

MicroStation Descartes as a MSI Client

MicroStation Descartes can be enabled to open images stored on remote servers using Model Server Imager (MSI).

Introduction

All images accessed on the servers can only be opened as “Read Only.” Images opened in this fashion can be displayed, plotted, and all navigation tools such as Zoom in, Zoom Out, and Window Area can be utilized. Images can also be converted and saved locally. In such case, this is equivalent to a standard file transfer (download). All images accessed through a MSI server can be added to a project file for later use.

MicroStation Descartes provides new features to maintain and save lists of remote MSI servers. Once a server is added to the list, opening an image from the server is no different than opening images locally.

Accessing MSI servers is achieved by using a network connection. Network connections are of various forms.

- Local Area Network (LAN)
- Wide Area Network (WAN)
- Intranet
- Extranet
- Internet

Each of the above can be accessed in different speeds. Networks can be accessed directly or via a link. Since the data is not accessed locally, speed is often diminished. For slower network links, the MicroStation Descartes MSI Client feature includes caching mechanisms. As the image is accessed on the server, data is cached locally as disk space permits. Thereafter, when the image is accessed at coordinates where cached data exists, the cached data is used instead of accessing the original image

located on the server. Doing so, the speed is identical as if the image was accessed locally.

Installing the MSI Client for MicroStation Descartes

MicroStation Descartes requires a special Dynamic Link Library (DLL) to support MSI. There are no specific installation procedures to follow. The “dll” is installed under the “... \ustation \dcartes \mdlapps” directory when MicroStation Descartes is installed. You can always verify that the file “msiel.dll” is present in that directory.

Configuring MicroStation Descartes to Access a MSI Server

Once you have successfully installed the MSI Client support, you need to specify which servers will be accessed. Each server list can be saved in a configuration file (.CFG). This configuration file stores the addresses of the servers and other important information. You can either create one configuration file containing all servers or create several configuration files for one or several servers.

Example:

Config Files	Servers	Publishes
Engineering	ACME Engineering	/Electrical /Aircraft/Heavy /Aircraft/Light
	ACME Bridges	/Canada/Province/... /USA/State/...
	ACME Construction	/TwinTowers.tif /Acme_Shop_Ctr.jpg
Oil&Gas	Petroleum Stations Acme	/Gas Stations/State/...
	Acme Oil Wells	/North America /Europe /Middle East
Mechanical	Automotive Mechanics Samplers	/Transmissions/Automatic /Transmissions/Manual
	Acme Pumps	/Heating_AC /Other

Each server automatically publishes paths and/or lists of images that are available for access. Each Server Administrator is responsible for publishing access to image libraries. Simply by specifying a server, all available images and paths will automatically be published as well and you will only be required to browse into the published directories to find and open your images.

Setting up the servers

Before proceeding with this section, ensure that you have the following information:

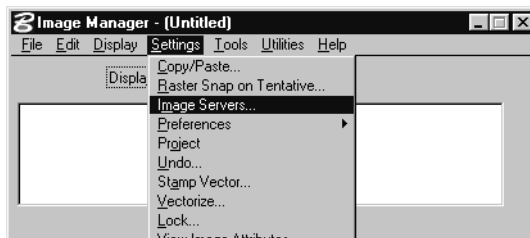
- The name(s) of the servers providing an MSI Server or the IP address(es) of these servers.
- The connection type supported by the server(s), Socket or HTTP
- In the case of HTTP, you must know the extension for each server.

- The Port number opened on the server for the selected Connection, Socket and/or HTTP. Default value is set to 1924.

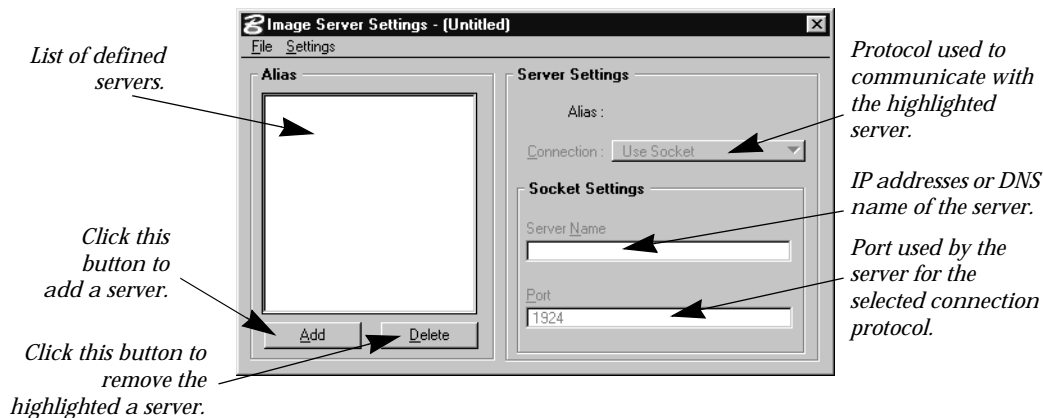
Once you have gathered the above required information, you will be ready to complete the remainder of this setup section.

► Setting up the servers

1. Start MicroStation and MicroStation Descartes.
2. From the File menu, select Descartes-Image Manager. The Image Manager dialog box opens.
3. From the Image Manager menu, select Settings > Image Servers.

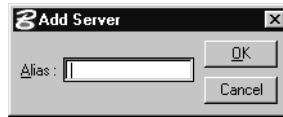


The Image Server Settings dialog box opens.



☞ This dialog box is non-modal (modeless), therefore you can always leave it open.

4. From the Alias group, select Add.
The Add Server dialog box opens.



5. Type the alias for this server and click OK.
The alias is a name that makes it easier for you to recognize what kind of information this server supplies or it could also identify the server itself. Type in a name that will make it easy for you to recognize this server.

☞ To ensure proper configuration, it is strongly suggested that you consult your Systems Administrator before proceeding with the following steps.

6. From the Server Settings group, select Connection and choose the type of connection supported by the server you are about to enter, Socket or HTTP.
7. From the Socket or HTTP Settings group, enter the following parameters:

Server Name: Can be an IP Address of the form xxx.xxx.xxx.xxx or a Domain Name Server (DNS).

☞ If you are running a local version of the MSI Server, you can specify your own IP address or "127.0.0.1," "127.0.0.1" refers to the Local Machine. If you do not know your IP address or if this config file will always be used by local servers, it may be a good idea to enter "127.0.0.1" as the Server Name.

- Port
Usually set to 1924 by MSI.
 - Extension
Extension is available only if the connection is set to HTTP.
8. You can now save your configuration as a file. From the file menu, select Save.
Browse to the location where you want to store your configuration file, specify a name for it and click OK.

Each list or entry of servers made in the Server Settings dialog box can be stored on disk. Each file is saved using the prefix you have chosen and the suffix is automatically set to ".CFG." You can later open a specific configuration file to access servers defined into it.

At this point, you have successfully configured your server(s). You can now close or set aside the Image Server Settings dialog box.

Configuring Cache Memory

In order to improve performance when recurrent image data is requested by the client, MicroStation Descartes maintains a caching mechanism on the local computer, that is the Client's computer.

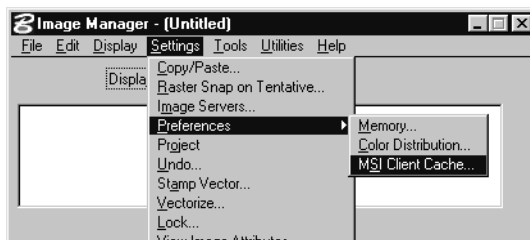
The objective is to keep a copy of all the data received from a remote MSI Server local. When this data is needed again, it is provided by the caching mechanism and not by the server. Since getting data from a local disk is a lot faster than getting it remotely, the overall performance dramatically increases.

The caching mechanism can be set to use specific amounts of memory, though it installs with default settings that allow good performances. In the event that you can provide extra memory to the caching mechanism, a dialog box can be accessed to specify more or less memory.

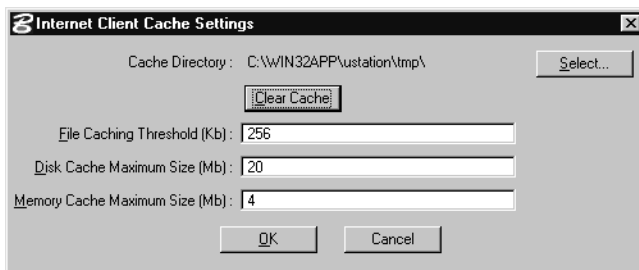
The following steps allow you to familiarize yourself with the cache settings and to modify them.

► **To access the Cache Options**

1. From the Image Manager dialog box, select Settings > Preferences > MSI Client Cache.



The Internet Client Cache Settings dialog box opens.



Cache Directory

Displays the current directory where all cached information is stored.

Clear Cache button

Selecting Clear Cache clears all cache files of their content returning their file size to zero KB.

In order to manually delete the cache file all applications must be closed.

W It is not recommended to manually delete the cache files. When ever possible, always use the Clear Cache button.

Select button

The Select button is use to select the directory into which cached files are maintained.

File Caching Threshold (KB)

File Caching Threshold is the minimum image file size from where images get partially transferred to the client. This means that any image file smaller than the given size will be transferred completely and any file exceeding this amount will be partially transferred.

The default value of 256KB is perfect for network connections established at, or below, 28.8KB. In this case, any image where the size is equal to or less than 256KB will be completely transferred and cached on the client's computer.

W Increasing this value can dramatically reduce display performances. Consult your Systems Administrator before increasing this value over 256KB.

Disk Cache Maximum Size (MB)

Disk Cache Maximum Size is the amount of disk devoted to the cache. When the disk cache is full and caching a new data block is needed, some already cached data is removed from the cache to accommodate the new block.

In most cases, the default value of 20 megabytes is sufficient. If you have sufficient disk space to spare, increasing this value ensures that the cached data is less likely to be flushed and replaced by new incoming cached data.

W Increasing this value reduces the amount of available disk space on your system. Limited free disk space on your system can dramatically reduce overall system performance. Consult your System Administrator if you are unsure about the minimal free disk space required on your system.

Memory Cache Maximum Size (MB)

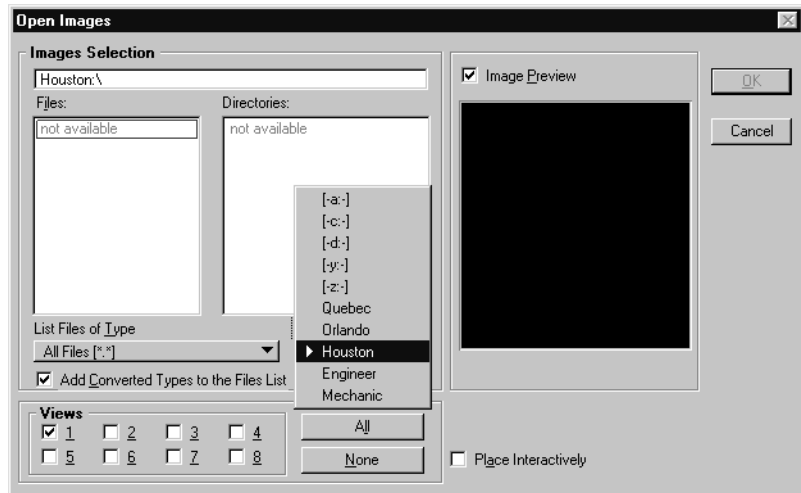
The Memory Cache Maximum Size is the amount of RAM devoted to the cache. Before using the disk cache, data is cached in memory. This allows faster retrieval and display when recently accessed data is requested. When new data is requested from the server because it cannot be found in either cache (File or RAM), the cache mechanism will store the data in memory (RAM). When all allocated RAM is used by cached data, the new incoming data is cached in memory by transferring RAM cached data to disk cache data, therefore allocating space for the incoming data.

The default value of 4MB allows maximum performance for systems equipped with 64MB of RAM where the Descartes Image Manager Memory settings are still set to their default values.

- ☞ The RAM Cache DOES NOT reserve 4MB of memory. It only caches a maximum of 4MB in memory. In the event that there is insufficient free RAM, the cache will use whatever is available. If you do not notice an increase in speed when increasing this value, can be a sign that your are running out of RAM.

Opening Images on Remote MSI Server(s)

Opening images is achieved as you would open images stored locally on your system. The servers are accessed from the Drives option list. When using the MSI Client, the Drives option list displays the name of all the Aliases defined in the current CFG file.



In the above example, five aliases can be found in the current CFG file. These are:

- Quebec
- Orlando
- Houston
- Engineer
- Mechanic

As stated earlier, the alias is simply a name that helps you identify the nature of the server. In the above example we can assume that:

- Quebec is a server located in the Province of Quebec, CANADA
- Orlando is a server located in Orlando, Florida, USA
- Houston is a server located in Houston, Texas, USA
- Engineer may be the server for Engineering drawings and plans
- Mechanic may be the server for Mechanical drawings and schematics

Once the server alias has been chosen from the Drives option list, the process differs depending on server available functions. If the server supports HIP protocol, it can scan server directories as it does on a local drive. Otherwise, you must enter the full path of the image file to open.

- ☞ Ensure that you are connected to your network and/or to the internet before trying to access a remote server. In the case that the server is not accessible, that you do not have a connection or that the server you are trying to connect to is not HIP compatible, *Not Available* will be displayed in both the Files and Directory windows.

Converting a Remote Image - Batch Conversion and/or Save As

The Batch Convert dialog box can be used to batch convert a remote image file. The process is identical to working with a local image file.

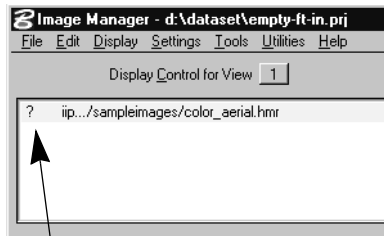
- W When batch converting and/or saving as over a network connection, the image file from the server is downloaded to your computer. The overall speed of the process depends on the speed of your connection and the size of the image.

MSI Server Failures

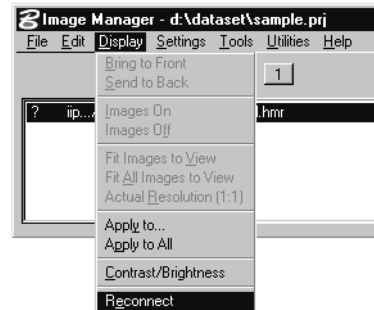
MicroStation Descartes provides mechanisms to deal with remote server failures.

When a project file is loaded and it includes one or more files to be retrieved from an unavailable server, MicroStation Descartes adds the file name to the Image Manager list but it does not try to open the file. It marks the file name with a question mark (?) character to clearly specify that the file(s) were not opened due to server failure.

When this happens, simply access the Image Manager dialog box and select Display > Reconnect. This instructs MicroStation Descartes to try to reconnect to the remote servers and to retrieve images that were not available previously.

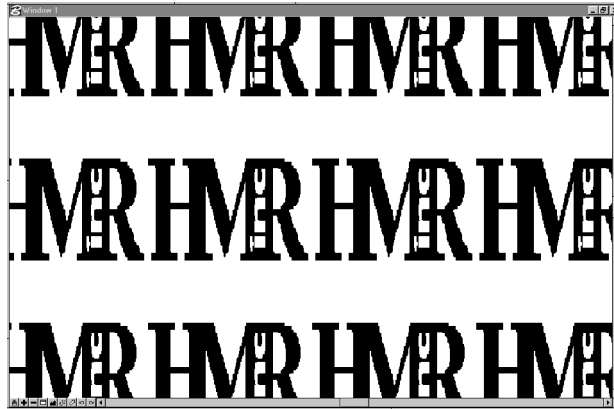


The question mark (?) indicates that there has been a server failure.



The Reconnect feature is used to reestablish the connection with the server.

When a remote server becomes unavailable after a remote file has been opened, parts of the view that should contain image bitmaps are filled with the HMR logo.



- ☞ Once the connection to the server is reestablished, a simple update of the view displays the image and the HMR logo disappears.
- ☞ There is no setting to disable this feature. The HMR logo is useful because it informs you that a connection and/or update problem has occurred.

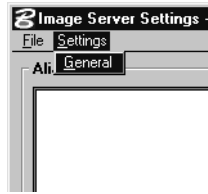
Setting the Number of connection retries

Upon connection failures, MicroStation Descartes provides a feature that retries the connection a specific number of times for each view update. The default setting is 1. Therefore, for each connection failure, when a view update is requested, MicroStation Descartes tries to establish the connection one time. After the update, a connection will be attempted. If it fails, the HMR logo displays.

➤ To change the number of retries

1. Open Image Manager and select Settings > Image Servers. The Image Server Settings dialog box opens.


2. Select Settings > General.



The General Settings dialog box opens.



3. In the Number of Retries field, change the value to a value that best suits your needs and click OK.

 The lapse of time between each retry is evaluated internally and there are too many variables to determine a specific amount of time. If you feel that there are too many resources allocated to the retry process, try reducing the number of retries to 1. If it is already set to 1, set the number of retries to zero to disable this feature. In such a case, you must MANUALLY reconnect using the Display > Reconnect menu item from the Image Manager dialog box. This method ensures that reconnection will be attempted only when requested by the operator.

