columns with NULL values when using TDV to cache data into a Teradata 15 target. Support for query band.
Teradata 16	Active	16.20 The JDBC driver does not support CLOB columns with NULL values when using TDV to cache data into a Teradata 16 target. Support for query band.
TIBCO Streaming	Active	10.6.1
Vertica 6.1	Active	

Select Data Source Adapter field	TDV Support	Versions, Compatibility, and Notes
WSDL	Active	1.1 Kerberos authentication is supported. NTLM authentication is supported.
XML/HTTP	Active	Flat files or over HTTP. Kerberos authentication is supported. NTLM authentication is supported.

Supported Add-On Adapters

Consult your vendor specific documentation for detailed documentation of the objects and fields that have changed from version to version. These SAP adapters require the SAP JCo driver. Configuration steps can be found in the *TDV SAP BW Adapter Guide*. OLAP Cube Support—With TDV 5.1.0.1 and later, you can create dimensional OLAP views in TDV.

TDV supports the following application data sources.

Adapter	Version Support
Active Cluster	
Oracle E-Business Suite Adapter	11.5.8, 11.5.10 , 12.1, 12.2 on Oracle 9i and 10g
Salesforce.com Adapter	Version 37 You can install and use the Salesforce.com Adapter on all platforms that TDV supports. See Installation Requirements and Support Information, page 17 .
SAP Adapter	5.0, 6.0, and above SAP R/3 v4.7
SAP BW Adapter	3.5 and 7.4 SP 9
SAP BW BEx Adapter	3.5 and 7.4 SP 9
Siebel Adapter	7.7, 7.8, 8.0

For installation and licensing instructions, consult [Installing Optional TDV Products, page 117](#).

Supported Advanced Data Source Adapters

TDV supports the following application data sources.

Data Source Adapter	Versions, Compatibility, and Notes
Active Directory	LDAP v2 and v3 servers
Amazon DynamoDB	DynamoDB REST API Version 2012-08-10
Amazon Redshift	Version 1.0.7562
Cassandra	Versions 2.1.7 and 3.0.0
CosmosDB	2019
Couchbase	Version 4.0 of the API
DynamicsCRM	Windows server 2016, Windows server 2012 R2, Windows Server 2012.
DynamicsGP	Dynamics GP 2010, 2013, and 2015
DynamicsNAV	Dynamics NAV 2013, 2015, and 2016
Eloqua	Eloqua REST API and Bulk API version 2.0
Elasticsearch	Version 2.0 and above
Email	Standard IMAP client as specified in RFC 1730 and RFC 2060
Sharepoint Excel Services	Excel data from SharePoint Online, and SharePoint Server 2010 and 2013
Facebook	Facebook Graph API 2.0, 2.1, 2.2, 2.3
Google Ads	API v201809 Note: Google AdWords has been re-branded as GoogleAds. Google AdWords datasource created in TDV version 8.0 or earlier cannot be opened in TDV version 8.1 or later. You need to create a new datasource by choosing GoogleAds from the new datasource dialogue in TDV Studio and introspect it again.

Data Source Adapter	Versions, Compatibility, and Notes
Google Analytics	Google Analytics Management API v3.0, Google Analytics Core Reporting API v3.0
Google Contacts	API v3.0
Google Calendar	API v3.0
Google Drive	API V3.0
Google BigQuery	Google BigQuery API v2.0
Google Sheets	Google Sheets API v3.0
HubSpot	HubSpot REST API
JDBC-ODBC Bridge	ODBC 2.x and 3.x drivers
JSON	Standard JSON format as specified in RFC 7519
MarkLogic	2019
Marketo	Marketo REST API v1, Marketo SOAP API v2.6
MongoDB	MongoDB 2.6 and 3.0
NetSuite	NetSuite SOAP APIs 2011-2015
OData	OData 2.0, 3.0, and 4.0
RSS	RSS 2.0 feeds
SharePoint	SharePoint Online, SharePoint Server 2007, 2010, 2013
Snowflake	Version 3.25.5
SparkSQL	Version 1.0 and above
Splunk	2019
Twitter	Twitter REST API v1.1

Limitations:

- Sometimes, instead of returning an empty value, “Select * from table where columnname = 'value'” may throw an exception, if there is no value in the column.

- Some adapters support ORDER BY, but sometimes there are only a few objects within that data source that support ORDER BY. TDV displays a message if the tables do not support ORDER BY.
- Tables might need to be filtered with mandatory inputs for querying the contents for table scans to work as expected. For example for google apps directions, the starting location and ending location might be needed to retrieve the results.
- Sharepoint adapters support direct Kerberos authentication.
- Bulk inserts are not supported.
- GoogleSheets does not support client side filtering.
- Table names or column names with the period character are not supported.
- Eloqua data sources where the password value is entered when creating the data source will persist the password and it cannot be changed.
- For the Sharepoint Excel Services adapter, during introspection all String data types are mapped to VARCHAR.
- The DynamicsCRM, DynamicsNAV, DynanoDB, GoogleBigQuery, and SharePoint adapters do not support "is not null" syntax.
- Queries that contain "LIMIT" are not supported.
- For MongoDB, updating schema files within a running instance of TDV is not supported.
- Deployment Manager is case sensitive when using it with these adapters.
- Deployment Manager attributes for these adapters can cause plans to fail.
- "Ignore case sensitivity mismatch between CIS and data source" and "Ignore trailing space mismatch between CIS and data source" override the server side setting for a data source.
By default these two overrides are enabled so that queries are always pushed. This is the case even when there is a mismatch and the query does not contain UPPER or RTRIM or similar options.
- Set these attributes to false or disable the push to get the consistent results as when the query is run with in the TDV.

For installation and licensing instructions, consult [Installing Optional TDV Products, page 49](#).

For OAuth descriptions, see [Configuring OAuth 2.0 for TDV Advanced Adapters, page 51](#).

Supported Cache Targets

TDV supports the following as cache targets:

Cache Target	TDV Support	Parallel Cache Target Support	Native Cache Target Support	Notes
Amazon Redshift	Active	Active	Active	
Apache Hive 2.x	Active		Active	
File	Active	Active		Typically best for demonstrations or caching of a few hundred rows.
Google BigQuery	Active	Active	Active	
Greenplum 4.1	Active	Active	Active	
Greenplum 4.3	Active	Active	Active	
HSQLDB 2.2.9	Active	Active		
IBM DB2 LUW v10.5	Active	Active	Active	Native load with insert and select, and DB2 Load are supported.
Microsoft SQL Server 2008	Active	Active	Active	The DBO schema must be selected and introspected as a resource prior to attempting to cache data.
Microsoft SQL Server 2012	Active	Active	Active	The DBO schema must be selected and introspected as a resource prior to attempting to cache data.
Microsoft SQL Server 2014	Active	Active	Active	The DBO schema must be selected and introspected as a resource prior to attempting to cache data.

Cache Target	TDV Support	Parallel Cache Target Support	Native Cache Target Support	Notes
Microsoft SQL Server 2016	Active	Active	Active	The DBO schema must be selected and introspected as a resource prior to attempting to cache data.
Microsoft SQL Server 2019	Active	Active	Active	The DBO schema must be selected and introspected as a resource prior to attempting to cache data.
MySQL 5.1	Active	Active	Active	
MySQL 5.5	Active	Active	Active	
Netezza 6.0	Active	Active	Active	Native load with insert and select is supported. Parallel cache processing is achieved using the native DISTRIBUTE syntax. Procedure caching is supported.
Netezza 7.0	Active	Active	Active	Native load with insert and select is supported. Parallel cache processing is achieved using the native DISTRIBUTE syntax. Procedure caching is supported.
Oracle 10g	Supported			Native load with INSERT and SELECT is supported. Native load with DB link is not supported.
Oracle 11g and 11g R2	Active	Active	Active	
Oracle 12c	Active	Active	Active	

Cache Target	TDV Support	Parallel Cache Target Support	Native Cache Target Support	Notes
Oracle 19c	Active	Active	Active	
PostgreSQL 9.1	Active	Active	Active	Bulk load is supported. Native loading is supported when the source and target are the same database. If not then Parallel loading is used.
PostgreSQL 9.2.3	Active	Active	Active	Bulk load is supported. Native loading is supported when the source and target are the same database. If not then Parallel loading is used.
SAP HANA SPS 09	Active	Active		
Snowflake	Active	Active	Active	
Sybase ASE 12.5	Active			
Sybase ASE 15.5	Active			
Sybase IQ 15.2	Active		Active	
Teradata 13	Active		Active	Supported, but with limitations. If source and target tables are co-located within the same Teradata instance native loading (using INSERT/SELECT statements) will be used, else bulk loading using Teradata FASTLOAD will be attempted.

Cache Target	TDV Support	Parallel Cache Target Support	Native Cache Target Support	Notes
Teradata 13.10	Active		Active	Supported, but with limitations. If source and target tables are co-located within the same Teradata instance native loading (using INSERT/SELECT statements) will be used, else bulk loading using Teradata FASTLOAD will be attempted.
Teradata 14.10	Active		Active	Supported, but with limitations. Might require Teradata 15 driver. If source and target tables are co-located within the same Teradata instance native loading (using INSERT/SELECT statements) will be used, else bulk loading using Teradata FASTLOAD will be attempted.
Teradata 15	Active		Active	Choose tables For Caching is not supported. If source and target tables are co-located within the same Teradata instance native loading (using INSERT/SELECT statements) will be used, else bulk loading using Teradata FASTLOAD will be attempted.

Cache Target	TDV Support	Parallel Cache Target Support	Native Cache Target Support	Notes
Teradata 16.20	Active		Active	Choose tables For Caching is not supported. If source and target tables are co-located within the same Teradata instance native loading (using INSERT/SELECT statements) will be used, else bulk loading using Teradata FASTLOAD will be attempted.
ComputeDB	Active	Active	Active	
Vertica 6.1	Active	Active	Active	Supports the use of native load and parallel cache load together. Native load with INSERT AND SELECT is supported.

Data Ship Source and Target Support

Data ship optimization is supported for following data source types.

Data Source Type	Data Ship Source Support	Data Ship Target Support	Performance Option	Notes
DB2 v10.5	Active	Active	Bulk Load using the LOAD utility	LWU
Greenplum 3.3	Active	Active		

Data Source Type	Data Ship Source Support	Data Ship Target Support	Performance Option	Notes
Greenplum 4.1	Active	Active		
Greenplum 4.3	Active	Active		
Microsoft SQL Server 2008	Active	Active	Bulk import/export using BCP	
Microsoft SQL Server 2012	Active	Active	Bulk import/export using BCP	
Microsoft SQL Server 2014	Active	Active	Bulk import/export using BCP	
Microsoft SQL Server 2016	Active	Active	Bulk import/export using BCP	
Microsoft SQL Server 2019	Active	Active	Bulk import/export using BCP	
Netezza 6.0	Active	Active	external tables	
Netezza 7.0	Active	Active	external tables	
Oracle 11g	Active	Active	Database Links	<p>To use an Oracle data source for data ship, the DBA must install the DBMS_XPLAN package in the database and create an area for temporary tables.</p> <p>For this data source to participate in data ship, it must be specified as a data ship source. Participation as a data ship target is optional. If Oracle is both source and target, DB Link needs to be set up between the Oracle databases.</p>

Data Source Type	Data Ship Source Support	Data Ship Target Support	Performance Option	Notes
Oracle 12c	Active	Active	Database Links	
Oracle 19c	Active	Active	Database Links	
PostgreSQL 9.1	Active	Active	Database Links	
PostgreSQL 9.2.3	Active	Active	Database Links	
Sybase IQ 15	Active	Active	Location: iAnywhere JDBC driver	For a Sybase IQ data source to participate in data ship, the QUERY_PLAN_TEXT_ACCESS database option must be set to ON. For this data source to participate in data ship, it must be specified as a data ship source. Participation as a data ship target is optional.
Teradata 13.00	Active	Active	FastLoad/ FastExport	For this data source to participate in data ship, it must be specified as a data ship source. Participation as a data ship target is optional. Teradata Fastload mode doesn't work correctly using the 14.10 JDBC driver when Teradata is the Target Data Source. To workaround this issue, use a later version of the Teradata JDBC driver.
Teradata 13.10	Active	Active	FastLoad/ FastExport	
Teradata 14.10	Active	Active	FastLoad/ FastExport	
Teradata 15	Active	Active	FastLoad	
Teradata 16.20	Active	Active	FastLoad	
Vertica 5.0	Inactive	Inactive		
Vertica 6.1	Active	Active	Bulk load utility Export to another Vertica database	

TDV DDL Feature Support

TDV DDL (Data Definition Language) feature to CREATE and DROP tables directly is supported in the following data sources:

Datasource, version
DB2
Greenplum
HSQLDB
Apache Hive
MSSQL
MySQL
Netezza
Oracle
Postgres
ComputeDB
Sybase
Teradata
Vertica

Support for DDL Clauses

TDV supports certain DDL extension clauses for the following data sources. See the *TDV Reference Guide*, chapter *TDV SQL Keywords and Syntax* for a list of these extensions.

- ComputeDB
- Teradata
- Vertica

Supported Client Applications

All other client applications are supported through the standard communication protocols that include JDBC and ODBC.

Client-Side Applications	TDV Support	Notes
Cognos 11 R3	Active	
Cognos v10.2.2 fixpack 5	Active	
MicroStrategy 9.0.2	Active	TDV supports these data sources for use with MicroStrategy: Oracle 10g or 11g, Netezza 5 or 6, SQL Server 2008, and for mixed data coming from Oracle 11g and Netezza 6. Because MicroStrategy can create and delete data directly, you must have used Studio configured one of the following as a temporary tablespace to hold the created and deleted data: Oracle 10g and 11g, Netezza 5 and 6, SQL Server 2008, Teradata 13, MySQL 5, and DB2 v9.
MicroStrategy 9.2.1/9.2.1m on Windows I-Server	Active	
Tableau Desktop Professional Edition Version 7.0.13	Active	
TIBCO Spotfire	Active	

Client Application Target Framework

Client-Side Web Services	TDV Support
.NET Framework v1.1	Not Supported
.NET Framework v2.0	Not Supported
.NET Framework v3.0	Not Supported
.NET Framework v4.0	Not Supported
.NET Framework v4.5	Active

Enterprise Service Buses

Enterprise Service Bus	TDV Support
Sonic 7.5	Active
TIBCO EMS 4.4	Active
OpenMQ 4.4	Active

Client-Side ADO.NET Driver Support

The TDV ADO.NET driver can be installed, uninstalled, or re-installed. It can support 32-bit and 64-bit Windows operation systems. TDV Software supports native ADO.NET driver functionality on the following Windows operating systems.

- Windows 7 SP1 Professional
- Windows 7 SP1 Professional x64
- Windows 8.1 Professional x64
- Windows 10 v1803
- Windows Server 2012 R2
- Windows Server 2016 R2
- Windows Server 2019

TDV supports communication and use with:

- Visual Studio 2012, 2013 and 2015

Data Sources Supported for Kerberos Token Pass-through

- IBM DB2 LUW version 9
- Oracle

With these Kerberos authentication modes:

- Microsoft memory-based
- Ticket cache file-based
- Specified data source name and password

...these Oracle data sources are supported for Kerberos:

- Database version 11gR2 with an Oracle 11g driver
- Database version 19c

- Microsoft SQL Server 2008, 2012, 2014, 2016 and 2019
- SOAP 1.1 and 1.2
- REST
- Sybase ASE v12 and v15
- WSDL 1.1
- XML over HTTP

TDV Operating Systems Support

- 64-bit Windows Server 2012, 2016 and 2019
- 64-bit RHEL AS 6.6 and 7.0

Communication Interfaces and Protocols

- ADO.NET
- JDBC
- OData
- ODBC
- Web Services

Security Features

Security features are discussed throughout this guide:

- Kerberos can be used when connecting to several data sources ([Supported Data Sources, page 32](#)).
- Password protection is available for operations like installing and starting TDV and registering with data sources like SAP (see Registering with the SAP System Landscape Directory, in the *TDV User Guide*).

Support and Maintenance Policies for TIBCO Products

TIBCO provides support and maintenance for major/minor releases of TDV.

Support Policies for Third-Party Environments

All versions stated of an environment presume the initial release of a Third-party product without any need for patches, service packs or equivalent terms unless stated. Equally, unless stated, we presume that patches or service packs and minor version releases are upward compatible for our products. Whenever a new release of TDV requires deployment of a patch or service pack or is compatible only with a minor version of an environment, TDV will highlight these requirements in release notes and will require customers to install a patch or service pack or minor version to receive support and maintenance on the product.

The following classifications indicate the level of support for the current release.

Classification	Description
Active	All aspects (design/creation and runtime) are supported in Studio and Server.
Desupported Not Supported	Design/creation of platform version is no longer supported, runtime will persist until the next major or minor version. OR: This platform version has not been added to TDV yet.
Deprecated	Runtime removed from TDV. Old data sources will need to be upgraded to platform versions that are supported
Inactive	Design/creation and runtime are allowed in Studio and Server, no active testing or development of new features will be performed to the platform version

Support Policies for Third-Party Application Virtualization Environments

Customers deploying TIBCO's products in third-party application virtualization environments from VMWare, Xen, and others should first consult the list of native host environments supported by TDV to verify compatibility. Support issues arising from deploying TDV in any Third-party application virtualization environments will be reviewed and resolved only on the native host operating system to remove any incompatibilities that might be introduced by the application virtualization environment itself.

Limitations for TDV Discovery

Servlets are not supported and cannot be imported from previous TDV versions.

Data Sources Not Supported by Discovery

Discovery supports all data sources and TDV Adapters except the following:

- Custom Java procedures—Not supported because they are procedural.
- DB2 z/OS
- Hive
- HP Neoview
- IBM DB2 z/OS Version 8, Version 9, Version 10
- Impala
- Netezza
- PostgreSQL
- Relational data sources—Procedural objects in relational data sources are not supported.
- SAP BW
- SAP HANA
- Teradata
- Vertica
- WSDL
- XML (flat files or over HTTP)

Installing TDV, Studio, and Drivers

This topic describes how to install TDV on both Windows and UNIX computers and then verify that the installation was successful.

Topics include:

- [Overview of Installation Steps, page 55](#)
- [Preparing Your System for Installation, page 57](#)
- [Installing on Windows, page 60](#)
- [Installing on UNIX, page 63](#)
- [About the Installed TDV Services, page 69](#)
- [Tips from an Expert if the Server Does Not Start, page 69](#)
- [Where to Go After Installation, page 70](#)

Refer to the following sections for the other TDV distribution platforms:

- [TDV for AWS Marketplace](#)
- [TDV for Microsoft Azure Marketplace](#)
- [TDV Docker Container](#)

Overview of Installation Steps

This section includes the following topics:

- [Installation Overview for New TDV Software Customers, page 55](#)
- [Installation Overview for Existing Customers Upgrading from a Previous Release, page 56](#)

Installation Overview for New TDV Software Customers

If you are installing TDV Data Virtualization products for the first time, here is an overview of how you would proceed:

1. Review the new features and bug fixes as documented in the *TDV and Business Directory Release Notes*.
2. Review the information in the following topics:
 - [Installation Requirements and Support Information, page 17](#)
 - [About TDV Software Patches, page 68](#)
 - [Preparing Your System for Installation, page 57](#)
3. Install TDV as described in:
 - [Installing TDV, Studio, and Drivers, page 55](#)
 - [Silent Mode Installation, page 71](#)
4. If a TDV service pack release exists for your TDV installation, then it is recommended to apply that to your new installation. Instructions for how to install a patch or service pack are subject to change with each service pack. For instructions, see [TDV and Business Directory Product Maintenance, page 125](#).

Installation Overview for Existing Customers Upgrading from a Previous Release

To install a major upgrade for TDV

1. Review the new features and bug fixes as documented in the *TDV and Business Directory Release Notes*.
2. Review the information in the following topics:
 - [Installation Requirements and Support Information, page 17](#)
 - [About TDV Software Patches, page 68](#)
 - [Preparing Your System for Installation, page 57](#)
3. Review and follow the steps in [Upgrading from an Earlier Release and Migrating The Metadata, page 129](#).

Preparing Your System for Installation

To prepare your systems for installation

1. Review the new features and bug fixes as documented in the *TDV and Business Directory Release Notes*.
2. Review any README file included in your installation, patch, or service pack bundle.
3. Review the following requirements:
 - [Installation Requirements and Support Information, page 17](#)
 - You must have administrator privileges on the host computer to install TDV Server.
 - You can have multiple JVMs running on the installation machine.
 - Server requires a block of nine ports for use by TDV and associated services. The port setting for Web services HTTP communication serves as the “base port”. By default, the base port is 9400, but you can change it after installation using configuration parameters.
4. Make sure that any LIBPATH or LD_LIBRARY_PATH environment variable that you might have does not begin with a "/" slash or end with a ":" colon. Those characters may keep the repository from starting successfully.
5. Review your firewall settings and verify that they allow access to the ports that TDV (Business Directory, Deployment Manager, and TDV) products need to use.
6. To see the current base port setting, choose Configuration from the Administration menu and navigate to Server > Web Services Interface > Communications > HTTP > Port (Current).

Note: Changing the HTTP base port value also changes the value of all derived ports after the next TDV restart. When the base port is changed, you must update all data sources with the new port information.

These example ports are reserved or are derived from the base port:

```
9400 Web services HTTP port
9401 JDBC, ODBC, and ADO.NET
9402 Web services HTTP SSL
9403 JDBC SSL, ODBC SSL, and ADO.NET SSL
9404 Default caching database port
9405 JMX/RMI port for Monitor collector
9406 Monitor Daemon
9407 Active Cluster - JGroups (when installed)
9408 Repository
9409 Monitor RMI registry + JMX/RMI port for Monitor daemon
```

```

9500 Business Directory
9502 Business Directory (reserved)
9508 Business Directory

```

7. Stop Server if an earlier version is running.
8. Restart databases, especially those used for your caches and repositories.
9. Shut down all other application programs running on the installation machine.
10. Make sure you know the hostname or the IP address of the installation machine.
11. If you are installing on a Linux operating system, see [Preparing UNIX for TDV Installation, page 58](#).
12. If you are installing on a Windows operating system, see [Preparing Microsoft Windows for TDV Installation, page 60](#).

Preparing UNIX for TDV Installation

This section applies only if you are installing TDV on a machine running a supported UNIX operating system. Examples of valid and invalid `/etc/hosts` file entries are shown in the following table.

Validity	<code>/etc/hosts</code> File Entry
Valid	127.0.0.1 localhost IP hostname.domain hostname
Valid	127.0.0.1 localhost localhost.localdomain IP hostname.domain hostname
Valid	127.0.0.1 localhost localhost.localdomain localhost IP hostname.domain hostname
Invalid	127.0.0.1 localhost.localdomain IP hostname.domain hostname
Invalid	127.0.0.1 localhost.localdomain localhost IP hostname.domain hostname

To prepare your UNIX machine for installation of TDV products

1. Review the new features and bug fixes as documented in the *TDV and Business Directory Release Notes*.
2. Run the following command to determine if localhost can be resolved on the target installation machine before attempting an installation:

```
ping localhost
```

3. If the ping results look like the following, localhost is being resolved and the machine is ready for TDV installation. You can continue with the instructions in other sections.

Linux Ping Example with Valid localhost

```
$ ping localhost
PING localhost (127.0.0.1) from 127.0.0.1 : 56(84) bytes of data.
64 bytes from localhost (127.0.0.1): icmp_seq=1 ttl=255 time=0.071 ms
64 bytes from localhost (127.0.0.1): icmp_seq=2 ttl=255 time=0.063 ms
64 bytes from localhost (127.0.0.1): icmp_seq=3 ttl=255 time=0.043 ms
--- localhost ping statistics ---
3 packets transmitted, 3 received, 0% loss, time 1999ms
rtt min/avg/max/mdev = 0.043/0.059/0.071/0.011 ms
```

4. If the ping results look like the following, localhost is not correct. You must edit your `/etc/hosts` file.

Linux Ping Example with Invalid localhost

This example of `/etc/hosts` files shows where Server is unable to connect to the repository database because of the `localhost.localdomain` entry preceding the `localhost` entry (assuming the `localhost` entry exists at all).

```
$ ping localhost
PING localhost.localdomain (127.0.0.1) from 127.0.0.1 : 56(84) bytes of data.
64 bytes from localhost.localdomain (127.0.0.1): icmp_seq=1 ttl=255
time=0.080 ms
64 bytes from localhost.localdomain (127.0.0.1): icmp_seq=2 ttl=255
time=0.071 ms
64 bytes from localhost.localdomain (127.0.0.1): icmp_seq=3 ttl=255
time=0.044 ms
--- localhost.localdomain ping statistics ---
3 packets transmitted, 3 received, 0% loss, time 1998ms
rtt min/avg/max/mdev = 0.044/0.065/0.080/0.015 ms
```

5. Edit the `/etc/hosts` file to add a `localhost` entry, directly after the `127.0.0.1` entry, with the following syntax:

```
127.0.0.1 localhost <optional host name>
```

6. Save your changes and rerun the ping for localhost.

Preparing Microsoft Windows for TDV Installation

If you are installing TDV on Windows Server 2012 R2, you must disable User Account Control before installing TDV Server. Optionally, if you run into permission issues when running the installer, you can use this procedure to attempt to solve the issue.

To disable the User Account Control

1. From the Windows Start menu, select Control Panel > User Accounts > Change User Account Control Settings.

Change the setting to Never notify.

Installing on Windows

This installation process is used to install one or more components of TDV. You install TDV for Windows using the InstallAnywhere installer wizard.

Note: If you installed TDV on Microsoft Windows Server 2012 R2, see [Preparing Microsoft Windows for TDV Installation, page 60](#).

- [Running the TDV Server Installer, page 60](#)
- [Running the Studio Installer, page 62](#)
- [Installing the Drivers, page 62](#)

Running the TDV Server Installer

This installer installs the following components:

• Server	• Deployment Manager	• Repository
• Java	• Monitor	• Discovery
• Active Cluster	• Salesforce.com Adapter	• SAP Adapter
• SAPBW and BEx Adapters	• Oracle EBS Adapter	• Siebel Adapter
• Studio	• Default caching database	• Advanced Data Sources Adapters

To install TDV on a Windows computer

1. Read the README files included with or associated with the download file.
2. Run the installer executable for your platform.

Note: TDV installer and patch are packaged with VC++ redistributable and they will be installed along with TDV. Make sure your Windows OS has all the necessary updates installed, so that TDV installation can run smoothly.

3. Follow the prompts on the screen. Special characters and spaces are not supported for <TDV_install_dir>.

You can select the defaults for the <TDV_install_dir> and the TDV Server base port number.

You will be prompted for the following passwords.

TDV Password Type	Description
TDV Server Application Password	The TDV Server application password is used to login to web manager.
TDV Repository	This is the database that will be used to store all of the data and metadata about the items that you create within TDV. It also stores your configuration and other environment settings. Passwords with special characters that are supported by your operating system shell are fine to use.
Default Caching Database	This is the database that will be created for you to hold data that you want to cache using the default caching method. There are multiple caching options. You might want to note the password for future use of this database.

The installation process might take a few minutes, during which progress windows are displayed.

Note: TDV will generate a new encryption key when the installation is in a new destination. If it is an existing installation TDV uses the existing encryption key. In case of any errors encountered, the administrator may have to investigate if the encryption key file location and content are correct and then contact TDV support team for assistance.

4. Select a password for the default caching database.
5. Finish to exit the installer when the installation is completed.

The Server starts automatically at the completion of the installation process. You can also start and stop the services as described in the *TDV Administration Guide*.

Install and uninstall logs are called bitrock_installer_<number>.log while the installer is running. After installation is complete, the logs are named <product>_install or <product>_uninstall.log. The log files can be found in the following directories:

Platform	Default Location of Log Files
Unix	/tmp
Operating System Support for Server, page 26	C:\Users\<username>\AppData\Local\Temp

- Optionally, download and install the latest TDV patch as described in *TDV and Business Directory Release Notes*.

Running the Studio Installer

This installer installs the following components:

- Studio
- Java

This installer can be run on each Windows machine that needs access to the TDV Server.

To install Studio on a Windows computer

1. Read any README files included with or associated with the download file.
2. Run the installer executable for Studio.
3. Follow the prompts on the screen.
4. When the installation is complete, click Finish to exit the installation program.

Studio automatically runs and prompts you for login information.

Installing the Drivers

This client distribution (driver zip) file includes the following components:

- ODBC
- ADO.NET
- JDBC
- SSIS

- Power BI

This zip file can be unpacked on each machine that has client application that needs access to the TDV Server.

To install the drivers distributed with TDV

1. Read any README files included with or associated with the download file.
2. Locate and extract the drivers zip file.
3. When installing the ODBC Win 64-bit driver on Windows 10, make sure to select Run as Administrator. Select the client EXE file, right click and select Run as Administrator. When prompted, select Yes and allow the installation to run to completion.
4. Follow the instructions in the TDV Administration Guide for details on how to complete configuration of each driver.
5. When the installation is complete, click Done to exit the installation program.

Installing on UNIX

Your TDV Server can be installed on a UNIX machine. Studio is not available for UNIX and must be installed on a Windows machine. You can then connect the Studio client to the Server on the UNIX machine.

- [Installing TDV Server on UNIX, page 63](#)
- [Installing Drivers on UNIX, page 65](#)
- [Setting the TDV Server to Start Automatically on UNIX, page 66](#)

Installing TDV Server on UNIX

This installer installs the following components:

- | | | |
|--------------------------|--------------------------|------------------|
| • Server | • Deployment Manager | • Repository |
| • Java | • Monitor | • Discovery |
| • Active Cluster | • Salesforce.com Adapter | • SAP Adapter |
| • SAPBW and BEx Adapters | • Oracle EBS Adapter | • Siebel Adapter |

- Default caching database
- Advanced Data Source Adapters

To install TDV on a UNIX computer

1. Make sure you have reviewed and completed any necessary preparation as discussed in [Installation Requirements and Support Information, page 17](#).
2. For CentOS, Red Hat Enterprise Linux, and Oracle Red Hat Enterprise Linux systems Security-Enhanced Linux (SELinux) must be enabled. See [Configuring Security Enhanced Linux Environments, page 14](#) in the Security Features Guide.
3. If necessary, log into the installation machine as a non-root user. Change your working directory to the user's home directory.
4. Run the following command for your platform:
`chmod 755 <installer file name>`
5. Make sure that the directory and path that you expect to use for TDV does not contain any spaces.
6. Make sure that you have READ and WRITE permissions on the installation directory.
7. Run the following command to start the installation:
`./<installer file name>`
8. Follow the prompts on the screen. Special characters are not supported for <TDV_install_dir>.

You can select the defaults for the <TDV_install_dir> and the TDV Server base port number. The value you use for <TDV_install_dir> cannot contain a space.

You will be prompted for the following passwords...

Password Type	Description
TDV Server Application Password	The TDV Server application password is used to login to web manager.
TDV Repository	This is the database that will be used to store all of the data and metadata about the items that you create within TDV. It also stored your configuration and other environment settings. Passwords with special characters that are supported by your operating system shell are fine to use.

Password Type	Description
Default Caching Database	This is the database that will be created for you to hold data that you want to cache using the default caching method. There are multiple caching options. You might want to note the password for future use of this database.

Note: TDV will generate a new encryption key when the installation is in a new destination. If it is an existing installation TDV uses the existing encryption key. In case of any errors encountered, the administrator may have to investigate if the encryption key file location and content are correct and then contact TDV support team for assistance.

9. Finish to exit the installer when the installation is completed.

The Server starts automatically at the completion of the installation process. For information about automatically restarting TDV, see [Setting the TDV Server to Start Automatically on UNIX, page 66](#). You can also start and stop Server as described in [About the Installed TDV Services, page 69](#) and the *TDV Administration Guide*.

Install and uninstall logs are called bitrock_installer_<number>.log while the installer is running. After installation is complete, the logs are named <product>_install or <product>_uninstall.log. The log files can be found in the following directories:

Platform	Default Location of Log Files
Unix	/tmp

10. If installing TDV on AIX, make sure that MAX_MEMORY >1500MB is in the <TDV_install_dir>/conf/server/server.properties.

The server.properties file is processed every time the server is restarted from composite.sh monitor.

11. Optionally, download and install the latest TDV patch as described in *TDV and Business Directory Release Notes*.

Installing Drivers on UNIX

These files contain the following driver components:

- ODBC
- ADO.NET
- JDBC

- SSIS
- Power BI

To install the drivers

1. Make sure you have reviewed and completed any necessary preparation as discussed in [Installation Requirements and Support Information, page 17](#).
2. If necessary, log into the installation machine as a non-root user. Change your working directory to the user's home directory.
3. Make sure that you have READ and WRITE permissions on the directory for which you want to unzip the contents of the file.
4. Locate and extract the drivers zip file.
5. Follow the instructions in the *TDV Administration Guide* for details on how to complete configuration of each driver.
6. When the installation is complete, click Done to exit the installation program.

Setting the TDV Server to Start Automatically on UNIX

If at any time after installing the software, you restart the UNIX installation machine, Server and the metadata repository do NOT start automatically (unlike when they start automatically after a successful installation of the software).

To configure the TDV service files `cis.repository` and `cis.server`

1. Log into the installation machine as root.
2. Change the working directory to `<TDV_install_dir>/bin`.
3. Run the following command as the root user:
`cis_install_services.sh`

This command prompts for a username, and other details to install and configure the service files `cis.repository` and `cis.server`.

4. Enter the name of the user to start TDV (not the root user) and the other information requested.

The script then installs `cis.repository` and `cis.server` into an appropriate location on the installation machine and configures them. The location will be printed on your screen when the configuration is successful, so make note of this location, because you need this to perform verification of the service files.

Note: Do not run the `cis.repository` or `cis.server` scripts in the `<TDV_install_dir>/bin/` directory. These are template files used by `cis_install_services.sh` only and are not meant to be run.

Running `cis_install_services.sh` does not interrupt any repository or server processes that are running, but prepares the machine for automatically starting those processes during restart of the UNIX-based computer.

5. Run the following commands as the root user:

```
cd <init_directory>
chmod 550 cis.repository
chmod 550 cis.server
chmod 550 cis.cache
```

The value of `init_directory` depends on the operating system:

- Linux: `/etc/rc.d/init.d` or `/etc/rc.d`
- AIX: `/etc/rc.d/init.d`

To verify the TDV service files configuration

6. Go to the location noted previously from running `cis_install_services.sh`.

Note: The console output of the script `cis_install_services.sh` displays the exact location. Choose the location for your operating system.

7. Enter these commands:

```
./cis.repository restart
./cis.server restart
./cis.cache restart
```

Now if the machine is rebooted, the monitor, server, and repository processes should automatically start once the machine is ready to go.

Installing on Amazon Web Service

The TDV Server is supported on Windows and UNIX. Studio requires a Windows-based OS to operate.

To install TDV on a Windows-based AWS

1. Install and configure a supported version of Windows for AWS.
2. Select and install the AMI for TDV.
3. Follow the install instructions in [Running the TDV Server Installer, page 60](#).

4. Follow the install instructions in [Running the Studio Installer, page 62](#).
5. Follow the instructions in the *TDV Administration Guide* to register you TDV licenses.

To install TDV Server on a UNIX-based AWS

1. Install and configure a supported version of Linux for AWS.
2. Select and install the AMI for TDV Server.
3. Follow the install instructions in [Installing on UNIX, page 63](#).
4. Locate the TDV Studio installer that came bundled with your AMI.
5. Move the installer file to a Windows-based AWS or another Windows machine.
6. Follow the install instructions in [Running the Studio Installer, page 62](#).
7. Connect to the TDV Server on your Linux AWS.
8. Follow the instructions in the *TDV Administration Guide* to register you TDV licenses.

About TDV Software Patches

TDV produces service pack patches as needed to update installed products. Patches are applied after the product has been installed. A patch is a zipped package of files that fixes known issues and which often provides enhanced functionality.

You must use the component-specific patch to get fixes for each component (For example, the Studio patch has fixes for Studio, the Client driver patch has fixes for client drivers such as ODBC, ADO.Net). Refer to [Software Components for Installation, page 15](#) for a list of components.

After installation of TDV, you might want to apply the latest TDV patch which might be a later version than what you just installed. It is recommended that you install a patch on all computers running TDV products to ensure complete compatibility and minimize unforeseen problems.

For information about how to obtain and install the latest patch, see [TDV and Business Directory Product Maintenance, page 125](#).

Note: Instructions for how to install a patch or service pack are subject to change with each service pack. For instructions, see the *TDV and Business Directory Release Notes*.

About the Installed TDV Services

The installation process installs the following services which are TDV processes that run in the background:

- server—the TDV Server process.
- repository—the database repository used by TDV.
- monitor—a process that monitors the TDV Server and ensures that it is always running.
- cache—a process that runs the default caching database.

All processes must be running for TDV to function properly.

For more information on configuring and starting TDV, see the *TDV Administration Guide*.

Importing Metadata into the New TDV Instance

If you are upgrading your version of TDV from an earlier version and you have completed the instructions in [Exporting Metadata from the Existing TDV Instance, page 131](#), follow the instructions in the section [Importing Metadata into the New TDV Instance, page 132](#). To verify the installation, follow the instructions in the section [Verifying a Successful Installation, page 133](#)

Tips from an Expert if the Server Does Not Start

If the server does not start and the log files indicate that the cause is not enough heap memory, you can modify the default max memory setting.

The `server.properties` file is processed every time the server is restarted from `composite.sh monitor`.

To modify the max memory setting

1. Stop the server.
2. Increase the `MAX_MEMORY` value in the one of the following locations depending on your server:
 - `<TDV_install_dir>/conf/server/server.properties`
 - `<BD_install_dir>/bd/conf/server/server.properties`

3. If adjusting the heap size with MAX_MEMORY is not enough to allow large CAR files to load, you can try setting the following Studio configuration parameters back to their default values:
 - Default Bytes to Fetch—Default value is 100.
 - Default Rows to Fetch—Default value is 1000.
4. From the process manager for your platform, shut down and restart all TDV processes (such as the TDV Server and monitor).

Where to Go After Installation

For your next steps, particularly if you are new to TDV products, see the information in the following PDFs or online help. You can access the PDFs at <TDV_install_dir>/docs, or from within Studio at Help > Online Help.

Book Title	Description
Getting Started Guide	Contains a simple example to get you familiar with the Studio application.
Administration Guide	Contains procedures for: <ul style="list-style-type: none"> • Completing and configuring your TDV installation • Licensing TDV software • Starting and stopping TDV • Finding and interpreting log files • Setting up security • Setting up JDBC, ODBC, and other drivers
User Guide	Explains Studio features and how to create and publish resources.
Client Interfaces Guide	Contains instructions, guidelines, and examples of how to access TDV resources through various client applications.

Silent Mode Installation

Installations can be run without manual interactive interfaces (i.e. graphical user interface or console based). There are two ways to run the installer in silent mode: 1) using a property file with key/value pairs or 2) command line with key/value pairs.

Topics covered in this chapter include:

- [Creating the Options File for a Silent Installation, page 71](#)
- [Running the Installer in Silent Mode, page 72](#)

Creating the Options File for a Silent Installation

Optionally, when running a silent mode installation you can use an options file that has specific key-value pairs.

To create the options file for a silent install

1. In a text editor, create a options file similar to the following:

```
Business # Modify install directory and all port number references
Directory #
mode=unattended
install_directory=/opt/TIBCO/BD
server_port=9500
repository_admin_password=password
bd_admin_password=password
-----
```

```
TDV # Modify install directory and all port number references
Server #
mode=unattended
install_directory=/opt/TIBCO/TDV
server_port=9400
repository_admin_password=password
database_admin_password=password
server_admin_password=password
-----
```

2. Edit the values within the file for your installation.

The following table describes the variables in the options file:

Variable	Description and Value
INSTALL_DIRECTORY	<p>Directory in which to install the software referred to as <TDV_Installdir>.</p> <p>The value can be empty, or the directory can be non-existent. On UNIX, there can be no space in the directory name. Examples:</p> <pre>install_directory=/opt/TIBCO/TDV install_directory=C:\Program Files\TIBCO\Studio install_directory=/opt/TIBCO/BD</pre>
REPOSITORY_ADMIN_PASSWORD	<p>Password to access the repository database, which is automatically installed during the installation. PostgreSQL requires that the password you choose cannot contain a # or \$.</p>
SERVER_PORT	<p>Defaults to 9400 for TDV and 9500 for Business Directory.</p>
DATABASE_ADMIN_PASSWORD	<p>The password used to access the default caching database, which is automatically created during installation. PostgreSQL requires that the password you choose cannot contain a # or \$.</p>
SERVER_ADMIN_PASSWORD	<p>The password used to login to the web manager and the client applications.</p>

3. Save the file as <installer.properties>.

Running the Installer in Silent Mode

Running the installer via command line options

1. Option file method:
 - a. Create the options file. See [Creating the Options File for a Silent Installation, page 71](#).
 - b. Run the installer with the following option: <instFile>.exe/bin --optionfile <OPTION_FILE>

2. Command line (no options file) method - See examples below:

Component	Command Options
TDV Server	<ul style="list-style-type: none"> <li data-bbox="365 256 1322 482">• Windows Installation with all input parameters: <pre data-bbox="451 300 1205 413"><instFILE>.exe --mode unattended --install_directory <TDV_Installdir> --server_port "6400" --server_admin_password "admin1" --repository_admin_password "password" --database_admin_password "password"</pre> <p data-bbox="451 427 1322 482"><i>Note:</i> database_admin_password is only valid for TDV Server. BD does not use this variable.</p> <li data-bbox="365 499 1322 694">• Windows Installation with only the required parameters: <pre data-bbox="451 539 1205 621"><instFILE>.exe --mode unattended --server_admin_password "admin1" --repository_admin_password "password" --database_admin_password "password"</pre> <p data-bbox="451 635 1205 694">This command installs TDV Server in the default directory C:\Program Files\TIBCO\TDV Server <version> on default port 9400.</p> <li data-bbox="365 708 1322 864">• Linux/AIX Installation with all input parameters: <pre data-bbox="451 748 1205 861"><instFILE>.bin --mode unattended --install_directory <TDV_Installdir> --server_port "6400" --server_admin_password "admin1" --repository_admin_password "password" --database_admin_password "password"</pre> <li data-bbox="365 878 1322 1111">• Linux/AIX Installation with only the required parameters: <pre data-bbox="451 918 1205 999"><instFILE>.bin --mode unattended --server_admin_password "admin1" --repository_admin_password "password" --database_admin_password "password"</pre> <p data-bbox="451 1013 1076 1072">This command installs TDV Server in the default directory /opt/TIBCO/TDV_Server_<version> on default port 9400.</p> <p data-bbox="451 1086 968 1111"><i>Note:</i> User should have rwx permissions on /opt</p>
Studio	<ul style="list-style-type: none"> <li data-bbox="365 1138 1222 1211">• Windows: <pre data-bbox="451 1182 1222 1211"><instFILE>.exe --mode "unattended" --install_directory <TDV_Installdir></pre> <li data-bbox="365 1225 1222 1298">• Linux/AIX: <pre data-bbox="451 1269 1222 1298"><instFILE>.bin --mode "unattended" --install_directory <TDV_Installdir></pre>

Component	Command Options
Business Directory	<ul style="list-style-type: none"> <li data-bbox="321 199 1292 329"> <p>• Windows Installation with all input parameters:</p> <pre data-bbox="399 234 1199 329"><instFILE>.exe --mode unattended --install_directory "<TDV_Installdir>" --bd_admin_password "admin1" --repository_admin_password "password" --server_port 9500</pre> <li data-bbox="321 338 1292 520"> <p>• Windows Installation with only the required parameters:</p> <pre data-bbox="399 381 1128 442"><instFILE>.exe --mode unattended --bd_admin_password "admin1" --repository_admin_password "password"</pre> <p data-bbox="399 451 1256 520">This command installs BD in the default directory C:\Program Files\TIBCO\BD Server<version> on default port 9500.</p> <li data-bbox="321 529 1292 659"> <p>• Linux/AIX Installation with all input parameters:</p> <pre data-bbox="399 572 1199 659"><instFILE>.bin --mode unattended --install_directory "<TDV_Installdir>" --bd_admin_password "admin1" --repository_admin_password "password" --server_port 9500</pre> <li data-bbox="321 668 1292 894"> <p>• Linux/AIX Installation with only the required parameters:</p> <pre data-bbox="399 711 1128 772"><instFILE>.bin --mode unattended --bd_admin_password "admin1" --repository_admin_password "password"</pre> <p data-bbox="399 781 999 850">The above command installs BD in the default directory: /opt/TIBCO/TDV_BD_Server_8.0 on port 9500</p> <p data-bbox="399 859 928 894"><i>Note:</i> User should have rwx permissions on /opt</p>

Note: All the available options can be viewed by executing the command `<instFILE>.exe/bin --help`

The variables used in the above table are as follows:

- `<instFILE>` is the file name. For example, `TIB_tdv_server_8.0.0_win_x86_64.exe` for a Windows TDV Server.
 - `<OPTION_FILE>` is the name of the file where the input parameters are stored.
 - `<TDV_Installdir>` is the installation directory For example, `/opt/TIBCO/TDV_BD_Server_8.0` for Linux/AIX BD
3. Verify that the installation was successful by looking for the TDV installation directory. You can also view success or failure messages in:
- `%HOMEDRIVE%\BD_install.log` (Windows) or `/tmp/BD_install.log` (UNIX)
 - `%HOMEDRIVE%\TDV_install.log` (Windows) or `/tmp/TDV_install.log` (UNIX)

TDV Docker Container

This section will cover the TIBCO Data Virtualization (TDV) software for the Docker container distribution format. Users will be able to build a TDV Docker image and run it as a Docker container. The following sections are described in this chapter:

[Prerequisites, page 75](#)

[Building TDV Docker Images, page 77](#)

[Publishing TDV Docker Images, page 78](#)

[Launching TDV Containers \(Single Node\), page 78](#)

[Launching TDV Containers \(Cluster\), page 82](#)

[Runtime TDV Container Configuration - Common Examples, page 87](#)

[Best Practices, page 94](#)

[Quick Reference of use Docker Commands for TDV Containers, page 95](#)

Prerequisites

The following instructions outline how to prepare for building a Data Virtualization Docker image.

Note: The TDV product does not provide a Docker image. You must build it explicitly.

Before building the Docker image, ensure the following:

- You have Docker installed, configured, and it runs successfully on your machine. Refer to the "Docker documentation - <http://docs.docker.com/installation>" for more information on installing Docker.
- The TDV Docker container will require a minimum of 8GB of RAM and 8GB of read & write persistent disk storage. For additional resource requirements see [Resource Requirements for TDV, page 76](#)

Note : To allow non-root users to run Docker commands, follow the instructions in <https://docs.docker.com/install/linux/linux-postinstall>

Docker

Docker Engine 19.03.5 or higher is required for building/running a TDV Docker image/container.

Verifying Docker Installation

- In the command prompt, run the command:
`$ docker run hello-world.`
- If you cannot run this default Docker container, then please check your Docker installation.

Being able to run this default Docker container ensures your Docker environment is ready for building and running TDV.

Note: When running TDV with a Docker container, Docker will manage the TDV Server process lifecycle, therefore the TDV Monitor Daemon will not be running inside the TDV container. You will notice that the `cs_csmonitor_server.log` displays errors. This is because the monitor server is attempting to connect to a monitor daemon which does not exist in a docker environment. It is safe to ignore this error message.

TDV

Resource Requirements for TDV

Storage, CPU and memory resources should to be specified when building a TDV Docker image and when running a TDV Docker container.

- **Storage (runtime)** - TDV requires read/write persistent disk storage that is maintained outside of the Docker container. See [Sizing Guidelines for TDV, page 19](#) for recommendations.
- **CPU (runtime)** - TDV requires a minimum of 2 CPUs/cores per TDV Docker container. See [Sizing Guidelines for TDV, page 19](#) for recommendations.
- **Memory (build time)** - TDV requires a minimum of 8 GB memory per TDV Docker container. See [Sizing Guidelines for TDV, page 19](#) for recommendations.

Building TDV Docker Images

You will be using TDV Dockerfile and corresponding tar.gz file that are provided on eDelivery.tibco.com alongside the other TDV distributions (e.g. installer and patch). Follow these steps to build the TDV Docker Images:

1. Download the Dockerfile.tdv and `tdv_<TDV_VERSION>_bin.tar.gz` on your instance for building Docker images.
2. You should also download the md5 checksum files in order to validate the integrity of these files.

Example:

```
md5sum -c Dockerfile.tdv.md5
md5sum -c tdv-<TDV_VERSION>-bin.tar.gz.md5
```

3. Goto to the location where you have downloaded the TDV Dockerfile and tar.gz file and run the Docker build command as shown below.

Note: The TDV Docker image uses a Linux base OS. If you are running Docker on Windows then make sure Docker is set to use Linux containers. See <https://docs.docker.com/docker-for-windows/#switch-between-windows-and-linux-containers> for more details.

Generic example:

```
$ docker build -t
<your-docker-repo-name>/<image_name>[:<image-tag>] -f
Dockerfile.tdv .
```

TDV default build example: (default TDV base port 9400, default TDV admin password, and default TDV server memory 8 GB):

```
$ docker build -t myrepo/tdv:<TDV_VERSION> -f Dockerfile.tdv.
```

TDV custom build example: (custom TDV ports, TDV admin password, and TDV server memory value):

```
$ docker build -t myrepo/tdv:<TDV_VERSION> -f Dockerfile.tdv .
--build-arg tdv_base_port=10000 --build-arg tdv_base_port_3=10003
--build-arg tdv_base_port_7=10007 --build-arg
tdv_base_port_drill=9903 --build-arg
tdv_admin_password=<TDV_ADMIN_PASSWORD> --build-arg
tdv_server_max_memory=<number of KB>
```

Note:

You can also configure your TDV build:

- By modifying the Dockerfile.tdv file's args that have `tdv` prefixed variables.

- By adjusting TDV server memory with the `tdv_server_max_memory` argument. When a TDV container is created from this image, make sure your container memory setting (e.g. `-m`) is the same or higher value than your build value.

Example for TDV configuration: `tdv_server_max_memory=8192` then `-m=8g`

- By changing TDV configuration during runtime. The TDV admin password, TDV base port and TDV server memory settings can be done when the TDV container is running. Docker container restart is not required when changing TDV admin password via a TDV client (e.g. TDV Studio and TDV command line util - `server_util.bat/sh`). Changing the TDV base port and server memory will require using the TDV Studio client and starting a new TDV container due to port and/or resource (i.e. memory) changes.

See section [Runtime TDV Container Configuration - Common Examples, page 87](#) for more details.

Publishing TDV Docker Images

If you want to publish your TDV Docker image to a Docker registry then log in to your Docker registry and follow the commands below.

For more information on Docker login, visit <https://docs.docker.com/engine/reference/commandline/login>

After a successful login, you can publish the Docker image using the `docker push` command.

Generic example:

```
$ docker login --username <user-name> <remote-repo-name>
$ docker tag <local-repo-name>/<image-name>:<image-tag>
<remote-repo-name>/<image-name>[:<image-tag>]
$ docker push <remote-repo-name>/<image_name>[:<image-tag>]
$ docker logout <remote-repo-name>
```

Launching TDV Containers (Single Node)

This section will explain how to start a TDV Docker container (Single Node). If you need to review TDV container sizing guidelines refer [Sizing Guidelines for TDV, page 19](#)

General example for launching a single node TDV Docker container

Below is a generic example for launching a single node docker container:

```
$ docker run -itd --mount <mount-value> --cpus=<cpu-value>
-m=<memory-value> --name <tdv-container-name>
<repo-name>/<image-name>[:<image-tag>] tdv.server
```

References:

Refer the table below for a description of the different options used in the above *docker run* command.

Option	Docker Help Reference
-t	Allocate a pseudo-tty - https://docs.docker.com/engine/reference/run/
-i	Keep STDIN open even if not attached - https://docs.docker.com/engine/reference/run/
-d	Detach and run the container in background and print container ID - https://docs.docker.com/engine/reference/run/#detached--d
--mount	(TDV Required) The tdv container requires a persistent storage area when running as a Docker container. See Sizing Guidelines for TDV, page 19 for size recommendations. https://docs.docker.com/storage/bind-mounts/ Example: --mount type=volume,source=tdv-vol,target=/opt/TIBCO Note: mount point must have a valid volume existing before starting the TDV Container.
--cpus	(TDV Recommended) The tdv container works best with 2 CPUs/cores in general. See Sizing Guidelines for TDV, page 19 for value recommendations. https://docs.docker.com/config/containers/resource_constraints/
--m	(TDV Required) The tdv container requires a minimum of 8GB of memory. Higher tdv workloads require more. See Sizing Guidelines for TDV, page 19 for value recommendations. https://docs.docker.com/config/containers/resource_constraints/

Option	Docker Help Reference
<tdv-container-name>	Container name for your TDV Docker container. Recommendation is to have tdv in the name. Examples: tdv, tdv-1, tdv-2, tdv-dev, tdv-prod, etc https://docs.docker.com/config/containers/resource_constraints/
<repo-name>	Repository name for your TDV Docker image. https://docs.docker.com/config/containers/resource_constraints/
<image-name>	Recommendation is to use tdv. You can change this to any name. https://docs.docker.com/config/containers/resource_constraints/
<image-tag>	Recommendation is to use the TDV version for this. Example: 8.4 https://docs.docker.com/config/containers/resource_constraints/

Linux

This section explains how to start a TDV Docker container on a Docker environment hosted on the Linux platform.. The bridge, host, macvlanet and user specified bridge network options in Docker should work for a TDV Container on this platform.

TDV Docker container example

Resource Configuration: small (poc/demo) : 2 CPUs/cores, 8 GB memory, external container volume tdv-vol with 8GB persistent readable/writable storage.

TDV configuration : base port (9400), admin password (default), server memory (default). Refer to the Dockerfile.tdv for TDV Docker image default values.

```
$ docker volume create tdv-vol
$ docker run -itd --mount
type=volume,source=tdv-vol,target=/opt/TIBCO --cpus=2.000 -m=8g
--name tdv myrepo/tdv:8.4 tdv.server
```

MacOS

This section explains how to start a TDV Docker container on a Docker environment hosted on the MacOS platform. The bridge and user specified bridge network options in Docker should work for a TDV Container on this platform.

TDV Docker container example

Resource configuration: small (poc/demo): 2 CPUs/cores, 8 GB memory, external container volume tdv-vol with 8GB persistent readable/writable storage.

MacOS specific configuration: -p <host-port>:<container-port> for all DV ports exposed and --hostname=localhost

TDV configuration: base port (9400), admin password (default), server memory (default). Refer to the Dockerfile.tdv for TDV Docker image default values.

```
$ docker volume create tdv-vol
docker run -itd --mount
type=volume,source=tdv-vol,target=/opt/TIBCO --cpus=2.000 -m=8g -p
9300:9300 -p 9301:9301 -p 9302:9302 -p 9303:9303 -p9304:9304
-p9305:9305 -p 9306:9306 -p 9400:9400 -p 9401:9401 -p 9402:9402 -p
9403:9403 --hostname=localhost --name tdv myrepo/tdv:8.4 tdv.server
```

References:

For Docker Desktop for Mac, refer
<https://docs.docker.com/docker-for-mac/networking/>

For larger TDV size configurations refer to [Sizing Guidelines for TDV, page 19](#).

Note:If you have issues connecting to your TDV Docker container (specifically accessing TDV via localhost and TDV port), then you may need to add "--hostname=<ip-or-hostname>" in addition to the other docker run options. The --hostname parameter sets the IP address or Hostname that the server listens to for client connections. This command may take a few seconds to execute.

Windows

This section explains how to start a TDV Docker container on a Docker environment hosted on the Windows platform. The bridge and user specified bridge network options in Docker should work for a TDV Container on this platform.

TDV Docker container example

Resource configuration: small (poc/demo): 2 CPUs/cores, 8 GB memory, external container volume tdv-vol with 8 GB persistent readable/writable storage.

Windows specific configuration: -p <host-port>:<container-port> for all DV ports exposed and --hostname=localhost or --hostname=<ip-or-hostname>

TDV configuration: base port (9400), admin password (default), server memory (default). Refer to the Dockerfile.tdv for TDV Docker image default values.

```
$ docker volume create tdv-vol
```

```
docker run -itd --mount
type=volume,source=tdv-vol,target=/opt/TIBCO --cpus=2.000 -m=8g -p
9300:9300 -p 9301:9301 -p 9302:9302 -p 9303:9303 -p9304:9304
-p9305:9305 -p 9306:9306 -p 9400:9400 -p 9401:9401 -p 9402:9402 -p
9403:9403 --hostname=localhost --name tdv myrepo/tdv:8.4 tdv.server
```

References:

For Docker Desktop for Windows, refer <https://docs.docker.com/docker-for-windows/networking/>

For larger TDV size configurations refer [Sizing Guidelines for TDV, page 19](#)

Note:

The TDV Docker image uses a Linux base OS. This means if you are running Docker on Windows then you need to make sure Docker is set to use Linux containers. For more details, see <https://docs.docker.com/docker-for-windows/#switch-between-windows-and-linux-containers>.

If you have issues connecting to your TDV Docker container (specifically accessing TDV via localhost and TDV port), then you may need to add "--hostname=<ip-or-hostname>" in addition to the other docker run options. The --hostname parameter sets the IP address or Hostname that the server listens to for client connections. This command may take a few seconds to execute.

Launching TDV Containers (Cluster)

This section explains how to start two TDV Docker containers in a DV Cluster configuration. <sizing>. For further information regarding the TDV Cluster, refer to the TDV Active Cluster Guide.

General example for launching two TDV Docker containers to create a TDV Cluster

Below is a generic example for launching two docker containers to create a TDV Cluster:

```
$ docker run -itd --mount <mount-value> --cpus=<cpu-value>
-m=<memory-value> --name <tdv-container-name>
<repo-name>/<image-name>[:<image-tag>] tdv.server
```

References

Refer the table below for a description of the different Docker commands:

Option	Docker Help Reference
-t	Allocate a pseudo-tty - https://docs.docker.com/engine/reference/run/
-i	Keep STDIN open even if not attached - https://docs.docker.com/engine/reference/run/
-d	Detach and run the container in background and print container ID - https://docs.docker.com/engine/reference/run/#detached--d
--mount	<p>(TDV Required) The tdv container requires a persistent storage area when running as a Docker container. See Sizing Guidelines for TDV, page 19 for size recommendations.</p> <p>https://docs.docker.com/storage/bind-mounts/</p> <p>Example: --mount type=volume,source=tdv-vol,target=/opt/TIBCO</p> <p>Note: mount point must have a valid volume existing before starting the TDV Container.</p>
--cpus	<p>(TDV Recommended) The tdv container works best with 2 CPUs/cores in general. See Sizing Guidelines for TDV, page 19 for value recommendations.</p> <p>https://docs.docker.com/config/containers/resource_constraints/</p>
--m	<p>(TDV Required) The tdv container requires a minimum of 8 GB of memory. Higher tdv workloads require more. See Sizing Guidelines for TDV, page 19 for value recommendations.</p> <p>https://docs.docker.com/config/containers/resource_constraints/</p>
<tdv-container-name>	<p>Container name for your TDV Docker container. Recommendation is to have tdv in the name. Examples: tdv, tdv-1, tdv-2, tdv-dev, tdv-prod, etc</p> <p>https://docs.docker.com/config/containers/resource_constraints/</p>
<repo-name>	<p>Repository name for your TDV Docker image.</p> <p>https://docs.docker.com/config/containers/resource_constraints/</p>
<image-name>	<p>Recommendation is to use tdv. Of course, you can change this to any name though</p> <p>https://docs.docker.com/config/containers/resource_constraints/</p>
<image-tag>	<p>Recommendation is to use the TDV version for this. Example: 8.4</p> <p>https://docs.docker.com/config/containers/resource_constraints/</p>

Linux

This section explains how to start two TDV Docker containers configured as a DV Cluster configuration on a Docker environment hosted on the Linux platform. Use a docker network that will allow your TDV containers to communicate with each other.

The bridge, host, macvlanet and user specified bridge network options in the docker should work for the TDV containers on this platform. Refer to the TDV Active Cluster Guide on how to configure TDV and create a new active cluster.

Note: Ensure that both TDV containers are running and accessible.

TDV Docker Container Example

Resource configuration: small (poc/demo) : 2 CPUs/cores, 8 GB memory, external container volume tdv-vol with 8GB persistent readable/writable storage.

TDV configuration: base port (9400), admin password (default), server memory (default). Refer to the Dockerfile.tdv for TDV Docker image default values.

Network configuration: user bridge docker network

Setup Node #1 (timekeeper)

```
$ docker volume create tdv-vol-1
$ docker run -itd --net=user-bridge -p 9300:9300 -p 9301:9301 -p
9302:9302 -p 9303:9303 -p 9304:9304 -p 9305:9305 -p 9306:9306 -p
9400:9400 -p 9401:9401 -p 9402:9402 -p 9403:9403 -p 9407:9407
--mount type=volume,source=tdv-vol-1,target=/opt/TIBCO
--cpus=2.000 -m=8g --name tdv-timekeeper myrepo/tdv:8.4 tdv.server
```

Now verify you can access port 9400 for Node #1 from outside of your Docker environment.

Once that is done, follow the TDV configuration steps in "Creating a New Active Cluster" section in the TDV Active Cluster Guide.

That will setup a new DV cluster on Node #1.

Setup Node #2 (non-timekeeper)

```
$ docker volume create tdv-vol-2
$ docker run -itd --net=user-bridge -p 10300:9300 -p 10301:9301 -p
10302:9302 -p 10303:9303 -p 10304:9304 -p 10305:9305 -p 10306:9306
-p 10400:9400 -p 10401:9401 -p 10402:9402 -p 10403:9403 -p
10407:9407 --mount type=volume,source=tdv-vol-2,target=/opt/TIBCO
--cpus=2.000 -m=8g --name tdv-node2 myrepo/tdv:8.4 tdv.server
```

Now verify you can access port 9400 for Node #2 from outside of your Docker environment.

Once that is done, following the DV configuration steps in "Adding a TDV Server to an Active Cluster" section in the TDV Active Cluster Guide.

That will setup Node #2 to join the TDV Cluster created on Node #1.

Now your DV Cluster is configured and ready for usage.

You can verify this by opening a browser client and going to `http://<IP_NODE_#1>:9400/manager`.

Select "Cluster".

MacOS

This section explains how to start two TDV Docker containers configured as a DV Cluster configuration on a Docker environment hosted on the Mac OS platform. Use a docker network that will allow your TDV containers to communicate with each other.

The bridge, host, macvlanet and user specified bridge network options in the docker should work for the TDV containers on this platform. Refer to the TDV Active Cluster Guide on how to configure TDV and create a new active cluster.

Note: Ensure that both TDV containers are running and accessible.

TDV Docker container example

Resource configuration: small (poc/demo): 2 CPUs/cores, 8 GB memory, external container volume tdv-vol with 8GB persistent readable/writable storage.

MacOS specific configuration: -p <host-port>:<container-port> for all DV ports exposed and --hostname=localhost

TDV configuration: base port (9400), admin password (default), server memory (default). Refer to the Dockerfile.tdv for TDV Docker image default values.

Network configuration: user bridge docker network.

Setup Node #1 (timekeeper)

```
$ docker volume create tdv-vol-2
docker run -itd --net=user-bridge -p 9300:9300 -p 9301:9301 -p
9302:9302 -p 9303:9303 -p9304:9304 -p9305:9305 -p 9306:9306 -p
9400:9400 -p 9401:9401 -p 9402:9402 -p 9403:9403 --mount
type=volume, source=tdv-vol-1, target=/opt/TIBCO --cpus=2.000 -m=8g
--hostname=localhost --name tdv-timekeeper myrepo/tdv:8.4
tdv.server
```

Now verify you can access port 9400 for Node #1 from outside of your Docker environment.

Once that is done, follow the TDV configuration steps in "Creating a New Active Cluster" section in the TDV Active Cluster Guide.

That will setup a new DV cluster on Node #1.

Setup Node #2 (non-timekeeper)

```
$ docker volume create tdv-vol-2
$ docker run -itd --net=user-bridge -p 10300:9300 -p 10301:9301 -p
10302:9302 -p 10303:9303 -p 10304:9304 -p 10305:9305 -p 10306:9306
-p 10400:9400 -p 10401:9401 -p 10402:9402 -p 10403:9403 --mount
type=volume,source=tdv-vol-2,target=/opt/TIBCO --cpus=2.000 -m=8g
--hostname=localhost --name tdv-node2 myrepo/tdv:8.4 tdv.server
```

Now verify you can access port 9400 for Node #2 from outside of your Docker environment.

Once that is done, following the DV configuration steps in "Adding a TDV Server to an Active Cluster" section in the TDV Active Cluster Guide.

That will setup Node #2 to join the TDV Cluster created on Node #1.

Now your DV Cluster is configured and ready for usage.

You can verify this by opening a browser client and going to http://<IP_NODE_#1>:9400/manager.

Select "Cluster".

Windows

This section explains how to start two TDV Docker containers configured as a DV Cluster configuration on a Docker environment hosted on the Windows platform. Use a docker network that will allow your TDV containers to communicate with each other.

The bridge, host, macvlanet and user specified bridge network options in the docker should work for the TDV containers on this platform. Refer to the TDV Active Cluster Guide on how to configure TDV and create a new active cluster.

Note: Ensure that both TDV containers are running and accessible.

TDV Docker container example

Resource configuration: small (poc/demo): 2 CPUs/cores, 8 GB memory, external container volume tdv-vol with 8GB persistent readable/writable storage.

Windows specific configuration: -p <host-port>:<container-port> for all DV ports exposed and --hostname=localhost or --hostname=<ip-or-hostname>

TDV configuration: base port (9400), admin password (default), server memory (default). Refer to the Dockerfile.tdv for TDV Docker image default values.

Network configuration: user bridge docker network.

Setup Node #1 (timekeeper)

```
$ docker volume create tdv-vol-2
docker run -itd --net=user-bridge -p 9300:9300 -p 9301:9301 -p
9302:9302 -p 9303:9303 -p9304:9304 -p9305:9305 -p 9306:9306 -p
9400:9400 -p 9401:9401 -p 9402:9402 -p 9403:9403 --mount
type=volume, source=tdv-vol-1, target=/opt/TIBCO --cpus=2.000 -m=8g
--hostname=localhost --name tdv-timekeeper myrepo/tdv:8.4
tdv.server
```

Now verify you can access port 9400 for Node #1 from outside of your Docker environment.

Once that is done, follow the TDV configuration steps in "Creating a New Active Cluster" section in the TDV Active Cluster Guide.

That will setup a new DV cluster on Node #1.

Setup Node #2 (non-timekeeper)

```
$ docker volume create tdv-vol-2
$ docker run -itd --net=user-bridge -p 10300:9300 -p 10301:9301 -p
10302:9302 -p 10303:9303 -p 10304:9304 -p 10305:9305 -p 10306:9306
-p 10400:9400 -p 10401:9401 -p 10402:9402 -p 10403:9403 --mount
type=volume, source=tdv-vol-2, target=/opt/TIBCO --cpus=2.000 -m=8g
--hostname=localhost --name tdv-node2 myrepo/tdv:8.4 tdv.server
```

Now verify you can access port 9400 for Node #2 from outside of your Docker environment.

Once that is done, following the DV configuration steps in "Adding a TDV Server to an Active Cluster" section in the TDV Active Cluster Guide.

That will setup Node #2 to join the TDV Cluster created on Node #1.

Now your DV Cluster is configured and ready for usage.

You can verify this by opening a browser client and going to http://<IP_NODE_#1>:9400/manager.

Select "Cluster".

Runtime TDV Container Configuration - Common Examples

The following topics are explained in this section:

[Change TDV admin password \(while container is running\), page 88](#)

[Change TDV base port, page 88](#)

[Change TDV server memory setting, page 89](#)

[Configure external volume for local persisted file data sources \(e.g. csv, xml, txt\), page 90](#)

[Configure data source with 3rd party JDBC driver \(type 4\), page 91](#)

[Configure data source with 3rd party JDBC driver \(type 3\), page 92](#)

Change TDV admin password (while container is running)

To change the TDV Docker container's admin password you will need to use the TDV Studio client.

Note: Your default TDV Docker admin user "admin" password is defined in your Dockerfile.tdv for your given TDV release.

Follow these steps to change the password:

1. Use TDV Studio (same version of TDV as your TDV Docker container) to connect to your TDV Docker container. Login to the TDV Studio using the TDV admin user "admin" and your TDV admin password along with the appropriate TDV base port.
2. Select the "File" tab in the TDV Studio client menu options and choose "Change Password".
3. In the new pop-up dialog window, provide the current TDV admin user "admin" user password and the new password. When completed, click OK.
4. TDV Studio client will not logout of the client and a new login dialog will be displayed. Proceed to login again with your new TDV admin user "admin" password to verify the update.

Change TDV base port

To change the TDV Docker container's base port you will need to reconfigure TDV and create a new TDV Container.

Example (change base port from 9400 to 10400):

- 1) Use TDV Studio (same version of TDV as your TDV Docker container) to connect to your TDV Docker container. Login to the TDV Studio using the TDV admin user "admin" and your TDV admin password along with the appropriate TDV base port.
- 2) Goto Administration > Configuration
- 3) Search for "Port ("

4) From the search result, select "Port (On Server Restart): 9400".

5) Change your base port value to "10400". Apply your Changes.

Note: "Port (Current)" shows your current TDV Server base port configuration.

"Port (On Server Restart)" shows your future TDV Server base port configuration. This only takes affect when you restart the TDV Server though.

6) Now click on the "Ok" button to close the pop-up window.

7) Logout of the TDV Studio client.

8) Stop the TDV Docker container where your TDV Server is running.

```
docker stop <tdv-container-name>
```

9) Start a new TDV Docker container with the new base ports and reuse the TDV Docker volume used for the container from step #8.

```
docker run -itd -p 10300:10300 -p 10301:10301 -p 10302:10302 -p
10303:10303 -p 10304:10304 -p 10305:10305 -p 10306:10306 -p
10400:10400 -p 10401:10401 -p 10402:10402 -p 10403:10403 --mount
type=volume,source=tdv-vol,target=/opt/TIBCO --cpus=2.000 -m=8g
--name tdv_new myrepo/tdv:8.4 tdv.server
```

Note: The above example expects a valid tdv-vol, default docker network bridge works on your Docker host, and that you already have a valid TDV Docker image that exists.

It is also expected that you reuse your TDV Container volume, otherwise your base port and any other TDV metadata changes will be lost. Basically, if you specify a new TDV volume, then the TDV Container will create a brand new, default TDV Container based on your TDV Docker image defaults (i.e. default "admin" user password, base port and server settings).

Change TDV server memory setting

To change the TDV Docker container's memory setting you will need to reconfigure TDV and create a new TDV Container.

Example (change server memory from 8192 Mbytes (8 GB) to 16,384 MBytes (16 GB)):

1) Use TDV Studio (same version of TDV as your TDV Docker container) to connect to your TDV Docker container. Login to the TDV Studio using the TDV admin user "admin" and your TDV admin password along with the appropriate TDV base port.

2) Go to Administration > Configuration

3) Search for "Total Available Memory ("

4) In the search results, select "Total Available Memory (On Server Restart): 4096 Mbytes".

5) Change your base port value to "8192". Apply your changes.

Note: "Total Available Memory (Current)" shows your current TDV Server memory configuration.

"Total Available Memory (On Server Restart)" shows your future TDV Server memory configuration. This only takes affect when you restart the TDV Server though.

6) Click on the OK button to close the pop-up window.

7) Logout of the TDV Studio client.

8) Stop the TDV Docker container where your TDV Server is running
`docker stop <tdv-container-name>`

9) Now start a new TDV Docker container with the new server memory value and reuse the TDV Docker volume used for the container from step #8.

```
\docker run -itd -p 10300:10300 -p 10301:10301 -p 10302:10302 -p
10303:10303 -p 10304:10304 -p 10305:10305 -p 10306:10306 -p
10400:10400 -p 10401:10401 -p 10402:10402 -p 10403:10403 --mount
type=volume,source=tdv-vol,target=/opt/TIBCO --cpus=2.000 -m=16g
--name tdv_new myrepo/tdv:8.4 tdv.server
```

Note: The above example expects a valid `tdv-vol`, default docker network bridge works on your Docker host, and that you already have a valid TDV Docker image that exists.

It is also expected that you reuse your TDV Container volume, otherwise your server memory and any other TDV metadata changes will be lost. Basically, if you specify a new TDV volume, then the TDV Container will create a brand new, default TDV Container based on your TDV Docker image defaults (i.e. default "admin" user password, base port and server settings).

Configure external volume for local persisted file data sources (e.g. csv, xml, txt)

To allow your TDV Docker container to introspect and query data from a locally persisted flat file data sources, then you will need to transfer those files into your TDV Docker container's volume.

Example (introspect a flat file csv file stored on the TDV Container's volume):

1. `sudo cp <flat-file-csv>
/var/lib/docker/volumes/<tdv-container-volume-name>/_data
/TDV_Server_<tdv-version>/tmp`

Note: This example expects a valid `tdv-vol`, default docker network bridge works on your Docker host, and that you already have a valid TDV Docker container that exists and is running.

See [References, page 79](#) for more details regarding `<tdv-container-volume-name>`.

2. `docker exec -it <tdv-container-name> ls -al
TDV*/tmp/*.csv # validate TDV container can see the new file.`
3. Use TDV Studio Client to introspect and query new csv file.
 - Go to File -> New -> Data Source -> File-Delimited
 - Provide "name", select "Local File System" with "Root Path" `/opt/TIBCO/TDV_Server_<tdv-version>`
 - Leave all other settings with the default values.
 - Click "Create & Introspect" button.
 - Open "name" data source. Click on "Show Contents" to query data in csv file data source.

Configure data source with 3rd party JDBC driver (type 4)

TDV Data sources may require 3rd party JDBC drivers (type 4).

This section is to cover how to install such drivers in your TDV Docker container.

Example (install Oracle 3rd party JDBC type 4 driver for Oracle 11g):

1. Find the latest Oracle 12g JDBC driver (type 4) drivers (e.g. `ojdbc10.jar` and `xdb.jar`).

See the Oracle Adapter Guide for details on where to get this driver and how to configure it for your TDV Container.

2. Stop the TDV Docker container where your TDV Server is running
`docker stop <tdv-container-name>`

3. Install Oracle JDBC type 4 drivers in your TDV Container

```
sudo cp ojdbc10.jar  
/var/lib/docker/volumes/<tdv-container-volume-name>/_data/TDV_Serv  
er_<tdv-version>/conf/adapters/system/oracle_19c_thin_driver
```

```
sudo cp xdb.jar  
/var/lib/docker/volumes/<tdv-container-volume-name>/_data/TDV_Serv  
er_<tdv-version>/conf/adapters/system/oracle_19c_thin_driver
```

Note: The above example expects a valid `tdv-vol`, default docker network bridge works on your Docker host, and that you already have a valid TDV Docker container that exists and is not running.

See [References](#); [page 79](#) for more details regarding `<tdv-container-volume-name>`.

4. Start the TDV Docker container where your TDV Server is running
`docker start <tdv-container-name>`

5. Validate that the TDV Docker container has the new file.

```
docker exec -it <tdv-container-name> ls -al
TDV*/conf/adapters/system/oracle_19c_thin_driver/
```

6. Check your TDV Docker container server log for acknowledgement that you have installed the JDBC driver for your "Oracle 19c (Thin Driver)" DV adapter.

```
docker exec -it <tdv-container-name> /bin/bash
$ cd TDV*/logs
$ grep -i "Oracle 19c" cs_server.log
```

7. The output of step 6 will show before and after loading of your "Oracle 19c" DV adapter. If the installation was successful, then the DV adapter will have a "loaded" message instead of the following "has not been installed" message (shown below) that was displayed before 3rd party drivers were installed for "Oracle 19c" DV Adapter

```
INFO [main] 2020-03-30 22:07:51.134 +0000 DbUtil - The adapter
for 'Oracle 19c (Thin Driver)' has not been installed. For
details on adapter installation, see the Installation Guide.
```

A sample message of successful installation:

```
INFO [main] 2020-03-30 17:11:08.222 -0700
JdbcDriverClassLoaderUtil - Adapter: Oracle 19c (Thin Driver)
loaded from
/opt/TIBCO/TDV_Server_<tdv-version>/conf/adapters/system/oracle_19c_thin_driver
```

8. Once the "loaded" message is seen you can create, introspect and load data from your Oracle 19c DV Adapter.

Configure data source with 3rd party JDBC driver (type 3)

TDV Data sources may require 3rd party JDBC drivers (type 3). This section describes how to install such drivers in your TDV Docker container.

Example (install SAP JCo 3rd party JDBC type 3 driver for linux x64 platforms:

1. Find latest SAP JCo JDBC type 3 driver download from SAP.

See the TDV User Guide "Installing the SAP Java Connector Library" section for more details on where to download that driver.

2. Install SAP JCo JDBC type 3 driver (linux x64) from SAP in your TDV Container. Refer to the TDV User Guide "Installing SAP JCo on UNIX" section for more details on how to install the linux x64 version of this driver.

```
sudo cp <sap-cjo-tgz-file>
/var/lib/docker/volumes/<tdv-container-volume-name>/_data/TDV_Server_<tdv-version>/tmp
```

Note: The above example expects a valid tdv-vol, default docker network bridge works on your Docker host, and that you already have a valid TDV Docker container that exists and is running.

See [References; page 79](#) for more details regarding <tdv-container-volume-name>.

3. Run the following commands:

```
docker exec -it <tdv-container-name> /bin/bash
$ cd TDV*/jdk
$ ./bin/jlink --module-path jmods --add-modules java.desktop
--output ../jre
$ cd ../tmp
$ tar zxvpf <sap-jco-tgz-file>
$ mkdir -p ../jre/lib/ext
$ cp sapjco3.jar ../jre/lib/ext
$ mkdir -p ../jre/lib/amd64
$ cp libsapjco3.so ../jre/lib/amd64
$ cd /opt/TIBCO/TDV_Server_<tdv-version>
$ export
LD_LIBRARY_PATH=/opt/TIBCO/TDV_Server_<tdv-version>/jre/lib/amd64
$ ./jdk/bin/java -Djava.library.path=$LD_LIBRARY_PATH -jar
jre/lib/ext/sapjco3.jar
```

Output of this SAP JCo test command should show version info about this SAP JCo driver. There should be no error messages at this point.

4. Stop the TDV Docker container

```
docker stop <tdv-container-name>
```

5. Start the TDV Docker container

```
docker start <tdv-container-name>
```

6. Check your TDV Docker container server log to ensure that you have installed the JDBC driver for your "SAP" DV adapter.

```
docker exec -it <tdv-container-name> /bin/bash
$ cd TDV*/logs
$ grep -i "SAP" cs_server.log
```

7. The output of step 6 will show before and after loading of your "SAP" DV adapter. If the installation was successful, then the DV adapter will have a "loaded" message instead of the following "has not been installed" message

```
INFO [main] 2020-03-30 22:07:51.134 +0000 DbUtil - The adapter for 'SAP' has not been installed. For details on adapter installation, see the Installation Guide.
```

After 3rd party drivers installed for “SAP” TDV Adapter, you will see the following message:

```
INFO [main] 2020-03-30 17:11:08.222 -0700 JdbcDriverClassLoaderUtil - Adapter: SAP loaded from /opt/TIBCO/TDV_Server_<tdv-version>/apps/dlm/app_ds_sap
```

8. Once you get the “loaded” message, you can create, introspect and load data from your SAP DV Adapter

Best Practices

Follow these best practices tips to maximize performance of a TDV container:

1. **Naming For a Container:** A docker container name should be specified when launching the container. If it is not specified a system generated name will be used and this cannot be changed later. It is easier to manage your TDV Docker container if you give it a unique name.
2. **Ports:** A Docker container is a runtime instance of a Docker image. Use a new docker image when you have to use custom ports for the different TDV functionalities. When using custom ports, make sure you map it appropriately while launching the ports. If the mapping is not done appropriately, the default ports defined in the Docker image will be used.
- **Storage:** It is important to allocate a persistent storage volume for a TDV Docker container. Make sure you create the appropriate Docker volume and use the --mount option when launching a TDV Docker container.

Quick Reference of use Docker Commands for TDV Containers

To check details of all the Docker containers.	<code>\$ docker ps</code>
To check the Docker TDV container system logs.	<code>\$ docker logs <tdv-container-name></code>
Installing the SAP Java Connector Library	<code>\$ docker exec -it <tdv-container-name> /bin/bash</code>
To review the TDV Server logs in an interactive shell.	<code>\$ docker exec -it <tdv-container-name> ls -al TDV*/logs</code>
To stop the container.	<code>\$ docker stop <tdv-container-name></code>
To start the container.	<code>\$ docker start <tdv-container-name></code>

TDV for AWS Marketplace

This chapter will cover the TIBCO Data Virtualization (TDV) for AWS Marketplace Users.

The following sections are described in this chapter:

[Prerequisites, page 97](#)

[Launching TDV Server on AWS Marketplace, page 97](#)

[TDV Server Configuration, page 101](#)

[TDV Updates and Bundled TDV Software, page 105](#)

Prerequisites

You will need a valid AWS account to access TDV on the AWS Marketplace.

The pre-installed version of TDV Server on the AWS marketplace is available on the following Operating systems:

- Windows Server 2019 - Microsoft Windows Server Version 1809 (OS Build 17763.1637)
- Red Hat Enterprise Linux Server release 7.9 (Maipo)

Note: You will need to install one of the TDV supported web browser clients. Refer to [Web Browser Support, page 31](#) for a list of supported web browsers.

Launching TDV Server on AWS Marketplace

In order to launch TDV Server on AWS, you will need access to the AWS portal. This section describes the procedure to launch the TDV Server.

Launching a TDV Windows Image on AWS Marketplace

Follow these steps to launch a Windows image of TDV:

1. Login to the AWS portal <https://aws.amazon.com/marketplace>

Note: You will need a valid AWS account to access TDV in the marketplace.

2. Go to the “Search” area at the top of the page and search for “Tibco Data Virtualization” to find the latest version of the product.
3. Select the appropriate TDV offering, based on the license type and operating system.
4. Click on “Continue to Subscribe”.
5. Review EULA and price information (click “Show Details”) and then click on “Continue to Configuration”.
6. Review the fulfillment options and choose the appropriate “Region”. Then click on “Continue to Launch”.
7. “EC2 Instance Type” uses a default TDV medium resource configuration value. Choose another one if you are running a larger TDV workload. Refer to [Sizing Guidelines for TDV, page 19](#) for more details.

Note: It is recommended that the EC2 Instance Type should be at least 2 CPUs and 8GB of memory.

8. Choose the Network settings appropriate for your AWS account. (i.e. VPC settings and Subnet settings).
9. Choose the recommended Security Group settings.
 - a. Click on “Create New Based On Seller Settings” button in the “Security Group Settings” section.
 - b. Provide a name and description for this new TDV specific security group. A reference to the TDV ports exposed in this recommended Security Group can be found in [Default TDV Security Group Configuration, page 102](#).
 - c. Click on “Save”.
10. Select an existing key pair or create a new one.
11. Click on Launch.

Connecting to the TDV Windows Instance

Connecting to the virtual machine using the Remote Desktop is an essential step of launching the TDV Windows server on AWS. Follow these steps to connect to the virtual machine:

1. Login to the AWS Console.
2. Click on the “EC2 dashboard” located in the left vertical menu.
3. Click on the “Running instances” link under the “Resources” area of the EC2 Dashboard.

4. Select the check box for your TDV instance.
5. Click on the “Connect” button.
6. In the new popup window displayed,
 - a. Click on the Download the Remote Desktop File.
 - b. Click on Get Password. Save this password in a secure location.
7. Connect to AWS launched server using the downloaded RDP file and password obtained.

Note: Once connected to the virtual machine, a command window opens and the TDV installation starts. Wait for the installation to complete before closing the window. It takes approximately 15-20 minutes for the installation to complete.

Connecting to the TDV Server Application

Follow these steps to Launch the TDV server using the Windows image:

1. Login to AWS Console.
2. Click on the “EC2 Dashboard” displayed on the left vertical menu.
3. Click on the “Running instances” link under the “Resources” area of the EC2 Dashboard.
4. Select the check box for your TDV instance.
5. In the Description area, find IPv4 Public IP and copy the value.
6. Now you can access your TDV Server in the AWS environment via the TDV service ports defined in your TDV Security group (Refer [Default TDV Security Group Configuration, page 102](#))

Examples

1. Browser client: `http://<PUBLIC_IP>:9400` to access the TDV Web Manager client.
2. TDV Studio client:
`host=<PUBLIC_IP>`
`port=9400`
3. JDBC client: `host=<PUBLIC_IP>, port=9401`

Note: The default TDV Admin password can be found at [TDV Admin Password, page 102](#)

Launching a TDV Linux Image on AWS Marketplace

Follow these steps to launch a Linux image of TDV:

1. Login to the AWS portal <https://aws.amazon.com/marketplace>
- Note:** You will need a valid AWS account to access TDV in the marketplace.
2. Go to the “Search” area at the top of the page and search for “Tibco Data Virtualization” to find the latest version of the product.
3. Select the appropriate TDV offering, based on the license type and operating system.
4. Click on “Continue to Subscribe”.
5. Review EULA and price information (click “Show Details”) and then click on “Continue to Configuration”.
6. Review the fulfillment options and choose the appropriate “Region”. Then click on “Continue to Launch”.
7. “EC2 Instance Type” uses a default TDV medium resource configuration value. Choose another one if you are running a larger TDV workload. Refer to [Sizing Guidelines for TDV, page 19](#) for more details.

Note: It is recommended that the EC2 Instance Type should be at least 2 CPUs and 8GB of memory.

8. Choose the Network settings appropriate for your AWS account. (i.e. VPC Settings and Subnet Settings).
9. Choose the recommended Security Group settings.
 - a. Click on “Create New Based On Seller Settings” button in the “Security Group Settings” section.
 - b. Provide a name and description for this new TDV specific security group. A reference to the TDV ports exposed in this recommended Security Group can be found in [Default TDV Security Group Configuration, page 102](#).
 - c. Click on “Save”.
10. Select an existing key pair or create a new one.
11. Click on Launch.

Connecting to the TDV Server Application

Follow these steps to connect to the TDV server using the Linux image:

1. Login to AWS Console.
2. Click on the “EC2 Dashboard” displayed on the left vertical menu.
3. Click on the “Running instances” link under the “Resources” area of the EC2 Dashboard.
4. Select the check box for your TDV instance.
5. In the “Description” area below the check box, find "IPv4 Public IP" and copy the value.
6. Now you can access your TDV Server in the AWS environment via the TDV service ports defined in your TDV Security group (Refer [Default TDV Security Group Configuration, page 102](#))

Examples

1. Browser client: `http://<PUBLIC_IP>:9400` to access the TDV Web Manager client.
2. TDV Studio client:
`host=<PUBLIC_IP>`
`port=9400`
3. JDBC client: `host=<PUBLIC_IP>, port=9401`

Note: The default TDV Admin password can be found at [TDV Admin Password, page 102](#)

TDV Server Configuration

This section describes the different port settings you will need while launching the TDV image.

TDV Instance Id

Follow these steps to get the TDV Instance Id:

1. Login to AWS Console.
2. Click on the “EC2 Dashboard” displayed on the left vertical menu.
3. Click on the “Running instances” link under the “Resources” area of the EC2 Dashboard.

4. Select the check box for your TDV instance.
5. Copy the “Instance ID” value.

TDV Admin Password

The TDV Server admin password is set to the AWS Instance ID for all TDV AWS Marketplace offerings.

See [TDV Instance Id, page 101](#) to get the Instance Id.

Default TDV Security Group Configuration

As a standalone installation TDV only requires ports 9400 - 9403, 9405 and 9409. If you want to run TDV in a cluster configuration then you need to additionally open up port 9407 for communication to work between TDV cluster nodes. By default, the TDV Server Security Group will have these inbound ports exposed in the AWS environment to the outside world.

For TDV Linux installations only, there will be additional inbound ports 9300-9306 open for the MPP Engine feature to work. Refer to [Port Requirements](#) for a list of all TDV ports and their descriptions.

Note: The Source (IP or Group) for your TDV Security Group’s inbound ports will default to 0.0.0.0/0. You will want to change this by limiting access to only known IP addresses that you want accessing your TDV installation. Refer to the section [Review Security Group \(TDV Ports for inbound/outbound traffic\)](#), [page 102](#) for further information.

TDV Security Group

This section covers how to review and make additional changes to your TDV Security Group.

Review Security Group (TDV Ports for inbound/outbound traffic)

1. Login to AWS Console.
2. Click on the “EC2 Dashboard” displayed on the left vertical menu.
3. Click on the “Security groups” link under the “Resources” area of the EC2 Dashboard.
4. Select the check box for your TDV Security Group.
5. At the bottom of the page there will be an overview of your security group.

6. Click on the "Inbound rules" or "Outbound rules" tab to see a specific rule set.
7. After modifying a rule set, click on "Save".

Notes:

- a. In the windows instance, modifying the inbound ports require OS level firewall changes. Refer to [Additional Firewall changes, page 104](#) for more information.
- b. All outbound traffic is allowed by default. No restrictions are in place.
- c. The TDV Security group for Linux has more inbound ports open than the Windows. This is because the MPP Engine feature is only available on Linux TDV Server installations.

Additional Port Configuration

If you need additional inbound or outbound ports (for example, data source) to your TDV instance, then you will need to modify your TDV Security Group.

Refer [Review Security Group \(TDV Ports for inbound/outbound traffic\)](#) section for steps on how to do this.

For data sources that do not reside in your AWS instance that you want to access with your TDV AWS instance, it is a good idea to verify network connectivity as follows:

1. Make sure your data source IP and port are open to connections from the AWS network.
2. Test connectivity from your TDV AWS instance using the following command:

```
openssl s_client -connect <DATA_SOURCE_IP>:<DATA_SOURCE_PORT>
```

Additional TDV Security Configuration

The section describes the additional security configuration you can do, if you require your TDV Server to only provide secure client connections.

To review TDV Port definitions, refer to [Port Requirements, page 20](#).

Disable Unsecured Ports

Follow these steps to disable HTTP port (i.e. Web services port):

1. Connect to your TDV Server using the TDV Studio. Login as the "admin" user.
2. Select Administration > Configuration.
3. In the search window, search for the option "Disable HTTP".

4. Click on “Disable HTTP (On Server Restart)”
5. Choose “True”.
6. click "OK".
7. Restart your TDV Server.
8. From outside of the Amazon environment, run a network port check to verify only secure ports are open.

For example:

- openssl s_client -connect <PUBLIC_IP>:9400 # should NOT be open
- openssl s_client -connect <PUBLIC_IP>:9402 # should be open
- TDV Studio test -> connect to your TDV Server with port=9400 and click on the “Encrypt” check box. This should allow a secure connection via port 9402 to the TDV Server. Connecting without the “Encrypt” check box enabled (i.e. port 9400) should not be allowed anymore.

9. Change your TDV Security Group to remove port 9400.

Follow these steps to disable cluster port:

1. If you are using a standalone TDV without being in a TDV Cluster then you can remove port 9407 from your security group.
2. Change your TDV Security Group to remove port 9407.

Note: Changing the security group ports requires additional OS configuration of the firewall settings if you are on the Windows platform. Refer to [Additional Firewall changes, page 104](#) for more information.

Additional Inbound Port Security

To further secure your TDV Security Group, change your Source IPs to match only known IPs.

This will allow you to ensure that only specific IPs access your TDV instances.

Refer [Review Security Group \(TDV Ports for inbound/outbound traffic\), page 102](#) for how to access your security group to make that type of modification.

Additional Firewall changes

This section is to be used when you need to make port changes after already starting your DV instance. After you make the appropriate port changes in your security group, follow the steps given below to activate those changes.

Note: Review your respective security group in your Cloud console before performing the steps below. Your security group inbound ports must always match (i.e. a one to one mapping) with the underlying OS firewall inbound port rules.

Windows Server 2019

Open a Remote Desktop Connection to your instance and follow the steps below:

1. Launch "Control Panel"
2. Select "System and Security"
3. Select "Windows Defender Firewall"
4. Click "Advanced settings" link on left hand side vertical menu area
5. Select "Inbound Rules" on left hand side vertical menu area
6. In the "Name" column, select "TDV Ports" and double click it.
7. Click on "Protocols and Ports" tab
8. Modify the "Local Port" area accordingly.
9. Click on "OK" button to save changes.

Data Source Driver Management

Refer to [Supported Data Sources](#) for a list of data sources supported by TDV. The Adapter guides describe the driver management for each of the adapters. Refer to the data source specific Adapter guide for more information.

TDV Updates and Bundled TDV Software

The TDV Client installers and patches can be found in the following directories, depending upon your platform:

- **Windows:** C:\Program Files\TIBCO\downloads
- **UNIX:** /opt/TIBCO/downloads

Studio installers, ODBC clients and ADO.NET client are also available under the downloads folder.

Refer to the chapter [Installing TDV, Studio, and Drivers](#), page 55 for instruction on client and driver installations.

TDV for Microsoft Azure Marketplace

This chapter will cover the TIBCO Data Virtualization (TDV) for Microsoft Azure Marketplace Users.

The following sections are described in this chapter:

[Prerequisites, page 107](#)

[Launching TDV Server on Azure Marketplace, page 107](#)

[TDV Server Configuration, page 111](#)

[TDV Updates and Bundled TDV Software, page 115](#)

Prerequisites

You will need a valid Azure account to access TDV on the Microsoft Azure Marketplace.

The pre-installed version of TDV Server on the Azure Marketplace is available on the following Operating systems:

- Windows Server 2019 - Microsoft Windows Server Version 1809 (OS Build 17763.1637)
- Red Hat Enterprise Linux Server release 7.9 (Maipo)

Note: You will need to install one of the TDV supported web browser clients. Refer to [Web Browser Support, page 31](#) for a list of supported web browsers.

Launching TDV Server on Azure Marketplace

In order to launch TDV Server on Azure, you will need access to azure portal The sections below describes the steps to launch the TDV Server:

Launching a TDV Windows Image on Azure

Follow these steps to launch a Windows image of TDV:

1. Login to the Microsoft Azure portal
<https://azure.microsoft.com/en-us/marketplace>

Note: You will need a valid Azure account to access TDV in this marketplace.

2. Go to the “Search Marketplace” area at the top of the page and search for “Tibco Data Virtualization” to find the latest version of the product.
3. Select the appropriate TDV offering, based on the license type and operating system.
4. Click on “Create” to create a virtual machine.
5. Select an existing resource group or create a new one.
6. Enter the virtual machine name.
7. Choose an appropriate Region where you want to run TDV.
8. The Size defaults to a TDV medium resource configuration value. Choose another one if you are running a larger TDV workload. Refer to [Sizing Guidelines for TDV, page 19](#) for more details.
9. The user name defaults to “AzureUser”. Do not change this.
10. Select an existing key pair or create a new one. You may also choose to secure your instance with a password instead.
11. In order to set the Inbound Port Rules, Click on the “Networking” tab or use the wizard to navigate to the Networking tab.
12. In the Networking section, choose the Network settings appropriate for your Azure account (i.e. Virtual Network and Subnet).
13. Choose the recommended Network Security Group Settings:
 - a. Change “NIC network security group” to “Advanced”
 - b. Click on “Create New” in the “Configure network security group” section. It is recommended to create a new security group based on the Seller Settings.
14. Click Create to create the virtual machine.

Connecting to the TDV Windows Instance

Connecting to the virtual machine using Remote Desktop is an essential step of launching the TDV Windows server on Azure. Follow these steps to connect to the virtual machine:

1. Login to the Azure portal.
2. Click on the “portal menu” icon in the upper left corner.

3. Select “Virtual Machines”.
4. Click on the link for your TDV instance.
5. In the vertical menu for your TDV instance, click “Connect”.
6. Select “RDP”.
7. Click on “Download RDP file”.
8. Open the downloaded RDP file with the “Microsoft Remote Desktop” or equivalent client.
9. Connect to the virtual machine using the user “AzureUser” and the credentials you set at the creation step for this virtual machine.

Note: Once connected to the virtual machine, a command window opens and the TDV installation starts. Wait for the installation to complete before closing the window. It takes approximately 15-20 minutes for the installation to complete.

Connecting to the TDV Server Application

Follow these steps to connect to the TDV server using the Windows image:

1. Login to the Azure portal.
2. Click on the “portal menu” icon.
3. Select “Virtual Machines”.
4. Click on the link for your TDV instance.
5. Click on “Networking” under “Settings” area.
6. Copy the “NIC Public IP”.
7. Copy the Public IP address.
8. Now you can access your TDV Server in the Azure environment via the TDV service ports defined in your TDV Security group (Refer to [Default TDV Security Group Configuration, page 112](#) for more information.)

Examples:

1. Browser client: `http://<PUBLIC_IP>:9400` to access the TDV Web Manager client.
2. TDV Studio client:
`host=<PUBLIC_IP>`
`port=9400`
3. JDBC client: `host=<PUBLIC_IP>, port=9401`

Refer [TDX Admin Password](#), page 112 for more information.

Launching a TDV Linux Image on Azure

Follow these steps to launch a linux image of TDV:

1. Login to the Microsoft Azure portal
<https://azure.microsoft.com/en-us/marketplace>

Note: You will need a valid Azure account to access TDV in this marketplace.

2. Go to the “Search Marketplace” area at the top of the page and search for “Tibco Data Virtualization” to find the latest version of the product.
3. Select the appropriate TDV offering, based on the license type and operating system.
4. Click on “Create” to create a virtual machine.
5. Select an existing resource group or create a new one.
6. Enter the virtual machine name.
7. Choose an appropriate Region where you want to run TDV.
8. The Size defaults to a TDV medium resource configuration value. Choose another one if you are running a larger TDV workload. Refer to [Sizing Guidelines for TDV](#), page 19 for more details.
9. The user name defaults to “AzureUser”. Do not change this.
10. Select an existing key pair or create a new one. You may also choose to secure your instance with a password instead.
11. In order to set the Inbound Port Rules, Click on the “Networking” tab or use the wizard to navigate to the Networking tab.
12. In the Networking section, choose the Network settings appropriate for your Azure account (i.e. Virtual Network and Subnet).
13. Choose the recommended Network Security Group Settings:
 - a. Change “NIC network security group” to “Advanced”
 - b. Click on “Create New” in the “Configure network security group” section. It is recommended to create a new security group based on the Seller Settings.
14. Click Create to create the virtual machine.

Connecting to the TDV Server Application

Follow these steps to connect to the TDV server using the Windows image:

1. Login to the Azure portal.
2. Click on the “portal menu” icon.
3. Select “Virtual Machines”.
4. Click on the link for your TDV instance.
5. Click on “Networking” under “Settings” area.
6. Copy the “NIC Public IP”.
7. Copy the Public IP address.
8. Now you can access your TDV Server in the Azure environment via the TDV service ports defined in your TDV Security group (Refer to [Default TDV Security Group Configuration, page 112](#) for more information).

Examples:

1. Browser client: `http://<PUBLIC_IP>:9400` to access the TDV Web Manager client.
2. TDV Studio client:
`host=<PUBLIC_IP>`
`port=9400`
3. JDBC client: `host=<PUBLIC_IP>, port=9401`

Refer [TDV Admin Password, page 112](#) for more information.

TDV Server Configuration

This section describes the different port settings you will need while launching the TDV image.

TDV Instance Id

Follow these steps to get the TDV Virtual Machine Id:

1. Login to the Azure portal <https://azure.microsoft.com/en-us/>
2. Goto
https://resources.azure.com/subscriptions/<SUBSCRIPTION_ID>/providers/Microsoft.Compute/virtualMachines

Note: Replace <SUBSCRIPTION_ID> with your Azure Subscription ID shown in your Azure portal account. (i.e. Home -> Subscriptions -> Subscription ID).

3. In the "Azure Resource Explorer (Preview)", go to Subscriptions -> <SUBSCRIPTION_NAME> -> Providers -> Microsoft.Compute -> virtualMachines.
4. Find the name of your TDV virtual machine (It is the same as the TDV instance name).
5. Find the "vmId" and copy the value. This is your instance/vm Id.

TDV Admin Password

The TDV Server admin password is set to the Azure vmId for all TDV Azure Marketplace offerings.

Refer to [TDV Instance Id, page 111](#) to get the vmId.

Default TDV Security Group Configuration

As a standalone installation TDV only requires ports 9400 - 9403, 9405 and 9409. If you want to run TDV in a cluster configuration then you need to additionally open up port 9407 for communication to work between TDV cluster nodes. By default, the TDV Server Security Group will have these inbound ports exposed in the Azure environment to the outside world.

For TDV Linux installations only, there will be additional inbound ports 9300-9306 open for the MPP Engine feature to work. Refer to [Port Requirements](#) for a list of all TDV ports and their descriptions.

Note: The Source (IP or Group) for your TDV Security Group's inbound ports will default to 0.0.0.0/0. You will want to change this by limiting access to only known IP addresses that you want accessing your TDV installation. Refer to the [Review Security Group \(TDV Ports for inbound/outbound traffic\), page 112](#) for further information.

TDV Security Group

This section covers how to review and make additional changes to your TDV Security Group.

Review Security Group (TDV Ports for inbound/outbound traffic)

1. Login to your Azure portal.
2. Go to the "Network" settings.
3. Change "NIC network security group" to "Advanced".

4. Click on “Create New” in the “Configure network security group” section. It is recommended to create a new security group based on the Seller Settings.
5. Click Ok.

Notes:

- a. Modifying the inbound ports require OS level firewall changes. Refer to [Additional Firewall changes, page 114](#) for more information.
- b. All outbound traffic is allowed by default. No restrictions are in place.
- c. The TDV Security group for Linux has more inbound ports open than the Windows. This is because the MPP Engine feature is only available on Linux TDV Server installations.

Additional Port Configuration

If you need additional inbound or outbound ports (for example, data source) to your TDV instance, then you will need to modify your TDV Security Group.

Refer [Review Security Group \(TDV Ports for inbound/outbound traffic\)](#) section for steps on how to do this.

For data sources that do not reside in your Azure instance that you want to access with your TDV Azure instance, it is a good idea to verify network connectivity as follows:

1. Make sure your data source IP and port are open to connections from the Azure network.
2. Test connectivity from your TDV Azure instance using the following command:

```
openssl s_client -connect <DATA_SOURCE_IP>:<DATA_SOURCE_PORT>
```

Additional TDV Security Configuration

The section describes the additional security configuration you can do, if you require your TDV Server to only provide secure client connections.

To review TDV Port definitions, refer to [Port Requirements, page 20](#).

Disable Unsecured Ports

Follow these steps to disable HTTP port (i.e. Web services port):

1. Connect to your TDV Server using the TDV Studio. Login as the “admin” user.
2. Select Administration > Configuration.

3. In the search window, search for the option "Disable HTTP".
4. Click on "Disable HTTP (On Server Restart)".
5. Choose "True".
6. click "OK".
7. Restart your TDV Server.
8. From outside of the Azure environment, run a network port check to verify only secure ports are open.

For example:

- openssl s_client -connect <PUBLIC_IP>:9400 # should NOT be open
- openssl s_client -connect <PUBLIC_IP>:9402 # should be open
- TDV Studio test -> connect to your TDV Server with port=9400 and click on the "Encrypt" check box. This should allow a secure connection via port 9402 to the TDV Server. Connecting without the "Encrypt" check box enabled (i.e. port 9400) should not be allowed anymore.

9. Change your TDV Security Group to remove port 9400.

Follow these steps to disable cluster port:

1. If you are using a standalone TDV without being in a TDV Cluster then you can remove port 9407 from your security group.
2. Change your TDV Security Group to remove port 9407.

Note: Changing the security group ports requires additional OS configuration of the firewall settings if you are on the Windows platform. Refer to [Additional Firewall changes, page 114](#) for more information.

Additional Inbound Port Security

To further secure your TDV Security Group, change your Source IPs to match only known IPs.

This will allow you to ensure that only specific IPs access your TDV instances.

Refer [Review Security Group \(TDV Ports for inbound/outbound traffic\), page 112](#) for how to access your security group to make that type of modification.

Additional Firewall changes

This section is to be used when you need to make port changes after already starting your TDV instance. After you make the appropriate port changes in your security group, follow the steps given below to activate those changes.

Note: Review your respective security group in your Cloud console before performing the steps below. Your security group inbound ports must always match (i.e. a one to one mapping) with the underlying OS firewall inbound port rules.

Windows Server 2019

Open a Remote Desktop Connection to your instance and follow the steps below:

1. Launch "Control Panel"
2. Select "System and Security"
3. Select "Windows Defender Firewall"
4. Click "Advanced settings" link on left hand side vertical menu area
5. Select "Inbound Rules" on left hand side vertical menu area
6. In the "Name" column, select "TDV Ports" and double click it.
7. Click on "Protocols and Ports" tab
8. Modify the "Local Port" area accordingly.
9. Click on "OK" button to save changes.

RHEL 7

Connect to the instance and run the commands below

```
sudo firewall-cmd --zone=public --add-port=<PORT>/tcp --permanent
##repeat the above command for each port you want to add
sudo firewall-cmd --reload
sudo firewall-cmd --zone=public --list-ports
```

Data Source Driver Management

Refer to [Supported Data Sources](#) for a list of datasources supported by TDV. The Adapter guides describe the driver management for each of the adapters. Refer to the data source specific Adapter guide for more information.

TDV Updates and Bundled TDV Software

The same TDV version of the Client, Business Directory and Studio installer and/or patches is provided alongside this Server installation. Follow these steps to get the Client Installers/Patches.

1. Navigate to <INSTALL_DIR>/../downloads.
2. Find one of the following, depending on your platform:

Windows: C:\Program Files\TIBCO\downloads

UNIX: /opt/TIBCO/downloads

Studio installers (64 bit), Business Directory installers (64 bit windows and linux), TDV clients (e.g. JDBC, ODBC, ADO.NET and PowerBI) located in the drivers zip archive are available under the downloads folder.

Installing Optional TDV Products

This topic describes the installation of optional TDV products. These topics are covered:

- [Version Support, page 117](#)
- [Installation Requirements, page 117](#)
- [Installing an Optional TDV Product, page 119](#)
- [Installing the TDV Client Drivers that are Distributed with TDV, page 121](#)
- [Importing Resources Defined in an Earlier Release, page 122](#)
- [Manage Active Cluster Security, page 122](#)

Version Support

TDV supports the versions listed in [Supported Add-On Adapters, page 37](#) and [Supported Advanced Data Source Adapters, page 38](#).

Installation Requirements

- [Add-On Adapter Installation Requirements, page 117](#)
- [Active Cluster Installation Requirements, page 118](#)
- [Installing the Advanced Adapters, page 119](#)

Add-On Adapter Installation Requirements

Individual adapters have these requirements:

- SAP BW BEx Adapter should be installed on a separate machine from the SAP GUI, to avoid possible conflict between JCo versions. See *Installing the SAP Java Connector Library*, in the *TDV SAP BW Adapter Guide*.
- For Salesforce.com and SAP adapter installations, disable User Account Control.
- SAP BW can cause TDV errors similar to:

```
com.compositesw.cdms.webapi.WebapiException: Error
[sapbw-2900000]: BAPI_ODSO_READ_DATA_UC failed: Key figure
OCMPYPTAMT unknown in InfoProvider OBP_REL
```

To avoid this error, locate and install the patch listed in SAP “Note 1243987 - Extraction from DataStore object fails.” Install this patch, and use the program SAP_RSADMIN_MAINTAIN to set the parameter RSDRI_DS_NEW in the table RSADMIN to ' ' (empty or space).

Note: To upgrade from an earlier version of an adapter, install the new version and then see [Importing Resources Defined in an Earlier Release, page 122](#).

Active Cluster Installation Requirements

This section lists the software and hardware requirements for Active Cluster. All data sources and databases that are supported with this release of TDV are supported by Active Cluster.

- [TDV File Customizations, page 118](#)
- [Digital Certificates, page 119](#)
- [Supported Platforms, page 119](#)
- [Disk Space and Physical Memory, page 119](#)
- [Load Balancer Requirements, page 119](#)

TDV File Customizations

The data source capability files and LDAP properties file are not automatically synchronized with other machines in the cluster. Therefore, if you customized the ldap.properties file or data source capability files on a TDV Server that will be in a cluster, you need to copy these files manually to all computers that are members of the cluster.

For example, if you modified the external domain configuration file and the data source capability file for DB2, you would need to copy the following files to all computers that are or will become members of the cluster:

```
<TDV_install_dir>/conf/server/ldap.properties
<TDV_install_dir>/apps/server/apps/dlm/cis_ds_db2/conf/db2.capabilities
```

Digital Certificates

A digital certificate ensures the identity of a particular computer and the data it transmits to another computer. Every server in an Active Cluster must have a digital certificate set up on the computer. A trial digital certificate is shipped with TDV Server but must be changed to ensure full security. See [Updating the Digital Certificate to Secure Cluster Communication, page 123](#) for how to do this.

Supported Platforms

See [Installation Requirements and Support Information, page 17](#) for a list of the platforms and protocols supported by Active Cluster.

Disk Space and Physical Memory

Active Cluster requires an additional 4 MB of disk space.

Load Balancer Requirements

Although a load balancer is not required to be used with Active Cluster, it is highly recommended to achieve the maximum benefits of using Active Cluster.

Installing an Optional TDV Product

All optional TDV products are installed for you when you perform the TDV Server install.

Before you create or join a cluster, make sure that all cluster members use the same level of encryption.

Installing the Advanced Adapters

To deploy a new adapter, you will need to have a running TDV Server and the new adapter jar file.

Auto Deployment

Follow these steps to deploy the adapter automatically when TDV is restarted:

1. Obtain new adapter (e.g. `tdv.<adapter_name>.zip`)
2. Copy `tdv.<adapter_name>.zip` to `<TDV_install_dir>/tmp`

3. Unzip the `tdv.<adapter_name>.zip` under `<TDV_install_dir>/tmp`
4. Copy the `<adapter name>.jar` file to the folder `<TDV_Install_Dir>/packages/autodeploy_ds_adapters`
5. Restart TDV and the adapter is deployed automatically
6. You can verify the deployment using Studio. Navigate to `host/packages` to verify that the adapter is deployed successfully.

Manual Deployment

Follow these instructions to install the advanced adapters:

1. Obtain new adapter (e.g. `tdv.<adapter_name>.zip`)
2. Copy `tdv.<adapter_name>.zip` to `<TDV_install_dir>/tmp`
3. Unzip the `tdv.<adapter_name>.zip` under `<TDV_install_dir>/tmp`
4. Open a shell window and go to the `<TDV_Install_dir>`

UNIX - `/bin/sh`

`cd <TDV_Install_Dir>`

Windows - `cmd.exe` with "Admin Privileges"

`cd <TDV_Install_Dir>`

5. Check if you have already deployed `tdv.<adapter-name>`

UNIX: `ls -al ./packages`

Windows: `dir .\packages`

Example: `tdv.googlebigquery.jar` is represented as `<TDV_install_dir>/packages/GoogleBigQuery_1.jar` when TDV Server has already deployed it.

6. If you find your `<adapter-name>` in the previous step, you must undeploy it first. You can undeploy the adapter using the command below:

UNIX: `./bin/server_util.sh -server <hostname> [-port <port>] -user <user> -password <password> -undeploy -name <adapter-name> -version 1`

Windows: `.\bin\server_util.bat -server <hostname> [-port <port>] -user <user> -password <password> -undeploy -name <adapter-name> -version 1`

Note: `<adapter-name>` for undeploy must match the adapter name under `<TDV_install_dir>/packages` that you are trying to undeploy.

Example:

- **Unix:** `./bin/server_util.sh -server <hostname> [-port <port>] -user <user> -password <password> -undeploy -name GoogleBigQuery -version 1`
- **Windows:** `.\bin\server_util.bat -server <hostname> [-port <port>] -user <user> -password <password> -undeploy -name GoogleBigQuery -version 1`

7. To deploy the adapter using the command below:

UNIX: `./bin/server_util.sh -server <hostname> [-port <port>] -user <user> -password <password> -deploy -package ./tmp/tdv.<adapter-name>/tdv.<adapter-name>.jar`

Windows: `.\bin\server_util.bat -server <hostname> [-port <port>] -user <user> -password <password> -deploy -package .\tmp\tdv.<adapter-name>\tdv.<adapter-name>.jar`

Example:

Unix: `./bin/server_util.sh -server <hostname> [-port <port>] -user <user> -password <password> -deploy -package ./tmp/tdv.googlebigquery/tdv.googlebigquery.jar`

Windows: `.\bin\server_util.bat -server <hostname> [-port <port>] -user <user> -password <password> -deploy -package .\tmp\tdv.googlebigquery\tdv.googlebigquery.jar`

8. To verify the new adapter was undeployed and deployed, check `<TDV_install_dir>/logs/cs_server.log`.

You will see messages about undeployment and deployment of your adapter.

Example: log snippet from `<TDV_install_dir>/logs/cs_server.log` when undeploying and deploying `tdv.googlebigquery.jar` (aka name=GoogleBigQuery, version=1)

```
INFO [jetty thread pool-413] 2020-04-29 19:17:30.749 -0700
ExtensionManager - Undeployment of Extension Package
GoogleBigQuery:1 is successful!
```

```
INFO [jetty thread pool-420] 2020-04-29 19:19:16.672 -0700
ExtensionManager - Deployment of Extension Package
GoogleBigQuery:1 is successful!
```

Installing the TDV Client Drivers that are Distributed with TDV

This client distribution (driver zip) file includes the following components:

- ODBC
- ADO.NET

- JDBC
- SSIS
- Power BI

This zip file can be unpacked on each machine that has client application that needs access to the TDV Server.

To install the drivers distributed with TDV

1. Read any README files included with or associated with the download file.
2. Locate and extract the drivers zip file.
3. When installing the ODBC Win 64-bit driver on Windows 10, make sure to select Run as Administrator. Select the client EXE file, right click and select Run as Administrator. When prompted, select Yes and allow the installation to run to completion.
4. Follow the instructions in the TDV Administration Guide for details on how to complete configuration of each driver.
5. When the installation is complete, click Done to exit the installation program.

Importing Resources Defined in an Earlier Release

If you used a previous release of the adapter and defined resources, you can use them with this release. Follow the instructions for exporting and importing the resources in the *TDV User Guide*.

Manage Active Cluster Security

Users who create and manage an Active Cluster must have administrative privileges. SSL is used for inter-node communications and each server in an Active Cluster must have a valid digital certificate for authentication.

All cluster members must use the same level of encryption.

- [Updating the Digital Certificate to Secure Cluster Communication, page 123](#)
- [Set Access Privileges, page 123](#)

Updating the Digital Certificate to Secure Cluster Communication

Every TDV Server ships with a trial digital certificate so SSL works right out of the box. However, the security is poor. To secure cluster communication, you must update the digital certificate on each TDV Server node in the cluster.

Updating the digital certificate entails getting a signed digital certificate from a Certificate Authority (CA) and installing it in the keystore on each TDV Server. CAs are independent vendors (such as VeriSign) that have instructions on their websites for how to generate public key/private key pairs that accompany certificate requests. The CA then returns the digital certificate back to you. After you have this information, you need to install the digital certificate on the TDV Server.

To install a digital certificate on TDV Server

1. Open Studio, and select Administration > Launch Manager (Web) from the menu to open the Manager Web interface.
2. Click the CONFIGURATION tab and select SSL.
Manager displays the SSL Management page.
3. Enter new values as appropriate for your digital certificate, and click APPLY.

Set Access Privileges

You must have administrative privileges for Active Cluster management. Refer to the *Active Cluster Guide* for the specific rights needed for various cluster operations. Refer to the *Administration Guide* for more information about setting TDV access rights.

TDV and Business Directory Product Maintenance

This chapter explains the procedures involved in installing the latest service pack and the precautions that must be taken. If you are installing a base version of the products, you can skip this chapter.

- [About Hotfix Maintenance, page 126](#)
- [Downgrade/Rollback, page 134](#)
- [Applying the Service Pack to TDV Server, Studio, and Business Directory, page 127](#)
- [Applying the Service Pack to TDV Server, Studio, and Business Directory, page 127](#)
- [Applying the Service Pack or Hotfix to Active Cluster, page 128](#)
- [Upgrading from an Earlier Release and Migrating The Metadata, page 129](#)
- [Downgrade/Rollback, page 134](#)
- [Maintaining TDV-to-Client Application Connections, page 136](#)

Upgrade, Downgrade, and Rollback

Throughout this chapter, the following terminologies will be used:

- **Upgrade** - This is the process to upgrade to a higher release (for example, from 8.0.x to 8.1.x) by running the upgrade script that comes with the service pack.
- **Downgrade** - This is the process to revert to a previous release (for example, 8.1.0 to 8.0.1, or 8.0.3 to 8.0.1) by running the downgrade script that comes with the service pack. Refer to [Downgrade/Rollback](#) for more details.
- **Rollback** - This is the process to remove a hotfix/service pack within a release by running a rollback script, which is included with every service pack/hotfix. Refer to [Downgrade/Rollback](#) for more details.

About Hotfix Maintenance

If you are sent a patch to address a specific urgent issue, it is referred to as a hotfix patch. Hotfix patches have been quickly created by our engineering group for timeliness and are not for general use.

Hotfix patches are not automatically carried over through export and import processes during an upgrade or migration. They need to be reapplied if you migrate to another instance that is the same version. Hotfixes are also built for specific versions of TDV, so they should not be used for later versions of TDV than the version for which they were built.

For hotfixes, run the update process for TDV and Business Directory.

Applying the Hotfix to TDV Server, Studio, and Business Directory

Hot fixes include bug fixes to any TDV major, minor or service pack version.

The latest hotfix, must be applied to the same TDV major, minor and service pack level. For example,

- hotfix TDV 8.3.0.005 can only be applied to TDV 8.3.0
- hotfix TDV 8.3.1.002 can only be applied to TDV 8.3.1

The latest hotfix, requires a clean update of your TDV Server and Business Directory environment. The optimal way to achieve the clean environment is to apply the hotfix as if it was a Service Pack.

To apply a hotfix

1. Optionally, perform a full TDV and Business Directory backup. For details about backup export, see the *TDV Administration Guide* or the *Business Directory Guide*.
2. If installing on Windows, be sure to use Run as Administrator.
3. For Windows, make sure to close any open windows to the repository/jdk folder.
4. Stop the TDV Server.
5. Copy the hotfix zip file to <TDV_install_dir>.
6. Unzip the file.

To Rollback a hotfix, refer to [To rollback a hotfix for TDV Server, Studio, or Business Directory, page 135](#).

About Service Pack Maintenance

A service pack is a zipped package of files that fixes known issues and often provides enhanced functionality. All TDV Server, Studio and Business Directory software service packs are cumulative and supersede previously released service packs. A service pack should be applied on all computers where TDV products are installed, keeping them all at the same revision level. Installation of a service pack does not change configuration settings and custom functionality.

It is recommended that you keep your TDV Server and Business Directory Server instances at the same service pack level.

Applying the Service Pack to TDV Server, Studio, and Business Directory

Important bug fixes and additional functionality are added to TDV with each service pack.

Service packs typically involve careful ordering of procedural steps to make sure appropriate scripts are generated and available, and backup files saved.

Notes:

- Customers using advanced data source adapters that require OAuth need to first run TDV as a stand-alone server (no Monitor Daemon), set up OAuth once, and then run TDV with the Monitor Daemon.
- Sometimes when running Manager after a service pack install an error message pops up (Unable to finish loading...). You can safely ignore this message, close, and reopen Manager.

To apply a service pack

1. Optionally, perform a full TDV and Business Directory backup. For details about backup export, see the *TDV Administration Guide* or the *Business Directory Guide*.
2. If installing on Windows, be sure to use Run as Administrator.
3. For Windows, make sure to close any open windows to the repository/jdk folder.
4. If your TDV products are running, stop them, including all processes and databases used as repositories or caches.
5. Copy the service pack zip file to <TDV_install_dir>.
6. Unzip the file.
7. When asked whether to replace the existing files, reply Yes.

If you are not asked whether to replace files, the service pack is being extracted to some directory other than <TDV_install_dir>. The service pack must be extracted to the appropriate installation directory, and must overwrite files in that directory.

8. Run one or more of these scripts to upgrade your products:

Product	Directory	Script
TDV Studio	bin	studio_upgrade_patch.bat
TDV Server	bin	cis_upgrade_patch.<sh bat>
TDV Business Directory	bin	bd_upgrade_patch.<sh bat>

TDV Server and Business Directory servers are restarted when the script finishes running. You can reopen the client applications, such as Studio, after the script finishes running.

9. To configure the dependency from your TDV Server to the default database cache:

- a. Stop the TDV Server. For example:

```
composite.bat monitor stop
```

- b. Uninstall the monitor daemon. For example:

```
composite.bat monitor uninstall
```

- c. Install the monitor daemon. For example:

```
composite.bat monitor install
```

To Rollback a service pack, refer to [To downgrade/rollback a service pack for TDV Server, Studio, or Business Directory, page 134](#).

Applying the Service Pack or Hotfix to Active Cluster

When updating Active Cluster, it is critical that clusterid remain unchanged. Changing it can adversely affect cached data.

These instructions are guidelines developed from testing with a two node Active Cluster environment.

To upgrade with scheduled system downtime

1. Determine and note the clusterid, so that it can remain unchanged.
2. Make sure that the cluster is in sync. That is, make sure both nodes are in the cluster and are functional.
3. Disable any cache refreshes on both of the nodes.
4. Configure the load balancer to stop sending traffic to node 1.
Shutting down node 1 would cause in-flight requests to fail.
5. Remove node 1 from the cluster.
6. If your TDV products are running, stop them, including all processes and databases used as repositories or caches.
7. Apply the service pack or hot fix to node1.
8. Start up node 1, but do not re-join the cluster.
9. Configure the load balancer to send traffic to node 1 instead of node 2.
10. Remove node 2 from the cluster.
11. Apply the service pack or hot fix to node 2.
12. Join node 1 and node 2 to the cluster.
13. Enable cache refreshes on both of the nodes.
14. Verify the cluster status.

Upgrading from an Earlier Release and Migrating The Metadata

This section is a guide for customers who are upgrading to TDV from a previous version and want to migrate metadata from that version to the new version.

Note: This process is different from many other software vendor upgrade procedures, which typically modify the existing instance.

The metadata upgrade process requires installing a new TDV instance in parallel with the existing TDV instance, exporting the metadata from the old instance, and importing the old instance's backup CAR file into the new TDV instance.

TDV recommends that you keep the older TDV instance until you are sure the new installation is stable. However, be aware that:

- If you are running two versions of TDV simultaneously, their port numbers must be different.

- If you are using Active Cluster, all servers in the cluster must be running at the same version and patch level.
- New instances of TDV can use the repository database of older instances.

Make sure that you have administrator privileges and perform all of the steps below as that user. In addition, it is advised that the installation and the upgrade steps be performed by the same user to avoid any permission issues that may arise.

To upgrade and migrate your existing installation, follow the steps (in the given order) in these sections

1. [Documenting the Existing TDV Instance, page 130](#)
2. [Considerations for Upgrading to TDV 8.X, page 131](#)
3. [Exporting Metadata from the Existing TDV Instance, page 131](#)
4. [Installing the New Version of TDV, page 132](#)
5. [Importing Metadata into the New TDV Instance, page 132](#)
6. [Verifying a Successful Installation, page 133](#)

Documenting the Existing TDV Instance

Before making a backup of the existing TDV instance, document the key features of the instance. These settings are later applied to the new TDV instance to ensure the consistency of results returned from published resources.

Note: If you cannot upgrade directly from the existing TDV instance to the new version, multiple versions of TDV and multiple export and import processes might be required, so that database schemas remain compatible.

Make note of the settings in the following table.

Setting	What to Record
Ports	The port numbers for the existing instance, because after the installation of the new server is complete, the port numbers of the new instance might need to be changed.
Authentication mechanism	The authentication mechanism. If LDAP or another dynamic authentication is used, the same settings need to be applied to the new server. This setting determines various authentication mechanisms enabled within Server.

Setting	What to Record
Users/groups	The groups created in Server and the users that belong to these groups. If LDAP authentication is used, note the LDAP groups that were imported into Server.
Metadata repository	The full path of the repository location and the administrator user ID and password.
Custom data sources	Custom data sources that were introspected and any custom drivers that were used to introspect these sources.
External libraries	Any external libraries that were referenced from the instance.
Customized settings, including Java flags, managed and unmanaged memory	Configuration parameter settings for the existing Server instance. From the Administration menu, select Configuration and check all relevant parameter settings. The new TDV instance's settings should match the old instance settings if you want similar results and performance.

Considerations for Upgrading to TDV 8.X

During the export you perform in [Exporting Metadata from the Existing TDV Instance, page 131](#) all of the relevant information from your old repository is captured.

During the import you perform in [Importing Metadata into the New TDV Instance, page 132](#) all of the relevant information from your old repository is transferred into the new TDV PostgreSQL repository database.

Exporting Metadata from the Existing TDV Instance

The first step for upgrade or migration is to export the existing metadata information from the repository. This process writes out a CAR file that includes six files containing metadata, scheduling, settings, and user information.

To run the export

1. Verify that you have administrator privileges.
2. Open a command prompt window.
3. Navigate to <TDV_install_dir>/bin.

4. Perform a full backup with the options that you need:
 - Using Studio. See “Using Studio for a Full Server Backup” in the *TDV User Guide*.
 - Using the TDV backup_export utility. For more information, see the *TDV Administration Guide*.
5. Locate and copy the resulting CAR file to a safe and easily accessible location for use later.

Installing the New Version of TDV

To install a new TDV when you are upgrading from an earlier release

1. Review the new features and bug fixes as documented in the *TDV and Business Directory Release Notes*.
 2. Install the new version of Server as described in [Installing TDV, Studio, and Drivers, page 55](#) or [Silent Mode Installation, page 71](#).
 3. Install the latest versions of all other TDV software that you use.
 4. Set up any external libraries, including JDBC drivers, and then shut down and restart the server.
 5. Deliver the upgraded drivers (the TDV ODBC driver and the TDV JDBC driver) to the dependent clients.
 6. To ensure consistency in results and performance, make the configuration of the new server instance similar to the old instance.
 7. Perform the instructions in [Importing Metadata into the New TDV Instance, page 132](#).
- Perform the instructions in [Verifying a Successful Installation, page 133](#).

Importing Metadata into the New TDV Instance

If you are upgrading your version of TDV from an earlier version and you have completed the instructions in [Exporting Metadata from the Existing TDV Instance, page 131](#), then follow the instructions in this section. If you are performing a new installation, you can skip these instructions.

After the new TDV instance is successfully installed, the metadata from old TDV instance needs to be imported into the new instance. After the import is successfully completed, settings such as Java configurations, managed memory setting and ports can be updated on the new instance.

To run the import

1. Verify that you have administrator privileges.
2. Locate the CAR file that you produced from [Exporting Metadata from the Existing TDV Instance](#), page 131.
3. Perform a full backup import with the options that you need:
 - Using the Studio Import dialog window. For more information, see the *TDV User Guide*.
 - Using the TDV backup_import utility. For more information, see the *TDV Administration Guide*.
4. Validate that the TDV resources or other settings are as you expect in the new version of Studio.

Verifying a Successful Installation

To verify that your installation of the TDV software was successful, follow the steps in this section.

To verify a successful installation

1. Start Studio. Follow instructions in the *TDV Getting Started Guide* or in the *TDV User Guide*.
2. If you have just completed an upgrade from one version of TDV to a new one, then we suggest that you complete these instructions:
 - a. Determine a set of tests that will touch all published resources and all introspected data sources, and then apply the tests against:
 - The existing instance of TDV, as a sanity check.
 - The new instance of TDV, to ensure the same results are produced.
 - b. Configure and use the PubTest tool to test all your published resources.

The PubTest program can be configured to test all published resources using JDBC, ODBC, and Web services. Additional configuration might be required to test the ODBC and Web services. Starting with TDV 4.0, an end-to-end testing program referred to as PubTest (pubtest.java) is included with the TDV installation. This program is located in the <TDV_install_dir>\apps\jdbc directory. A PubTest.doc file in this directory provides additional documentation about using this tool.

Downgrade/Rollback

If you installed a service pack or hotfix and you later decide that you want to revert to the previous installation, you can do that.

Precautions

It is important to understand the requirements and limitations of downgrade/rollback procedures:

- You can use this process to downgrade to an earlier release (for example, 8.2 to 8.1). But, you cannot use this process to downgrade to a version prior to the current version (for example, 8.x to 7.x).
- The rollback scripts are only for rolling back to a previous service pack. If a release has only one service pack or hotfix applied to it, rollback is not guaranteed to work, in an attempt to rollback to the base GA version. For example, 8.0.1 release refers to the hotfix release 1 of a 8.0.0 base GA release. You cannot rollback to 8.0.0 in this case. If you do this, starting the TDV server may result in error messages such as these:
 - In the `cs_repository.log`: “Could not receive data from client: No connection could be made because the target machine actively refused it.”
 - In the `cs_monitor.log`: “MONITOR STOP. The metadata repository was created with a newer version of the server. The server cannot continue.”

To downgrade/rollback a service pack for TDV Server, Studio, or Business Directory

1. If downgrading on Windows, any open windows to the repository or `jdk` folder must be closed.
2. If your TDV products are running, stop them, including all processes and databases used as repositories or caches.
3. Stop the Monitor Daemon:


```
composite.<bat|sh> monitor stop
```

Note: To check if the Monitor daemon has stopped completely, check for the “Bye” message in `cs_server.log`.

4. Follow these steps below only if you are downgrading the TDV Server:
 - Start server process without monitor daemon:


```
composite_server.bat/sh run)
```
 - Run the following command:

```
server_util.bat/sh -server <id> -port <port> -user <uid>
-password <password> -rollbackRepository -toVersion
<version to downgrade to>
```

Example: bin/server_util.sh -server localhost -port 9400
-user admin -password admin1 -rollbackRepository -toVersion
8.3.0

— Check the repository version after rollback:

```
bin\psql.exe -Uroot -hlocalhost -p9408 -d cisrepo -c
"select * from cisrepo.metadata_version"
##Replace the port number (9408) to your Repository port
number, if needed.
```

— Navigate to <install_dir>/install dir and run the following command:

```
<install_dir>/install/rollback_TIB_tdv_<product>_<version>
_all.<bat|sh>
```

— Stop repository and cache (windows only)

— Run the command

```
cis_<product>_<version>_downgrade_patch.bat (CIS - windows)
/ cis_<product>_<version>_downgrade_patch.sh (CIS - UNIX)
```

5. Navigate to <install_dir> and reapply the last service pack or hotfix. After downgrade it is necessary to apply the downgraded version of service pack/hotfix before starting the server.
6. Restart the services
7. Import backup CAR files as needed.
8. Optionally, redefine all your VCS roots and connections.

To rollback a hotfix for TDV Server, Studio, or Business Directory

1. If working on Windows, any open windows to the repository or jdk folder must be closed.
2. Make sure that the TDV Server is stopped.
composite.<bat|sh> monitor stop

Note: To check if the Monitor daemon has stopped completely, check for the "Bye" message in cs_server.log.

3. Run the rollback script located in

```
<TDV_Install_Dir>/install/rollback_TIB_tdv_<product><version>_HF-<
hotfix_number>_all.<bat|sh>
```

4. Navigate to <install_dir> and reapply the last service pack or hotfix. After downgrade it is necessary to apply the downgraded version of service pack/hotfix before starting the server.
5. Start the Monitor Daemon.

```
For TDV: composite.<bat|sh> monitor start  
For BD: bd.<bat|sh> monitor start
```

In the server.log, verify that the version is the target version you intended.

Maintaining TDV-to-Client Application Connections

This section includes instructions for how to update connections between TDV Server and your client applications in the following sections:

- [Updating an ODBC Client Application, page 136](#)
- [Updating a JDBC Client Application, page 137](#)

Updating an ODBC Client Application

To patch ODBC client applications

1. Install the ODBC patch as you would for a Studio installation, but apply the ODBC patch only to where you installed a TDV ODBC client:
 - 32-bit driver: <TDV_install_dir>/apps/odbc
 - 64-bit driver: <TDV_install_dir>/apps/odbc64
2. See the *TDV Client Interfaces Guide* for more information.

To patch ODBC client users on Windows 7

1. Locate your Windows 7 DSN entry file.
2. Recreate any custom system DSNs, using DSN tools.
3. See the *TDV Client Interfaces Guide* for more information.

Updating a JDBC Client Application

To patch JDBC client applications

1. If you only need to obtain the updated TDV JDBC driver for your JDBC client, you can do one of the following:
 - Obtain the updated csjdbc.jar file from the server's <TDV_install_dir>/apps/jdbc/lib directory after the Studio patch is installed.
 - Extract any one of the csjdbc.jar files directly from the patch zip file.
2. See the *TDV Client Interfaces Guide* for more information.

Uninstalling TDV

This topic describes the process of uninstalling TIBCO® Data Virtualization (TDV) and related products for Windows and UNIX. The uninstall process is similar, regardless of whether you performed a silent or interactive installation.

- [Uninstalling TDV on Windows, page 139](#)
- [Uninstalling TDV on UNIX, page 139](#)

Uninstalling TDV on Windows

When you uninstall TDV, everything stored in the metadata repository is deleted along with the TDV software.

To uninstall TDV on Windows

1. Stop the Server and Repository if they are running.
2. Start the uninstallation process:

... > Uninstall TDV

For a silent uninstall, TDV is uninstalled without further interaction. For an interactive uninstall, go to step 3.

3. Click OK to confirm the uninstall.
4. Click Done when the uninstallation process is completed.

Uninstalling TDV on UNIX

The following tasks are described here:

- [Preparing for Uninstalling on UNIX, page 139](#)
- [Uninstalling TDV On UNIX, page 140](#)

Preparing for Uninstalling on UNIX

Before you uninstall TDV, remove the TDV service files from the installation machine, because the uninstaller does not remove these files automatically.

To remove the TDV service files cis.repository and cis.server

1. Log into the installation machine as root.
2. Change the working directory to <TDV_install_dir>/bin.
3. Run the following command:
`cis_remove_services.sh`

Uninstalling TDV On UNIX

During the uninstallation process, all the components from the previous installation are removed. You cannot uninstall the components individually.

To uninstall TDV on UNIX

1. Log into the installation machine as the user that installed the software.
2. Run the following command:
`<TDV_install_dir>/uninstall`

For a silent uninstall, run

```
./uninstall --mode "unattended"
```

For an interactive uninstall, go to step 3.

3. Press the Enter key.
You will see a warning about loss of data.
4. Press the Enter key to complete the uninstallation process and leave the uninstaller.