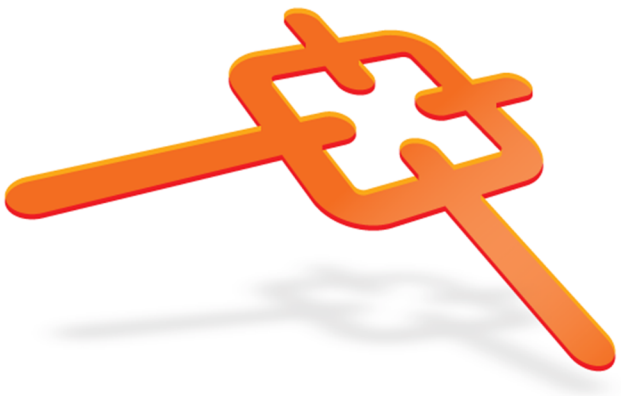
Portrait
Miner



Administration Guide

Version 7.1

Pitney Bowes
Software

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- The name of the software application
- The circumstances in which the problem arose
- What error messages you saw (if any);
- The version of the software that you were using.

Pitney Bowes Software Inc.

February 23, 2016

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1

Introduction

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Portrait Miner Overview

Portrait Miner is a powerful predictive analytics solution that enables customer insight professionals and business users alike to achieve a clear picture of their customers for the purpose of greater customer understanding, uncovering areas of opportunity, achieving optimal segmentation and predicting future behavior.

Bridging the gap between standard Business Intelligence tools with a limited scope for exploring data, and number-crunching solutions which require statistical programmers to build queries and produce models, Portrait Customer Analytics is a next-generation solution designed for unparalleled ease of use – and fast actionable insight.

The solution utilizes powerful 3D data visualization and rapid modeling automation to uncover important data relationships and deliver propensity scores at the push of a button, boosting predictive model accuracy and increasing the speed of analytic results.

Portrait Miner can be used to predict profit-impacting behaviors and propensities, including customer churn, cross sell and up sell opportunities, campaign planning and segmentation, customer satisfaction and loyalty, and customer lifetime value.

Who should read this book

Portrait Miner administration is for system administrators and others who need to install and maintain Portrait Miner. This book assumes that you have a good understanding of your organization's computer systems and network infrastructure and that you:

- Have administrator access to relevant computers.
- Can perform patch installations for operating systems and other software.
- Can create user accounts.
- Have access to, and know how to maintain, relevant database systems.
- Can make appropriate decisions about systems resources and how they should be allocated.

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About a Portrait Miner installation

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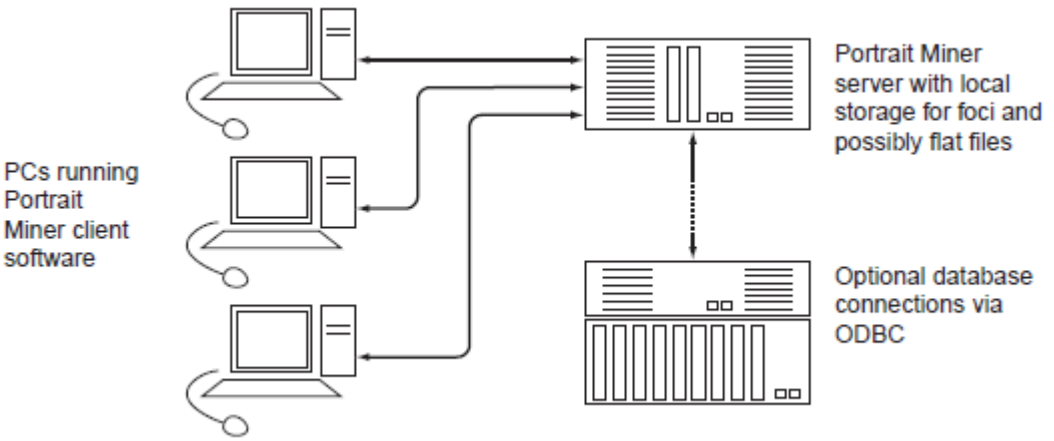
Portrait Miner architecture

Client and server architecture

In the Portrait Miner client-server architecture the user runs client software on a PC and a server handles all data manipulation and computationally-intensive tasks. Typically, the server also communicates with a database system, importing data for analysis and writing back results.



The main server process runs as `system`. When a user logs in to Portrait Miner, the server creates a session-specific process, which is owned by the user. See **About Portrait Miner processes and log files** on page 40.

A typical server setup has:

- A shared directory, in which automated data-build processes create foci.
- A "home" directory for each user for storing private copies of shared foci.
- Project-specific directories.

In this setup, the shared directory is readable by all users, but typically not writable; home directories are only writable by the owner; and project-specific directories are only writable for the project team.

Note:

For a fully functioning Portrait Miner client and server installation:

- Each user requires a password-protected user account on the server machine, as the host operating system uses an encrypted connection to perform login authentication for the Portrait Miner server. Responsibility for password expiry or changing passwords is delegated to the operating system.
- The server requires sufficient disk space to allow multiple users to store analysis datasets, or *foci*.

Portrait Miner Desktop architecture

Portrait Miner Desktop combines Portrait Miner client functionality with all data manipulation, computationally-intensive tasks, and communication with a database system onto a single PC.

The Portrait Miner license file

To install Portrait Miner you must have a valid license file.

During the installation process, you have to locate a Portrait Miner license file. If you don't have a valid license file at installation time, create an empty file called `license.xml` in a temporary location (for example, `C:\temp`) and choose that file. However, you won't be able to use Portrait Miner until you manually copy a valid license file to the `config` subdirectory of the installation directory.

You can view a report about the installed Portrait Miner license using the `qsdescribelicense` data-build command. (See the *Portrait Miner data-build command and TML reference*.)

Note: A license file has an expiry date and is specific to one machine. If you change any of the IP addresses of the machine, you may require a new license file. Please contact Portrait Miner Support.

Portrait Miner installation check list

The following checklists cover the steps required to install Portrait Miner. To install Portrait Miner, you must be logged in as administrator.

Installing the Portrait Miner server

1. Running the server installer [see **Running the server installer** on page 16].
2. Set up the server. See **Setting up the Portrait Miner service** on page 17.
3. Set the access permissions to the shared areas [see **Setting permissions for shared drives** on page 17].
4. If the server is on one or more networks, specify the server IP Address (if more than one) [see **Specifying the network interface and port** on page 18].
5. On versions of Windows that require it, configure Windows Firewall [see **Configuring Windows Firewall with Advanced Security** on page 17].
6. If the server is in non-UK locale, use locale-specific settings [see **Locale-specific configuration** on page 35].
7. If you want to tune your server for improved performance, configure processor and memory usage [see **Configuring processor and memory usage for optimal performance** on page 36].

8. If you plan to use the Portrait Miner data-build commands, set the environment for command-line utilities [see **Setting the environment for command-line utilities** on page 19].
9. Optionally, install any extensions [see **Installing Portrait Miner extensions** on page 19].
10. If you are planning to use information stored in a database, create specific user database connections [see **Creating a User Database Connection** on page 26].

Installing a Portrait Miner client

The Portrait Miner client can only be installed on Windows operating systems.

1. Running the client installer [see **Running the client installer** on page 20].
2. Set up the server connection [see **Setting up a connection to the server** on page 21].
3. Optionally, configure the PC for optimal performance [see **Configuring the PC for optimal client performance** on page 37].

Installing Portrait Miner Desktop

Portrait Miner Desktop can only be installed on Windows operating systems.

1. Run the installer [see **Running the Desktop installer** on page 16].
2. Set the access permissions to the shared areas [see **Setting permissions for shared drives** on page 17].
3. Optionally, configure the PC for optimal performance [see **Configuring the PC for optimal client performance** on page 37].
4. If the Desktop installation is in a non-UK locale, use locale-specific settings [see **Locale-specific configuration** on page 35].
5. If you want to tune your Desktop installation for improved performance, configure processor and memory usage [see **Configuring processor and memory usage for optimal performance** on page 36].
6. If you plan to use the Portrait Miner data-build commands, set the environment for command-line utilities [see **Setting the environment for command-line utilities** on page 19].
7. Optionally, install any extensions [see **Installing Portrait Miner extensions** on page 19]
8. If you are planning to use information stored in a database, create specific user database connections [see **Creating a User Database Connection** on page 26].

Upgrading the Portrait Miner server

1. Prepare to upgrade the server [see **About upgrades to Portrait Miner** on page 28].
2. Follow the installation instructions for installing the Portrait Miner server [see **Installing the Portrait Miner server** on page 11]. During installation, you *must* select a new location for the server rather than overwrite the current server installation.
3. Remove any previous versions of the server (if no longer required) [see **To remove an old version of Portrait Miner** on page 28].

Upgrading a Portrait Miner client

1. Remove an existing client [see **To remove the Portrait Miner client** on page 29].
2. Follow the installation instructions for installing a Portrait Miner client [see **Installing a Portrait Miner client** on page 12].

Upgrading Portrait Miner Desktop

1. Prepare to upgrade Desktop [see **About upgrades to Portrait Miner** on page 28]
2. Follow the installation instructions for installing Portrait Miner Desktop [see **Installing Portrait Miner Desktop** on page 12]. During installation, you *must* select a new location for the server rather than overwrite the current server installation.
3. Remove any previous versions of Desktop (if no longer required) [see **To remove Portrait Miner Desktop** on page 29].

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Installing Portrait Miner

Note: This chapter is not a step-by-step guide to installing Portrait Miner.

For a step-by-step guide, follow the Portrait Miner installation checklist on page **vii**.

In this section:

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Running the Desktop installer

Before installing Portrait Miner Desktop:

- Make sure that your PC is running a supported operating system. (See **Setting system-wide preferences** on page 47.)
- Ensure you have a valid license file.
- Ensure that there is sufficient free disk space for the installation. Ensure that any required third-party software is installed. See **Setting system-wide preferences** on page 47.

To install Portrait Miner Desktop, you must be logged in as an Administrator.

1. Run the `Win32qsserverinstall.exe` which is available in the `/Setup` directory on the Portrait Miner release media. Ensure you right-click and select **Run as Administrator**.
2. Follow the install instructions, clicking **Next** to proceed though the steps.

   You can also retrace your steps by clicking **Back** and you can quit the installation by clicking **Cancel**.
3. When you reach the end of the installation, click **Finish** to quit the InstallShield wizard.

See also

Choosing the installation directory on page 17

Setting permissions for shared drives on page 17

The Portrait Miner license file on page 11

Running the server installer

Before installing the Portrait Miner server:

- Ensure you have a valid license file.
- Ensure that there is sufficient free disk space for the installation.
- Ensure that any required third-party software is installed.
- Make sure that the server machine has enough swap space. (As a rough guide, swap space should be two to three times the physical memory space.) Refer to the documentation for your operating system.

1. Run the `Win32qsserverinstall.exe` which is available in the `/Setup` folder on the release media. Ensure you right-click and select **Run as Administrator**.
2. Follow the installer instructions, clicking **Next** to proceed though the steps.
3. When you reach the end of the installation, click **Finish** to quit the InstallShield wizard.

Note: After installation, you should review ownership and permissions of all subdirectories of the `shared` directory, to ensure that they comply with your security standards.

Setting permissions for shared drives

Following a server or Desktop installation, the `<pmhome>/shared/users` directory is only writable by the administrator user (where <*pmhome*> is the Portrait Miner installation directory). To ensure that only authorized users have access, do one of the following:

- If you have created a group, `mineruser`, for Portrait Miner users, make the `shared/users` directory writable by members of that group.
- You cannot make a linked copy of a focus unless you have permission to write to the "eXTRa" directory of that focus. Therefore, for users to be able to save copies of foci from a shared directory, they must either make full copies, or the shared directory must have write permissions that propagate to subfolders and files.

Choosing the installation directory

During the installation or upgrade of either the server or Desktop, the installer asks you to choose an installation directory.

- If you are upgrading Portrait Miner, choose a different directory to the currently-installed version. See **About upgrades to Portrait Miner** on page 28.
- If you are not upgrading, accept the default location.

Setting up the Portrait Miner service

You do not usually need to configure the Portrait Miner service before starting it.

See also

Specifying the network interface and port on page 18

Configuring Windows Firewall with Advanced Security

If Windows Firewall is turned on on your server, you need to configure it with inbound rules for Portrait Miner processes.

You must be logged in as an administrator.

1. Start the **Windows Firewall with Advanced Security** application.
2. Highlight **Inbound Rules** and click on **Actions**>**New Rule**.
3. Create a **Program** rule type, and click on **Next**.
4. Browse to `<pmhome>\server\jre\<arch>\<Java version>\bin` (where <*pmhome*> is the Portrait Miner installation directory, and <*arch*> is `win64` or `win32`), and select `jmasterlauncher.exe`.
5. Choose **Allow the connection** and click **Next**.
6. Choose when this rule applies.
7. Provide a name for the rule, for example, use the name of the executable.

Repeat this to create rules for `jqsserver.exe` and `jusersession.exe`.

Specifying the network interface and port

If the Portrait Miner server machine is on more than one network — that is, if it has more than one IP address — you should specify the network from which Portrait Miner clients will connect. To do this, use the `hostname` command in `<pmhome>/config/setup.dat` (where <*pmhome*> is the installation directory). See **Editing the setup file** on page 34.

For example, to configure the server so that it uses the IP address 192.168.1.5, add the following line to `setup.dat`:

```
hostname=192.168.1.5
```

If after installation you find that another process is using the port that you specified for the Portrait Miner server, you can change the server port by using the `port` command in `setup.dat`.

For example, to configure the installed server with version qs7.1 to use port 3005 instead of port 3001, edit the line

```
qs7.0: port=3001
```

in `setup.dat` to read:

```
qs7.0: port=3005
```

Note:
- After making changes to `setup.dat`, you must restart the service for the changes to take effect.
- Each client must be able to resolve the specified network address.
- If you have client PCs on different networks, you can't set multiple hostnames in `setup.dat`: you need a separate Portrait Miner server installation — in a separate installation directory — for each of these networks.

See also

Starting and stopping the Portrait Miner server on page 19

Setting the environment for command-line utilities

You can access Portrait Miner's suite of command-line tools, used for performing common analysis operations, through the command-line shell.

To make the Portrait Miner command-line utilities available to users of Portrait Miner, do one of the following (where, in each case, <*pmhome*> and <*version*> are the installation directory pathname and the Portrait Miner version, for example, `qs7.1`, respectively):

- When using Portrait Miner Desktop, run the batch file `<pmhome>/config/setpath-<version>.bat` to set the path temporarily before using Portrait Miner commands in a batch file.

Installing Portrait Miner extensions

Portrait Software supplies optional Portrait Miner extensions for installation.

The procedure for installing an extension is very similar to the procedure for installing the Portrait Miner server or Desktop. Each extension CD-ROM contains a `README` file, which contains information on any additional steps that you may need to take to make the extension work.

- Double-click on the installer located in the `Setup` folder on the CD-ROM. (The installer application may autorun on insertion of the CD-ROM if the PC is configured to permit this.)

Extensions are installed in the `ext` subdirectory of the Portrait Miner installation directory.

Note: Even if you don't install any extensions, the `ext` subdirectory of the installation directory contains several "standard extensions," including Uplift, maps and demo datasets.

See also

Running the Desktop installer on page 16

Running the server installer on page 16

Starting and stopping the Portrait Miner server

- When you start the Portrait Miner service (that is, the `jmasterlauncher` process), it listens for new client connections on the designated network and port [see **Specifying the network interface and port** on page 18] and starts per-client `jusersession` processes as required. (See **About Portrait Miner processes and log files** on page 40.)
- When you stop the service, any running `jusersession` processes are unaffected and users who are already logged in to Portrait Miner can continue using their existing Portrait Miner applications. However, other users are no longer able to log in.

- When you need to shut down or restart the server machine, you should ask users to log out of Portrait Miner first. There is no need to stop the service before shutting down, as it doesn't maintain any state that needs to be saved to disk.

To start the Portrait Miner service

You must be logged in as an administrator to start the Portrait Miner service.

1. From the Windows **Start** menu, choose **Administrative Tools**.
2. Double-click **Services**, to open the **Services** window.
3. Highlight the Portrait Miner service, listed as **Quadstone System Server <*version*>** (where <*version*> is the Portrait Miner version, for example, `qs7.1`).
4. Choose **Action**>**Start**.

Note: For optimum performance of Decision Studio, ensure that the operating system gives precedence to background services rather than applications:

1. In the **Control Panel** window, double-click **System** to open the **System Properties** window.
2. Under the **Advanced** tab, click **Settings** in the **Performance** pane to open the **Performance Options** window.
3. Choose to optimize performance for **Background services** (under the **Advanced** tab).

To stop the Portrait Miner service

You must be logged in as an administrator to stop the Portrait Miner service.

1. From the Windows **Start** menu, choose **Control Panel**.
2. Double-click on **Administrative Tools** (Windows Server 2008).
3. Double-click on **Services**, to open the **Services** window.
4. Highlight the Portrait Miner service, listed as **Quadstone System Server <*version*>** (where <*version*> is the Portrait Miner version, for example, `qs7.1`).
5. Choose **Action**>**Stop**.

Running the client installer

You must be logged in as an administrator to install the client.

1. Insert the installation CD-ROM.
2. If the client installer doesn't autorun, browse in Windows Explorer to `Setup` on the CD-ROM and double-click on `qsclientsetup.exe`.
3. Follow the instructions given by the installer, clicking **Next** to proceed from one stage to another.

   You can also retrace your steps by clicking **Back** or quit the installation by clicking **Cancel**.
4. When you reach the end of the installation, click **Finish** to close the wizard.

The installer creates a single desktop shortcut and entries in the Windows **Start** menu.

Note: Portrait Software permits you to copy the CD-ROM to an intranet location for subsequent installation on multiple PCs.

You may also use Microsoft Systems Management Server or similar to package an installed client for subsequent rollout to multiple PCs. If all your clients will connect to the same Portrait Miner server, you can save work by setting up a server connection [see **Setting up a connection to the server** on page 21] before packaging the client.

Setting up a connection to the server

Double-click on the Portrait Miner desktop shortcut to open the login window.

From here, you can add details of your Portrait Miner server to the **Server** menu.

Note: If you are using Microsoft Systems Management Server or similar to package an installed client for subsequent rollout to multiple PCs and all your clients will connect to the same Portrait Miner server, you can save work by adding details of your server to the **Server** menu before packaging the client.

To add a server to the Server menu

1. In the login window click **Servers** to display the **Servers** dialog box.
2. Click **Add** to display the **Add Server Configuration** dialog box.
3. In the **Name** box, enter the server description used in the **Server** list of the login window.
4. In the **Server** box, enter the network name of the Portrait Miner server (for example, yourserver.yourco.com).
5. Select **Windows** and specify the Windows domain that you will log in to, or use the default setting ("Local") to specify a local account on the server.
6. In the **Port** box, enter the number of the port for which the server has been configured.
7. Click **OK** to add the new server details.
8. In the **Servers** dialog box, click **Close** to return to the login window.

Note: When a user logs in for the first time, Portrait Miner creates user-specific directories in `<pmhome>/shared/users` on the client and server, (where <*pmhome*> is the Portrait Miner installation directory). The file `logon.xml` appears in the user-specific directory on the client, while the user-specific directory on the server is initially empty.

Configuring the PSSConnector extension for Portrait Miner (optional)

The Portrait Shared Services' connection extension (PSSConnector) is a component that is included in all Portrait Miner 7.1 installations to support *optional* integration with the following Portrait Suite applications:

- Portrait Dialogue
- Portrait Explorer
- Portrait Interaction Optimizer.

The PSSConnector must be configured to publish and retrieve analytics content to and from the Portrait Shared Repository (PSR) via Portrait Shared Services (PSS).

Configure Portrait Miner to point to a *pre-installed* version of the Portrait Shared Services. Edit the file: `<PMHOME>/ext/PSSConnector/pss.properties` to include the text: `service=http://MY-SERVER/PortraitSharedServices`, where MY-SERVER is the URL of the Portrait Shared Services.

4

Connecting to a database

This chapter is not a step-by-step guide to installing Portrait Miner. For a complete installation overview, follow the Portrait Miner installation checklist on page **vii**.

In this section:

- **Connecting to a database using ODBC 24**
- **Configuring ODBC for optimal performance 24**
- **Creating a User Database Connection 26**

Connecting to a database using ODBC

Portrait Miner applications and command-line utilities access databases via ODBC connections. To use ODBC, you must first set up the data source names appropriately:

1. From the Windows **Start** menu, choose double-click on **Administrative Tools** (Windows Server 2008).
2. Double-click on **Data Sources (ODBC)**, to open the **ODBC Data Source Administrator** window.

   From here, you can add user or system data source names (DSNs) for the databases that users need to work with. Refer to Windows documentation for more details.

You or Portrait Miner users can then set up User Database Connections (UDCs) to enable access to databases from Portrait Miner applications and command-line utilities. See **Creating a User Database Connection** on page 26.

Note:

- For an Oracle database, the DSN name must be either the name of the database (as specified in the Oracle file `tnsnames.ora`) or a prefix followed by a colon followed by the name of the database. For example, the database `MyOracle` could have the DSN `MyOracle` or `first:MyOracle`.
- For a DB2 database, the DSN name must be the name of the database set in the DB2 client. There can therefore be only one DSN name per DB2 database name.
- For a Sybase or SQL Server database, once you have added a DSN entry, you should modify it to ensure that the null value can occur in the columns of created tables:

  1. At the command prompt, enter `regedit`, to start the Registry Editor.
  2. Find the DSN entry within `Software\ODBC\ODBC.INI` (under either `HKEY_LOCAL_MACHINE` or `HKEY_CURRENT_USER`).
  3. Add the key `QSCreateTableWithColumnNull`, with data value `1`.

- When you upgrade a database, make sure that you upgrade the DSN accordingly. Then UDCs for the database should continue to work as before. (To check that a UDC is still working, browse to the database in Portrait Miner.)

Configuring ODBC for optimal performance

There are several special options that you can add to a data source name (DSN) entry to optimize the performance of a Portrait Miner ODBC connection, primarily for insert and update operations. (The default settings are chosen to maximize compatibility, rather than performance.). You can use the Registry Editor to add keys to the appropriate DSN entry within `Software\ODBC\ODBC.INI` (under either `HKEY_LOCAL_MACHINE` or `HKEY_CURRENT_USER`).

The following insert and update options are available:

Option	Effect
QSInsertMethod	Use single-record inserts (1), array inserts (2), or bulk inserts (3).
QSInsertBatchSize	Insert up to the specified number of records at one time (ignored if QSInsertMethod=1). Allowable values are 24576, positive integer divisors of 16384, and 0, which means that Portrait Miner inserts the maximum possible number of records at a time (typically 24,576).
QSInsertCommitInterval	If set to 1, commit each individual record inserted; if set to an integer *N* greater than 1, commit a transaction approximately every *N* records. The value is typically set to either 1 or the value of QSInsertBatchSize.
QSUpdateMethod	Use single-record updates (1) or array updates (2). The option QSUpdateMethod cannot take the value 3 (bulk update operations are not supported).
QSUpdateBatchSize	Update up to the specified number of records at one time (ignored if QSUpdateMethod=1). Allowable values are 24576, positive integer divisors of 16384, and 0, which means that Portrait Miner updates the maximum possible number of records at a time (typically 24,576).
QSUpdateCommitInterval	If set to 1, commit each individual record updated; if set to an integer *N* greater than 1, commit a transaction approximately every *N* records. The value is typically set to either 1 or the value of QSUpdateBatchSize.

All the above options have the default value 1.

In this example on a Windows server, a database is configured to use array inserts (with the default single-record updates):

Note:

- There is also an option, QSSelectBatchSize, that governs the performance when reading from a database. Allowable values are 24576, positive integer divisors of 16384, and 0. The default value is 0, which means that Portrait Miner fetches the maximum possible number of records at a time (typically 24,576). It is very rarely the case that it will be useful to change the value of this option from the default.

- These options are all keys of string (REG_SZ) type.
- The values that you choose for the special ODBC options described here must comply with any database-specific limitations. For further information, see the documentation for your database.
- Your ODBC driver may not implement array or bulk inserts or array updates, and the performance of array or bulk inserts or array updates is not necessarily better than single-record inserts or updates.

To enable ODBC logging

ODBC logging can be enabled on Windows servers through the **ODBC Data Source Administrator**.

1. Click **Start** and then select **Administrative tools** and **Data Sources**.
2. Select the **Tracing** tab and enter or browse to a **Log File Path**.
3. Click **Start Tracing Now**, and click **OK** to close the **ODBC Data Source Administrator**

Creating a User Database Connection

A User Database Connection (UDC) consists of a data source name (DSN) accompanied by an encrypted username and password for the database that the DSN points to. (The username and password can be omitted in a "partial" UDC.) All database access in Portrait Miner is through UDCs.

Users can create their own UDCs (complete with username and password) for any databases for which they have DSNs. To do this they can use either Portrait Miner or the command-line utility `qsdbaccess` (see *Portrait Miner data-build command and TML reference*).

You can create system UDCs (which can be partial or fully authenticated), by using `qsdbaccess` with the `-system` switch.

If you create partial UDCs for each of the database systems that Portrait Miner users need to access, those databases will be visible in Portrait Miner (without users having to know the DSNs). When a user provides authentication information for a database, Portrait Miner creates a fully authenticated UDC for that user.

Note: To check that a new ODBC configuration is working, log in as an ordinary user, and create a UDC using `qsdbaccess`. If the UDC is not required by that user, remove it afterwards by using `qsdbaccess` with the `-delete` switch.

5

Upgrading Portrait Miner

This chapter is not a step-by-step guide to installing Portrait Miner. For a complete installation overview, follow the Portrait Miner installation checklist on page **vii**.

In this section:

- **About upgrades to Portrait Miner 28**
- **To remove an old version of Portrait Miner 28**
- **To remove the Portrait Miner client 29**
- **To remove Portrait Miner Desktop 29**

About upgrades to Portrait Miner

A Portrait Miner client can only connect to a Portrait Miner server with exactly the same version number (for example, qs7.1). Although a PC can have at most one client version installed at a time, Portrait Miner supports concurrent operation of multiple versions of the server or Portrait Miner Desktop.

If you are using the client-server version of Portrait Miner, you should upgrade the server first. When you install a new version of the server, you can gradually roll out new versions of the client, as previously installed versions of the server continue to operate.

You should not install a new version of the Portrait Miner server or Desktop in the same installation directory as your existing version..

Each installed version of the Portrait Miner server must have its own network port.

If you are upgrading a client — by removing the old version and installing a new version — you need to set up the connection to the server. Be sure to specify the port number for the new server version.

When upgrading Portrait Miner, you can copy the following files from the old installation directory (<*pmhome*>) to the new installation directory:

`<pmhome>/config/qs.ini` System-wide preferences file.

`shared/users` structure You should also copy the directory structure so that each user has a folder in the `shared/users` directory, and then copy the `qs.ini` file for each user into the new `shared/users<user>` directory.

When upgrading 7.1, database.xml files in \shared\users\<user> cannot be reused and should not be copied to the new location. The users will need to recreate any required database connections.

Note:
- Each version of Portrait Miner can open analysis datasets (*foci*) created by older versions. However, because of occasional refinements of the focus format, an older version of Portrait Miner cannot necessarily open foci created by a newer version.
- To check for any special instructions, you should consult the issue of *What is new in Portrait Miner 7.1* that accompanies the new version.

To remove an old version of Portrait Miner

When removing the Portrait Miner server, first ensure that all Portrait Miner clients of the same version have been removed.

You must be logged in as an administrator to remove a version of the Portrait Miner server.

1. Stop the relevant Portrait Miner service [see **To stop the Portrait Miner service** on page 20].
2. Uninstall the server. Open the **Control Panel** and double-click on **Uninstall a program**. Highlight the Portrait Miner server (listed as **Quadstone System Server <*version*>**) and click on

Change/Remove. Follow the instructions given by the uninstaller (which should take no more than a minute or two to complete the task).

If for some reason the application that you want to remove doesn't appear in the list of currently installed programs, you can run the uninstaller directly: in the `qsserveruninstall` directory in the installation directory, double-click on `qs7.1serverUninstall.exe`

See also

To remove the Portrait Miner client on page 29

To remove the Portrait Miner client

You must be logged in as an administrator to remove the Portrait Miner client.

1. Log out of Portrait Miner if applicable, by closing all Portrait Miner client applications or choosing **File** > **Logout** in one of them.
2. From the Windows **Start** menu, choose **Control Panel** or **Settings**.
3. Double-click on **Uninstall a program** on Windows 7.
4. Highlight the Portrait Miner client in the list of currently installed programs.
5. Click **Change/Remove**, to run the InstallShield uninstaller.
6. Follow the instructions given by the uninstaller, clicking **Next** to proceed from one stage to another.
7. When you reach the end of the uninstallation process (which should take no more than a minute or two), click **Finish** to close the wizard.

Note:
- Because the `config` and `shared` directory in the Portrait Miner client installation directory may contain files that you have modified, the client uninstaller doesn't remove them. After making copies of any files that you want to keep, you can manually remove the installation directory.
- If for some reason the application that you want to remove doesn't appear in the list of currently installed programs, you can run the uninstaller directly: in the `qsuninstall` directory in the installation directory, double-click on `qsclientuninstall.exe` (for the Portrait Miner client).

To remove Portrait Miner Desktop

You must be logged in as an administrator to remove Portrait Miner Desktop.

1. If applicable, log out of Desktop by choosing **File** > **Logout** in Portrait Miner.
2. From the **Start** menu, choose **Control Panel** or **Settings**.
3. Double-click **Uninstall a program** on Windows 7.
4. Highlight Portrait Miner Desktop in the list of currently installed programs.
5. Click **Change/Remove**, to run the InstallShield uninstaller.
6. Follow the instructions given by the uninstaller, clicking **Next** to proceed from one stage to another.

7. When you reach the end of the uninstallation process, click **Finish** to close the wizard.

Note:

- Because the `config` and `shared` directory in the Desktop installation directory may contain files that you have modified, the uninstaller doesn't remove them. After making copies of any files that you want to keep, you can manually remove the installation directory.
- If for some reason the application that you want to remove doesn't appear in the list of currently installed programs, you can run the uninstaller directly: in the `qsserveruninstall` directory in the installation directory, double-click on `qs7.1serverUninstall.exe`

6

Configuration options for Portrait Miner

In this section:

- Portrait Miner configuration 32
- Editing the system preferences file 33
- Editing the setup file 34
- Configuring standard file locations 35
- Locale-specific configuration 35
- Choosing the server network port 36
- Configuring e-mail notification 36
- Configuring processor and memory usage for optimal performance 36
- Configuring the PC for optimal client performance 37

Portrait Miner configuration

In a Portrait Miner installation, the `config` and `shared` subdirectories contain files that are used for system-wide or user-specific configuration and customization.

Where possible in a client-server installation, Portrait Miner uses system-wide files for configuration, as centralized configuration is easier to manage. Command-line utilities also use these system-wide settings, to configure the environment in which they run. However, some settings are necessarily client-based, because they determine which server the client connects to or how the client connects to the server.

You can configure Portrait Miner behavior for a client-server installation by making changes to certain files in the `config` directory. You can also change most configurable aspects of Portrait Miner behavior on a per-user basis (on the client or the server) by making changes to corresponding files in the `shared/users/<username>[@<domain>]` directory. Use the `<username>@<domain>` form on a Windows system for users connecting to a domain other than the Local domain.

In general, user-specific settings override system-wide settings (an exception being that system-wide *preferences* can be locked to prevent them being overridden by users).

See also

About Portrait Miner processes and log files on page 40

Editing the system preferences file on page 33

Setting up a connection to the server on page 21

Portrait Miner configuration files

The following are the main configuration files for Portrait Miner. They are listed relative to the installation directory.

File	Purpose
`config/fileactions.xml`	Used to add new action definitions for different file types in Portrait Miner.
`config/plugins.xml`	Contains details of how user interface behavior has been extended.
`config/qs.ini`	Sets the system-wide Portrait Miner preferences [see **Editing the system preferences file** on page 33].
`config/qs.ini.us`	An example of system-wide Portrait Miner preferences for *North American* users [see **Locale-specific configuration** on page 35].
`config/qs.ini.ja`	An example of system-wide Portrait Miner preferences for Japan.

File	Purpose
config/setpath-<version>	Makes the command-line utilities available by updating the PATH variable [see **Setting the environment for command-line utilities** on page 19].
config/setup.dat	Sets the startup environment for Portrait Miner processes and command-line utilities [see **Editing the setup file** on page 34].
shared/users/<*user*>/qs.ini	Sets user-specific Portrait Miner preferences, overriding system-wide settings [see **Editing the system preferences file** on page 33].

Note: In a client-server installation, `fileactions.xml` and `plugins.xml` appear on both the client and server. You should only edit the server-based versions of these files.

Editing the system preferences file

You can set default system-wide preferences for all users of Portrait Miner by editing the system preferences file, `qs.ini`, in the `config` subdirectory of the installation directory.

In addition, you can set preferences for individual users by editing the user-specific `qs.ini` file in the `shared/users/<user>` subdirectory of the installation.

Each line in the preferences file is either a section header (a section title enclosed in square brackets), a preference setting within a section (a preference name and value separated by "="), or a comment (beginning with "#"). String values are not quoted. This format should be familiar to you if you are used to `.ini` files in Windows.

Example

```
# Set the default qsexplorer homefolder.
[Directories]
qsexplorer home = D:/PortraitMiner/ext
```

Note:

- You can lock a preference setting in the preferences file — and so prevent users from overriding it — by prefixing the preference name with an asterisk (`*`). Locking is particularly useful if you have set resource limits; for example:

  ```
  [System Tuning]
  *maximum parallelism = 2
  ```

- If you have upgraded Portrait Miner, note that some preferences may not apply to the new version, while the appropriate or optimal values for others may have changed.
- All section and preference names are case-insensitive and pathnames can use "/" or "\" as a separator.

- The characters "$" and "," carry special meaning in a preferences file. To use literal dollar or comma characters in a preference value, you must use $$ and $COMMA (or ${COMMA}) respectively.

See also

Portrait Miner configuration on page 32

Editing the setup file

The file `<pmhome>/config/setup.dat` (where <*pmhome*> is the installation directory) controls aspects of the environment for Portrait Miner, including command-line utilities. (See *Portrait Miner data-build command and TML reference*.)

The setup file is a text file consisting of a series of one-line commands, except that blank lines and lines beginning with the comment character "#" have no effect.

You can use the following commands in `setup.dat`:

Command	Effect
`set <name>=<value>`	Set the environment variable <*name*> to <*value*>. Windows-style syntax, `%<var>%`, to refer to an existing environment variable <*var*>. For example: `set PATH=C:\perl\bin;%PATH%`
`hostname=<value>`	Set the hostname or IP address by which clients address a Portrait Miner server to `value`.
`port=<value>`	Set the port number on which clients connect to the server to <*value*>.
`property quadstone.rmi.port.min=<value>`	Sets the lower end of the range of ports that will be used for communications between client and server. The command applies to the client or server machine that the setup.dat file is on. Client and server machines may use different ranges. Different clients may use different ranges. The default value for this setting is 50000
`property quadstone.rmi.port.max=<value>`	Sets the upper end of the range of ports that will be used for communications between client and server. The command applies to the client or server machine that the setup.dat file is on. The default value for this setting is 55000

Note:

- To keep your own changes separate from those made by the installer, make any changes above the line that contains the comment, "added during installation."
- After making changes to `setup.dat`, you must restart the server for the changes to take effect.
- The installer uses platform-independent strings `${/}` and `${;}` to represent the delimiting characters in directory/folder names (`/` or `\`), and command and class paths (`:` or `;`) respectively— but you can use the appropriate characters for your server's operating system.

See also

Starting and stopping the Portrait Miner server on page 19

Configuring standard file locations

You can create default initial locations shown in Portrait Miner file browsers and Portrait Miner by making appropriate preference settings [see **Editing the system preferences file** on page 33].

Choose suitable values for these preferences:

Preference name	Initial location for
map load	Choosing a map to associate with a geographical field The default location (the subdirectory `ext/maps` of the installation directory) is usually appropriate.
qsexplorer home	Opening and saving files in Portrait Miner.

Note:
- You can override these preferences in Portrait Miner, but it is still helpful to provide sensible defaults.
- If you have created a location for third-party or user-defined FDL function libraries, you should set **derivation libraries**.

Locale-specific configuration

A new Portrait Miner installation contains a default preference file in the `config` subdirectory of the installation directory. This file, `qs.ini`, includes date-format preference settings that are appropriate for *European* users.

There are also alternative preference files, qs.ini.us and qs.ini.ja, which contains date-format preference settings that are more appropriate for North American and Japanese users respectively.

To use the alternative preference file, simply rename it to `qs.ini`.

See also

Editing the system preferences file on page 33

Editing the setup file on page 34

Choosing the server network port

During server installation or upgrade, the installer asks you to choose a network port.

Select a port that is not used by any other system service — including other versions of the Portrait Miner server if you are upgrading. You can use the command `netstat -a -n` to find out which ports are currently active.

For a first installation of Portrait Miner, the default port number is usually a safe choice.

Configuring e-mail notification

Some Portrait Miner operations run as background tasks and users can opt to receive e-mail notification of completion. The system only sends e-mail if the following preferences are set:

- **emailaddress**, the address to which the system sends e-mail. You may wish to configure this on a per-user basis.
- **emailserver**, the SMTP server the system uses. You may wish to configure this on a system-wide basis.

Configuring processor and memory usage for optimal performance

Each instance of Portrait Miner potentially uses multiple processors, where they are available, to optimize its performance. However, you can (and usually should) constrain the resources that Portrait Miner attempts to use by making appropriate preference settings [see **Editing the system preferences file** on page 33]. You should choose suitable values for the following preferences:

- **maximum parallelism**
- **parallelism**

You may wish to lock either or both of these preferences, to prevent users overriding your settings.

You may also wish to configure the "soft" memory used by Portrait Miner [see **focus memory soft limit** on page 49].

Note: Data preparation operations (such as focus creation, export, and sorting) start separate processes, and you should take this into account when setting the parallelism preferences.

Configuring the PC for optimal client performance

You can usually improve the performance of graphics operations (which use Java 3D) by optimizing performance for *background* applications and by not showing window contents while dragging.

On the client PC:

1. From the **Start** menu, choose **Control Panel**.
2. Choose either **System and Security** (Windows 7), **System and maintenance** (Windows Vista).
3. Choose **System**>**Advanced system settings** (Windows Vista or Windows 7) to display the **System Properties** dialog box.
4. Choose the **Advanced** tab and under **Performance**, click **Settings** to display the **Performance Options** dialog box
5. Choose the **Advanced** tab and under **Processor scheduling**, click **Background services**.
6. Choose the **Visual Effects** tab, click **Custom** and clear the **Show window contents while dragging** check box.

Hardware acceleration

You can usually reduce the likelihood of graphics problems in Portrait Miner by reducing or removing the hardware acceleration used by your PCs video adapter.

On a Windows Vista system:

1. Right click the Windows Desktop, from the shortcut menu choose **Personalize**.
2. In the **Personalization** panel, choose **Display Settings**.
3. In the **Display Settings** dialog box, click **Advanced Settings...**
4. On the **Monitor** dialog box, choose the **Troubleshoot** tab and click **Change Settings**.
5. On the **Display Adapter Troubleshooter** dialog box, under **Hardware acceleration**, move the slider to **None**.

On a Windows 7 system:

1. Right click the Windows Desktop, from the shortcut menu choose **Screen resolution**.
2. In the **Screen resolution** dialog box, click **Advanced settings**
3. On the **Monitor** dialog box, choose the **Troubleshoot** tab and click **Change settings**.
4. On the **Display Adapter Troubleshooter** dialog box, under **Hardware acceleration**, move the slider to **None**.

7

Managing Portrait Miner

In this section:

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- To check a client-server connection 42
- To find out who is using the Portrait Miner server 43

About Portrait Miner processes and log files

The Portrait Miner process `jmasterlauncher`, owned by System, is the service used by the Portrait Miner server.

At login time, the client process `jsessionmanager` passes authentication details to `jmasterlauncher`. If the username and password (and domain are valid, `jmasterlauncher` starts a new user-specific `jusersession` process, which is owned by the newly authenticated user.

Once the user is logged in, the user's `jusersession` process starts a separate `jqsserver` process for each application that the user starts.

Many of these processes have corresponding log files in `<pmhome>/shared/logs` on the client or server as appropriate (where <*pmhome*> is the Portrait Miner installation directory).

Note: Portrait Miner has no special support for Syslog or Event Log.

Portrait Miner processes and log files

The following table shows the key server processes and their associated log files:

Process name	Associated log file	Log file contents
`jmasterlauncher`	`MasterLauncher-<port>.log` (backed up as `MasterLauncher-<port>-old.log` when started subsequently)	Details of server startup, including the server hostname as set in the server setup file [see **Editing the setup file** on page 34], a list of available server IP addresses as determined by the server, and the time taken for Java RMI to export the server (which can indicate DNS problems); followed by details of `jusersession` processes started (USLs), including IP addresses and port numbers used by the client and the server, the version of the client, a list of available and canonical client hostnames and IP addresses as determined by the client, and the server hostname and IP address the client used to connect. (Some of this information is not shown for local connections). If there is no server port number available,

Process name	Associated log file	Log file contents
		NOPORT appears in place of the port number in the filename.
	ShutdownMasterLauncher.log	Details of server shutdown
jusersession	USL<*session ID*>-<*port*>-<*username*>-<*IP address*>.log	Details of user-session startup followed by details of jqsserver processes started (referenced by their log files)
jqsserver	<*server ID*>-USL<*session ID*>-<*port*>-<*username*>-<*IP address*><*username*>.log	Details of jqsserver startup followed by details of individual server operations carried out on behalf of the corresponding client process

For a jqsserver process, the <*server ID*> that appears in the log-file name consists of the name of a licensed component (such as "decisionhouseServer" or "qsexplorerServer") followed by an identifying number.

The other log files that you may see are qsbuild-<*username*>-<*jobname*>.log files, which are logs of Data Build Manager operations.

If you are using the client-server version of Portrait Miner, you may see a SessionManager-<*port*>.log file on the client (where port is the client port). This log file is associated with the jsessionmanager process. From this log file, you can determine when the last user session started and ended (if it is not still running), as well as the IP addresses and port numbers used by the client and the server. If the client cannot connect to the server for some reason, this log file may contain information on why the connection failed.

Portrait Miner Desktop and client processes correspond to Portrait Miner applications and particular tasks, and include:

- jqsexplorer (Portrait Miner)
- jdecisionhouse (Decision Studio)
- jprefeditor (Preferences Editor)
- jqsbuild (Data Build Manager)

Desktop creates the following log files corresponding to the processes used, and include:

- qsexplorerDesktop-<*username*>-<*timestamp*>.log
- decisionhouseDesktop-<*username*>-<*timestamp*>.log
- cfeDesktop-<*username*>-<*timestamp*>.log
- databuildmanagerDesktop-<*username*>-<*timestamp*>.log

Note:

- Log files may contain warnings about the **focus memory soft limit** being exceeded. Occasional warnings are acceptable (because the limit is "soft"). However, if you see a lot of these warnings, or if operations fail because of insufficient memory, contact Portrait Miner Support for advice.

To check that the Portrait Miner server is running

1. Examine the log file `MasterLauncher-<port>.log` (where <*port*> is the port number for the server).

   If `jmasterlauncher` started correctly, lines like the following appear near the top of the file:

   ```
   16-Mar-2004 10:24:51.901 Quadstone System Server started,
   version qs7.1
   ```

   ```
   16-Mar-2004 10:24:51.903 Quadstone System Server running on
   192.168.1.5 port 3001.
   ```

To check a client-server connection

1. Ping the server machine from the client PC, to verify that the network connection is operational:

   - From the Windows **Start** menu on the client PC, choose **Run**.
   - In the **Run** dialog box, enter the command

     `ping -t <hostname>`

     (where <*hostname*> is the hostname or IP address of the server machine).

     If the network connection is operational, a new line beginning "`Reply from <hostname>`" appears in the console window roughly once every second.

     If nothing seems to be happening, there is likely to be a problem with the network connection between the PC and the server machine.

   - Press CTRL+C to stop the client pinging the server.

2. If you can successfully ping the server machine, check that you can log in to Portrait Miner:

   - Double-click on the Portrait Miner desktop shortcut icon. After a moment, the login window appears.
   - If you haven't already done so, enter details of the server [see **Setting up a connection to the server** on page 21].
   - Choose the server from the **Server** menu, enter a valid username and password for the server machine, and click on **OK**.

     If all is well, Portrait Miner starts. You can close the window to log out.

     If an **Error** window appears, asking to check your username and password, it may be that you mistyped one or the other. Otherwise, check the most recent SessionManager log file on the client [see **About Portrait Miner processes and log files** on page 40].

     If you see an error message about failure to connect to the SyncServer, it may be that your server license is invalid — perhaps you used an empty license file for the installation and forgot to replace

it with a valid license file afterwards, or your license may have expired (you can check the expiry date by running qsdescribelicense).

Note:

- Portrait Miner records information on client and server network addresses in log files on both sides of the connection [see **About Portrait Miner processes and log files** on page 40]. This information can be useful in diagnosing client-server connection problems.
- This is a good opportunity to test the client graphics. In Portrait Miner, open Decision Studio. Click on any fieldname that is not of string type and open the Binning Editor. If you do not see a colored graph in the center of the window, contact Portrait Miner Support.

To find out who is using the Portrait Miner server

On the Portrait Miner server, look for `jusersession` processes that correspond to individual user sessions:

- You must be logged in as an administrator to view processes for all users.

1. Right-click on the Windows Task Bar and choose **Task Manager**.
2. In the **Windows Task Manager**, under the **Processes** tab, click on the **Image Name** column heading to sort processes by name.
3. Make sure that **Show processes from all users** is checked.

The username of the user appears in the **User Name** column.

Note: Because a server instance only releases its allocation of memory when it terminates, you should encourage users to log out of Portrait Miner when they are not using it.

See also

About Portrait Miner processes and log files on page 40

8

Managing Portrait Miner files

In this section:

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Backing up and archiving Portrait Miner datasets

Your organization probably already has a backup policy in place and it makes good sense to follow this for Portrait Miner files. In particular, it is advisable to make regular backups of analysis datasets, derivation scripts, Profile and Audits and Model Snapshots, and the `shared\users` subdirectory of the installation directory. Recovery of backed up files, when required, should pose no special problems — provided the files are restored to their original locations in the filesystem. (To be able to restore foci elsewhere, follow the archival procedure below.)

If a disk containing Portrait Miner analysis datasets (*foci*) is nearly full and you decide to move some of them to another disk or archive them on tape, you should exercise caution, as the non-atomic nature of foci makes them liable to corruption.

A focus comprises:

- A focus file, `<focus name>.ftr`
- Data files and links in a "Raw Data eXtract" directory, `<focus name>.rdx`, and an "eXTRa" directory, `<focus name>.xtr`.

The focus may also depend on other foci (and may itself have dependent foci).

If you use operating-system utilities to copy, move, rename, or delete a focus, you may corrupt the focus or other foci that depend on it. Instead you should manipulate foci using either Portrait Miner or the Portrait Miner command-line utilities `qscopy` (or `qslink`), `qsmove`, and `qsremove`. See *Portrait Miner data-build command and TML reference*.

To archive a focus use `qsarchive` to create an archive file from a list of foci or folders. For example, to create an archive `FirstQuarter.zip` that shares underlying data with the `January.ftr`, `February.ftr`, and `March.ftr` foci:

```
qsarchive -input January.ftr -input February.ftr -input March.ftr
  -output FirstQuarter.zip
```

9

Setting system-wide preferences

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- emailaddress 48
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- map load 49
- maximum parallelism 50
- parallelism 50
- qsexplorer home 50

derivation libraries

Section Functions

Purpose Specify locations of third-party or user-defined FDL function libraries (with filename extension .fdl).

Valid values A comma-separated list of file/directory/folder locations (on the Portrait Miner server), by default unset.

When Decision Studio starts, it opens function libraries that are explicitly listed as well as those contained in listed directories/folders (and all subfolders) making the functions defined within them available for use in the Table Viewer.

Note: To insert a literal comma into a file/directory/folder name, use the text ${COMMA}.

emailaddress

Section Email

Purpose Set the e-mail address to which notification messages are sent.

Valid values A text string by default unset (so no e-mail is sent)

It should be a valid e-mail address or a comma-separated list of valid e-mail addresses; for example, me@mycompany.com.

Note: To insert a literal comma into an e-mail address, use the text ${COMMA}.

See also

emailserver on page 48

emailserver

Section Email

Purpose Set the e-mail server via which notification messages are sent.

Valid values A text string, by default unset (so no e-mail is sent)

It should be the address of an SMTP server, for example, `smtp.mycompany.com`.

See also

emailaddress on page 48

focus memory soft limit

Changing this setting is not recommended

This limit is set dynamically by Portrait Miner; you should only make changes to this limit after consulting Portrait Miner Support.

Section System Tuning

Purpose Set a "soft" limit for memory usage (in megabytes).

Valid values An integer greater than or equal to 16, by default a value determined at runtime from the total physical memory available and the operating-system memory limits of Portrait Miner. If you run the 64-bit version of Portrait Miner, the maximum amount of memory available is limited only by the physical memory of the machine. If you run the 32-bit version of Portrait Miner, the maximum amount of memory available is restricted to 2GB.

Note:

The limit applies to Decision Studio and to certain data-build commands (along with their associated graphical user interfaces). It is a "soft" limit because it can be exceeded, although system performance may suffer in that case.

If the limit is exceeded by 20% or more in Decision Studio, a pop-up window warns the user that this has happened.

If the limit is exceeded by 20% or more during the execution of a data-build command, a warning is written to stderr (and also to a log file, if one is being used).

If you are using Portrait Miner Desktop, this limit is dynamically managed and should never require setting.

See also

parallelism on page 50

map load

Section Directories

Purpose Set the initial location that Portrait Miner shows when you browse to open a map (with filename extension .mif).

Valid values The location of a directory/folder (on the Portrait Miner server), by default `ext\maps` in the Portrait Miner installation directory

maximum parallelism

Section System Tuning

Purpose Specify the maximum number of processors used (on the Portrait Miner server) by a Decision Studio user session or a data-build command (and any Portrait Miner function that is implemented via a data-build command)

Valid values A positive integer, by default the number of available processors

See also

parallelism on page 50

parallelism

Section System Tuning

Purpose Specify the default number of processors used (on the Portrait Miner server) by a Decision Studio user session or a data-build command (and any Portrait Miner function that is implemented via a data-build command) In certain circumstances, users can choose to increase (or decrease) this number at runtime.

Valid values A positive integer, by default 1 The value cannot exceed the setting of the **maximum parallelism preference**.

qsexplorer home

Section Directories

Purpose Set the initial location that Portrait Miner shows, and to which the button in Portrait Miner and every Portrait Miner file browser leads.

Valid values The location of a directory/folder (on the Portrait Miner server), by default the setting of the HOME preference

10

Hardware and software requirements

Server, client and Desktop requirements

See our system requirements web page, http://support.quadstone.com/info/requirements/ for more information.

In this section:

- Server platform requirements 52
- Network requirements 52
- Database system requirements 53

Server platform requirements

Windows servers

Portrait Miner user accounts must have "Log on locally" rights on the Portrait Miner server.

The account that starts the Portrait Miner service (if it is not the Local System account) must have the following rights on the Portrait Miner server:

- Create a token object
- Replace a process level token
- Act as part of the operating system

Network requirements

In common with other applications based on Java RMI in which both the client and server can initiate communications, client-server communication in Portrait Miner requires a standard TCP/IP network connection in the following sense:

- A direct route must exist from client to server and from server to client; that is, each must be able to ping the other's IP address.
- The client and server must each be able to communicate with a range of TCP/IP ports on the other. These ranges are configurable [see **Editing the setup file** on page 34].
- The client and server must each be able to translate the other's hostname into an IP address, and also translate the other's IP address into a hostname; that is, each must be able to perform a lookup and a reverse lookup on the other. (The way Java RMI performs lookups may differ from other applications.)
- The hostname used by the server when communicating with the client must be the same as the hostname of the server as resolved from the client, and vice versa.
- The originating IP address in each packet header must not be changed en-route.

If you do not have a standard TCP/IP network connection between client and server, please contact Portrait Miner Support for guidance. In particular,

- Portrait Miner client-server communication is not supported through a firewall or a network address translation (NAT) device. As an alternative, use a virtual private network (VPN), or a remote desktop system.
- If you use DHCP to allocate IP addresses to the client PCs, ensure that your DHCP server registers the hostname/address mapping for its clients with the naming service used by the Portrait Miner server.
- Ensure that the client and server use consistent naming services.
- If the client PC cannot resolve the server hostname correctly (or speedily) in any other way, you may wish to add an entry to the client's TCP/IP host table file `<systemroot>\system32\drivers\etc\hosts`.

- If the Portrait Miner server machine has more than one IP address, you should specify to the Portrait Miner server the address on which Portrait Miner clients will connect. See **Specifying the network interface and port** on page 18.

Database system requirements

Portrait Miner applications and command-line utilities access databases via ODBC connections.

See also

Connecting to a database using ODBC on page 24

Installing Portrait Miner extensions on page 19

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