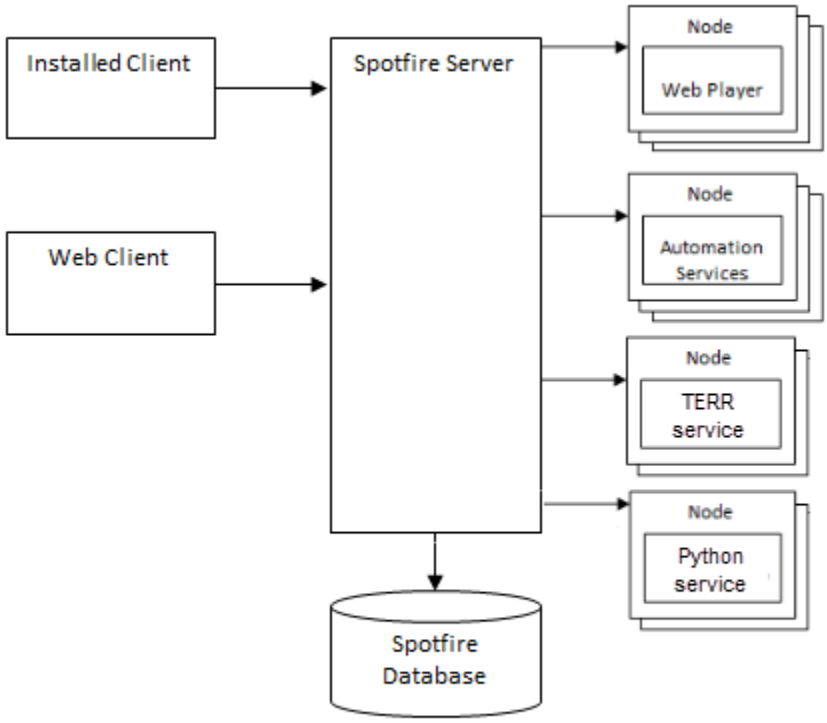
# TIBCO Spotfire Server and Environment - Quick Start

*Software Release 12.0 LTS (12.0.7)*

# Contents

# Introduction to the TIBCO Spotfire environment

The TIBCO Spotfire® environment is installed and configured to enable users to analyze their data in the Spotfire® clients.




The TIBCO Spotfire® Server is the central component of the TIBCO Spotfire® environment, to which the Spotfire® clients can connect. Multiple nodes can be installed and connected to Spotfire® Server. The TIBCO Spotfire® Web Player service, TIBCO Spotfire® Automation Services, TIBCO® Enterprise Runtime for R - Server Edition (TERR service), and Spotfire® Service for Python are installed on nodes to enable the use of Spotfire web clients, the running of Spotfire® Automation Services jobs, and the TERR™ service or Spotfire Service for Python, which enable advanced statistical analysis in the clients. The server is connected to a Spotfire database that contains a user directory and stores analyses and configuration files. Entities in the Spotfire environment can be configured and monitored from a web-based Spotfire Server start page.

## Spotfire Server introduction

Spotfire Server is the administrative center of any Spotfire environment.

In addition to providing the tools for configuring and administering the Spotfire environment, Spotfire Server facilitates the services that make it possible for users to access, blend, and visualize their data, creating analyses that provide actionable insight. The server also enables sharing of the prepared analyses to consumers.

Spotfire Server has the following main functional areas and responsibilities:

| Functional area | Function |
|---|---|
| Library services | Provides centralized storage of Spotfire analysis files and metadata. The library items reside in the Spotfire database. |
| User services | Provides user authentication and role-based authorization. |
| Audit services | Provides centralized collection of action logs. |
| Deployment services | Delivers client product upgrades. |
| Information Services | Provides a centralized point of data access and metadata management for relational data sources. The following functions are provided by Information Services:<br>• Information links, which provide one way to access external data sources. (See also Accessing Data from External Data Sources in the Spotfire Analyst User's Guide for more data access options.)<br>• Network input/output (I/O). |
| Client connections and routing services | Provides access point for all client connections.<br>Routes clients to the appropriate service instance, based on smart default routing or configured routing rules.<br>Continually gathers information about the state of all service instances. |

## Spotfire database introduction

Spotfire Server requires access to a Spotfire database.

The Spotfire database stores the information that Spotfire Server needs to control the Spotfire environment, including users, groups, licenses, preferences, shared analyses, and system configuration data.

You must have a database server up and running, preferably on a dedicated computer, before installing Spotfire Server. The Spotfire environment supports a couple of different database systems. For details on which database versions are supported, see the TIBCO Spotfire Server System Requirements.

## Nodes and services introduction

Install nodes in the environment to enable the use of Spotfire web clients, Spotfire Automation Services, and the TERR service or Spotfire Service for Python.

The installed client, called Spotfire Analyst, can be used together with the Spotfire Server directly. To enable use of Spotfire web clients, Spotfire Automation Services, and the TERR service or Spotfire Service for Python, one or more nodes must also be configured, preferably on dedicated computers, virtual machines or containers.

For each node, the administrator installs and enables a service with a specified capability. A node can have the service with the Spotfire Web Player capability, the Spotfire Automation Services capability, the TERR service, or the Spotfire Service for Python capability.

The Web Player service enables users to perform analyses in a web browser, Automation Services can be used to automate multi-step tasks, and the TERR service or Spotfire Service for Python can be used for additional calculations and advanced analytics. The capabilities of the enabled services determine the functionality that the node provides to Spotfire end users, through the Spotfire Server.

It is strongly recommended to add all different types of services on separate computers, virtual machines or containers in production systems. This is because the Java virtual machine (JVM) and .NET processes for the different services will try to allocate all available memory before starting to use cache or memory garbage collection, and this can result in resource allocation conflicts. For failover and performance purposes, multiple service instances of the same type can be added on each node.

If you still must deploy different services on the same host, you can try to manage the process resource allocation, for example, by reducing the resources via Spotfire configs and by scheduling usage of different services to different times.

You can scale your Spotfire environment by adding or removing nodes and service instances.

## Spotfire clients introduction

Spotfire end users connect to Spotfire Server using either an installed client or a web client.

Spotfire® Analyst is a fully-featured client for working with data sources and creating complex analyses. It is installed on a user's local computer. See the Spotfire Analyst User's Guide for more information.

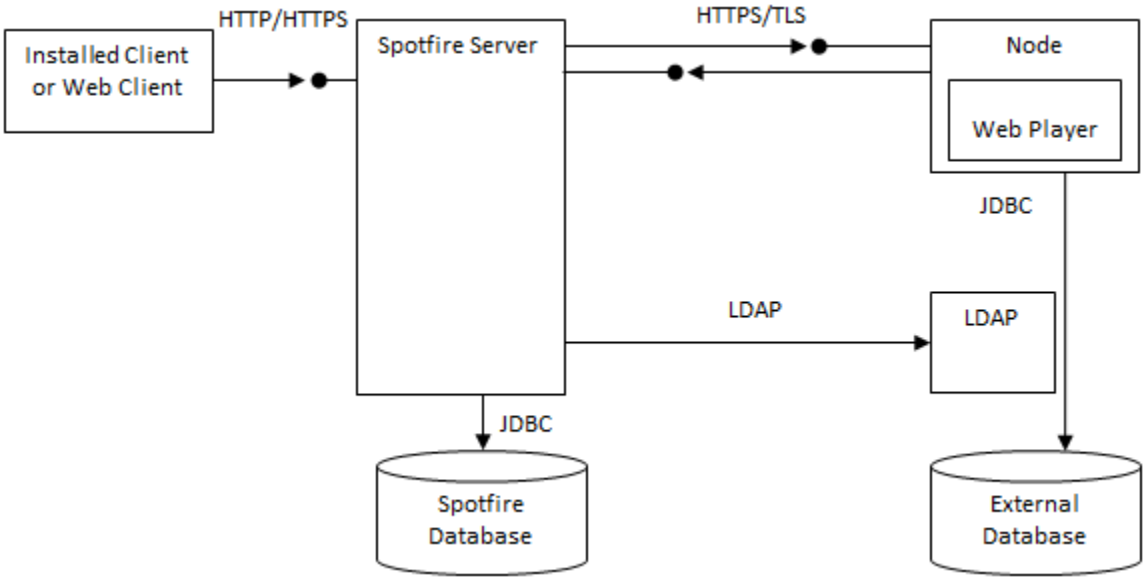
To make it possible to view or create interactive analyses in a web browser, a Web Player service must be installed on the server. Depending on which licenses a user has, the web client will have different capabilities. With a Consumer license, users can view and interact with analyses that others have created for them. With the Business Author license, it is also possible to create and edit analyses in the web client, even though not all of the functionality from the installed client is available. See the Spotfire Business Author and Consumer User's Guide for more information about which features are available in the web clients.

## Environment communication introduction

All back-end communication in a Spotfire environment is secured by HTTPS/TLS, complying with current security standards and industry best practices.

Spotfire Servers listen to incoming traffic from installed clients and web clients on one HTTP or HTTPS port, the front-end communication port.

Spotfire Servers listen to traffic from services on the nodes on another HTTPS port, the back-end communication port.



The secured back-end communication is based on certificates. After an administrator has approved the new server or node, the certificates are issued automatically. Without a certificate, a server or a service on a node cannot make requests to, or receive requests from, other entities, except for when requiring a certificate.

After being installed, a node performs a join request to a specific, unencrypted HTTP Spotfire Server port that only handles registration requests. The node remains untrusted until the administrator approves the request by trusting the node. The Spotfire Server start page provides the tools to add nodes to the environment by explicitly trusting them, thereby issuing the certificates. When the node receives its certificate, it can send encrypted communication over the HTTPS/TLS ports and with this it can start to send more than registration requests.

## Deployment introduction

To deploy Spotfire software, the administrator places software packages in a deployment area on Spotfire Server, and assigns the deployment area to particular user groups.

If a new deployment is available when a user logs in to a Spotfire client, the software packages are downloaded from the Spotfire Server to the client.

Deployments are required for the following tasks:

- Setting up a new Spotfire environment.
- Installing a product upgrade or extension.
- Installing a custom tool or extension.

Administrators can create multiple deployment areas, such as "Production" and "Staging". This allows administrators to test new deployments before rolling them out to the entire client base, or to maintain different deployments for different groups of users.

# Basic installation process for Spotfire

The following procedure describes the deployment of a basic Spotfire environment.

**Prerequisites**

A database server must be up and running, preferably on a dedicated computer. The Spotfire environment supports a number of different database systems.

To view the complete system requirements, go to http://spotfi.re/sr.

**Procedure**

1. Preparation
   - Plan and collect required system information
   - Download installation software
   - Set up the Spotfire database
2. Install Spotfire Server and make initial configuration
   - Install Spotfire Server
   - Create the bootstrap.xml file
   - Create and save a basic Spotfire Server configuration
   - Create an administrator user
   - Deploy client software packages to Spotfire Server
   - Start Spotfire Server
3. Install a node manager
   - Install a node manager
   - Trust the node
4. Add a Spotfire Web Player service instance
5. Add a Spotfire Automation Services service instance
6. Add a TERR service instance. For details, see TIBCO® Enterprise Runtime for R - Server Edition.
7. Add a Spotfire Service for Python instance. For details, see TIBCO® Spotfire Service for Python.

# Preparation

Prepare to install the Spotfire environment by downloading the required software from the TIBCO eDelivery website (both server and deployment software). You must also collect the required system properties, and set up the Spotfire database on your database server.

Make sure that your system fulfills the requirements listed on the TIBCO Spotfire Server System Requirements page.

## Plan and collect required system information

To set up the Spotfire database, and to install and configure Spotfire Server, you must have information about the existing systems at your site.

First, you should determine which type of services you need, decide on the target operating systems, and which database to use for your Spotfire environment. After that, you must collect the required information from existing systems.

### Prerequisites

- A database server must be up and running before you can install Spotfire Server, preferably on a separate server. The Spotfire Server installer will not install a database server. The Spotfire environment supports a number of different database systems.

### Procedure

1. Collect the following information about the **database server** that you will use for the Spotfire database:

   You may need to contact your database administrator.

   | Required information | Description |
   |---|---|
   | Database server type | MSSQL,Oracle or PostgreSQL |
   | Database server hostname | |
   | Administrator user name | |
   | Administrator password | |
   | Connection identifier | For Oracle only |

   For PostgreSQL, you should also take note of the path to the bin directory of the PostgreSQL command line tools (on the computer from which you will run the scripts).

2. Decide on the following information for the **Spotfire database**:

   | Required information | Description |
   |---|---|
   | Spotfire database name | For MSSQL and PostgreSQL. The default is spotfire_server. |

| Required information | Description |
|---|---|
| Spotfire database user name | If the databases uses Integrated Windows authentication, note this user.<br>If you use Integrated authentication, Spotfire Server must run as the Windows Domain user used to create the Spotfire database. |
| Spotfire database password | |

3. Decide on the following for **Spotfire Server**:

| Required information | Description |
|---|---|
| Spotfire Server front-end port | Used for communication with Spotfire clients.<br>The default is 80. If another application on the same server uses port 80, select a different port number. |
| Back-end registration port | Used for key exchange to set up trusted communication between the Spotfire Server and nodes.<br>The default is 9080. If another application on the same server uses this port, select a different port number. |
| Back-end communication port ( TLS) | Used for encrypted traffic between nodes.<br>The default is 9443. If another application on the same server uses this port, select a different port number. |
| Operating system of the server where Spotfire Server will be installed | Windows or Linux |
| Spotfire Server hostname | |

4. Decide on the following for **node managers and services**:

   You need at least one node manager and a Web Player service to be able to use Spotfire analyses in web clients. You might also need other services. See Introduction to the TIBCO Spotfire environment and Nodes and services introduction on page 5 for more information. You can always add more node managers and services later on, if needed.

| Required information | Description |
|---|---|
| Operating system of the server where the node manager/service will be installed | Windows or Linux |
| Node manager/service hostname | |

## Downloading installation software

To install or update Spotfire Server you must download all of the required software components to the computer that will run the server.

### Prerequisites

You must have access to the required software on the TIBCO eDelivery website. If you do not have access, contact your sales representative.

### Procedure

1. On the TIBCO eDelivery website, go to the TIBCO Spotfire Server page.
2. At the bottom of the page, click **Download**, and sign in to the site if required.
3. On the server download page, select the latest version and your platform, and select the license agreement check box.

Some Spotfire releases are designated long-term support (LTS) versions; for information about how LTS versions differ from mainstream (non-LTS) versions, see https://docs.tibco.com/pub/spotfire/general/LTS/spotfire_LTS_releases.htm.

4. Under **Installation Method**, do one of the following:

   - To download the entire product, including language packs and developer software, select **Full Product with Download Manager**, click **Download**, and then follow the instructions.
   - To download fewer files, do the following:

     a. Select **Individual file download**.

     b. Under **SELECT AN INDIVIDUAL COMPONENT**, expand **TIBCO Spotfire Server Software**.

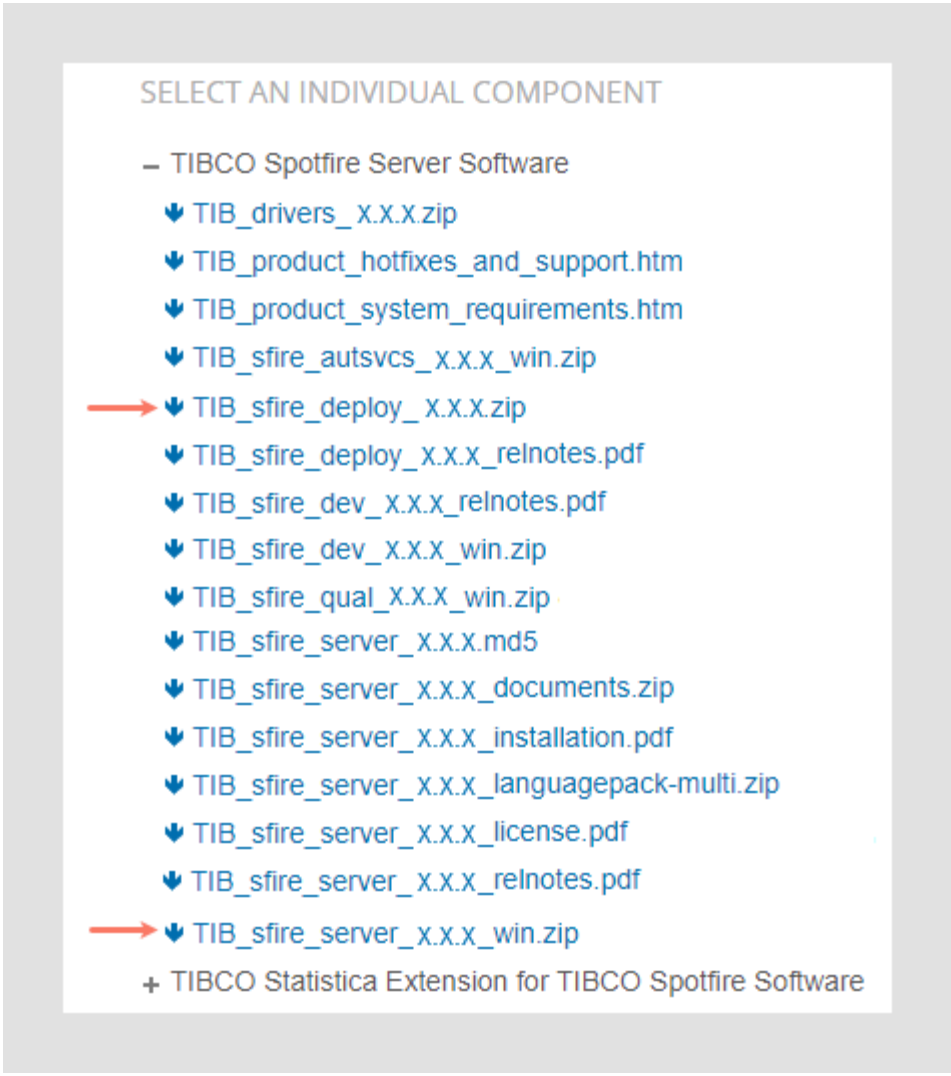
     c. Under **TIBCO Spotfire Server Software**, select `TIB_sfire_deploy_`*`version`*`.zip`.

     This file contains the client packages that your end-users will receive when connecting to the server.

     d. Depending on your target host operating system, select either `tib_sfire_server_`*`version`*`_win.zip` (Windows) or `tib_sfire_server_`*`version`*`_linux.tar` (Linux).

     This file contains the server installation or upgrade files.

     The following example shows the approximate location of the required software components for Windows. Note that you will need both the server file and the deploy file to upgrade your environment. The Linux options are similar.



e. Select the packages for other services you want to deploy, or documents to download.

f. Unzip any zipped files that you downloaded to a folder on your desktop.

### What to do next

Collect required information

## Downloading hotfixes

It is recommended to always keep your Spotfire environment up-to-date. By always applying the latest service pack release (the third version number, e.g., 11.4.x) for your Spotfire Server version, you ensure that you get the latest bug fixes, third-party component updates, and security updates. In some situations, a version can also be provided with hotfixes that are applied separately.

Spotfire Server hotfixes can be applied only on the specific service pack version that they were created for.

For example, if you currently have version 10.3.1, you can only apply server hotfixes for the 10.3.1 version, such as 10.3.1 HF-001, 10.3.1 HF-002, and so on. If you want a hotfix of a different service pack level, such as 10.3.2 HF-001, you must first make sure to upgrade your Spotfire components to that service pack (10.3.2) before applying the hotfix.

### Prerequisites

- You must have access to the required software on the TIBCO Support website. If you do not have access, contact your sales representative.

For general hotfix information and links to specific information about each hotfix, see Overview of hotfixes for TIBCO Spotfire in the TIBCO Community.

### Procedure

1. Sign in to the TIBCO Support website.
2. Click **Downloads** > **Hotfixes**.
3. On the Available Hotfixes page, expand **AvailableDownloads** > **Spotfire** > **Server**, and the version number of interest, to see the list of available .zip and .md5 files (if you are upgrading, select the hotfixes for the new version).

   The hotfixes are cumulative, so you need only the latest one.
4. Click on each .zip file that you want to download.

   The .md5 files can be used to verify the integrity of the .zip files, if required.
5. In the hierarchical list, locate and expand **AvailableDownloads** > **Spotfire** > **Clients(Analyst_WebPlayer_AutomationServices)** and download the latest hotfixes for your Spotfire clients.
6. If you have other components in your Spotfire environment, select the folders for the other components and download the latest hotfixes.
7. When the download is complete, unzip the contents of the folders to the server running Spotfire Server and follow the instructions in the `Installation_Instructions.htm` file.

## Spotfire database setup

Prepare the database for Spotfire before running the server installer. The Spotfire environment supports a number of different database systems.

See system requirements for the list of supported databases. Follow the steps for your database system.

## Setting up the Spotfire database (Oracle)

If you plan to use an Oracle database server for storing the Spotfire database, configure the Spotfire database before running the Spotfire Server installer.

### Prerequisites

- Download and unzip the Spotfire Server installation kit from the TIBCO eDelivery web site. For instructions, see Downloading installation software.
- Configure the following settings on the Oracle database server computer:
  - User name and password authentication.
  - National Language Support (NLS) to match the language of the data you will bring into Spotfire.

    If the database server NLS cannot be set to match the language of your data, Oracle provides other methods of setting NLS to a specific database or user. For more information, consult your database administrator or see the Oracle database documentation.
- You must have access to the Oracle Database. You might need assistance from your database administrator to copy the `install` directory to the database, and to provide the database details for the script.
- Download and add to the system path the command-line database tools (for example, `sqlplus`).

### Procedure

- Copy the `<installation files dir>/scripts/oracle_install` directory to a location where you can open and review (and if needed, edit) the contents.

  This directory contains script files that correspond to supported platforms.

  - Linux: `create_databases.sh`
  - Windows: `create_databases.bat`
  - Linux (Oracle Database running on Amazon RDS): `create_databases_rds.sh`
  - Windows (Oracle Database running on Amazon RDS): `create_databases_rds.bat`

### What to do next

You can create the Spotfire database using one of the following strategies. Select the strategy that best suits your needs.

- Use environment variables to set up the Spotfire database for Oracle
- Run the script for Oracle interactively
- Edit the Oracle create_databases script directly

## Setting up the Spotfire database (SQL Server)

If you plan to use Microsoft SQL Server for storing the Spotfire database, follow these steps before running the Spotfire Server installer.

If you plan to configure Integrated Windows authentication (IWA) between Spotfire Server and the Spotfire database in SQL, see Setting up the Spotfire database (SQL Server with Integrated Windows authentication).

### Prerequisites

- Download and unzip the Spotfire Server installation kit from the TIBCO eDelivery web site. For instructions, see Downloading installation software.
- Configure the following settings on the SQL server database computer:
  - TCP/IP communication listening on a port (the default is 1433).
  - Case-insensitive collation (at least for the Spotfire database).

    If your installation of SQL Server uses a case-sensitive collation by default, or your data uses a different collation than `Latin1_General_CI_AS`, you must edit the `create_server_db.sql` script before running the `create_databases.bat` script. See step 2 below.
  - The command-line database tools (for example, `sqlcmd`) must be downloaded and in the system path.

### Procedure

1. Copy the `<installation files dir>/scripts/mssql_install` directory to a location where you can edit it.

   This directory contains script files that correspond to supported platforms.

   - Linux: `create_databases.sh`
   - Windows: `create_databases.bat`
   - Linux (SQL Server running on Amazon RDS): `create_databases_rds.sh`
   - Windows (SQL Server running on Amazon RDS): `create_databases_rds.bat`
2. Optional: If your installation of SQL Server uses a case-sensitive collation by default, or if you need to define a different collation, follow these steps:
   a) On the SQL Server computer, open the `mssql_install` directory, and then open the `create_server_db.sql` script in a text editor.
   b) Locate the line `--create database $ (SPOTFIREDB_DBNAME) collate Latin1_General_CI_AS;`
   c) Remove the leading dashes (--).
   d) If needed, replace `Latin1_General_CI_AS` with the name of the desired collation, but make sure it is case-insensitive (CI). See the SQL Server documentation for information about available collations.
   e) Comment out the next line by inserting leading dashes (--), so that the line looks like this: `--create database $(SPOTFIREDB_DBNAME)`
   f) Save the file and close the text editor.

### What to do next

You can create the Spotfire database using one of the following strategies. Select the strategy that best suits your needs.

- Use environment variables to set up the Spotfire database for SQL Server
- Run the script and provide the input interactively.
- Edit the SQL Server create_databases script.

## Setting up the Spotfire database (SQL Server with Integrated Windows authentication)

If you plan to use Microsoft SQL Server for storing the Spotfire database, on a Windows computer in a Windows domain and you also plan to use Integrated Windows authentication between Spotfire Server and the Spotfire database in SQL, follow these steps before running the Spotfire Server installer.

### Prerequisites

- You have downloaded and unzipped the Spotfire Server installation kit from the TIBCO eDelivery web site. For instructions, see Downloading installation software.
- The following settings must be configured on the SQL Server:
  - TCP/IP communication listening on a port (the default is 1433).
  - Case-insensitive collation (at least for the Spotfire database).

    If your installation of SQL Server uses a case-sensitive collation by default, or your data uses a different collation than `Latin1_General_CI_AS`, you must edit the `create_server_db.sql` script before running the `create_databases_ia.bat` script. See step 2 below.
  - The command line database tools (`sqlcmd`, etc.) must be in the system path.

With this type of configuration, the Spotfire database will use Windows accounts for authentication. The current user who is running the scripts to create the database must have administrative privileges on the database server, but the Spotfire process should run as a different user when connecting at runtime. Therefore, the scripts have been designed to access the database with a different Windows account when the server is running. This user is assigned to the variable WINDOWS_LOGIN_ACCOUNT. Note that the user who ran the scripts to create the database will get database owner permissions (dbo) to the database and will be able to administer the Spotfire database using integrated authentication.

If the user assigned to the WINDOWS_LOGIN_ACCOUNT variable already exists as a login on the database server, the `create_server_user_ia.sql` script must be edited. The following rows should then be commented out:

```
use master
GO
CREATE LOGIN [$(WINDOWS_LOGIN_ACCOUNT)] FROM WINDOWS WITH
DEFAULT_DATABASE=[$(SPOTFIREDB_DBNAME)],DEFAULT_LANGUAGE=[us_english]
GO
ALTER LOGIN [$(WINDOWS_LOGIN_ACCOUNT)] ENABLE
GO
DENY VIEW ANY DATABASE
TO [$(WINDOWS_LOGIN_ACCOUNT)]
```

As mentioned above, the server process should connect as different user than the user that runs this script for security reasons. If you really want to use the same account then you must comment out the following lines from `create_server_user_ia.sql`:

```
CREATE USER [$(SPOTFIREDB_USERNAME)] FOR LOGIN [$(WINDOWS_LOGIN_ACCOUNT)]
GO
```

### Procedure

1. Copy the `<installation files dir>/scripts/mssql_install` directory to a location where you can edit it.

2. If your installation of SQL Server uses a case-sensitive collation by default, or if you need to define a different collation, follow these steps:
   a) Open the `mssql_install` directory, and then open the `create_server_db.sql` script in a text editor.
   b) Locate the line `--create database $ (SPOTFIREDB_DBNAME) collate Latin1_General_CI_AS;`
   c) Remove the leading dashes (--).
   d) If needed, replace`Latin1_General_CI_AS` with the name of the desired collation, but make sure it is case-insensitive (CI). See the SQL Server documentation for information about available collations.
   e) Comment out the next line by inserting leading dashes (--), so that the line looks like this: `--create database $(SPOTFIREDB_DBNAME)`
   f) Save the file and close the text editor.
3. On the SQL Server computer, go to the `mssql_install` directory, and then open `create_databases_ia.bat` in a text editor.
4. In the section under "Set these variables to reflect the local environment", edit the `create_databases_ia.bat` script by providing the appropriate database server details. The definitions of the variables are listed at the top of the script.

   ***Definitions of the variables in create_databases_ia.bat***

| Variable | Description |
|---|---|
| **DBSERVER_CONNECTIDENTIFIER** | Replace <*SERVER*> with the name of the server running the SQL Server instance, and replace <*MSSQL_INSTANCENAME*> with the name of the SQL Server instance.<br>  The default installation of SQL Server creates an unnamed instance of the SQL Server. If your SQL Server is a new installation, delete the "MSSQL_INSTANCENAME" part of the line and enter only the SERVER name. The connection will be made to the unnamed instance. |
| **WINDOWS_LOGIN_ACCOUNT** | The Windows Login Account that should be created as a login on the database server. The server process must run as this user. |
| **SPOTFIREDB_DBNAME** | Name of the Spotfire database that will be created; spotfire_server is the default. |
| **SPOTFIREDB_USERNAME** | Name of the user that will be created for the Spotfire database, associated with the WINDOWS_LOGIN_ACCOUNT. |

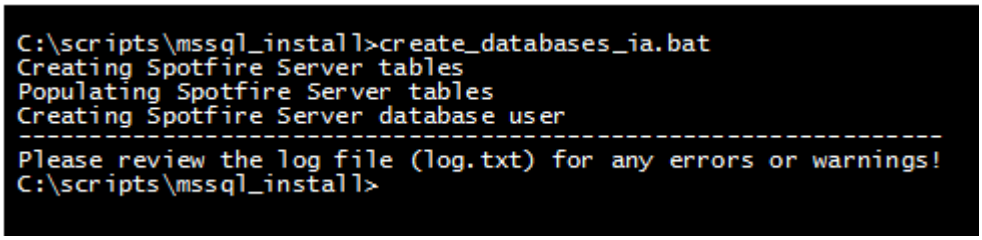
   Example

   This is what the `create_databases_ia.bat` file section might look like after modification:

```
rem Uncomment to set variables:
set DBSERVER_CONNECTIDENTIFIER=DBSERVER\MSSQL
set WINDOWS_LOGIN_ACCOUNT=example.com\win_user
set SPOTFIREDB_DBNAME=spotfire_server
set SPOTFIREDB_USERNAME=spotfire_user
```

5. Save the file and close the text editor.
6. Open a command line as an administrator and go to the directory where you placed the scripts.

7. Type `create_databases_ia.bat` and press Enter.
   If the parameters are correct, a text similar to the following is displayed at the command prompt:




**Result**

The `log.txt` file is created in the same directory as the `create_databases_ia.bat` file. Examine this file to verify that no errors occurred, and retain the log for future reference.

**What to do next**

Install Spotfire Server

The scripts contain sensitive information so it is good practice to remove them after your Spotfire environment has been installed.

## Setting up the Spotfire database (PostgreSQL)

If you plan to use a PostgreSQL server for storing the Spotfire database, then follow these steps before running the Spotfire Server installer.

PostgreSQL can be deployed on a variety of systems. Default settings for PostgreSQL are generally suited for a smaller system. Tune the settings to match the anticipated load before using PostgreSQL for the Spotfire database. For example, `shared_buffers` can have a large impact on performance.

**Prerequisites**

- Download and unzip the Spotfire Server installation kit from the TIBCO eDelivery web site. For instructions, see Downloading installation software.
- The command-line database tools (for example, `psql`) must be installed in the system you are going to use to configure the database server.

**Procedure**

- Copy the `<installation files dir>/scripts/postgres_install` directory to a location where you can open and review (and if needed, edit) the contents.

  This directory contains script files that correspond to supported platforms.

  - Linux: `create_databases.sh`
  - Windows: `create_databases.bat`

**What to do next**

You can create the Spotfire database using one of the following strategies. Select the strategy that best suits your needs.

- Use environment variables to set up the Spotfire database for PostgreSQL
- Run the script and provide the input interactively
- Edit the create_databases script

# Spotfire Server Installation

There are several different options available to install Spotfire Server.

Spotfire Server should run in an English (United States) language setting, as stated on the TIBCO Spotfire Server System Requirements page.

The Spotfire Server installer adds three major components to your system: A Java environment (JDK), a Tomcat application server, and a Spotfire Server web application.

The JAVA_HOME of the Apache Tomcat is set to the path of the installed JDK.

Select the appropriate installation procedure depending on your target operative system.

## Installing the Spotfire Server files (interactively on Windows)

You can install the Spotfire Server files interactively on Windows, using the installation wizard.

### Prerequisites

The Spotfire database setup is completed. For instructions, see Spotfire database setup on page 13.

For security and product performance reasons, it is recommended that you install Spotfire Server on a different computer than the database.

### Procedure

1. In the server installation kit that you downloaded from the TIBCO eDelivery site, double-click `setup-win64.exe`.

   If you use Microsoft SQL Server with Windows Integrated Authentication, install Spotfire Server as the Domain User that you set up with the script `create_databases_ia.bat`. Also, see to that this user has permission to write to the installation folder and make sure that Spotfire Server always runs as this Domain User. Confirm with the logs that Spotfire Server starts.
2. In the installation wizard Welcome dialog, click **Next**.
3. In the License dialog, read the agreement, accept the terms, and then click **Next**.
4. In the Destination Folder dialog you can change the location if you want to, and then click **Next**.
5. In the Windows Service dialog, select the option you want and then click **Next**.
6. In the Spotfire Server Port dialog you can specify the front-end port, and then click **Next**.

   To check whether a port is in use, open a command prompt, type `netstat -na`, and press Enter.

   The ports selected during installation for front-end, back-end communication, and back-end registration ports must be open in the firewall. (The defaults are 80, 9443, and 9080.)
7. In the Backend Communication Ports dialog you can specify the back-end ports, and then click **Next**.
8. In the Ready to Install dialog, click **Install**.
   The Installing dialog tracks the progress of the installation.
9. When the installation is completed, select **Launch the configuration tool** to open the configuration tool, or **Launch the upgrade tool** if you are upgrading.

# Installing the Spotfire Server files (RPM Linux)

You can install the Spotfire Server files on Linux using the RPM-based installer.

### Prerequisites

- The Spotfire database setup is completed. For instructions, see Spotfire database setup on page 13.
- You have root or sudo access to the host.

For security and product performance reasons, it is recommended that you install Spotfire Server on a different computer than the database.

### Procedure

1. Open a terminal and go to the directory that contains the server installation file.
2. Enter the following command to install the server:

   ```
   rpm -ivh tss-<version number>.x86_64.rpm
   ```

   A successful execution of the command produces text similar to this:

   ```
   Preparing...
   Updating / Installing...
       l:tss-<version>-1-1
   You must now execute /opt/tibco/tss/<version number>/configure to complete the
    configuration.
   ```

   By default, the server is installed in the following directory: `/opt/tibco/tss/<version number>/`.
3. Execute the `configure` script, specifying the values for the different parameters.

   ```
   <server installation dir>/<version number>/configure -s <SERVER_FRONTEND_PORT> -r
    <SERVER_BACKEND_REGISTRATION_PORT> -b <SERVER_BACKEND_COMMUNICATION_PORT>
   ```

   Include only those parameters whose default values you are changing. The default values are listed in the table below.

   *Installation parameters*

| Parameter | Description | Default |
|---|---|---|
| `SERVER_FRONTEND_PORT` | Used for communication with Spotfire clients. | 80 |
| `SERVER_BACKEND_REGISTRATION_PORT` | Used for key exchange to set up trusted communication between the Spotfire Server and nodes. | 9080 |
| `SERVER_BACKEND_COMMUNICATION_PORT` | Used for encrypted traffic between nodes. | 9443 |

   Alternatively, you can run the script without any parameters. In this case you will be prompted for the missing information.

   Text similar to the following is shown on the command line:

   ```
   Post install configuration of TIBCO Spotfire Server <version number> was successful.
   ```

# Installing the Spotfire Server files (tarball Linux)

You can install the Spotfire Server files on Linux using the tarball installer.

- For security and product performance reasons, install Spotfire Server on a different computer than the database.
- You might need to configure Security-Enhanced Linux in your system, if enabled, to install the Spotfire Server using the tarball. Check the corresponding documentation for your operating system.

### Prerequisites

- The Spotfire database setup is completed. For instructions, see Spotfire database setup on page 13.

### Procedure

1. Copy the Spotfire Server installation software package from its download directory to a temporary directory on the target host.
   For example, `/temp/`.
2. Create a destination directory for the server.

   The directory must contain the string `tss` for start and stop scripts to work.

   **Example**

   ```
   mkdir -p /opt/tibco/tss-<destination_folder>
   ```

3. From the destination directory, unpack the package.
   **Example**

   ```
   cd /opt/tibco/tss-<destination_folder>
   tar xzf /temp/tss-<version number>.x86_64.tar.gz
   ```

   The server is installed in the destination directory. (A successful execution of the command does not result in any confirmation text.)
4. In the server installation directory, execute the `configure` post-installation script, specifying the values for the parameters.
   **Example**

   ```
   ./configure -s <SERVER_FRONTEND_PORT> -r <SERVER_BACKEND_REGISTRATION_PORT> -b
    <SERVER_BACKEND_COMMUNICATION_PORT>
   ```

   Include only those parameters whose default values you are changing. The default values are listed in the following table.

   ***Installation parameters***

| Parameter | Description | Default |
|---|---|---|
| `SERVER_FRONTEND_PORT` | Used for communication with Spotfire clients. | 80 |
| `SERVER_BACKEND_REGISTRATION_PORT` | Used for key exchange to set up trusted communication between the Spotfire Server and nodes. | 9080 |
| `SERVER_BACKEND_COMMUNICATION_PORT` | Used for encrypted traffic between nodes. | 9443 |

   Alternatively, you can run the command (`./configure`) without parameters. In this case, you are prompted for the missing information.

   Text similar to the following is shown on the command line:

   ```
   Post install configuration of TIBCO Spotfire Server <version number> was successful.
   ```

5. Optional: You can configure Spotfire Server to start when the computer starts by running this command.

   You must have root user access to the computer to run the following script.

   ```
   ./configure-boot
   ```

   Text similar to the following is shown on the command line.

   ```
   TIBCO Spotfire Server <version number> has been successfully configured to start on
    system boot.
   ```

   Running the `configure-boot` script changes the installation directory ownership to user `spotfire` and restricts other users from performing actions on the installation directory.

# Database drivers

Spotfire Server ships with the following database drivers.

- DataDirect drivers for Oracle and Microsoft SQL
- Microsoft SQL Server driver
- PostgreSQL driver
- Additional drivers to access data from JDBC-compliant data sources with Information Services

Spotfire also supports the Oracle driver, which is available from the Oracle website.

## Installing the Oracle database driver

If your implementation uses Oracle Database server, and you do not want to use the included DataDirect driver, you can use the Oracle driver available from the Oracle website.

**Procedure**

1. Download the database driver from the Oracle website.
2. Place the driver in the following directory: `<installation dir>/tomcat/custom-ext`.

# Initial configuration

It is recommended that Spotfire administrators configure a successful basic installation of Spotfire Server before configuring more advanced implementations.

Multiple configurations can be stored in the Spotfire database, but only one can be active.

## Configuration using the configuration tool

The Spotfire Server configuration tool provides a clear path to a basic installation, and offers the most frequently used configuration options.

The configuration tool must be run by a Spotfire administrator. If the Spotfire administrator does not have access to the computer running Spotfire Server, or if the server cannot display graphics, the configuration tool can be run from a local computer.

## Opening the configuration tool

You can use the Spotfire Server configuration tool for the initial configuration of your Spotfire implementation, or for updating your configuration later on.

There are three ways to open the configuration tool:

- Select the **Launch the Configuration Tool** check box on the last screen of the Spotfire Server installation wizard.
- On the computer running Spotfire Server, from the Windows start menu, search for **Configure TIBCO Spotfire Server**.
- Run the `uiconfig.bat` file (`uiconfig.sh` on Linux). These files are located in the `<installation dir>\tomcat\spotfire-bin` directory.

If you cannot run the configuration tool on the Spotfire Server computer, see Running the configuration tool on a local computer.

### Running the configuration tool on a local computer

If running the configuration tool on the Spotfire Server computer is impossible or inconvenient, you can run the tool on a local computer.

#### Prerequisites

Java 17 runtime must be installed on the local computer.

#### Procedure

1. From the computer where Spotfire Server is installed, copy the `<installation dir>/tomcat/webapps/spotfire/tools/spotfireconfigtool.jar` file to the local computer.

   If Spotfire Server is up and running, you can also access the `spotfireconfigtool.jar` file on the **Server Tools** page in the web administration pages.

2. On the local computer, unpack the `.jar` file by double-clicking the `spotfireconfigtool.jar` file.
   If your system does not recognize the file type, follow these steps instead:
   a. On the local computer, open a command line and go to the directory that contains the `spotfireconfigtool.jar` file.
   b. On the command line, enter the following command:

   ```
   java -jar spotfireconfigtool.jar
   ```

   A `spotfireconfigtool` directory is created in the same directory as the `.jar` file.
3. In the newly-created directory, double-click `uiconfig.bat` (Windows) or `uiconfig.sh` (Linux) to open the configuration tool.

## Creating the bootstrap.xml file

The `bootstrap.xml` file contains basic information that the server needs to connect to the Spotfire database and retrieve its configuration. It also contains identity information for the server. If more than one server is connected in a cluster, then each server will have its own bootstrap file.

### Prerequisites

Spotfire Server is installed.

For Integrated Windows authentication (IWA) between Spotfire Server and the Spotfire database, see Setting up the Spotfire Server bootstrap file for Integrated Windows authentication.

### Procedure

1. If the configuration tool is not open, open it; for instructions see Opening the configuration tool. The configuration tool opens to the System Status page, which lists the necessary configuration steps.
2. Click **Create new bootstrap file**.
   The Bootstrap page is displayed.
3. Enter the following information in the fields:

| | |
|---|---|
| **Path** | You may leave the default path as is. |
| **Driver template** | Select a template that is compatible with your database server. |
| **Hostname** | The Spotfire database host name (the address of the computer on which the database is installed). |
| **Port** | The Spotfire database port. |
| **Identifier (SID/database/ service)** | The Server ID (for Oracle) or the database name (for MS SQL and PostgreSQL) of the Spotfire database that was created; spotfire_server is the default. |
| **Username** | The name of the database account used by Spotfire Server to connect to the Spotfire database. In the `create_databases.bat` file, this is the value for DBSERVER_ADMIN_ USERNAME. |
| **Password** | The password of the database account. Enter correct database login details, as specified earlier. In the `create_databases.bat` file, this is the value for DBSERVER_ADMIN_ PASSWORD |

| | |
|---|---|
| **URL** | The JDBC connection URL. This field is pre-populated from selections made but can be edited. |
| **Driver class** | This field is pre-populated from selections made, and cannot be edited. To be able to select Oracle, you must also download the JDBC driver. |
| **Configuration tool password** | Enter a configuration tool password of your choice. This will be used to protect the server configuration from unauthorized access.<br>  The configuration tool password will be required when running the configuration tool. |
| **Server alias** | Enter any unique name for the Spotfire Server. |
| **Encryption password ( optional)** | Enter an encryption password of your own choice. This will be used for encrypting other passwords stored in the Spotfire database. The passwords are encrypted with a static key if no encryption password is specified here. |
| **Addresses** | These values should match actual hostnames, fully qualified domain names (FQDN), and IP addresses (IPv4 or IPv6) at which the Spotfire Server can be reached by other Spotfire Servers and nodes.<br>If any of these values do not describe the server, or are on a network that will not be used for backend communication, you should remove them.<br>If you changed the hostname, domain, or IP address, add the new values.<br>  Valid hostnames can only contain alphabetic characters, numeric characters, hyphen and period. |
| **Site** | For a basic installation, leave **Default** as the selection. |

4. Click **Save Bootstrap**.
   The configuration tool checks that database drivers are installed and that the database is running. It also checks that the database accepts the given credentials. A message indicates whether the bootstrap file was successfully created. After it is created, the Configuration page of the configuration tool is displayed.

## Setting up the Spotfire Server bootstrap file for Integrated Windows authentication

To configure Integrated Windows authentication (IWA) between Spotfire Server and the Spotfire database in SQL, follow these steps.

### Prerequisites

You have followed the steps in Setting up the Spotfire database (SQL Server with Integrated Windows authentication).

### Procedure

1. Change the login for the service to use the Windows account that has login rights to the Spotfire database.
2. In the bootstrap command, described in the "Command-line reference" section in the TIBCO Spotfire Server and Environment Installation and Administration help, use the following database connection string, substituting actual values for <db_server>, <port>, and <instance>:

```
jdbc:sqlserver://<db_server>:<port>;DatabaseName=<instance>;integratedSecurity=true
```

## Saving basic configuration data (authentication towards Spotfire database)

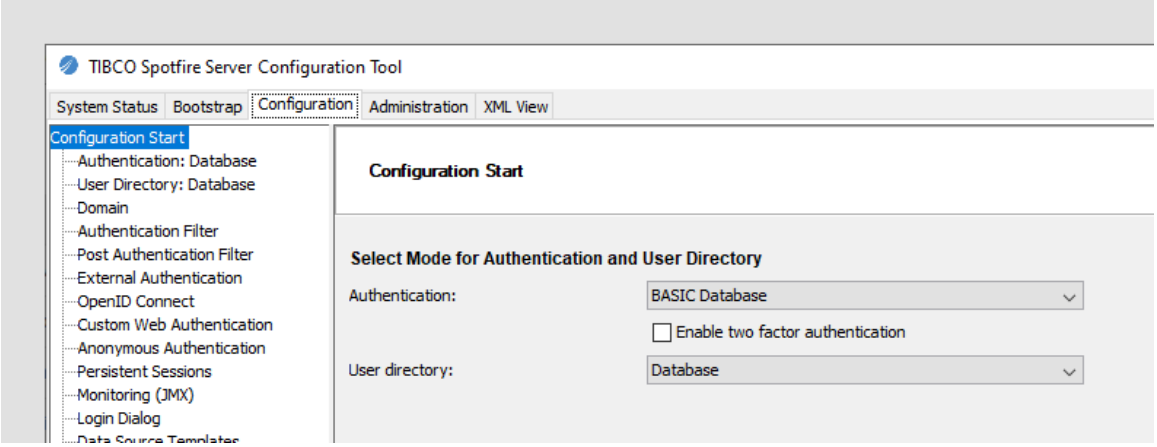
The Configuration page of the configuration tool shows the authentication type and the user directory for your installation. These instructions are for using the Spotfire database to authenticate users.

### Prerequisites

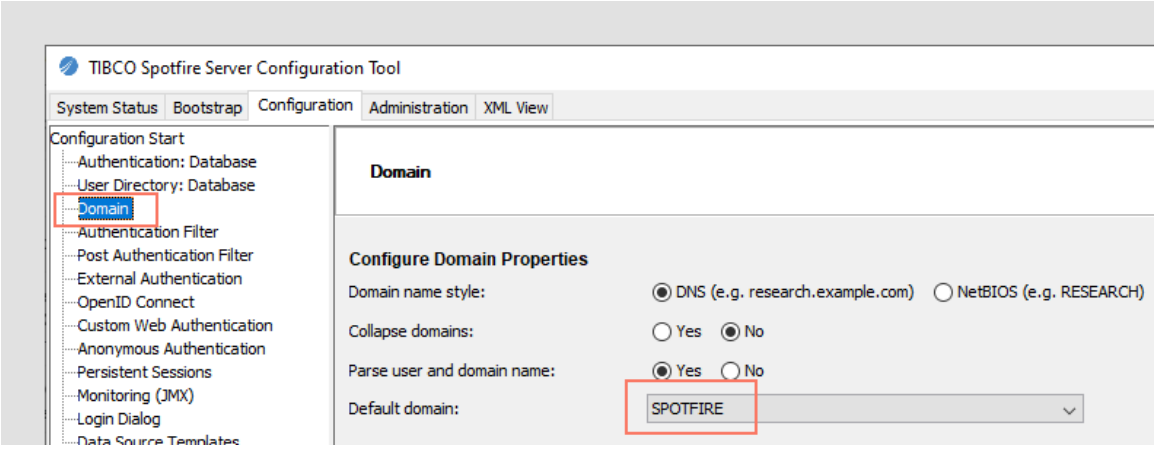
A `bootstrap.xml` file has been successfully saved (for instructions, see Creating the bootstrap.xml file).

### Procedure

1. On the Configuration page of the configuration tool, verify that **BASIC Database** is selected for **Authentication** and that **Database** is selected for **User directory**.




2. In the left panel of the page click **Domain**, and then verify that **SPOTFIRE** is selected next to **Default domain**.




3. At the bottom of the page, click **Save configuration**.
   The Save configuration wizard is displayed. **Database (recommended)** is the pre-selected option, used to immediately apply the new configuration.
4. Click **Next**.
5. Enter a comment about the changes done to the configuration, and then click **Finish**.

## Creating an administrator user

To continue the installation process, the administrator must create an administrator user who has access to all the functionality in the Spotfire implementation.

### Prerequisites

Basic configuration data—the authentication mode and user directory for the system—have been saved on the **Configuration** tab of the configuration tool.

### Procedure

1. On the Administration page of the configuration tool, under **Create new user**, enter a username and password, and click **Create**.
   The new user is displayed in the Users field.
2. Select the new user name and then click **Promote** to add that user to the Administrators group.
   The user is moved to the Administrators field.

# Start or stop Spotfire Server

You must start Spotfire Server after completing initial configuration of the server, before deploying client packages. In addition, you must restart Spotfire Server any time that you change its configuration. The restart causes the server to retrieve a fresh copy of the `configuration.xml` file from the database.

## Starting or stopping Spotfire Server (as a Windows service)

If you installed the Spotfire Server as a Windows service, you can manage it as a standard Windows service.

### Prerequisites

You have successfully completed the initial configuration steps so that the System Status page of the configuration tool shows check marks before the following steps:

- Connect to Database
- Specify Configuration
- Configure Spotfire Server Settings
- Specify Server Administrator

### Procedure

1. Log in to the Spotfire Server computer as an administrator.
2. Go to **Control Panel** > **Administrative Tools** > **Services** and then, in the Services dialog, locate and select the service called **TIBCO Spotfire Server**.
3. To the left of the services list, click **Start** in the phrase "Start the service".

To stop the service, click **Stop** to the left of the services list.

### Result

The Status is changed to "Running".

### What to do next

Deploy the latest client package to Spotfire Server; for instructions, see Deploying client packages to Spotfire Server.

## Starting or stopping Spotfire Server (Windows, no service)

If you did not install a Windows service you must start Spotfire Server manually.

### Prerequisites

You have successfully completed the initial configuration steps.

### Procedure

1. Log in to the Spotfire Server computer as an administrator.
2. Open a command prompt and go to the following folder: `<installation dir>/tomcat/bin`.
3. Run the `startup.bat` file.

### Result

Spotfire Server starts.

The server will stop running if you close the command prompt or log off from the computer.

### What to do next

- Deploy the latest client package to Spotfire Server; for instructions, see Deploying client packages to Spotfire Server.

## Starting or stopping Spotfire Server (Windows, service exists, Integrated Authentication for SQL Server)

If your database server uses Integrated Windows Authentication (IWA) for SQL Server, your Spotfire Server must run as a Windows Domain user that has permission to use the Spotfire database.

### Prerequisites

You have successfully completed the initial configuration steps.

### Procedure

1. Go to **Control Panel** > **Administrative Tools** > **Services**.
2. Double-click the service called **TIBCO Spotfire Server**.
   The Properties dialog opens.
3. In the Properties dialog, click the **Log On** tab.
4. Click the **This account** radio button and enter the user credentials of the Domain User that was set up with the database preparation script `create_databases_ia.bat`.
5. Click **OK**.
6. Start or stop the service.

### What to do next

- Deploy the latest client package to Spotfire Server; for instructions, see Deploying client packages to Spotfire Server.

## Starting or stopping Spotfire Server (Windows, no service, Integrated Authentication for SQL Server)

If your database server uses Integrated Windows Authentication (IWA) for SQL Server, your Spotfire Server must run as a Windows Domain user that has permission to use the Spotfire database.

### Prerequisites

You have successfully completed the initial configuration steps.

### Procedure

1. Log in to the Spotfire Server computer as the Domain User that was set up with the database preparation script `create_databases_ia.bat`.
2. Open a command prompt and go to the following folder: `<installation dir>/tomcat/bin`.
3. Run the `startup.bat` file.

### Result

Spotfire Server starts.

The server will stop running if you close the command prompt or log off from the computer.

### What to do next

- Deploy the latest client package to Spotfire Server; for instructions, see Deploying client packages to Spotfire Server.

## Starting or stopping Spotfire Server (Linux)

Follow these steps to start or stop Spotfire Server on a Linux system.

### Prerequisites

- You can run commands as root.
- You have successfully completed the initial configuration steps.

To start the Spotfire Server service, enter the following command:

```
sudo systemctl start tss-<version-number>
```

To stop the Spotfire Server service:

```
sudo systemctl stop tss-<version-number>
```

### What to do next

- Set the service to start on boot by following these instructions: Setting the Spotfire Server service to start on boot (Linux).
- Deploy the latest client package to Spotfire Server. For instructions, see Deploying client packages to Spotfire Server.

# Deploying client packages to Spotfire Server

To install and use the Spotfire Analyst client, Automation Services and Spotfire web clients, you must first deploy the `Spotfire.Dxp.sdn` (which includes files for the Analyst client and Windows web clients & Automation Services) and, optionally, the `Spotfire.Dxp.netcore-linux.sdn` (which includes support for Linux web clients & Automation Services) distribution file to the server. The client packages are also required for licenses to be shown in the administration interface.

### Prerequisites

- A Spotfire Server administrator has been created. For instructions, see Creating an administrator user.
- You have downloaded the deployment kit containing the `Spotfire.Dxp.sdn` and `Spotfire.Dxp.netcore-linux.sdn` files from the TIBCO eDelivery site. For details, see Downloading installation software.

### Procedure

1. On the System Status page of the configuration tool, at the bottom of the list, click **Deploy client packages**.
2. In the Deploy Client Packages dialog, click **Browse**, and locate the previously downloaded file or files that are suitable for your system (deploy both files if you have node managers on both Windows and Linux hosts, and you want to support updates to the Analyst client):
   - For node managers running on Windows, and to support updates of the Analyst client, click `Spotfire.Dxp.sdn`.
   - For node managers running on Linux, click `Spotfire.Dxp.netcore-linux.sdn`.
3. Click **Open** to add the selected file.
4. In the Deploy Client Packages dialog, click **Deploy**.

To run Web Player or Automation Services on Linux, there are additional prerequisites that must be fulfilled. See Running Web Player or Automation Services on Linux for more information.

### What to do next

Start Spotfire Server

# Node manager installation

To deploy Spotfire services (like Spotfire Web Player, Spotfire Automation Services, the TERR service, and Spotfire Service for Python) on a node, you must first install the node manager software to manage the service.

It is recommended to install each Spotfire node on a separate host.

### *Services and supported platforms*

| Service | Windows | Linux |
|---|---|---|
| Spotfire Web Player | x | x |
| Spotfire Automation Services | x | x |
| TIBCO® Enterprise Runtime for R - Server Edition (TERR Service) | x | x |
| Spotfire Service for Python | x | x |

### *Installation parameters*

| Parameter | Description | Default |
|---|---|---|
| `INSTALLDIR` | The node manager installation directory. | |
| `NODEMANAGER_REGISTRATION_PORT` | Node manager registration port:<br>nodemanager.properties: nodemanager.cleartext.port<br>• Port used for initial setup of internal secure communication channels.<br>• Needs only be accessible from Spotfire Servers.<br>  In a production environment, it is not advisable to run the node manager and the Spotfire Server on the same computer. However, if you are installing the node manager on the same computer as the server, this port must be different than the Spotfire Server backend communication port. | 9080 |
| `NODEMANAGER_COMMUNICATION_PORT` | Node manager communication port (TLS):<br>nodemanager.properties: nodemanager.port<br>• Port used for secure (TLS) internal communication within the environment.<br>• Needs only be accessible from Spotfire Servers.<br>  If you are installing the node manager on the same computer as Spotfire Server, this port must be different than the Spotfire Server backend communication port. | 9443 |
| `SERVER_NAME` | nodemanager.properties: nodemanager.supervisor<br>• Must match the host name of the Spotfire Server.<br>  Valid hostnames can only contain alphabetic characters, numeric characters, hyphens, and periods. | |

| Parameter | Description | Default |
|---|---|---|
| SERVER_BACKEND_REGISTRATION_PORT | Server backend registration port:<br>nodemanager.properties: nodemanager.supervisor.cleartext.port<br>• Must match the registration port specified in the Spotfire Server installation. | 9080 |
| SERVER_BACKEND_COMMUNICATION_PORT | Server backend communication port (TLS):<br>nodemanager.properties: nodemanager.supervisor.port<br>• Must match the backend communication port specified in the Spotfire Server installation. | 9443 |
| NODEMANAGER_HOST_NAMES | A comma-separated list of IP addresses, hostnames, and FQDN names that can be used by backend trust. These should be for the interface(s) on the computer where the node manager is installed.<br>Valid hostnames can only contain alphabetic characters, numeric characters, hyphens and periods.<br>If you do not enter any values, the installer automatically provides values. After installation, confirm that these are correct in the following file: `<node manager installation dir>\nm\config\nodemanager.properties`. | |
| NODEMANAGER_HOST | The computer where the node manager is installed. | |

For more information, see Nodes and services introduction.

## Installing a node manager (interactively on Windows)

You can install a node manager interactively on Windows, using the installation wizard.

It is recommended to install each Spotfire node on a separate host.

### Prerequisites

- Spotfire Server is installed and running.
- In the firewall of the computer on which you are installing the node manager, open the ports that will be used for the node manager and the services. (See step 6 below for information on how these ports are used.)

### Procedure

1. Copy the node manager installation software to a temporary location on the target host.
2. Double-click `nm-setup.exe`.

   You might be prompted to install .NET at this point.
3. On the installation wizard Welcome page, click **Next**.
4. On the License page, read the agreement, select **I accept**, and then click **Next**.
5. On the Destination Folder page you can change the location if you want to, and then click **Next**.

6. On the Node Manager Ports page, enter numbers (or leave the defaults) for the following ports:
   - **Node Manager registration port**—The port that is used to set up secure internal communication channels. The default is 9080.

     In a production environment, it is not advisable to run the node manager and the Spotfire Server on the same computer. However, if you are installing the node manager on the same computer as the server, this port must be different than the Spotfire Server backend communication port.
   - **Node Manager communication port (TLS)**—The port that is used for secure (TLS) communication within the implementation. The default is 9443.

     If you are installing the node manager on the same computer as Spotfire Server, this port must be different than the Spotfire Server backend communication port.

   The selected ports must be available and not blocked by a firewall.

   To check whether a port is in use, on a command line enter `netstat -na`.
7. Click **Next**.
   The Spotfire Server page opens.
8. On the Spotfire Server page, enter the following information, and then click **Next**.

   These values must match the values you used when installing the Spotfire Server files.
   - **Server name**—The hostname of Spotfire Server.

     Valid hostnames can only contain alphabetic characters, numeric characters, hyphens, and periods.
   - **Server backend registration port**—The registration port that you specified during Spotfire Server installation.
   - **Server backend communication port (TLS)**—The backend communication port that you specified during Spotfire Server installation.
9. On the Network Names page, select the computer names that can be used by backend trust. In general you can leave all the listed names as they are.
10. On the Ready to Install page, click **Install**.
11. Click **Finish** when done.

### What to do next

After the installation wizard finishes running, you must start the new node manager manually; see Starting or stopping a node manager (as a Windows service).

## Starting or stopping a node manager (as a Windows service)

Start or stop a node manager Windows service from the Control Panel on the node manager computer.

### Procedure

1. Log in as an administrator to the computer on which the node manager is installed.
2. Go to **Control Panel** > **Administrative Tools** > **Services** and then, in the Services dialog, locate and select the service called **TIBCO Spotfire Node Manager**.

3. To the left of the services list, click **Start** in the phrase "Start the service" to start the node manager Windows service.

To stop the service, click **Stop** to the left of the services list.

### Result

"Running" appears in the Status column.

### What to do next

After starting a node manager for the first time, you must indicate to the server that you "trust" it. See Trusting a node.

## Trusting a node

After installing a node manager, add it in the Spotfire Server as a trusted node.

### Prerequisites

- You have followed the appropriate procedure in the Node manager installation section.
- Both Spotfire Server and the newly-installed node manager are running.

### Procedure

1. Log in to the Spotfire Server web administration pages and click **Nodes & Services**. (For instructions on accessing the server, see Opening the Spotfire Server administration pages on page 37.)
2. Under **Nodes & Services** in the navigation panel to the left, click **Untrusted nodes**.
3. On the Untrusted nodes page, select the check box next to the new node manager and then click **Trust nodes**.
4. In the Trust node dialog, click **Proceed**.

### Result

After a while, the new node can be seen on the Network page.

### What to do next

Service installation on a node on page 38

# Opening the Spotfire Server administration pages

You can access the Spotfire Server administration pages through a browser on any computer in the domain.

There are two ways to open the administration pages:

- On the computer running Spotfire Server, click **Start**, go to the Spotfire Server folder, and click **TIBCO Spotfire Server**.
- On any computer in the domain, go to http://*servername*:*port*/spotfire.

If you work in a clustered environment, it does not matter which server in the cluster you use. Changes made to one server are stored in the Spotfire database and are available to all servers. If your clustered deployment includes a load balancer, use the load balancer hostname in place of `servername` in the second method.

# Service installation on a node

After installing and trusting a node manager, you need to deploy specific Spotfire services and service instances on the node.

For each service you install on the node, select a capability, and the number of instances for that service, Spotfire Web Player, Spotfire Automation Services, the TERR service or Spotfire Service for Python.

The TERR service and Spotfire Service for Python can have only one service instance each.

For more information about installation of the various services, see its documentation:

- Adding Spotfire Web Player instances
- Adding Spotfire Automation Services instances
- TIBCO® Enterprise Runtime for R - Server Edition
- TIBCO® Spotfire Service for Python

## Adding Spotfire Web Player instances

After installing and trusting a node manager, you create the Spotfire Web Player service and add the number of Spotfire Web Player instances that you want to make available. The Spotfire Web Player instances can then be accessed on any computer in the network.

### Prerequisites

- You have installed and trusted a node manager. For instructions, see Installing a node manager interactively and Trusting a node.
- You have deployed client packages corresponding to the operating system of your node manager host to Spotfire Server. For instructions, see Deploying client packages to Spotfire Server.
- If you are running the Web Player instance on a Linux host, you have installed the required additional packages as described on Running Web Player or Automation Services on Linux.
- The Spotfire Server and the node manager are up and running.

Do not install the Spotfire Web Player on a node that contains other services, such as the TERR service or the Spotfire Service for Python.

### Procedure

1. Log in to the Spotfire Server web administration pages and click **Nodes & Services**.
2. On the **Network** page, under **Node managers**, click the node manager to which you want to add the Spotfire Web Player service. There should be a green circle with a check mark next to the selected node manager.
3. In the **Services** pane (lower-right), click **Create new service**.

4. Make your selections in the Create new service dialog:
   a) Under **Deployment area**, select the area you are using.

      Administrators generally create a Test deployment area to use as a staging server.

   b) Under **Capability**, select **Web Player**.
   c) Under **Configuration**, select the service configuration that you want to apply to the service.
   d) Enter a **Service name**.
   e) Under **Number of instances**, enter the number of instances of the service that you want to make available. For more information, see Multiple service instances on one node.
   f) Enter an **Instances name**.
   g) Under **Port**, you can change the default of 9501.

      You will need different port numbers if you are adding more instances in the same Spotfire node.

   h) Determine whether to use a **Resource pool**.
5. Click **Create service**.
   To view the progress of the installation, see the **Activity** page (under **Nodes & Services** in the navigation panel to the left).

### What to do next

- If applicable, install Spotfire Automation Services.
- For information on the remaining setup tasks, see "Post-installation steps" in the Spotfire Server help.
- To use external actions with TIBCO Cloud™ Integration, or to access TIBCO Cloud™ Data Streams on the service, see "Configuring Spotfire Web Clients for OAuth2 with TIBCO Cloud™" in theSpotfire Server help.

## Multiple Web Player instances on one node

Adding more than one Spotfire Web Player instance could be beneficial, particularly on large computers with NUMA architecture.

For failover reasons, it is recommended to have more than one instance in your environment. It is possible to have several instances in the same node, but it is recommended to distribute the instances along different nodes for high availability.

There are two main reasons for adding more service instances on the same node:

- If there are unstable analyses that are suspected to result in issues for the process, these analyses can be routed to one dedicated service instance using file routing rules. This isolates the analyses from other instances.
- A very large .NET heap may lead to long running garbage collections, blocking normal execution. By distributing analyses that lead to a large .NET memory footprint over more than one service instance, the .NET heap becomes smaller, which leads to quicker garbage collections.

There are two reasons to avoid using too many service instances:

- Each service instance requires some overhead, mostly in terms of memory usage but also some CPU usage.
- There is no data or document sharing between service instances.

You may want to experiment with fewer or more service instances, especially on large computers.

# Adding Spotfire Automation Services instances

After installing and trusting a node manager, you can create the Spotfire Automation Services and add the number of instances of this service that you want to make available. Spotfire Automation Services can then be accessed on any computer in the network.

### Prerequisites

- You have installed and trusted a node manager. For instructions, see Installing a node manager and Trusting a node.
- You have deployed the client packages corresponding to the operating system of your node manager host to Spotfire Server. For instructions, see Deploying client packages to Spotfire Server.
- If you are running the Automation Services instance on a Linux host, you have installed the required additional packages as described on Running Web Player or Automation Services on Linux.
- Spotfire Server and the node manager are up and running.

### Procedure

1. Log in to the Spotfire Server web administration pages and click **Nodes & Services**.
2. On the **Network** page, under **Node managers**, click the node manager to which you want to add the Spotfire Automation Services service. There should be a green circle with a check mark next to the selected node manager.
3. In the **Services** pane (lower-right), click **Create new service**.
4. Make your selections in the Create new service dialog:
   a) Under **Deployment area**, select the area you are using.

      Administrators generally create a Test deployment area to use as a staging server.

   b) Under **Capability** select **Automation Services**.
   c) Under **Configuration**, select the service configuration that you want to apply to the service.
   d) Enter a **Service name**.
   e) Under **Number of instances**, enter the number of instances of the service that you want to make available. For more information, see Multiple service instances on one node.
   f) Enter an **Instances name**.
   g) Under **Port**, you can change the default of 9501 if you want to.
5. Click **Create service**.
   To view the progress of the installation, see the **Activity** page (under **Nodes & Services** in the navigation panel to the left).

### What to do next

For information on the remaining setup tasks, see "Post-installation steps" in the Spotfire Server help.

# Spotfire Documentation and Support Services

For information about the Spotfire® products, you can read the documentation, contact Spotfire Support, and join the Spotfire Community.

### How to Access Spotfire Documentation

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

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

### Spotfire Documentation

The documentation for all Spotfire products is available on the Spotfire Documentation page. This page takes you directly to the latest version of each document.

To see documents for a specific Spotfire product or version, click the link of the product under 'Other versions', and on the product page, choose your version from the top right selector.

### Release Version Support

Some release versions of Spotfire products are designated as long-term support (LTS) versions. LTS versions are typically supported for up to 36 months from release. Defect corrections will typically be delivered in a new release version and as hotfixes or service packs to one or more LTS versions. See also https://spotfi.re/lts.

### How to Contact Support for Spotfire Products

You can contact the Support team in the following ways:

- For accessing the Support Knowledge Base and getting personalized content about products you are interested in, visit the support portal at https://spotfi.re/support.
- For creating a Support case, you must have a valid maintenance or support contract with Cloud Software Group, Inc. You also need a user name and password to log in to https://spotfi.re/support. If you do not have a user name, you can request one by clicking **Register** on the website.

### System Requirements for Spotfire Products

For information about the system requirements for Spotfire products, visit https://spotfi.re/sr.

### How to join the Spotfire Community

The Spotfire Community is the official channel for Spotfire customers, partners, and employee subject matter experts to share and access their collective experience. The 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 Spotfire products. In addition, users can submit and vote on feature requests from within the Ideas Portal. For a free registration, go to https://spotfi.re/community.

# Legal and Third-Party Notices

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