TIBCO ActiveSpaces®

Installation

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Contents

About This Product

The TIBCO ActiveSpaces® software is a distributed in-memory data grid product. Some features of ActiveSpaces® include the use of familiar database concepts, high I/O capacity, and network scalability.

Product Editions

ActiveSpaces is available in two editions: Community Edition and Enterprise Edition.

	Community Edition	Enterprise Edition
Ideal for	Getting started with ActiveSpaces for implementing application projects, including proof of concept projects, for testing, and for deploying applications in a production environment. Production deployments running up to 5 nodes (a total of the copyset nodes or proxies in your data grid) For more information, see Terms used in Community and Enterprise Editions.	All application development projects, and for deploying and managing applications in the production environment of an enterprise. Production deployments with more than 5 nodes (a total of the copyset nodes or proxies in your data grid) For more information, see Terms used in Community and Enterprise Editions.
Features	All features of the Enterprise Edition except enterprise monitoring using dashboards.	Includes all the features presented in this documentation set.
Limitations	Run up to 5 nodes (a total of the copyset nodes or proxies in your data grid). Although the community license limits the number of production instances, you can easily upgrade to the enterprise edition as	No limitations on a total of the copyset nodes or proxies in your data grid.

	your use of ActiveSpaces expands.	
Cost	Free	Paid
Compatibility	Compatible with both the enterprise and community editions of TIBCO FTL®	Depends on the enterprise edition of TIBCO FTL for monitoring and management of data grid components and secure communication.
TIBCO Support	No access to TIBCO Support	Access to TIBCO Support

Terms used in Community and Enterprise Editions

- Node - a copyset node or proxy where each copyset node or proxy is an operating system process with a unique process ID.
- Process ID - For the purposes of the definition of Node, Process ID means a standard computer industry term that uniquely identifies each operating system process.
- Copyset - For the purposes of the definition of Node, “Copyset” means a logical grouping of nodes such that a portion of the data is shared uniformly by all the nodes that form a copyset.

Terminology Used to Address the TIBCO FTL Realm

With TIBCO FTL 6.1 or later, ActiveSpaces uses the realm service capabilities or processes of the TIBCO FTL server. The following changes are made to the terminology to generically address the components of TIBCO FTL 5.x and TIBCO FTL 6.x:

The Term Used in the Document	The Equivalent Component in TIBCO FTL 5.4.1	The Equivalent Component in TIBCO FTL 6.1 or Later
Realm service	Realm server	Realm service running on the TIBCO FTL server
Realm service URL	Realm server URL	TIBCO FTL server URL
Backup realm service	Backup realm server	TIBCO FTL server that is a member of a cluster of three or more TIBCO FTL servers
Primary Realm	Primary Realm Server and its Backup Realm Server	A cluster of primary TIBCO FTL servers that provide realm services for the data grid.
Satellite Realm	Satellite Realm Server and its Backup Realm Server	A cluster of satellite TIBCO FTL servers that are connected to a cluster of primary TIBCO FTL servers.

Product Overview

The ActiveSpaces software is a distributed in-memory data grid product. ActiveSpaces features familiar database concepts, high I/O capacity, and network scalability.

Motivation

The rise of *big data* and the *internet of things* places new and larger demands on databases. Traditional relational database implementations can exhibit *bandwidth bottleneck* as more frequent queries with larger result sets overwhelm their I/O capacity.

With ActiveSpaces data grids, you can scale I/O capacity by adding host computers to the data grid.

Redesigned from the Ground Up

ActiveSpaces software features a complete redesign and reimplementation of the product and is straightforward to understand, use, and administer.

Database

Use ActiveSpaces data grid software as a system of record. An ActiveSpaces data grid provides a consistent, fault-tolerant system that supports mixed read and write workloads in a scalable manner.

ActiveSpaces software presents application programmers with familiar database concepts, such as tables, rows, and columns. Programs can insert, delete, and retrieve individual rows. Programs can query for rows that match a specified pattern of data.

Administrators define and configure a data grid. Administrators deploy and manage the component processes that implement the data grid. Administrators define tables, indexes, and their parameters.

Process Memory Storage

ActiveSpaces software caches data in process memory for fast read access, and writes data to persistent storage for safety.

Communications

ActiveSpaces software uses fast TIBCO FTL® messaging software in these key roles:

- Communication between application programs and the data grid
- Data type foundation in application programs and the data grid
- Internal communication among data grid component processes
- Configuration, monitoring, and management of data grid components

For the minimum supported release of TIBCO FTL® software, see the readme file.

Preparing for Installation

Complete these steps before you begin to install ActiveSpaces software.

Procedure

1. If you are upgrading from an earlier release of ActiveSpaces software, see Upgrading from an Earlier Release.
2. Refer to the readme file. Verify that the product supports your platforms and versions.

   You can find the readme file on the TIBCO download site and on the product distribution, in the same directory as the installation files.
3. Read the TIBCO Software Inc. License Agreement included with the product.
4. Read the sections in this book that pertain to your operating system platforms.
5. Verify that the host computer satisfies the requirements for installation, and that prerequisite software is already installed. For details, see Requirements.

Requirements

Required Software

- Java Runtime Environment (JRE), version 1.8 or later, 64-bit, is required to run your Java application programs.
- Java Developer Kit (JDK), version 1.8 or later, 64-bit, is required to develop Java application programs.
- TIBCO FTL®. For the minimum supported release of TIBCO FTL software, see the readme file.

  Each ActiveSpaces data grid depends on a TIBCO FTL realm service to supply configuration data to its components.

Installer Accounts

Platform	Account Privileges
Microsoft Windows	You must have administrator privileges for the computer on which this product is installed. If you do not have administrator privileges, the installer exits. To continue, either log out of the system and log in as a user with the required privileges, or request that your system administrator assigns the privileges to your account. To install the product on a network drive, ensure that the account used for installation has permission to access the network drive.
Linux	For system-based installers, you need superuser (root) privileges for installation. However, for extracting TAR files, you do not need to have superuser (root) privileges. Ensure that the same user account is used to install TIBCO FTL.
Mac OS	Administrator privileges are required for installation.

Guidelines for UNIX

Before installing on UNIX platforms, read this platform-specific information.

Installation Packages

ActiveSpaces software is available on the UNIX operating systems listed in the following table. For the latest changes, see the readme file.

All installer package names begin with a prefix from the first table and end with a suffix from the second table.

Edition	Installer Package Prefix
Community Edition	TIB_as-ce_4.9.0_
Enterprise Edition	TIB_as_4.9.0_

UNIX Distribution Directories

OS	Hardware	Installer Package Suffix	Notes
Red Hat Enterprise Linux Novell SUSE Linux Enterprise Server	Intel x86_64	linux_x86_64.zip	64-bit OS only.
Mac OS X 10.12.x	Intel x86_64	macosx_x86_64.zip	64-bit OS only.

Guidelines for Microsoft Windows

Before installing on Microsoft Windows platforms, read this platform-specific information.

Installation Packages

ActiveSpaces software is available for the Windows platforms listed in the following table. For the latest changes, see the readme file.

All installer package names begin with a prefix from the first table and end with a suffix from the second table.

Edition	Installer Package Prefix
Community Edition	TIB_as-ce_4.9.0_
Enterprise Edition	TIB_as_4.9.0_

Microsoft Windows Distribution Directories

OS	Hardware	Installer Package Suffix	Notes
Windows 10 64-bit Windows Server 2016 64-bit Windows Server 2019 64-bit	Intel x86_64	win_x86_64.zip	64-bit OS only.

Installation

ActiveSpaces is installed by using platform-native installers.

- **Installing on Mac and Windows**

  Use the platform-native installer to install the product on Mac and Windows platforms. You can install the product in any of the following modes: GUI or console.

- **Installing on Linux**

  Use the platform-native installer to install the product on Linux platforms. The installer provides you with a collection of RPM/DEB packages that you must install. You have the flexibility to install the RPM/DEB packages based on your requirements.

Installing on Windows

You can install the product in the GUI or console mode.

Installing in GUI Mode

Follow these steps to install ActiveSpaces by using the GUI mode.

Before you begin

TIBCO FTL must be installed on your computer. For the minimum supported release of TIBCO FTL software, see the readme file.

Procedure

1. Download the installation package.
2. Extract the ActiveSpaces archive file to a temporary directory.
3. Navigate to that temporary directory.

4. Run the platform-specific installer executable. Click **Next** on the Welcome window.
5. Read the License Agreement, select **I Agree**.
6. Choose the install location. Accept the default location or click **Browse** to choose a different location. Click **Next**.
7. Choose the **Start Menu** folder and click **Next**.
8. Choose which components of ActiveSpaces you want to install.

   By default, all components are installed. Uncheck the components that you do not want to install.

   Click **Install**.
9. Click **Finish**.

Installing in Console Mode

In console mode a command-line starts the installer.

Before you begin

TIBCO FTL must be installed on your computer. For the minimum supported release of TIBCO FTL software, see the readme file.

Procedure

1. Download the installation package.
2. Extract the ActiveSpaces archive file to a temporary directory.
3. In a console window, navigate to that temporary directory.
4. Run the executable in console mode.

Option	Description
<Windows installer executable> /S	The /S option performs the installation in the silent mode.
<Windows installer executable> /S /D=*<installation directory>*	The /D option installs in the specified directory.

5. Complete the installation by responding to the console window prompts.

PostInstallation Steps

These are additional tasks that you must perform after installation.

- Set up your TIBCO FTL environment by running C:\tibco\ftl\<*version*>\samples\setup.bat
- Before running any ActiveSpaces executables set up your ActiveSpaces environment by running *C:\tibco*\as\4.9\samples\setup.bat.

Verifying the Installation on Windows

Follow these steps to verify the installation on Windows platforms.

Procedure

1. Navigate to c:\tibco\as\4.9\samples.
2. Follow the directions in the README.md file to set up your environment.
3. Navigate to c:\tibco\as\4.9\samples\scripts.
4. Run the as-start script.
5. Verify that the message Grid is online is displayed in your command window where you ran the as-start script.
6. Run the as-stop script.

Installing on Mac

You can install the product in the GUI or console modes.

Installing in GUI Mode

Follow these steps to install ActiveSpaces on Mac by using the GUI mode.

Before you begin

TIBCO FTL must be installed on your computer. For the minimum supported release of TIBCO FTL software, see the readme file.

Procedure

1. Download the installation archive package.
2. Extract the ActiveSpaces archive file to a temporary directory.
3. Run the installer executable by double-clicking the installation package or by executing the following command from a console window:

   ```
   sudo open <Mac installer executable>
   ```

   Note: When you double-click TIB_as_4.9.0_macosx_x86_64.pkg, it might give you the following error: "TIB_as_4.9.0_macosx_x86_64.pkg" can't be opened because it is from an unidentified developer. To resolve this issue, right-click TIB_as_4.9.0_macosx_x86_64.pkg, and select **Open**.

   Provide your password if prompted and follow the installation prompts.
4. The Introduction window is displayed. Click **Continue**.
5. The License Agreement is displayed. Click **Agree**.
6. Select where you want to install the software and click **Continue**.
7. Choose the installation type.
   - Click **Install** to choose the standard installation.

     This is the default choice.
   - Click **Customize** to choose the specific packages you want to install and then click **Install**.
   - Provide your password and click **Install Software**, if prompted.

Result

The **Summary** window confirms whether the installation was successful.

Installing in Console Mode

In console mode a command line starts the installer.

Before you begin

TIBCO FTL must be installed on your computer. For the minimum supported release of TIBCO FTL software, see the readme file.

Procedure

1. Download the installation package.
2. Extract the ActiveSpaces archive file to a temporary directory.
3. From a console window, navigate to that temporary directory.
4. Run the installer executable in console mode.

Option	Description
sudo installer -pkg ./*<Mac installer executable>* -target /	The -target option allows you to install to a disk.

5. Complete the installation by responding to the console window prompts.

ActiveSpaces is successfully installed under *<target>*/opt/tibco/as/*<version>*

PostInstallation Steps

These are optional additional tasks that you must perform after installation.

You are required to perform these tasks if:

- you installed ActiveSpaces without first installing TIBCO FTL, or if
- you installed a new version of TIBCO FTL and want your ActiveSpaces installation to point to the new version.

1. Navigate to /opt/tibco/as/4.9/scripts/post_install.
2. Run the following script:

```
./activespaces_postinstall.sh <path to the TIBCO FTL installation>
```

Verifying the Installation on Mac

The installation can be verified by performing the following steps:

Procedure

1. Navigate to /opt/tibco/as/4.9/samples/scripts and run the following commands:

```
. ../setup
./as-start
```

2. Verify that all ActiveSpaces processes start up correctly.
3. Run the following script:

```
./as-stop
```

4. Verify that all ActiveSpaces processes shut down.

Installing on Linux

Use the platform-native installer to install the product on Linux platforms. The installer provides you a collection of RPM and DEB packages to install.

Before you begin

TIBCO FTL must be installed on your computer. For the minimum supported release of TIBCO FTL software, see the readme file.

Procedure

1. Download the installation package.
2. Extract the ActiveSpaces archive file to a temporary directory. The ActiveSpaces archive contains a top-level directory named TIB_as_VERSION (where VERSION is the product version number). The top-level directory contains folders with different types

of installation artifacts that include RPMs and DEBs.

3. Install by using either the RPM or DEB, depending on the Linux platform variant. Navigate to one of the following directories under the temporary directory.

Linux Variant	Directory under the temporary directory	Description
Red Hat or SUSE	rpm	Contains the RPM installation packages that you can install by using the yum package manager or zypper.
Debian	deb	Contains the DEB installation packages that you can install by using the Debian dpkg package manager.
Other Linux variants	tar	If your Linux variant does not include yum, dpkg, or zypper, you can use tar. `for f in tar/*; do tar zxfv $f; done` **Tip:** You must have root privileges to write to the root / directory.

4. Install by using either the RPM or DEB packages, depending on the Linux platform variant.

   In all cases, use the following sequence:

   a. ActiveSpaces third party
   b. ActiveSpaces runtime
   c. ActiveSpaces servers
   d. ActiveSpaces java
   e. ActiveSpaces tools
   f. ActiveSpaces development
   g. ActiveSpaces Administration

h. ActiveSpaces monitoring

You can either follow the order of the commands mentioned in the table, or you can install the components you need. You can also install by using the wildcard * as in by using "*.rpm" or "*.deb" instead of giving the individual file names.

Linux Variant	Command
Red Hat	sudo yum install -y TIB_as_4.9.0_linux_x86_64-thirdparty.rpm sudo yum install -y TIB_as_4.9.0_linux_x86_64-runtime.rpm sudo yum install -y TIB_as_4.9.0_linux_x86_64-servers.rpm sudo yum install -y TIB_as_4.9.0_linux_x86_64-java.rpm sudo yum install -y TIB_as_4.9.0_linux_x86_64-tools.rpm sudo yum install -y TIB_as_4.9.0_linux_x86_64-development.rpm sudo yum install -y TIB_as_4.9.0_linux_x86_64-admin.rpm sudo yum install -y TIB_as_4.9.0_linux_x86_64-monitoring.rpm
Debian	sudo dpkg -i TIB_as_4.9.0_linux_x86_64-thirdparty.deb sudo dpkg -i TIB_as_4.9.0_linux_x86_64-runtime.deb sudo dpkg -i TIB_as_4.9.0_linux_x86_64-servers.deb sudo dpkg -i TIB_as_4.9.0_linux_x86_64-java.deb sudo dpkg -i TIB_as_4.9.0_linux_x86_64-tools.deb sudo dpkg -i TIB_as_4.9.0_linux_x86_64-development.deb sudo dpkg -i TIB_as_4.9.0_linux_x86_64-admin.deb sudo dpkg -i TIB_as_4.9.0_linux_x86_64-monitoring.deb
SUSE	sudo zypper install TIB_as_4.9.0_linux_x86_64-thirdparty.rpm sudo zypper install TIB_as_4.9.0_linux_x86_64-runtime.rpm sudo zypper install TIB_as_4.9.0_linux_x86_64-servers.rpm sudo zypper install TIB_as_4.9.0_linux_x86_64-java.rpm sudo zypper install TIB_as_4.9.0_linux_x86_64-tools.rpm sudo zypper install TIB_as_4.9.0_linux_x86_64-development.rpm sudo zypper install TIB_as_4.9.0_linux_x86_64-admin.rpm sudo zypper install TIB_as_4.9.0_linux_x86_64-monitoring.rpm **Note:** In case you encounter issues with dependencies, ignore those dependencies and proceed with the installation.

ActiveSpaces is successfully installed under /opt/tibco/. The archive utility tar installs

the ActiveSpaces software under ./opt/tibco/

PostInstallation Steps

These post-installation steps on Linux are optional.

You need these steps only if you want to manage symbolic links to ActiveSpaces by using the alternatives system. The script creates an alternatives link group called activespaces and adds symbolic links for ActiveSpaces binaries, libraries, and header files to /usr/bin, /usr/lib, and /usr/include respectively.

Procedure

1. Navigate to /opt/tibco/as/4.9/scripts/post_install.

   The scripts add symbolic links to /usr/bin and /usr/lib for the TIBCO binaries and libraries. This way, you need not add/opt/tibco/as/4.9/bin to the PATH, or add /opt/tibco/as/4.9/lib to the LD_LIBRARY_PATH.

2. Run the installation scripts.

   ```
   sudo activespaces_alternatives_install.sh
   ```

Verifying the Installation on Linux

The installation can be verified by looking for the last RPM or Debian file installed.

Linux Variant	Command
Red Hat	`su -c 'yum list' | grep "tib_as"`
Debian	`dpkg-query -l | grep "tib_as"`
SUSE	`zypper se | grep "tib_as"`

Note: Alternatively, examine the log files at /var/log.

Uninstallation

Use the platform-specific steps to uninstall the product.

Uninstalling on Windows

Follow these steps to uninstall ActiveSpaces.

Procedure

1. Navigate to the directory where you installed ActiveSpaces and double-click Uninstall.exe.

   Alternatively access the uninstaller from the **Start** menu.
2. Click **Uninstall** to confirm that you want to install from the displayed location.
3. Click **Close** to complete the uninstallation process.

Uninstalling on Mac

ActiveSpaces provides a script to help with the uninstallation process.

Procedure

1. Create a temporary directory outside of the ActiveSpaces installation folder.
2. Copy the file /opt/tibco/as/*<version>*/scripts/post_install/activespaces_uninstall.sh to your temporary directory.
3. Navigate to the temporary directory.
4. To uninstall ActiveSpaces, run the following command:

   ```
   ./activespaces_uninstall.sh
   ```

Uninstalling on Linux

Uninstall the RPM/DEB files in the reverse order of installation.

Procedure

1. If you had used postinstallation scripts after installing the RPM or Debian packages, you must perform the following steps to remove the symbolic links:
    a. Navigate to the /opt/tibco/as/4.9/scripts/post_install folder.
    b. Run the following commands:

```
sudo ./activespaces_alternatives_uninstall.sh
```

2. Uninstall by using either the RPM or DEB packages, depending on the Linux platform variant.
    a. Navigate to /opt/tibco/as/4.9.
    b. To get a list of the packages to be uninstalled, run the following command:

Linux Variant	Command
Red Hat	`su -c 'yum list' | grep tib_as`
Debian	`dpkg-query -l | grep tib_as`
SUSE	`zypper se | grep "tib_as"`

    c. While uninstalling the packages, use the following sequence:
        i. ActiveSpaces development
        ii. ActiveSpaces tools
        iii. ActiveSpaces java
        iv. ActiveSpaces servers

v. ActiveSpaces runtime

vi. ActiveSpaces third party

vii. ActiveSpaces administration

viii. ActiveSpaces monitoring

Linux Variant	Command
Red Hat	sudo yum remove tib_as_4.9.0-development.x86_64 sudo yum remove tib_as_4.9.0-tools.x86_64 sudo yum remove tib_as_4.9.0-java.x86_64 sudo yum remove tib_as_4.9.0-servers.x86_64 sudo yum remove tib_as_4.9.0-runtime.x86_64 sudo yum remove tib_as_4.9.0-thirdparty.x86_64 sudo yum remove tib_as_4.9.0-admin.x86_64 sudo yum remove tib_as_4.9.0-monitoring.x86_64 **Warning: Warning:** While uninstalling ActiveSpaces Community Edition, exclude com.tibco.activespaces.monitoring as it is not included in the package.
Debian	sudo dpkg -r tib_as_4.9.0-development sudo dpkg -r tib_as_4.9.0-tools sudo dpkg -r tib_as_4.9.0-java sudo dpkg -r tib_as_4.9.0-servers sudo dpkg -r tib_as_4.9.0-runtime sudo dpkg -r tib_as_4.9.0-thirdparty sudo dpkg -r tib_as_4.9.0-admin sudo dpkg -r tib_as_4.9.0-monitoring **Warning: Warning:** While uninstalling ActiveSpaces Community Edition, exclude com.tibco.activespaces.monitoring as it is not included in the package.

Linux Variant	Command
SUSE	sudo zypper rm tib_as_4.9.0-development sudo zypper rm tib_as_4.9.0-tools sudo zypper rm tib_as_4.9.0-java sudo zypper rm tib_as_4.9.0-servers sudo zypper rm tib_as_4.9.0-runtime sudo zypper rm tib_as_4.9.0-thirdparty sudo zypper rm tib_as_4.9.0-admin.x86_64 sudo zypper rm tib_as_4.9.0-monitoring.x86_64 **Warning: Warning:** While uninstalling ActiveSpaces Community Edition, exclude com.tibco.activespaces.monitoring as it is not included in the package.

Upgrading from an Earlier Version

Read these instructions before upgrading from an earlier version of ActiveSpaces. If you are running multiple data grids, it is recommended to upgrade one data grid at a time following the procedure in this section for each data grid.

Before you begin

You must take a backup of all data directories: the realm server, all state keepers, and nodes. The location of the data directory for the realm server can be found in the *TIBCO FTL® Administration* guide. The location of the data directories for the ActiveSpaces processes can be found in *TIBCO ActiveSpaces® Administration* .

> **Note:** During the upgrade process, do not make changes to the data grid configuration such as adding or removing tables and adding or removing indexes.

Procedure

1. Determine if the TIBCO FTL realm server needs to be upgraded to a later version of TIBCO FTL. See TIBCO ActiveSpaces readme file for the versions of TIBCO FTL that can be run with this version of ActiveSpaces. If you must upgrade TIBCO FTL, follow the "Upgrade Migration to a New Release" section documented in the document *TIBCO FTL® Administration*.

   > **Note:** When migrating to TIBCO FTL 6.1 or later, ActiveSpaces uses the realm service capabilities of TIBCO FTL and does not use its other services such as the persistence, transport bridge or disaster recovery services.

   Note the following when migrating TIBCO FTL versions for use with ActiveSpaces:

   a. Use tibftlserver instead of tibrealmserver. For more details on converting TIBCO FTL 5.x tibftlserver command-line options into the appropriate configuration options for tibrealmserver, see "FTL Server Configuration" in *TIBCO FTL Administration* . Most of the options use the same name. For example, --

server.user is the server.user configuration file option.

b. Use the ftl-internal authorization group.

> **Note:** As of TIBCO FTL 6.0, the authorization groups ftl-primary, ftl-satellite, ftl-backup, and ftl-dr are obsolete.

2. Install the latest version of ActiveSpaces on all computers running the data grid processes (tibdgnode, tibdgkeeper, tibdgproxy, tibdgadmind), and the systems that run the tibdg tool to administer the data grid.
3. If you are running tibdgadmind, perform the following steps for each tibdgadmind process to be upgraded:
   a. Ensure the latest version of ActiveSpaces has been installed on the computer running tibdgadmind.
   b. Stop the tibdgadmind process that you want to upgrade by using the following command:

```
tibdg -t <tibdgadmind_listen_URL> admind stop
```

> **Note:** By default, tibdbadmind listens on http://localhost:7171

   c. Restart the tibdgadmind process using the latest installed version of ActiveSpaces.
4. Run the following command from the latest version on an existing data grid before you start any of the nodes in the latest version:

```
tibdg -r <realm_service_URL> grid rebuild <grid_name>
```

> **Note:** Before upgrading ActiveSpaces components, the ActiveSpaces administrative command tibdg grid rebuild must be run on the existing data grid.

5. Before upgrading each state keeper in your quorum, use the following command to check the role of each state keeper:

```
tibdg -r <realm_service_URL> [-g <grid_name>] status
```

Remember: When upgrading the state keepers, start with the state keepers which are not lead state keepers and then upgrade the lead state keeper in the end. To identify the lead state keeper, run the `tibdg status` command and look for the text `leader` in the ROLE column.

6. To upgrade an individual state keeper, perform the following steps:
   a. Install the latest version of ActiveSpaces on the computer running the state keeper.
   b. Stop the existing state keeper by using the following command:

      ```
      tibdg -r <realm_service_URL> [-g <grid_name>] keeper stop <keeper_name>
      ```

   c. Restart the state keeper by using the latest installed version of ActiveSpaces. See the section "Starting a State Keeper" in *TIBCO ActiveSpaces® Administration*.
7. Before upgrading each node in your copysets, use the following command to check the role of each node:

   ```
   tibdg -r <realm_service_URL> [-g <grid_name>] status
   ```

   Remember: When upgrading the nodes of each copyset, start by upgrading the one or more secondary nodes followed by the primary node.
8. To upgrade an individual node, perform the following steps:
   a. Install the latest version of ActiveSpaces on the computer running the node.
   b. Stop the existing node by using the following command:

      ```
      tibdg -r <realm_service_URL> [-g <grid_name>] node stop <node_name>
      ```

   c. Restart the node by using the latest installed version of ActiveSpaces. See the section "Starting a Node" in *TIBCO ActiveSpaces® Administration*.
   d. For each copyset, repeat step 7 to upgrade one or more secondary nodes followed by the primary node.

9. To upgrade an individual proxy, perform the following steps:
    a. Install the latest version of ActiveSpaces on the computer running the proxy.
    b. Stop the existing proxy by using the following command:

```
tibdg -r <realm_service_URL> [-g <grid_name>] proxy stop <proxy_name>
```

    c. Restart the proxy by using the latest installed version of ActiveSpaces. See the section "Starting a Proxy" in *TIBCO ActiveSpaces® Administration*.
    d. Repeat Step 8 to upgrade all proxies.
10. To upgrade an individual client, perform the following steps:
    a. Install the latest version of ActiveSpaces on the computer running the client.
    b. Review the *TIBCO ActiveSpaces® Release Notes* for any changes to the API which might affect your client application.
    c. Stop the client.
    d. Make the necessary changes to your client application, if any.
    e. Restart the client by using the latest installed version of ActiveSpaces.

> **Note:** The steps for stopping and restarting your ActiveSpaces clients depends on the design of your clients.

    f. Repeat step 9 to upgrade all clients.

TIBCO Documentation and Support Services

How to Access TIBCO Documentation

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

The TIBCO Product Documentation website is updated frequently and is more current than any other documentation included with the product.

Product-Specific Documentation

The following documentation for TIBCO ActiveSpaces® is available on the TIBCO ActiveSpaces® Product Documentation page:

- TIBCO ActiveSpaces® *Release Notes*
- TIBCO ActiveSpaces® *Installation*
- TIBCO ActiveSpaces® *Concepts*
- TIBCO ActiveSpaces® *Administration*
- TIBCO ActiveSpaces® *API Reference*
- TIBCO ActiveSpaces® *Security Guidelines*
- TIBCO ActiveSpaces® *ActiveSpaces4-Sizing-Guide*

How to Contact TIBCO Support

Get an overview of TIBCO Support. You can contact TIBCO Support in the following ways:

- For accessing the Support Knowledge Base and getting personalized content about products you are interested in, visit the TIBCO Support website.
- 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 TIBCO Support website. 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 TIBCO Community.

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