

NI DataFinder Server Edition

Search Engine for Technical Data

Worldwide Technical Support and Product Information

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Technical Support and Professional Services

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About This Manual

You can use this manual to familiarize yourself with the DataFinder Server Edition features and how to use them.

The first chapter shows you how to create a DataFinder server in a few easy steps and how to connect clients to this DataFinder server. The exercises do not take long, and they make it easier for you to get started with the DataFinder Server Edition.

The second chapter describes the DataFinder Manager and shows you how to configure DataFinder servers.

Writing Conventions

The following conventions are used in this manual:

<>

Angles brackets indicate a key you press to perform a function, for example, <Ctrl> for the control key.

»

The » symbol leads you through nested menu items and dialog box options to a final action. If you read **Settings»Options»DataPlugins**, you must open the **Settings** menu, select the **Options** item, and then select the **DataPlugins** item.



This icon denotes a note, which alerts you to important information.

bold

Bold text denotes items that you must select or click in the software, such as menu items and dialog box options. Parameters are also bolded.

italic

Italic text denotes a cross reference.

monospace

Text in this font denotes text or characters that you enter from the keyboard, such as dialog box entries and filenames. This font is also used for the names of drives, paths, folders, filenames, and filename extensions.

monospace bold

Bold text in this font denotes the settings and messages that the computer displays on the screen.

Related Documentation

For more detailed information on the DataFinder Server Edition, refer to the following documentation:

- *DataFinder Server Edition help files*, which you open by selecting **Help»Contents**, or by pressing <F1>.
- *DIAdem: Finding, Analyzing, and Documenting Data*

Chapter 2, *Finding and Managing Data*, describes how to make search entries in DIAdem to find data. DIAdem can access DataFinder servers as a client.

Creating and Connecting DataFinder Servers



A DataFinder server is a search engine that you install on a server. The DataFinder server browses computers in a network for files that contain technical data. The DataFinder server indexes data files to provide clients with the data properties. The DataFinder server indexes the file types of the DataPlugins that are registered in the DataFinder Manager.

You can define several DataFinder servers in the DataFinder Manager to provide different data for different work groups. Clients, such as DIAdem, communicate with the DataFinder servers to browse and to load the data that has been found and indexed.



Note The license specifies how many DataFinder servers you can create and how many users can access the DataFinder server simultaneously. Refer to the section on the [NI License Manager](#) in Chapter 2, [Configuring DataFinder Servers](#), for more information about licensing.

Creating DataFinder Servers

When you start the DataFinder Server Edition the DataFinder Manager appears. In the DataFinder Manager you create and configure DataFinder servers and test the functionality of the individual DataFinder servers. Complete the following steps to create a DataFinder server:

1. To start the DataFinder Server Edition, select **Start»All Programs»National Instruments»DataFinder Server Edition 1.0»DataFinder Manager**.

When you install the DataFinder Manager, it does not contain any DataFinder servers. Therefore, the dialog box where you define DataFinder servers opens automatically.

2. Enter `DFServer_TestRig` as the DataFinder name.
3. Click **Add search area** to specify a search area. Search areas are the folders of the file system in which the DataFinder server searches for data files.



4. Enter `My_Data` as the alias name for the search area.



5. Click **Choose a folder** next to the path entry.

- a. Select the folder that you want the DataFinder server to browse, including the subfolders.
- b. Click **OK** to close the dialog box.



6. Click **Share folder** to specify that the files in the selected folder are accessible in the network.

The DataFinder Manager opens the Windows system dialog box, where you share folders with other users in the network. You must share the folders of the search area so that clients can load the files found.

If you do not share the folders, clients can display the descriptive information of the data files, but cannot actually load the data.

7. Click **OK** to close the Windows system dialog box for sharing. The DataFinder Manager displays the path of the shared folder as shown in the following figure.

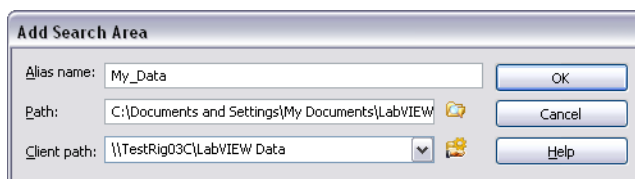


Figure 1-1. Defining a Search Area

8. Click **OK** to close the dialog box.

The definition dialog box of the new DataFinder displays the `My_Data` search area you created as shown in the following figure.

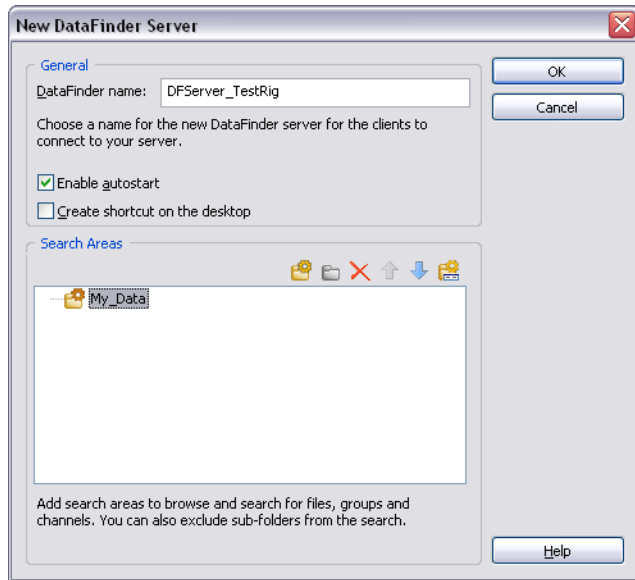


Figure 1-2. Defining a DataFinder Server

You can define other search areas to extend the index of the DataFinder server. Click **Exclude subfolder** to exclude subfolders in a search area from the search.

9. Select the **Create shortcut on the desktop** checkbox to create an icon for the DataFinder server `DFServer_TestRig` on the desktop.

You can then double-click the icon to start the DataFinder server `DFServer_TestRig` without opening the DataFinder Manager.

The **Enable autostart** checkbox is selected by default, which means that the DataFinder server starts when this definition dialog box closes, and that the DataFinder server starts automatically when Windows starts.

10. Click **OK** to conclude the definition of the DataFinder server.

The DataFinder server immediately starts to browse the search areas for data files and to index the files found.

The DataFinder Manager now contains the created DataFinder server `DFServer_TestRig` as shown in the following figure.

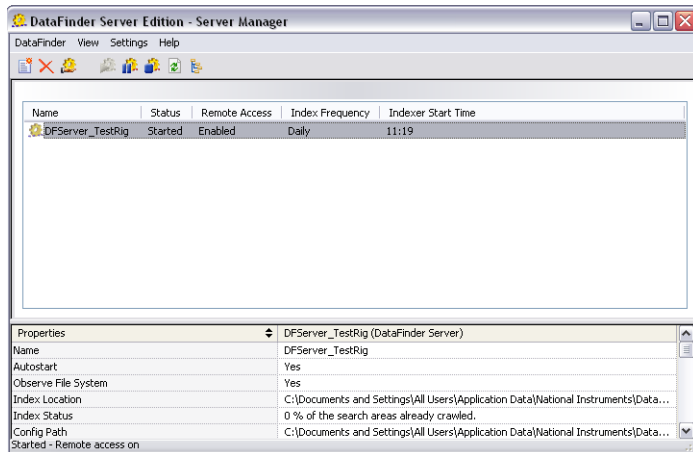


Figure 1-3. DataFinder Manager with Enabled DataFinder Server



If you want to create another DataFinder server, click **New** on the toolbar. You only can create more DataFinder servers if your license allows multiple DataFinder servers.

Exporting a Client Configuration

For clients to execute queries on the server and to load data, you must connect the clients to a DataFinder server. You can export the required settings in the DataFinder Manager and save the settings to a file. Complete the following steps to create a client configuration.

1. Select the DataFinder server **DFServer_TestRig** in the DataFinder Manager.
2. Click **Export** on the toolbar.
3. Enter **DFServer_TestRig** as the name of the export file.
4. Select the **Include DataPlugins in client configuration** checkbox to save all the DataPlugins to the export file.



When you export the DataPlugins, you provide the client with all the DataPlugins for loading the files that the DataFinder server **DFServer_TestRig** finds and indexes.

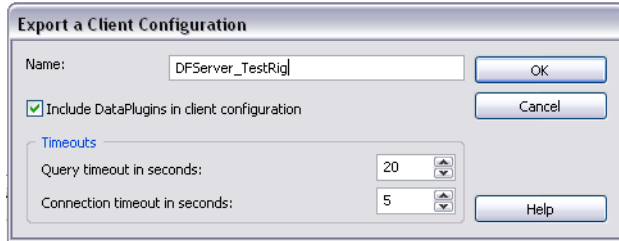


Figure 1-4. Exporting a Client Configuration

Click **OK** to open the **Save as** dialog box.

5. Click **Save** to save the client configuration. The DataFinder Manager saves the connection parameters in a file that has the extension `.urf`.

Connecting Clients to DataFinder Servers

When you save the client configuration, a client such as DIAdem can read the settings. DIAdem uses the settings from the client configuration to establish the connection to the DataFinder server `DFServer_TestRig`.

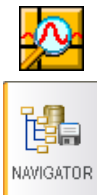
1. Copy the `DFServer_TestRig.urf` file to the client computer.
2. Double-click the `DFServer_TestRig.urf` file to register the settings and the DataPlugins on the client computer.

If you use the URF file to import DataPlugins that are already registered, you can specify whether you want the client to use the imported DataPlugins in the future.

A message indicates that the client configuration and the new DataPlugins are registered.

3. Open **DIAdem**.
4. Select **DIAdem NAVIGATOR**.
5. Select **Settings»Remote DataFinder**.

The following figure shows the dialog box with all the remote DataFinders that are registered in DIAdem.



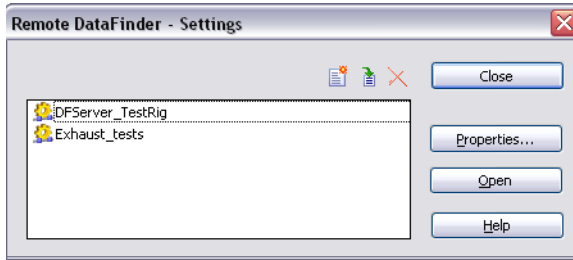


Figure 1-5. Remote DataFinders Registered in DIAdem

DIAdem can use any DataFinder that is connected to the DIAdem computer in a network, as a remote DataFinder.



Note To load a URF file, you also can click **Import remote DataFinder** in the DIAdem remote DataFinder settings. After you import the file, click **Properties** to open the client configuration settings. Click **Test** to check the connection to the DataFinder server.

6. Click **Open** to open the DataFinder server in DIAdem NAVIGATOR.

The file browser in the following figure shows a tree view of the search areas of the DataFinder server. In the files you can navigate to channel level.

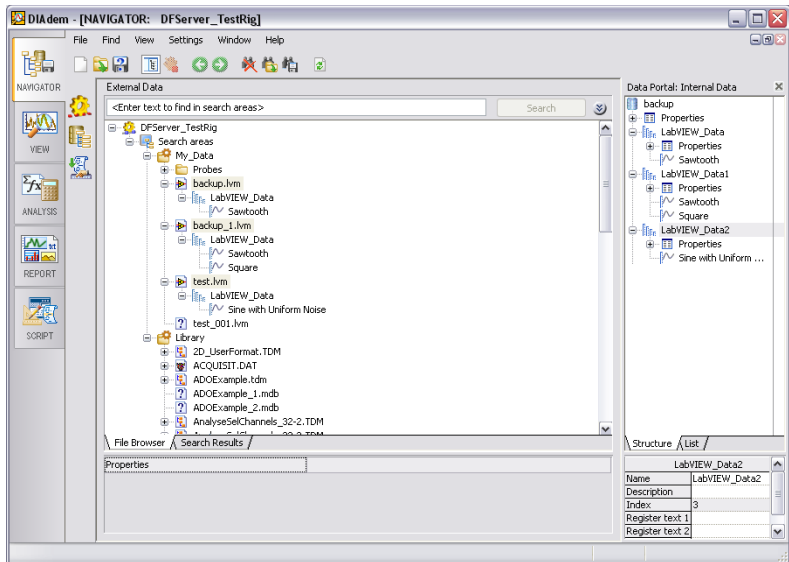


Figure 1-6. Navigating in Search Areas of the DataFinder Server

If you want to open the search areas of the DataFinder server DFServer_TestRig by default in the file browser when you start DIAdem, select **Settings»Options»NAVIGATOR**. Select the checkbox **Start behavior»External data»DataFinder**, click **Browse**, and select the DataFinder server DFServer_TestRig. Save the modified program settings when you close DIAdem.

When you access the search areas of various DataFinder servers in DIAdem, you can assign DataFinder servers to the **DataFinder** function bar. To do this, select **Default setting** from the shortcut menu of a button on the function bar.

Configuring DataFinder Servers

To edit or to delete a DataFinder server, or to create another DataFinder server, open the DataFinder Manager. In the DataFinder Manager you can export the settings for connecting a client to a DataFinder server and you can open the search areas of a DataFinder server in a browser.

DataFinder Manager

The DataFinder Manager provides an overview of the most important settings of all the defined DataFinder servers. The status shows whether a DataFinder server is activated. The remote access shows whether clients can access the search areas. The index frequency and the indexer start time show when the regular indexing of the data files starts. If you disable regular indexing, the entry **Never** appears here.

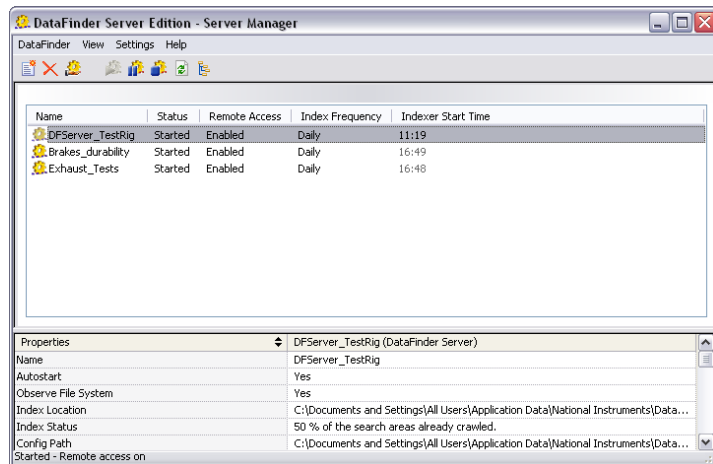


Figure 2-1. The DataFinder Manager Displays all DataFinder Servers

The properties window at the bottom of the DataFinder Manager shows other properties of the DataFinder server that is selected in the overview. If you select **Enable Autostart**, the DataFinder server starts automatically when the computer starts. If you enable **Observe file system**, the DataFinder server automatically indexes each new file and each modified

file. **Index status** shows the time of the last indexing, and **Index location** shows where the DataFinder server stores its index. Select **Settings»Configure** to modify the displayed settings.



If you want to interrupt data file indexing, select a DataFinder server in the DataFinder Manager and click **Pause indexing** on the toolbar. If you want to close the selected DataFinder server, click **Stop**. If you close a DataFinder server, you not only interrupt indexing, you also interrupt the connection to the clients. Click **Start** to reactivate a DataFinder server. Clients can now browse in the indexed files again.

You do not need to open the DataFinder Manager to start a DataFinder server. To start a DataFinder server automatically every time you start the operating system, select **Settings»Configure»General»Enable autostart**. This setting guarantees that even if the server computer has been down, the DataFinder server is available when you restart the computer and log in the user.

If you want to manually start a DataFinder server, double-click the icon on the computer desktop. To create the desktop shortcut in the definition dialog box of a DataFinder server, you must select the **Create shortcut on the desktop** checkbox.

You can open the shortcut menu of each activated DataFinder server from the information area on the Windows task bar. Select **About** to see when the last complete indexing was executed and how many files, groups, and channels are indexed. You also can pause indexing, and restart or stop the DataFinder server from the shortcut menu.

Configuring DataFinder Servers

To configure a DataFinder server, double-click a DataFinder server in the DataFinder Manager. In the configuration of the DataFinder server you specify the search areas and the indexing of the data files. You also can see which file types the DataFinder server includes in the search.

Defining Search Areas

On the **Search areas** tab you select other folders that the DataFinder server browses. You can edit and delete search areas and specify the order in which the DataFinder indexes the search areas and displays them in the file browser. You can exclude subfolders of a search area from the search. A plus sign in front of a search area indicates that the search area contains subfolders that the DataFinder server excludes from the search.

You must share each search area to enable clients to load files from the search areas. You define the share when you create a search area or edit an existing search area. Click **Share folder** to open the Windows system dialog box with the **Sharing** tab. In the Windows sharing settings you specify which users, and how many simultaneous users, have read and write access. You can enter individual users, and you can enter user groups that are defined in a network, for example, to provide access rights for an entire group. Refer to the MS Windows program help for more information about sharing folders.

The search areas of the DataFinder server must be defined with path names that are unique within the network. If you click **Edit search area**, the **Client path** entry is the path for client access to files, for example, \\Testrig4a\NewCar\DATA.

To block the remote access to all the search areas of a DataFinder server, clear the **Allow remote access to this computer** checkbox on the **General** tab. Clients can no longer access the DataFinder server and all the share settings are hidden in the configuration dialog boxes.

Reading File Types with DataPlugins

DataFinder servers read or ignore files according to the filename extension. The **File extensions** tab has two lists that contain all the filename extensions that each DataFinder server recognizes.

One of the lists shows all the indexable file types, which correspond to the TDM data model. In indexable files the DataFinder server can search for properties of data sets, groups, and channels. Clients can navigate to channel level in indexed files. Click a filename extension to see which DataPlugins the DataFinder server uses to index these files.

The other list shows all the non-indexable file types, which do not correspond to the TDM data model. In non-indexable files, the DataFinder server cannot search for properties of groups or channels. The DataFinder server only can search for properties that the file system provides, such as the filename and the creation date.

Which file types the DataFinder server can index depends on the registered DataPlugins. A DataPlugin is a VBScript that analyzes files of a specific file type and provides this information to the DataFinder server. The **DataPlugins** tab shows which filename extensions are assigned to which DataPlugin.

To add DataPlugins, select **Settings»Options»DataPlugins**. In this dialog box you can define, import, export, and delete DataPlugins. When you define a new DataPlugin, you can edit the associated VBScript. If you change the properties of a DataPlugin, these changes apply for all the DataFinder servers.

The National Instruments Internet site ni.com/dataplugins offers DataPlugins for various data formats, written and tested by programmers and by users. The site also provides assistance for programming DataPlugins, including a description of the objects, properties, and methods, and many examples.

Planning Indexing

During indexing, the DataFinder server reads properties from data files and saves this information. When clients search for data files, the DataFinder server browses the indexing data for the entered properties.

Click the **Indexer** tab to specify when and how often the DataFinder server indexes the search areas. To immediately start indexing a DataFinder server that is activated in the DataFinder Manager, click the **Start now** button. Depending on the amount of data, it can take quite a while to index a search area for the first time.

Select the checkbox **Update index immediately when files are created or modified** to ensure that clients always search current data. The **Idle time** specifies the time that the DataFinder server waits after the last keyboard entry or mouse movement, before the indexing process continues. You limit the time that the DataFinder server spends indexing a specific file, for example, to prevent the DataFinder server from continually trying to index a file that cannot be read.

You can use the **Scheduler** to start indexing regularly. For example, the DataFinder server can browse the search areas at 12 pm daily, when no changes to the search areas and no client queries are expected.

If you shut down the computer during a scheduled indexing process or while an indexing process is running, the DataFinder server starts indexing at the next scheduled time, after you restart the computer.

The **Index location** displays the folder where the DataFinder server saves the index. Generally, you should not change the index path that is created during installation. However, if the drive with the index has less than 20 MB free memory space, the DataFinder server stops indexing and displays an error message. You must then either delete files to make more

space available, or change the index path. If you change the index path, the DataFinder server reindexes the search areas. To avoid changing the index path during the working process, install the DataFinder Server Edition on a server that has sufficient hard disk memory space.

Optimizing Custom Properties

You can optimize the search for custom properties for a DataFinder server so that the DataFinder server finds these custom properties faster. Custom properties are user-defined properties that you can create for data sets, groups, and channels of the data that is saved in the TDM data model. Custom properties give data additional characteristics that are not included in the standard data model.

To speed up the search for custom properties, select a DataFinder server in the DataFinder Manager and select **Settings»Optimize custom properties**. On the tabs **File**, **Group**, and **Channel** you select custom properties that are to be optimized. Do not optimize more than 100 custom properties per file, group, or channel. When you close the dialog box, the DataFinder server optimizes the selected custom properties. Optimizing custom properties can take quite a long time. You cannot interrupt the optimizing process and during this process you cannot work with the DataFinder server.



In a client, such as DIAdem, the custom properties are shown in the properties list of the **Advanced search**. If you select an optimized custom property, you can click the button shown on the left for a list of suggested values that you can apply in your search. The button is at the end of the search input area. Which operators you can use for a search entry depends on the data type of the property to be searched for. The DataFinder server always optimizes custom properties for the data type that the DataFinder server used most frequently to index the custom property.



Note You only can search for date type custom properties if these custom properties have been optimized.

Exporting a Client Configuration



To export the settings for a client connection to a DataFinder server that you have selected in the DataFinder Manager, click **Export** on the toolbar. You also can export the DataPlugins of the DataFinder server together with the client configuration, to provide the client with all the DataPlugins for loading the indexed files.

In the export dialog box you also can set connection parameters. You can limit the amount of time that the clients may take to connect to the DataFinder server, and the maximum time that the clients wait for the results of a search. When the DataFinder Manager exports the client configuration, it saves the connection parameters and the DataPlugins in a file that has the extension `urf`.

To provide the connection settings for a client such as DIAdem, you copy the URF file to the DIAdem computer. Double-click the URF file to automatically register the settings and the DataPlugins on the client computer. If you use the URF file to import DataPlugins that are already registered, you can specify whether you want the client to use the imported DataPlugins in the future.

Then start DIAdem and open DIAdem NAVIGATOR. Select **File»Open DataFinder**. Select the new remote DataFinder that you have registered and click **OK**. DIAdem opens the search areas of the remote DataFinder in the file browser. You can navigate in the search areas of the remote DataFinder and load data.

To modify the connection parameters in DIAdem, select **Settings»Remote DataFinder** and click **Properties**. Click **Test** to check the connection to the DataFinder server.

Browsing in Search Areas

The DataFinder Manager provides a tree view of the search areas of the DataFinder server. If the DataPlugin allows, you can navigate to channel level in the folders of the search areas and in the indexed files.



Select a DataFinder server in the DataFinder Manager and click **Open in browser** on the toolbar. The DataFinder Manager opens a tab with a tree view of the search areas of the selected DataFinder server.

The properties window at the bottom displays the properties of the file, the channel group, or the channel, that is selected in the tree view. Click one of the files to view the file properties. In the properties window, the DataFinder Manager displays file properties such as the filename, path, creation date, name, and author. Drag the top edge of the properties window up to view the entire properties list.

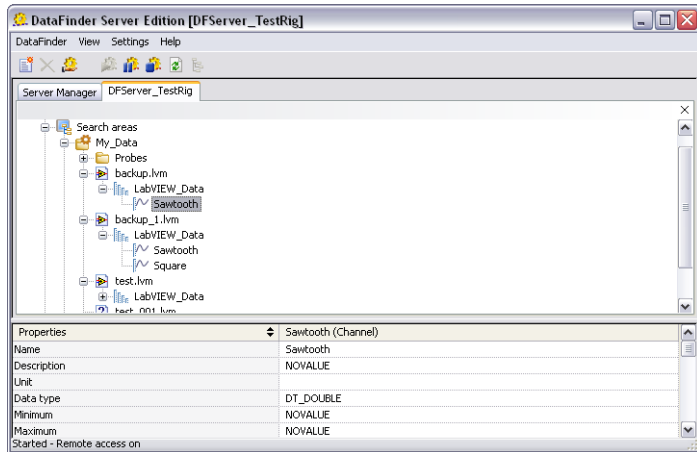


Figure 2-2. Browsing in the Search Areas of a DataFinder Server

In the tree view you can open the shortcut menu to define other folders as search areas, and to edit and to delete existing search areas. You also can exclude subfolders from indexing.

To display the selected DataFinder server as the client sees the DataFinder server, select **View>Client view**. In the client view, the DataFinder Manager displays all the search areas and hides the path **MyComputer**.

NI License Manager

The National Instruments License Manager manages your user licenses for NI software products. To work with the DataFinder Server Edition after your Evaluation version expires, select **Start>All Programs>National Instruments>NI License Manager** and enter your serial number.

The NI License Manager limits the number of active clients that can access the DataFinder server simultaneously. To increase the number of clients, you must purchase a license that allows more connections. Then select **Help>Activate license** in the DataFinder Manager, click **Next**, and enter the new serial number.

The NI License Manager limits the number of DataFinder servers that you can create in the DataFinder Manager. If you need more than one DataFinder server, you must purchase a license that allows multiple DataFinder servers.

Configuring Firewalls and Network Address Translating Routers for DataFinder Servers

DataFinder servers use the UDP port 2343 and a range of UDP ports beginning with port 6000. The number of UDP ports above 6000 that the DataFinder servers use depends on the number of servers running on the computer. DataFinder clients, such as DIAdem, use a range of UDP ports beginning with port 5000. The number of UDP ports above 5000 that the DataFinder clients use depends on the number of clients running on the computer.

Firewalls

Complete the following steps to allow DIAdem or other DataFinder clients outside a firewall to connect to a DataFinder server inside a firewall. The exact steps for configuring the firewall depend on which specific firewall you use. Refer to the documentation on the firewall for specific instructions about opening UDP ports.

1. Open UDP port 2343 for incoming and outgoing packets.
2. Open the UDP port range 6000 to 6010 for incoming packets.

You also can allow clients inside a firewall to connect to a DataFinder server outside the firewall. Some firewalls automatically transmit incoming packets without any configuration. If the firewall does not open the ports automatically, open the UDP port range from 5000 to 5010 for incoming packets.

Network Address Translating Routers

Complete the following steps to allow clients outside a NAT router to connect to a DataFinder server inside the router. The exact steps for configuring the router depend on the specific router you use. Refer to the documentation for the router for specific instructions about forwarding ports. Only one computer inside the router can function as a server.

1. Forward UDP port 2343 to the computer with the DataFinder server.
2. Forward the UDP port range 6000 to 6010 to the computer with the DataFinder server.

You also can allow clients inside a NAT router to connect to a server outside the router. Some routers automatically forward UDP ports without any configuration. If the router does not forward the UDP ports automatically, forward the UDP port range from 5000 to 5010 to the computer with the client (DIAdem).



Note If you installed the DataFinder Server Edition on a Windows machine with an enabled Windows firewall, you must add the programs `..\National Instruments\DataFinder Server Edition 1.0\DataFinderSE.exe` and `..\Windows\System32\lkads.exe` to the Windows firewall exception list.



Note If a client (DIAdem) installed on a Windows machine with an enabled Windows firewall wants to access a DataFinder server, you must add the program `..\Windows\System32\lkads.exe` to the Windows firewall exception list.



Technical Support and Professional Services

Visit the **Support** section of the National Instruments Web site at ni.com for technical support and professional services. Online technical support resources at ni.com/support include the following:

- **Self-Help Resources**—For answers and solutions, visit the award-winning National Instruments Web site for software drivers and updates, a searchable KnowledgeBase, product manuals, step-by-step troubleshooting wizards, thousands of example programs, tutorials, application notes, instrument drivers, and so on.
- **Free Technical Support**—All registered users receive free Basic Service, which includes access to hundreds of Application Engineers worldwide in the NI Discussion Forums at ni.com/forums. National Instruments Application Engineers make sure every question receives an answer.

For information about other technical support options in your area, visit ni.com/services or contact your local office at ni.com/contact.

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