Rocket wIntegrate

User Guide

Version 6.4.4

April 2020
WIN-644-ALL-UG-01

Notices

Edition

Publication date: April 2020
Book number: WIN-644-ALL-UG-01
Product version: Version 6.4.4

Copyright

© Rocket Software, Inc. or its affiliates 1996-–2020. All Rights Reserved.

Trademarks

Rocket is a registered trademark of Rocket Software, Inc. For a list of Rocket registered trademarks go to: www.rocketsoftware.com/about/legal. All other products or services mentioned in this document may be covered by the trademarks, service marks, or product names of their respective owners.

Examples

This information might contain examples of data and reports. The examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

License agreement

This software and the associated documentation are proprietary and confidential to Rocket Software, Inc. or its affiliates, are furnished under license, and may be used and copied only in accordance with the terms of such license.

Note: This product may contain encryption technology. Many countries prohibit or restrict the use, import, or export of encryption technologies, and current use, import, and export regulations should be followed when exporting this product.

Corporate information

Rocket Software, Inc. develops enterprise infrastructure products in four key areas: storage, networks, and compliance; database servers and tools; business information and analytics; and application development, integration, and modernization.

Website: www.rocketsoftware.com

Rocket Global Headquarters
77 4th Avenue, Suite 100
Waltham, MA 02451-1468
USA

To contact Rocket Software by telephone for any reason, including obtaining pre-sales information and technical support, use one of the following telephone numbers.

Country	Toll-free telephone number
United States	1-855-577-4323
Australia	1-800-823-405
Belgium	0800-266-65
Canada	1-855-577-4323
China	400-120-9242
France	08-05-08-05-62
Germany	0800-180-0882
Italy	800-878-295
Japan	0800-170-5464
Netherlands	0-800-022-2961
New Zealand	0800-003210
South Africa	0-800-980-818
United Kingdom	0800-520-0439

Contacting Technical Support

The Rocket Community is the primary method of obtaining support. If you have current support and maintenance agreements with Rocket Software, you can access the Rocket Community and report a problem, download an update, or read answers to FAQs. To log in to the Rocket Community or to request a Rocket Community account, go to www.rocketsoftware.com/support.

In addition to using the Rocket Community to obtain support, you can use one of the telephone numbers that are listed above or send an email to support@rocketsoftware.com.

Contents

Notices 2

Corporate information 3

Chapter 1: Overview 7

Introduction 7

wIntegrate features 7

Chapter 2: Getting started 8

Using the Windows thin client 8

Starting a session 9

Opening multiple sessions 9

Switching between servers using the Connection toolbar 10

Setting up default startup sessions 10

Setting up terminal emulation 11

Setting up communications 15

Setting up serial communications 15

Setting up U2 SSH communications 17

Setting up U2 SSL communications 21

Setting up Windows Sockets (Telnet) communications 25

Installing host programs 28

Sharing the host programs 29

Setting up shortcuts on the desktop 30

Setting up the printer 30

Viewing the program settings 30

Chapter 3: Customizing wIntegrate 32

Customizing the splash screen 32

Disabling the splash screen 32

Adding or removing toolbars 33

Navigating through backpages 34

Changing the window colors 34

Changing the colors of specific screen attributes 35

Changing the text style 36

Changing the character display 37

Resizing the window 39

Changing the session title 39

Adding or removing scroll bars and the status bar 40

Changing the session name 40

Changing the communications' port saving options 41

Closing the session automatically when the port is closed 41

Preventing the session from closing if the port is open 41

Trimming trailing spaces with clipboard operations 42

Allowing tabs to be pasted into the terminal screen 42

Using edit keys for local editing 42

Consuming one U2 license for multiple host connections using Device Licensing 43

Suppressing the File Transfer Monitor Dialog 43

Changing application preferences 43

Adding custom scripts 45

Customizing mouse and keyboard functions 46

Assigning functions the mouse 46

Assigning functions to the keyboard 48

Keyboard Caps Lock 48

Creating a macro 49

Configuring break keys....50
Creating a login script....51
Copying text....52
Copying text with Copy Special to....54
Recording and playing back data....55
Chapter 4: Transferring multivalued data....57
Importing data to the PC....57
Additional methods of selecting items for import....63
Importing Excel formulas and applying formats to imported fields....64
Exporting data to the multivalued host....65
Additional methods of selecting fields for export....71
Issues with Excel exponential notation when exporting data....71
Bridge copying files....72
Resolving file transfer issues....76
Using FTP....78
Creating a host profile....80
Chapter 5: Building queries with Query Builder....81
Building queries....81
Pre-defined dates....87
Importing a report to an application....89
Selecting an R/Link destination for a report....92
Chapter 6: Viewing reports with the Report Wizard....93
Importing a report with the Report Wizard....93
Chapter 7: Troubleshooting....98
Session Copy dialog box appears when starting a session....98
Detecting scripts stuck in a loop....98
Issues with side-by-side assemblies (SxS, WinSxS, and Manifests)....99
Sluggish performance and the Nagle option (TCP_NODELAY)....99
Data import/export issues when running with Chinese host encoding....99
Enabling binary file transfers: Kermit, Xmodem, Ymodem, and Zmodem....100
Enabling the Dialer option on the run menu....100
Spooling files....101
Linux terminal emulation and UTF-8 encoding....101
api-ms-win-crt-runtime-l1-1-0.dll is missing....101
Missing default mail client....102
Program hangs on UniVerse during PC-to-host interactions....102
Spurious characters displayed with VT100 emulation running on UniVerse/CentOS Linux....103
Menu appears with very large font....104
Exporting Excel .XLSX files puts data into the wrong records/fields....104
Post-installation issues....104
Unable to open/create reformat host file WIN.RFMT<port>....105
Issues when using 64-bit Microsoft Office....105
White screen and IBSFont....105
wIntegrate screen remains on top of other applications....105
Excel can store numbers in exponential notation....106
Error message "Receive buffer overflow. Check WIN.TRANSFER started"....106
Chapter 8: Scheduling a task....108
Configuring a scheduled task....108
Troubleshooting the Scheduler log....112
Appendix A: Scripts....114
Copy menu scripts....114
Other scripts....114
Appendix B: SSL and SSH....116

Overview of SSL....116
Certificates....116
Viewing certificates in wIntegrate....118
SSL options in wIntegrate....118
Configuring the wIntegrate Server and thin client for SSL....119
SSL tracing when using the Windows thin client....119
Enabling insecure SSL protocols....120
Overview of SSH....120
Keys....121
Certificates....121
Authentication....121
Appendix C: Common network communication error codes....123
Appendix D: Using ActiveX controls in wIntegrate with Excel....125

Chapter 1: Overview

wIntegrate is a connectivity tool that integrates host-based applications with the desktop. The initial interface is a terminal emulator with data transfer features designed for the multi-valued environments of UniVerse, UniData, D3, and mvBase. You can share data with popular Windows applications, including Microsoft Word and Excel.

For developers, a comprehensive programming language enables a range of options for integrating host environments with the desktop. You can add GUI features incrementally or create full GUI applications driven from the host.

A suite of host-based subroutines is supplied to control the PC. These subroutines are created for multi-valued environments, but the techniques used can be adapted to any host.

Developer tools include the Editor and a Tools menu with useful utilities. You can choose to display the Tools menu in **Setup** → **Preferences**. Select the **Scripts** tab and then use the **Menu Bar Script** drop-down list.

Introduction

This document provides a complete step-by-step guide to installing and setting up wIntegrate.

wIntegrate can be installed locally, as a thin client on Windows, or run as a thin client Java application/applet in a Web browser on Windows, Linux, and Macintosh. The Administrator and Monitor components are only applicable to the thin client installation.

wIntegrate features

All wIntegrate features are supported with Rocket's UniVerse, UniData, D3, and mvBase databases.

With wIntegrate, you can do the following tasks:

- Run concurrent sessions
- Customize a wIntegrate session
- Control any aspect of the application using powerful scripting language
- Optionally deploy a thin client on Windows or Java
- Run scripts from supplied host-based subroutines
- Define terminal emulations
- Export files from your PC to a host computer
- Import host computer files to your PC
- Transfer files from one host computer to another host computer
- Simplify deployment through optional thin client and browser interfaces

Chapter 2: Getting started

When wIntegrate is successfully installed, you can start a session and begin to customize and use wIntegrate.

For information about the configuration of terminal emulation, communications, and more, see *Installation and Configuration*.

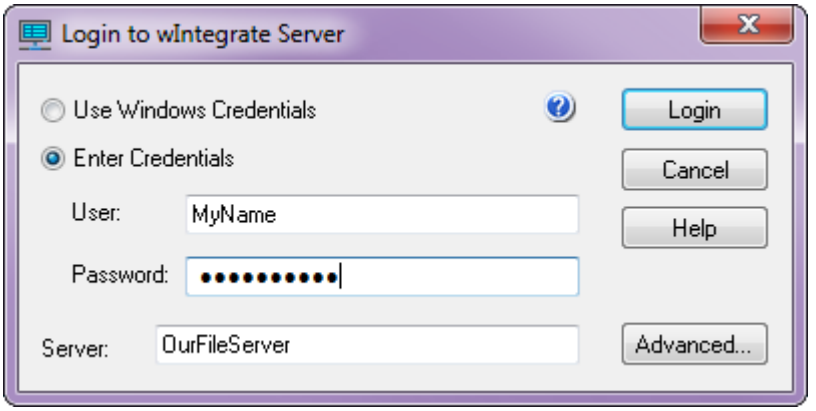
Using the Windows thin client

If you are using the Windows thin client, you will need to login to a wIntegrate Server before having access to wIntegrate functionality.

1. Run **wIntegrate Client** from the Windows **Start** menu.

   A login window appears.

   Figure 1: Login to wIntegrate Server

2. Enter a Server name or IP address.
3. Provide user credentials using one of the following methods:
   - Select **Enter Credentials** and enter a specific User name and Password.
   - Select **Use Windows Credentials** for the thin client to automatically use the credentials of the currently logged-in Windows user. Logging in using this method is sometimes called Integrated Windows Authentication. This will only work if Windows Authentication is enabled on the wIntegrate Server and both client and server are part of a network domain controlled by Windows Active Directory.
4. Optionally, clicking the Advanced button displays a dialog with various logging options for diagnostic purposes (further information can be found from the help buttons on the dialog). You can also use the Advanced dialog to change the TCP/IP port used to connect to the wIntegrate Server. This should only be changed under the guidance of a system administrator who has changed the server side to use the same port number.
5. You can change your password by clicking **Advanced** → **Change Password**.

When you log in to the wIntegrate Server for the first time, the Session Wizard guides you through the process of creating a session.

Starting a session

When you start wIntegrate for the first time, the Session Wizard guides you through the process of creating a session.

1. Run **wIntegrate Client** from the Windows **Start** menu.
2. Log in to a wIntegrate server.
3. Follow the steps in the Session Wizard. Click **Finish** to complete the Session Wizard.

   The login for your host computer appears.

After you save the wIntegrate session, the Session Wizard no longer appears each time that you start the application. If you need to use the wizard later, select **File > Session Wizard** from the wIntegrate toolbar.

The wIntegrate sessions are saved as `.wic` (configuration) files in the `My Documents\wIntegrate\Session` folder. You cannot edit these files with a text editor because the files are in a binary format; however, you can use the wIntegrate Editor to edit these files. For more information about the Editor, see the *Client Scripting Reference* guide.

Opening multiple sessions

You can open multiple sessions to the same host or to different hosts, subject to the hosts' ability to support multiple connections.

About this task

When you start the wIntegrate application `wInteg.exe`, wIntegrate opens with the sessions listed in the **Start Up Sessions** tab from **Setup > Application**.

You can also start a specific session `.wic` file by double-clicking it. Many users leave the session `.wic` files in the default `My Documents\wIntegrate\Sessions` folder and put a shortcut to them on the desktop.

wIntegrate uses configuration files with `.wic` extension by default. These `.wic` files are non-editable binary files. You cannot use the same `.wic` file to open many sessions; instead, wIntegrate can make a temporary copy for each additional session. When you use a copy of a `.wic` file, you might want to make it a default session, but it is preferable to save the copied session with a new name by using **File > Save As** and changing the name. When you exit wIntegrate, you can set the session as default.

The number of sessions that can be opened is limited by Windows memory and resources.

Tip: The session `.WIC` files are stored in a binary format, so they cannot be edited by a text editor such as Notepad. However, you can edit them with syntax coloring with the wIntegrate Editor, which is installed with the local version when you enable Developer Additions during installation.

Procedure

1. If you have a session open, and want to open an additional one, from the wIntegrate toolbar, select **File > Another**.
2. From the Open Another Session dialog box, select the `.wic` file for the session that you want to open, and click **Open**.

Switching between servers using the Connection toolbar

You can quickly switch between servers in a wIntegrate session using the **Connection** toolbar.

1. If the **Connection** toolbar is not displayed in your wIntegrate window, you will need to add it. See Adding or removing toolbars for more information.
2. In the **Connection** toolbar, select the connection type (SSH, SSL or Telnet) from the **Type** drop-down.
3. Select the host server to connect to from the **Host** drop-down.
4. Select how the host accepts the backspace instruction (either ASCII character 8 (default) or 127) from the **Backspace** drop-down.
5. Click the **Open connection** button (right side of the Connection toolbar).

   You are connected to the specified host.

Tip: The list of hosts displayed in the **Host** drop-down is populated from the `HostsSSH.txt`, `HostsSSL.txt` and `HostsWindowsSockets.txt` files (located in your `Documents\wIntegrate` directory) which list the SSH, SSL, and telnet hosts you've connected to in your past sessions. If you have never used any of the three connection types, the corresponding text file will not exist. For example, if you have never connected via SSH, the `HostsSSH.txt` file will not exist in that directory.

You can edit these files by adding or removing host references. The format for the items in these files is either the hostname found in DNS or the IP address - one entry per line. For example, the first reference below is a hostname and the second reference is an IP address:

```
dentz11q.rocketsoftware.com
172.31.254.35
```

If you add or remove any host references from these files, once the file is saved, your changes will be reflected in the list of hosts displayed in the Connection toolbar's **Host** drop-down.

Setting up default startup sessions

When you start wIntegrate, a single session is opened using `Session1.wic`. If you open more than one session, when you exit, you can configure wIntegrate to open those additional sessions at startup, as well.

Prerequisites

wIntegrate must be configured to display the Exit dialog box on exit in order to set up default startup sessions. To enable this option, select **Setup > Application**, and then select the **Confirm exit** check box.

Procedure

1. To set up a default startup session, from an opened session in wIntegrate, select **File > Exit**.

   The Exit dialog box appears.
2. **Optional:** Select the **Save changes to session parameters** check box.

   All of the settings for the current session such as font size, window size, position, and more options from the Setup > Preferences dialog box are saved to the session file that you are using.

3. Select the **Default startup session** check box.

   The current session starts automatically when you restart wIntegrate. You can select this option for each session that you want to start automatically.

To discontinue the automatic startup of any session, clear the **Default startup session** on the Exit dialog box when exiting the session. Do not delete the `.wic` file without first removing the session from the default startup list.

You can add or remove session from the startup list by selecting **Setup > Application** and clicking the **Start up Sessions** tab.

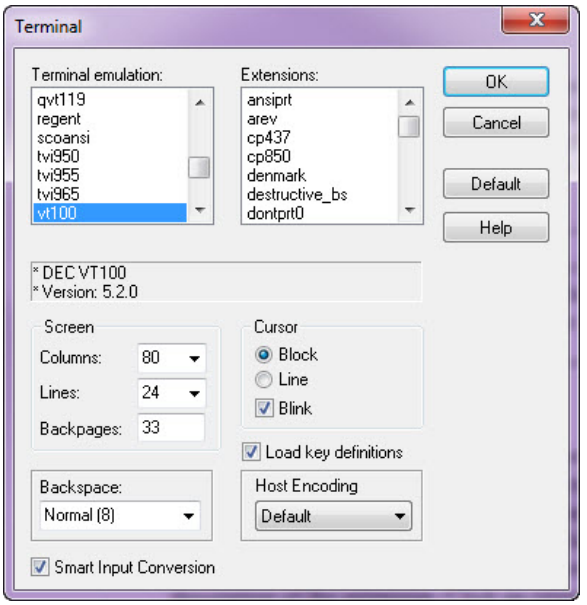
Setting up terminal emulation

In wIntegrate, you can select the type of terminal you want to emulate and set up terminal behavior options.

1. From the wIntegrate toolbar, select **Setup > Terminal**.

   The Terminal options appear.

Figure 2: Terminal options



2. Select the terminal options:
   a. From the **Terminal emulation** list, select a terminal emulation type to select it.

      A short description of the type that is selected is displayed in the information box below the terminal emulation box.

      If you are using Telnet or SSL communications, choosing a new terminal here will change the Terminal Type in Setup Communications. The Terminal Type is taken from the TelnetTerminal line in the emulation `.WIT` file, and can be customized. It is used as part of Telnet negotiation.

> **Note:** If the terminal type you want to emulate is not listed in the Terminal Emulation box, you can create your own terminal emulation file. See the *Emulation Commands Reference* and *Client Scripting Reference* manuals for more information about modifying the behavior of the supplied emulation files or creating your own.

b. From the **Extensions** list, select the type of extension setting to append additional emulation instructions to the selected terminal emulation. An extension is a separate file created with the emulation file syntax that is appended to the selected terminal emulation. You can select multiple extensions. For any extensions you do not need, click them to deselect them.

A short description of the extension that is selected is displayed in the information box below the terminal emulation box.

If you use a standard keyboard for a language other than English, select the extension with the corresponding country name to display local language character; for example, the `uk.wit` extension displays the pound sign (**#**) as (**£**).

Note: Two extensions, cp437 and cp850, provide mapping of host characters from OEM code pages 437 and 850. Because these extensions are available, mapping for OEM code pages 437 and 850 is not supported in the ANSI, AT386, scoansi, VT100, VT220, and VT240 emulations.

The following table describes the extensions.

Table 1: Terminal emulation extensions

Extension	Description
ansiprt	Converts the new page sequence that is used by ANDI and VT emulations to a standard FormFeed character when printing
arev	Supplements an ANSI/VT emulation to support escape used by AREV
cp437	Code page 437, providing 8-bit characters for both American and UK English languages
cp850	Code page 850, providing 8-bit characters for European languages
denmark	Provides character mapping for the Danish language
destructive_bs	Often required on AIX to ensure that the backspace key works as expected; select this option and the **Delete (127)** option in the Backspace drop-down menu
dontprt0	Prevents printing CHAR(0) when sending a report to the printer
dtapi	Provides subset character mapping for the Deskterm API
finland	Provides character mapping for the Finnish language
france	Provides character mapping for the French language
germany	Provides character mapping for the German language
id	Sends the wIntegrate version number in response to a request from the host. The host can check wIntegrate is active on this session before sending wIntegrate-specific instructions.
italy	Provides character mapping for the Italian language
key_ctrl	Enables viewing of backpages by using the Ctrl key with the up and down arrow keys or the page up and down keys
key_norm	Enables viewing of backpages by using the up and down arrow keys or the page up and down keys.
latinam	Provides character mapping for Latin American characters
mvdisp	Displays multi-value and multi-subvalue marks in more readable ASCII characters
norway	Provides character mapping for the Norwegian language
p9altkey	Alternate, long key definitions for Prism 9 keys
p9uk	Character mapping for Prism9 United Kingdom characters

Extension	Description
sb	Provides SB/XA extensions for the VT100 emulation, allowing display of SB/XA boxes and more
sb_keys	Enables arrow keys that are required by some users of SB/XA
spain	Provides character mapping for the Spanish language
sweden	Provides character mapping for the Swedish language
tek	Provides extensions for the Tektronics emulation
uk	Provides character mapping for United Kingdom characters. For example, **Shift+3** shows the pound (£) sign
vtaltkey	Provides the alternative keyboard for the VT100 emulation
vtcuroff	Disables host programming of the cursor keys
vtnumoff	Disables host programming of the numeric keys
wpu_vt	Provides WordPerfect for UNIX extensions for the VT340 emulation

c. In the Screen section, select the number of **columns**, **lines**, and **backpages**.

Columns affect the width of the main window. The default setting is 80 columns; 132 columns is often used to view reports. You can select any value up to 255.

Lines affect the height of the main window. The default setting is 24 lines per page; you can select any value up to 255.

Backpages are previous pages of text that is displayed in the wIntegrate window. The default setting is 33; you can select any number up to 999.

d. From the **Cursor** box, select the type of cursor you want wIntegrate to display.

- Block: ▌
- Line: _

Select the **Blink** check box to make the selected cursor type flash.

e. From the **Backspace** drop-down menu, select how the host accepts the backspace instruction.

The default option, **Normal**, sets the backspace to ASCII character 8. The **Delete** option sets the backspace to ASCII character 127.

f. If you want the function and edit key definition to be automatically set according to the selected terminal emulation or extensions, select the **Load key definitions** check box.

The check box is selected by default. Be sure to clear this check box if you have reopened the Terminal options without the intention of loading key definitions.

> **Warning:** If you remapped your function keys or edit keys, for example, by assigning a script or a macro, your changes are overwritten if you select the **Load key definitions** check box. Clear the **Load key definitions** check box if you have custom settings for the function keys or edit keys.

g. From the **Host Encoding** drop-down menu, specify the host encoding to take place between characters that are entered and displayed on the PC and on the host.

Your selection should match the character encoding on the U2 server. In some cases, these options overlap. The objective is to match the PC and host settings. The following table describes each host encoding option.

Table 2: Host encoding options

Encoding type	Description
Default	wIntegrate uses Latin I on a single-byte language version of Windows, and “Local” on multibyte Windows. This setting works for western languages.
Latin I	No conversion. This is how previous versions of wIntegrate worked. It is usable only for 8-bit character sets (for example, when European languages are used on the PC and host). In these circumstances, the Local option achieves the same results as Latin I; however, Latin I is faster because it does no conversion.
Local	Uses the same settings as the local Windows computer. Use Local for multi-byte languages other than Simplified Chinese, for example Japanese and Korean. The character set must be the same on Windows and the host. This option also works for single-byte character sets, but Latin I is a better option in these circumstances.
GB18030	Use this option with Simplified Chinese. Characters are sent to and received from the host in the GB18030 format that is required for Chinese systems.
Thai	Use this option with Thai.
UTF-8	UTF-8 is the standard encoding method for Unicode characters, which is the universal character set designed to encode every written character. Use UTF-8 when you want to display characters that are not part of the current Windows language setting. For example, use UTF-8 when the local PC is set to English and the U2 host application is Japanese. UniVerse NLS stores data in UTF-8 format.
UVUFT-8	UVUTF-8 is a modified version of UTF-8, more appropriate for users of multi-valued systems. There are some issues when using UTF-8 with UniVerse NLS because of the characters 255 (IM), 254 (AM), 253 (VM), 252 (SVM), and 251 (Text Mark). These have a special function as delimiters within UniVerse. Internally, wIntegrate uses the following Unicode characters to represent the multi-valued delimiters: 255 (IM) - U+F8FF 254 (AM) - U+F8FE (also known as FM) 253 (VM) - U+F8FD 252 (SVM) - U+F8FC 251 (TM) - U+F8FB There is no visual representation for these characters, so they show on the wIntegrate window as squares.

h. If you want to convert Unicode characters as they are sent to the host, select the **Smart Input Conversion** check box.

   Smart input conversion is useful if you use programs that use the “smart” characters; for example, Microsoft Word might automatically convert simple quotation marks to look like they are opening or closing. If you paste text into the wIntegrate window from Word with the Smart Input Conversion selected, the characters are converted to ASCII characters that the U2 host can work with.

The characters that are converted are located in the `inputmap.txt` file in the `C:\Program Files\wIntegrate` folder and can be manually changed. The following describes entered characters and their conversions.

Entered character	Conversion
‘	'
’	'
“	"
”	"
™	TM
…	. . .

3. Click **OK**.
4. From the wIntegrate toolbar, select **File > Save** to save the session with the terminal settings or select **Save As** if you want to save the session as a new wIntegrate session configuration (`.wic`) file.

Setting up communications

In wIntegrate, you can set up or change communications with a host computer. After you set up communications, you can save your settings as part of the configuration file for the session. You can set up multiple wIntegrate sessions to communicate with different host computers or to communicate with the same host computer.

wIntegrate offers the following types of communications:

- Serial, as described in Setting up serial communications, on page 15
- U2 SSH as described in Setting up U2 SSH communications, on page 17
- U2 SSL as described in Setting up U2 SSL communications, on page 21
- Windows Sockets as described in Setting up Windows Sockets (Telnet) communications, on page 25

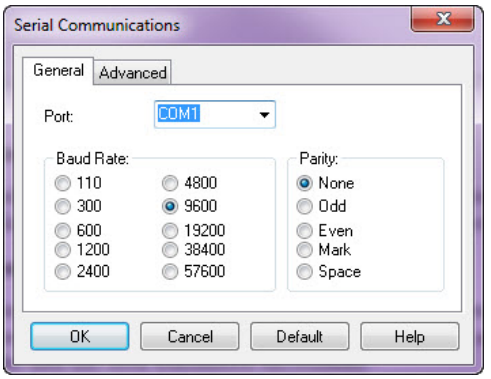
Setting up serial communications

To set up serial communications, perform the following steps:

1. From the wIntegrate toolbar, select **Setup > Communications**.
2. In the Communications dialog box, select **Serial**.

3. Click **Setup**.
   The Serial Communications dialog box appears.

Figure 3: Serial Communications – General tab



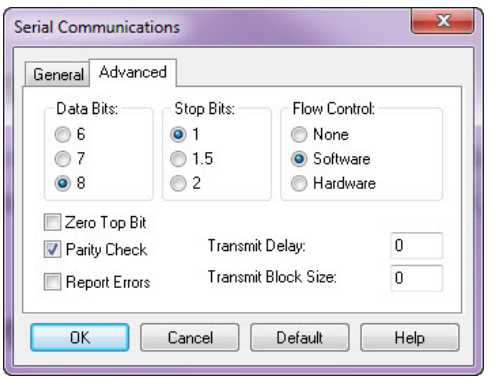
4. From the **Port** drop-down menu, select a port.
5. Select a **Baud Rate** and **Parity** option.
   Baud is a unit of signaling speed. The baud rate controls the speed of data transfer between the PC And the host. If a parity is selected, a parity bit is used to ensure that data is transmitted accurately. The parity options are described in the following table:

Table 3: Parity checking options

Option	Description
None	No parity checking.
Odd	Odd parity checking. Bits are counted in each group before it is sent. If a group has an even number of bits, the parity bit is set to 1 so that the total number of bits transmitted is an odd number. If a group already has an odd number of bits, the parity bit is set to 0. If you select this option, the host computer must also use odd parity checking.
Even	Even parity checking. Bits are counted in each group before it is sent. If a group has an odd number of bits, the parity bit is set to 1 so the total number of bits transmitted is an even number. If a group already has an even number of bits, the parity bit is set to 0. If you select this option, the host computer must also use even parity checking.
Mark	Always sets the parity bit to 1.
Space	Always sets the parity bit to 0.

6. Click the **Advanced** tab.

Figure 4: Serial Communications – Advanced tab



7. Select the number of **Data Bits** to represent each character that is transmitted between the PC and the host.
8. Select the number of **Stop Bits**. This number represents the end of each character that is transmitted between the PC and the host.
9. Select the **Flow Control**. Flow control adjusts the flow of data between the PC and the host computer to ensure that the receiver can process all of the incoming data. This is important when the sender can send data faster than the receiver can receive it. Flow control can be implemented in software or hardware.

   Note: It is not recommended to select **None** because you can lose characters, and your communication line can hang.

10. If you are experiencing a problem with garbage characters appearing on your screen, select the **Zero Top Bit** check box. This option is only available if the Data Bits option is set to 8.

    Garbage character problems sometimes occur when certain computers communicate. You usually need to use the zero top bit option on UNIX computers.
11. If you want wIntegrate to report parity errors, select the **Parity Check** check box.
12. If you want wIntegrate to display framing errors, select the **Report Errors** check box.
13. In the **Transmit Delay** field, enter the number of milliseconds to pause between blocks of characters that are transmitted to the host.

    The larger the value, the slower the communications are. The default setting of 0 is recommended if you are not losing data between the PC and the host computer.
14. In the **Transmit Block Size** field, enter the number of characters in each block that is transmitted to the host computer.

    Enter 0 to specify the fastest possible transmission with no restriction on the number of characters in each book. Numbers greater than 0 indicate the number of bytes to transmit at a time. The larger the number, the faster the communication is. The default setting of 0 is recommended if you are not losing data between the PC and the host computer.

    Tip: You typically have to adjust Transmit Delay and Transmit Block Size when a fast PC is communicating with a slow host and can send characters faster than the host can process them. As a first step in troubleshooting lost characters, try setting **Transmit Block Size** to **1** and **Transmit Delay** to **50**; then tune the parameters to find the optimum combination of performance and reliability.

15. On the Serial Communications dialog box, click **OK**.
16. On the Communications dialog box, verify that the **Open** check box is selected. Click **OK**.
17. The wIntegrate window prompts you for your login credentials. Log in using the credentials for the host computer.
18. Save the communications as part of your current configuration file by selecting from the toolbar **File > Save**, or select **Save As** if you want to save the session as a new `.wic` file.

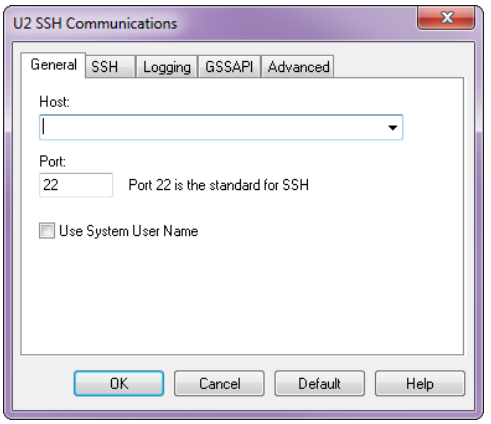
Setting up U2 SSH communications

To set up U2 SSH communications, perform the following steps:

1. From the wIntegrate toolbar, select **Setup > Communications**.
2. In the Communications dialog box, select **U2 SSH**.

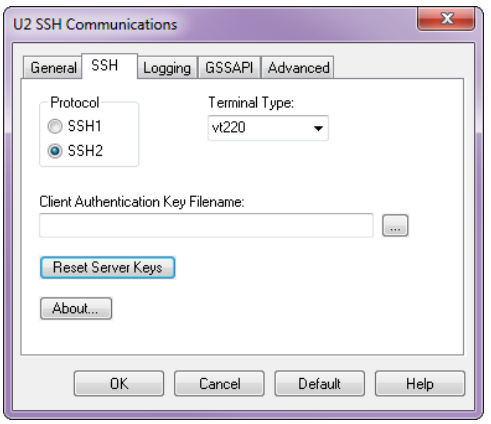
3. Click **Setup**.
   The U2 SSH Communications dialog box appears.

Figure 5: U2 SSH Communications – General tab



4. In the **Host** field, enter the name or IP address of the host computer with which you want to communicate. IPv4 and IPv6 are supported. You can prefix the host computer name with a user name to identify yourself when a connection is made to a host computer so that the user name does not have to be typed every time. For example, `myname@myserver`, where "myname" is the user name and "myserver" is the host computer name. When you connect to the host server it will only prompt you for the password. If you specify a user name it will override the **Use System User Name** setting, if enabled.
5. If your server uses another port for SSH or you are not using SSH to communicate with the host computer, enter a different number in the **Port** field. Otherwise, the default value is sufficient.
6. Select the **Use System User Name** check box if you want wIntegrate to automatically use the system user name when opening a connection using SSH. The system user name will be the name you used to log in to your Windows computer or domain. This is particularly useful when **GSSAPI Authentication** is enabled. This option will be overridden if you have already specified a user name in the **Host** field using the syntax `myname@myserver`. Note that this option is not available for wIntegrate Thin Clients.
7. Click the **SSH** tab.

Figure 6: U2 SSH Communications – SSH tab



8. In the **Protocol** section, select a protocol type. The selected protocol must also be available on your host. SSH2 is a later protocol and supports GSSAPI Authentication using, for example, Kerberos. SSH1 does not support GSSAPI.
9. The **Terminal Type** drop-down menu contains the same terminal emulation types as defined in Setting up terminal emulation, on page 11. In some cases, a host does not support

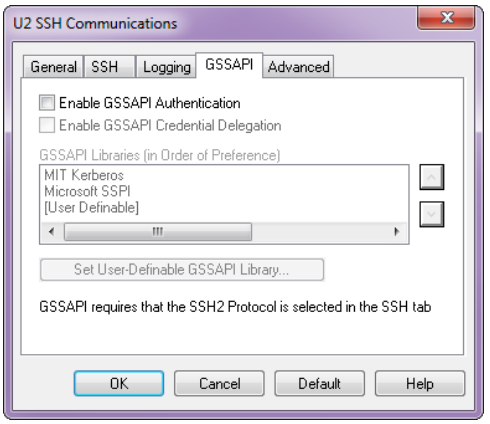
communications with the terminal type you are emulating, but it supports a close approximation. In this case, select a terminal type from the **Terminal Type** drop-down menu, or enter a custom value.

If you change the terminal emulation type in **Setup > Terminal** after you select a different Telnet terminal type, wIntegrate resets the Telnet terminal type to the setting taken from the terminal emulation `.wic` file. This is usually the same as the terminal name.

10. In the **Client Authentication Key Filename** field, click the ellipsis button (**...**) to open a file browser, and select a file.
11. If using wIntegrate to connect to a server using SSH for the first time, you will be prompted to accept or refuse the connection. If you accept the connection, the server's SSH key will be stored so that you will not be prompted to accept the connection to that server on subsequent occasions. Click **Reset Server Keys** to remove all stored server SSH keys. This will result in being prompted to accept all subsequent initial server connections. (This option is not available to thin client users, although the wIntegrate Administrator can be used to reset SSH server keys for all users on a thin client installation.) See the wIntegrate Installation and Configuration Guide for more information.

    Behind the scenes, the wIntegrate SSH Key Manager application is used to reset SSH server keys. For more information on wIntegrate SSH Key Manager, see the wIntegrate Installation and Configuration Guide.
12. Click the **GSSAPI** tab.

Figure 7: SSH GSSAPI tab



13. Select the **Enable GSSAPI Authentication** check box if you want to use Generic Security Service Application Programming Interface (GSSAPI) Authentication (for more information, see Authentication, on page 121). Note that this is only supported if you have selected the SSH2 protocol in the **SSH** tab. To take full advantage of this you will need to either select the **Use System User Name** check box in the **General** tab or specify a user name in the **Host** field of the **General** tab. GSSAPI Authentication can only be used if your network has been configured to use it. The most common implementation of GSSAPI uses Kerberos, which must be supported at both ends of a network connection, but which also requires a Kerberos server.

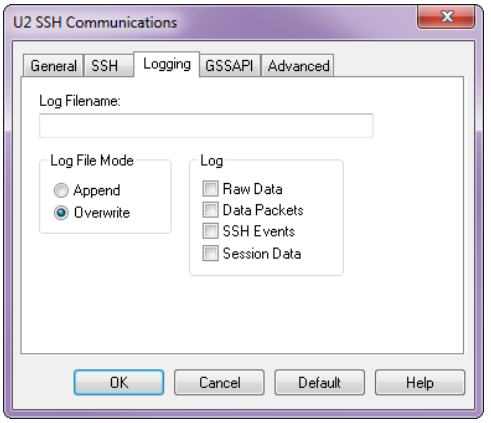
    Note: SSH and GSSAPI support in wIntegrate is based on Putty. If you are experiencing issues with GSSAPI we recommend you verify your network configuration using Putty as the client to isolate any infrastructure issues.

14. Select the **Enable GSSAPI Credential Delegation** check box to use the same credentials used to authenticate you with the host computer for authentication with other computers that the host computer uses on your behalf.
15. For GSSAPI Authentication to work, a suitable GSSAPI implementation library must be available on your computer and it must be specified in the **GSSAPI Libraries** list. Since there may be more

than one library available, they are listed in order of preference. Ensure the library you want to use is at the top of the list by using the up and down arrows. If the library required is not in the list, you can use the **Set User-Definable GSSAPI Library** button to add it to the list.

16. Click the **Logging** tab.

Figure 8: U2 SSH Communications – Logging tab



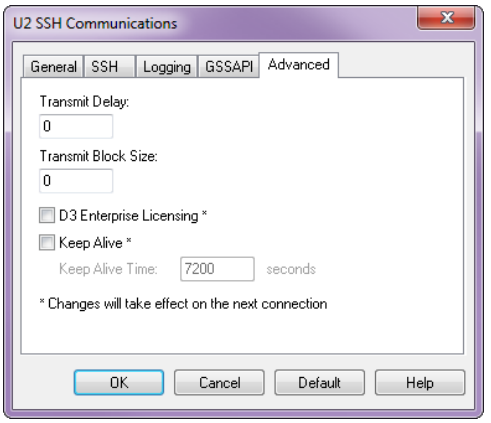
17. In the **Log Filename** field, enter the name that you want for the file.
18. In the **Log File Mode** section, select whether to append to the existing file or to overwrite the existing file every time a new session starts.

Warning: If you select Append mode, be aware that the log file will grow until it fills up your hard disk.

---

19. In the **Log** section, select the types of information to log.
20. Click the **Advanced** tab.

Figure 9: U2 SSH Communications – Advanced tab



21. In the **Transmit Delay** field, enter the number of milliseconds to pause between blocks of characters that are transmitted to the host.

    The larger the value, the slower the communications are. The default setting of 0 is recommended if you are not losing data between the PC and the host computer.

22. In the **Transmit Block Size** field, enter the number of characters in each block that is transmitted to the host computer.

    Enter 0 to specify the fastest possible transmission with no restriction on the number of characters in each block. Numbers greater than 0 indicate the number of bytes to transmit at

a time. The larger the number, the faster the communication will be. The default setting of 0 is recommended if you are not losing data between the PC and the host computer.

> **Note:** You do not typically need to use the transmit settings with a U2 SSH connection; however, you might encounter an instance where hardware on slow servers is unable to keep up with incoming data, and transmit settings are necessary.

23. Select the **D3 Enterprise Licensing** check box if you want to take advantage of Enterprise Licensing when connecting to a D3 host.

    This causes a D3 host to treat all connections that use this feature from the same computer as a single user for licensing purposes.

    D3 Enterprise licensing is not available on the Java thin client as it requires a Windows-specific library.
24. Select the **Keep Alive** check box to enable the TCP/IP function.

    This function sends meaningless packets to the host to prevent it from closing the connection because of inactivity.

    If selected, enter the interval time (in seconds) to send packets. This value should be less than the length of time before the host closes an inactive session.
25. On the U2 SSH Communications dialog box, click **OK**.
26. On the Communications dialog box, verify that the **Open** check box is selected. Click **OK**.
27. The wIntegrate window prompts you for your login credentials. Log in using the credentials for the host computer.

> **Note:** The first time you connect to an SSH server, the program verifies if you want to trust this server. If you accept, the server is added to a list in the Registry. The Registry location is: `HKEY_CURRENT_USER\Software\Rocket Software\U2SSH\ServerKeys`

28. Save the communications as part of your current configuration file by selecting from the toolbar **File > Save**, or select **Save As** if you want to save the session as a new `.wic` file.

Setting up U2 SSL communications

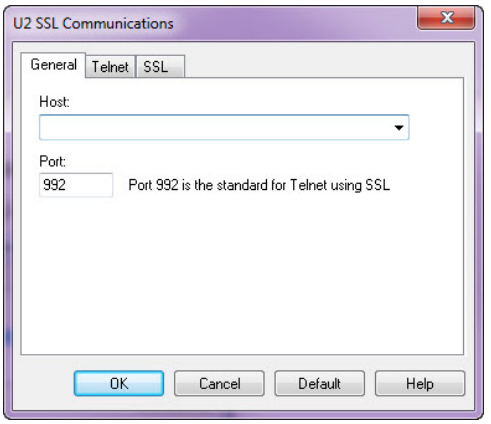
To set up U2 SSL communications, perform the following steps:

1. From the wIntegrate toolbar, select **Setup > Communications**.
2. In the Communications dialog box, select **U2 SSL**.

3. Click **Setup**.

   The U2 SSL Communications dialog box appears.

Figure 10: U2 SSL Communications – General tab



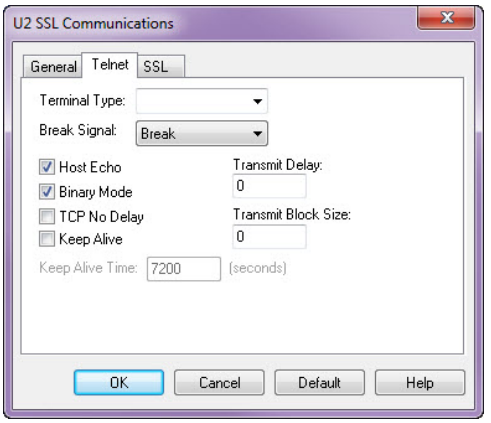
4. In the **Host** field, enter the name or IP address of the host computer with which you want to communicate.

   IPv4 and IPv6 are supported. In most cases, a host name is resolved into a single IPv4 or IPv6 address. However, it is possible for a host name to be resolved into multiple IP addresses by DNS. These addresses might be any combination of IPv4 and IPv6. wIntegrate attempts to connect to up to five IP addresses. It uses the first one that responds, regardless of whether it is IPv4 or IPv6.

5. If your server uses another port for Telnet or you are not using Telnet to communicate with the host computer, enter a different number in the **Port** field. Otherwise, the default value is sufficient.

6. Click the **Telnet** tab.

Figure 11: U2 SSL Communications – Telnet tab



7. The **Terminal Type** drop-down menu contains the same terminal emulation types as defined in Setting up terminal emulation, on page 11. In some cases, a host does not support communications with the terminal type you are emulating, but it supports a close approximation. In this case, select a terminal type from the **Terminal Type** drop-down menu, or enter a custom value.

   If you change the terminal emulation type in **Setup > Terminal** after you select a different Telnet terminal type, wIntegrate resets the Telnet terminal type to the setting taken from the terminal emulation `.wic` file. This is usually the same as the terminal name.

8. From the **Break Signal** drop-down menu, specify what action is taken when you press the **Ctrl + Break** keys.

- **Break**: Sends the Telnet Break instruction. This can be used by a host system to break an application program and show options such as Continue and Quit.
- **Interrupt**: Sends the Telnet Interrupt instruction. This usually closes the communications port and disconnects the PC.

9. Select the **Host Echo** check box if you want the host to transmit the data it receives back to your PC so you can see what you entered.
10. Select the **Binary Mode** check box if you want to enable communications in binary mode.

    Most PCs and hosts communicate by using seven-bit ASCII displayable characters. Binary mode enables the host and PC to send and receive eight-bit non-displayable characters. Most hosts support eight-bit communication even when not in binary mode.
11. Select the **TCP No Delay** check box if you want to speed up communications with the host.

    This option disables the Nagle algorithm, which can delay each outgoing packet for 200 ms while waiting for any additional data for the packet. When TCP No Delay is selected, packets are sent immediately. This might improve the speed of response, but make network utilization a little less efficient by sending a larger number of smaller packets.

    UniVerse and UniData also support options to disable the Nagle algorithm. See the relevant documentation regarding details on how to disable it.
12. Select the **Keep Alive** check box to enable the TCP/IP function.

    This function sends meaningless packets to the host to prevent it from closing the connection because of inactivity.

    If selected, enter the interval time (in seconds) to send packets. This value should be less than the length of time before the host closes an inactive session.
13. In the **Transmit Delay** field, enter the number of milliseconds to pause between blocks of characters that are transmitted to the host.

    The larger the value, the slower the communications are. The default setting of 0 is recommended if you are not losing data between the PC and the host computer.
14. In the **Transmit Block Size** field, enter the number of characters in each block that is transmitted to the host computer.

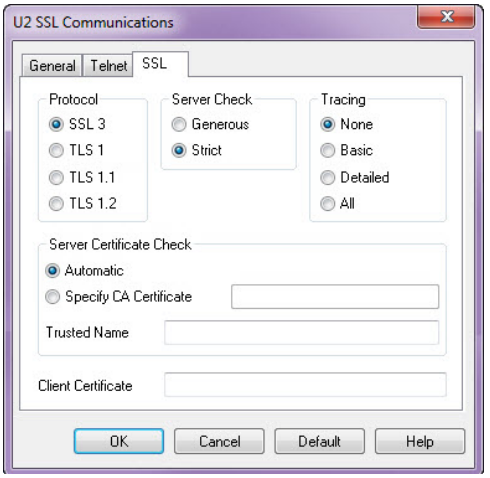
    Enter 0 to specify the fastest possible transmission with no restriction on the number of characters in each block. Numbers greater than 0 indicate the number of bytes to transmit at a time. The larger the number, the faster the communication will be. The default setting of 0 is recommended if you are not losing data between the PC and the host computer.

Note: You do not typically need to use the transmit settings with a U2 SSL connection; however, you might encounter an instance where hardware on slow servers is unable to keep with incoming data, and transmit settings are necessary.

---

15. Click the **SSL** tab.

Figure 12: U2 SSL Communications – SSL tab



16. In the **Protocol** section, select a protocol type. TLS 1.1 and TLS 1.2 are recommended. Avoid SSL 3 and TLS 1 (ie TLS 1.0), as these are now considered insecure: they are still provided as options for older host servers which might not support later protocols. Note that the Payment Card Industry Data Security Standard (PCI DSS) forbids the use of SSL 3 and TLS 1.0. If you are a merchant accepting credit cards, you must comply with PCI Security Council standards. If you must use the older SSL 3 or TLS 1 protocols, you will need to ensure they are enabled on the computer running wIntegrate (for more information, see Enabling insecure SSL protocols, on page 120).
17. In the **Server Check** section, select whether the server certificate should be checked with the **Strict** setting.
18. In the **Tracing** section, select the depth tracing should be performed.

    The default location of the trace file is the `Documents` folder.

    Note: Tracing should be used with caution as the trace files can grow to any size on disk. Trace files will grow continuously while the connection is open, even though you are not active on the session.

19. In the **Server Certificate Check** section, select **Automatic**, or enter a specific CA certificate.

    You can enable Client Authentication by entering a certificate name in the Client Certificate field. Client Authentication is where the server authenticates the client attempting to make a connection to it by examining the client's certificate. It should be the name of a certificate as it appears in the local Windows Certificate Stores (typically the personal or "My" user store is used). If there is no certificate name specified, then no Client Authentication will take place.
20. If you only want to proceed with connections where the server certificate has a specific name, then enter that name in the **Trusted Name** field.

    Provided a server certificate is valid, a connection will proceed if the server certificate name matches the value entered here. If there is no match, a warning message displays before a connection can proceed. The name matching is case-insensitive.

    If no value is entered for **Trusted Name**, then the name or address used to specify the server to connect to will be automatically assumed.

    There are two mechanisms that provide flexibility when specifying a Trusted Name:

- Multiple names can be specified each separated by a semicolon (;). The server certificate name must match one of these names for a connection to proceed.
- A name can contain wildcard characters. The underscore (_) character matches a single character in the server certificate name, and the percent symbol (%) matches any sequence of characters. For example, a trusted name of *%.mydomain.com* will match server certificate names of *myserver.mydomain.com* or *herserver.mydomain.com* and a trusted name of *server_.mydomain.com* will match server certificate names of *server1.mydomain.com* or *server2.mydomain.com*.

21. On the U2 SSL Communications dialog box, click **OK**.
22. On the Communications dialog box, verify that the **Open** check box is selected. Click **OK**.
23. The wIntegrate window prompts you for your login credentials. Log in using the credentials for the host computer.
24. Save the communications as part of your current configuration file by selecting from the toolbar **File > Save**, or select **Save As** if you want to save the session as a new `.wic` file.

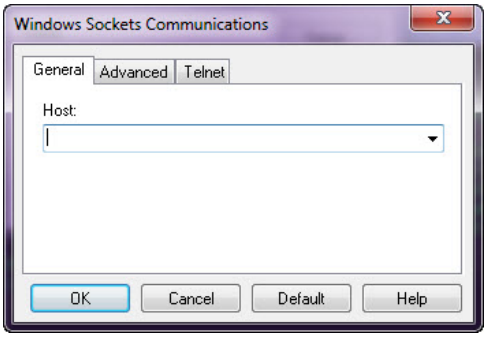
Setting up Windows Sockets (Telnet) communications

To set up Windows Sockets (Telnet) communications, perform the following steps:

1. From the wIntegrate toolbar, select **Setup > Communications**.
2. In the Communications dialog box, select **Windows Sockets**.
3. Click **Setup**.

   The Windows Sockets Communications dialog box appears.

Figure 13: Windows Sockets Communications – General tab

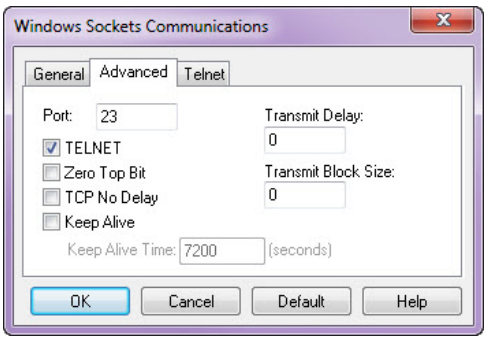


4. In the **Host** field, enter the name or IP address of the host computer with which you want to communicate.

   IPv4 and IPv6 are supported. In most cases, a host name is resolved into a single IPv4 or IPv6 address. However, it is possible for a host name to be resolved into multiple IP addresses by DNS. These addresses might be any combination of IPv4 and IPv6. wIntegrate attempts to connect to up to five IP addresses. It uses the first one that responds, regardless of whether it is IPv4 or IPv6.

5. Click the **Advanced** tab.

Figure 14: Windows Sockets Communications – Advanced tab



6. If your server uses another port for Telnet or you are not using Telnet to communicate with the host computer, enter a different number in the **Port** field. Otherwise, the default value is sufficient.
7. The **TELNET** check box is selected by default. Leave this selected if you want wIntegrate to perform Telnet negotiation with the host server.

   If you clear the **TELNET** check box, the Telnet negotiation is disabled and you can work with non-Telnet connections. For example, you might want to disable Telnet negotiation when two computers running wIntegrate are communicating with each other.
8. If you are experiencing a problem with garbage characters appearing on your screen, select the **Zero Top Bit** check box.

   Garbage character problems sometimes occur when certain computers communicate. You most likely do not need to change this setting with a Telnet connection.
9. Select the **TCP No Delay** check box if you want to speed up communications with the host.

   This option disables the Nagle algorithm, which can delay each outgoing packet for 200 ms while waiting for any additional data for the packet. When TCP No Delay is selected, packets are sent immediately. This might improve the speed of response, but make network utilization a little less efficient by sending a larger number of smaller packets.

   UniVerse and UniData also support options to disable the Nagle algorithm. See the relevant documentation regarding details on how to disable it.
10. Select the **Keep Alive** check box to enable the TCP/IP function.

    This function sends meaningless packets to the host to prevent it from closing the connection because of inactivity.

    If selected, enter the interval time (in seconds) to send packets. This value should be less than the length of time before the host closes an inactive session.
11. In the **Transmit Delay** field, enter the number of milliseconds to pause between blocks of characters that are transmitted to the host.

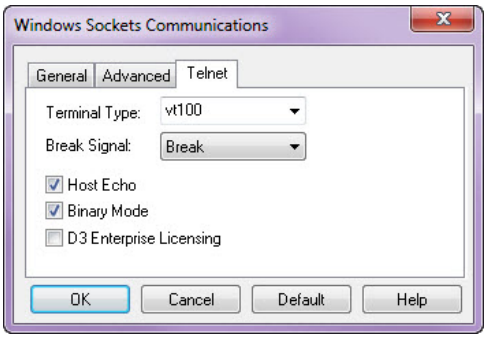
    The larger the value, the slower the communications are. The default setting of 0 is recommended if you are not losing data between the PC and the host computer.
12. In the **Transmit Block Size** field, enter the number of characters in each block that is transmitted to the host computer.

    Enter 0 to specify the fastest possible transmission with no restriction on the number of characters in each block. Numbers greater than 0 indicate the number of bytes to transmit at a time. The larger the number, the faster the communication will be. The default setting of 0 is recommended if you are not losing data between the PC and the host computer.

Note: You do not typically need to use the transmit settings with a Windows Sockets connection; however, you might encounter an instance where hardware on slow servers is unable to keep with incoming data, and transmit settings are necessary.

13. Click the **Telnet** tab.

Figure 15: Windows Sockets Communications – Telnet tab



14. The **Terminal Type** drop-down menu contains the same terminal emulation types as defined in Setting up terminal emulation, on page 11. In some cases, a host does not support communications with the terminal type you are emulating, but it supports a close approximation. In this case, select a terminal type from the **Terminal Type** drop-down menu, or enter a custom value.

    If you change the terminal emulation type in **Setup > Terminal** after you select a different Telnet terminal type, wIntegrate resets the Telnet terminal type to the setting taken from the terminal emulation `.wic` file. This is usually the same as the terminal name.

15. From the **Break Signal** drop-down menu, specify what action is taken when you press the **Ctrl + Break** keys.
    - **Break**: Sends the Telnet Break instruction. This can be used by a host system to break an application program and show options such as Continue and Quit.
    - **Interrupt**: Sends the Telnet Interrupt instruction. This usually closes the communications port and disconnects the PC.
16. Select the **Host Echo** check box if you want the host to transmit the data it receives back to your PC so you can see what you entered.
17. Select the **Binary Mode** check box if you want to enable communications in binary mode.

    Most PCs and hosts communicate by using seven-bit ASCII displayable characters. Binary mode enables the host and PC to send and receive eight-bit non-displayable characters. Most hosts support eight-bit communication even when not in binary mode.
18. Select the **D3 Enterprise Licensing** check box if you want to take advantage of Enterprise Licensing when connecting to a D3 host.

    This causes a D3 host to treat all connections that use this feature from the same computer as a single user for licensing purposes.

    D3 Enterprise licensing is not available on the Java thin client as it requires a Windows-specific library.
19. On the Windows Sockets Communications dialog box, click **OK**.
20. On the Communications dialog box, verify that the **Open** check box is selected. Click **OK**.
21. The wIntegrate window prompts you for your login credentials. Log in using the credentials for the host computer.
22. Save the communications as part of your current configuration file by selecting from the toolbar **File > Save**, or select **Save As** if you want to save the session as a new `.wic` file.

Installing host programs

The wIntegrate host programs support file transfers and other advanced communication between the PC and the host computer. You must install these programs before you can transfer information and perform other operations between the host computer and the PC. New versions of the host programs are always backward-compatible with earlier releases of the program. New releases do not disable earlier functionality. You can check the version of the host programs by running the Query Builder. The version is shown along with the host MACHINE.TYPE in the blue box on the emulation screen.

Prerequisites

The wIntegrate communications protocol must match the host computer protocol. For steps, see Setting up communications, on page 15.

About this task

Because some wIntegrate host programs are host-dependent, you must specify the type of host computer that you are using.

The host programs consist of the file transfer and host API programs. The two types of programs can be installed at the same time or separately. If you want to use wIntegrate's Query Builder to create reports, you must install the host API.

You can install the host programs in any account on your system where you have adequate permissions to create files and compile and catalog programs.

Note: If the host programs are already installed in another account on the host computer, you can share the programs by using the WIN.SHARE program. See Sharing the host programs, on page 29.

Procedure

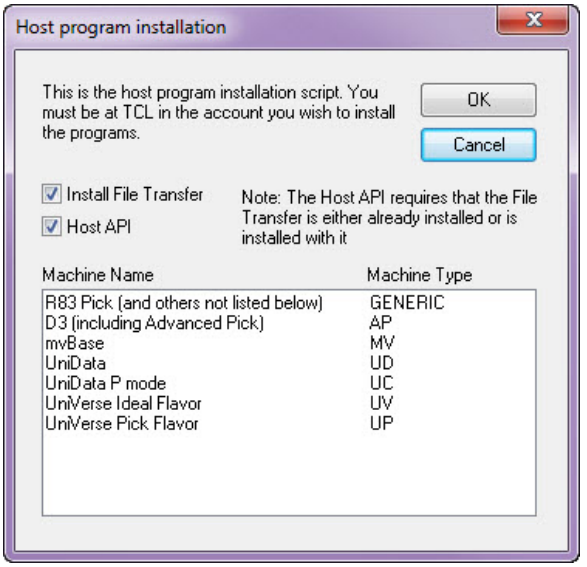
1. Start a wIntegrate session, and log on to the host computer.
2. Open the host system database prompt.
3. From the wIntegrate window toolbar, select **Run > Script**.

   A Run Script file browser appears.

4. In the Run Script file browser, navigate to `C:\Program Files (x86)\wIntegrate\Host`, and select **inst_pgm.wis**. Click **Open**.

   The Host program information dialog box appears.

   Figure 16: Host program installation



5. From the Host program installation dialog box, select the check box next to the type of programs you want to install.

   Note: You can install the host API only if you previously installed the file transfer programs or if you are installing the file transfer programs at the same time.

6. In the Machine Name list, select the host database that you are using with wIntegrate.

   If your machine is not listed, select one with a GENERIC type.

7. Click **OK**.

   The installation script performs the following tasks:

   - Creates the WIN.PROGS program directory in the database account.
   - Creates the MACHINE.TYPE record in the WIN.PROGS directory, defining the database/machine type in attribute 1.
   - Installs the WIN.BOOT program in the WIN.PROGS directory.
   - Compiles and runs WIN.BOOT. This program has only one function—to initiate the error-checked export of programs from the PC to the host. wIntegrate exports the same programs to the host computer regardless of machine type. During export to the host computer, the Export File Monitor appears.

     If you chose to install the host API, the file `BP_HAPI.TXT` is also exported to WIN.PROGS.

   - Compiles and catalogs the host programs.

8. Verify wIntegrate window reads, “Host Application Program Interface INSTALLED.”

Sharing the host programs

After you install the host programs in one account, you can run the WIN.SHARE program to enable another account to run the host programs

1. Start a wIntegrate session, and log on to the account in which you installed the host programs.

2. Type `WIN.SHARE`, and press **Enter**.
3. Enter the full UNIX path for the account to share the host programs, and press **Enter**.

   A pointer is created from the shared account to the host programs account. You can now use the host programs to transfer files into the other account.

Setting up shortcuts on the desktop

You might want to set up several wIntegrate shortcuts on your desktop if you run sessions on different host computers, or if you run sessions with different configurations connected to the same host. For example, you might want one session for email and another for a host application.

Prerequisites

Before you start this procedure, open a wIntegrate session and configure it as you want. Save the session as a `.wic` file.

Procedure

1. On your desktop, right-click and select **New > Shortcut**.
2. In the Create Shortcut wizard, navigate to the location of the wIntegrate configuration file for the session for which you want to create a shortcut. Click **Next**.
3. Enter a name for the shortcut. Click **Finish**.
4. To customize the icon that is used for the shortcut, right-click the shortcut and select **Properties**.
5. Click the **Shortcut** tab. Click the **Change Icon** button.
6. Change the path to `C:\Program Files (x86)\wIntegrate\wInteg.exe`, and select a shortcut icon. Click **OK**.

Setting up the printer

You can select a printer for a wIntegrate session without changing the Windows default printer, for example if you want to print on custom stationery as part of your application.

1. From the main toolbar, select **File > Printer Setup**.
2. In the Printer Setup dialog box, select the **Specific Printer** option.
3. Select a printer from the list.
4. **Optional:** Select the other options for font, character mapping, and more as needed.

   If you want wIntegrate to send data directly to the printer without any formatting, select the **Print direct** check box. Use this option to print host data in the same format as you received it.
5. Click **OK**.
6. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

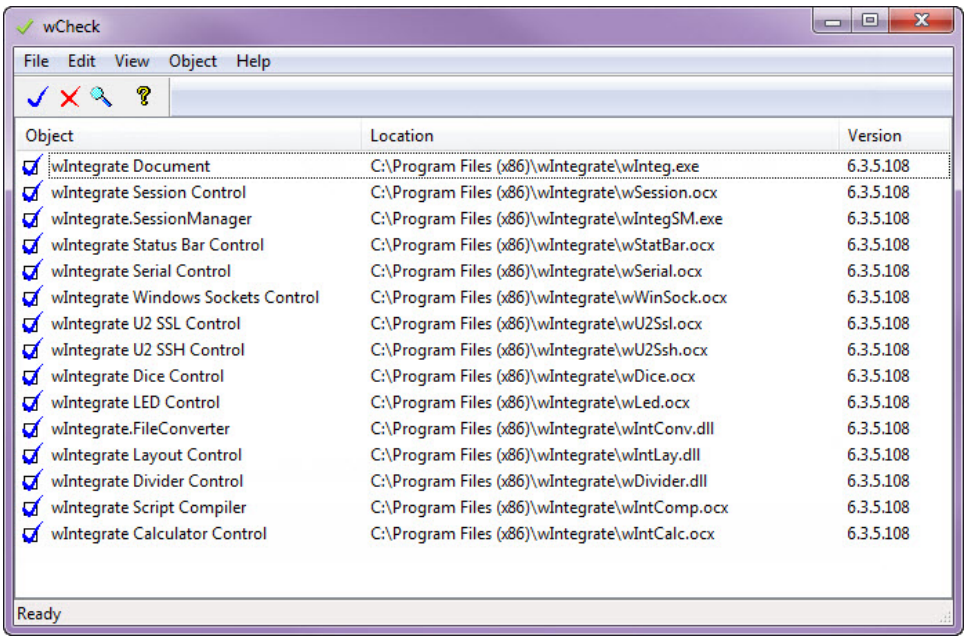
Viewing the program settings

Windows uses its Registry to store references to applications and their components. You can use the Check Installation program to view these settings. This is not normally required, but it is a useful troubleshooting aid if you have any unexpected issues with the application.

To open the wCheck program, click the Windows **Start** button and select **All Programs > wIntegrate > Check Installation**.

The wCheck program opens with a list of the components that are used by the application, including the main “wIntegrate Document” called `wInteg.exe`.

Figure 17: Environment



A full discussion of modifying the Registry is beyond the scope of this document. However, what you should see in the wCheck program is that all of the components are checked to denote that they are registered, they are in the same folder location, and they are of the same version.

Chapter 3: Customizing wIntegrate

You can customize how wIntegrate looks by editing the properties using the **File** and **Setup** toolbar options. You can name a session, change screen colors and keyboard settings, and select toolbars to help you perform your everyday tasks more efficiently. Moreover, you can create custom scripts to run automatically and modify the settings or perform tasks.

Customizing a wIntegrate session helps you distinguish one session from another. If you save each configuration as a unique `.wic` file, you can have wIntegrate sessions that connect to different host computers, or multiple sessions for different purposes on the same computer. For example, you can save a wIntegrate configuration with blue text on a black background that you use for your data entry, and save another configuration with black text on a white background that you use for running reports.

Tip: Some of the dialog boxes for customization options have a **Default** button. If you make changes and decide not to use them, click the **Default** button to change the settings back to the wIntegrate defaults. The actions of the **Default** buttons are defined by scripts in the `C:\Program Files (x86)\wIntegrate\wIntSys\Default` folder. You can modify these scripts to customize the behavior of the **Default** buttons.

Customizing the splash screen

When wIntegrate is started, the wIntegrate splash screen is displayed before the session completes its opening. The same screen is displayed when you select **Help > About** in wIntegrate. You can customize both the splash screen and About screen by adding a custom image.

1. Navigate to the installation directory.

   If you installed wIntegrate in the default folder, the location is `C:\Program Files (x86)\wIntegrate`.
2. Open the `Image` folder.

   For the splash screen, the startup procedure looks for a bitmap named `OEM_ST.BMP` in the `Image` folder. If found, this image is used in place of the standard wIntegrate image on both the splash screen and the **Help > About** screen. If a different image is required for **Help > About**, create a second image `OEM_AB.BMP`.

   The product version, user license information, and copyright statement are overlaid on the bitmap using a white font and cannot be changed.
3. Add your customized `OEM_ST.BMP` file for the splash screen image, and optionally add the `OEM_AB.BMP` file for a different About screen image.

   For best results, the bitmap should be 650x460 pixels saved as a 24-bit bitmap.

Disabling the splash screen

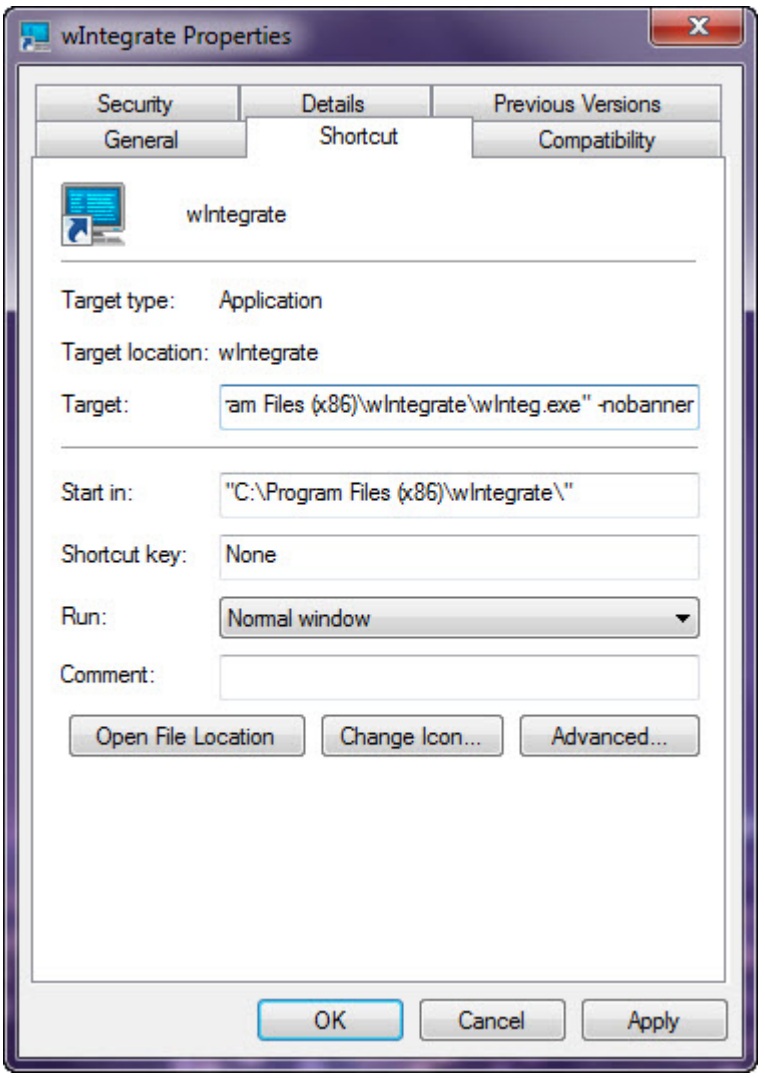
If you do not want to see the splash screen upon startup, you can disable it.

1. Navigate to where the shortcut for wIntegrate is installed.

   When wIntegrate is installed, it is placed in the wIntegrate program group in the Windows **Start** menu (**Start > All Programs > wIntegrate**). You could have also installed a shortcut to the desktop.
2. Open the properties of the shortcut by right-clicking the shortcut and selecting **Properties**.

3. In the **Target** field, append `-nobanner` after the closed quotation mark, as shown in the following example.

Figure 18: wIntegrate properties



4. Click **Apply**.
5. Click **OK**.

Adding or removing toolbars

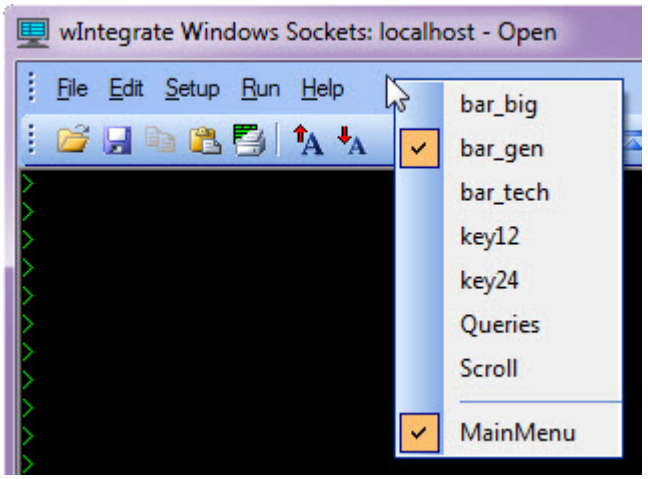
You can modify which toolbars are displayed in the main window. You can do this in a couple of ways. One way is using the **Setup > Preferences** method, described in the following steps.

1. From the main wIntegrate toolbar, select **Setup > Preferences**.
2. Click the **Toolbars** tab.
3. Select the check box next to the toolbars that you want. Clear the check boxes next to the toolbars that you do not want. Click **OK**.

   The toolbars appear on the wIntegrate window.

Another way to add or remove toolbars is right-clicking anywhere near the toolbars to show a context menu where the same toolbar options are available that are in the Preferences dialog box, as shown in the following figure.

Figure 19: Right-click context menu



Select any of the options that you want to add to the wIntegrate window. If you removed the main toolbar (named MainMenu), you can right-click the title bar and select **Restore Menu** to restore it.

Additionally, you can move the toolbars and dock them to the bottom of the window.

Note: You can modify any of the toolbars and even create your own by using scripting. For more information, see *Client Scripting Reference*.

Navigating through backpages

The navigation icons on the general toolbar allow you to navigate through up to 33 backpages.

You can change the default value of 33 by selecting **Setup > Terminal** from the main toolbar. For more details, see Setting up terminal emulation, on page 11.

Note: When navigating through backpages, you might not realize that your screen is on a backpage. The keystrokes do not appear, and the session appears to be hanging. You can check whether a backpage is displayed by looking at the Status bar.

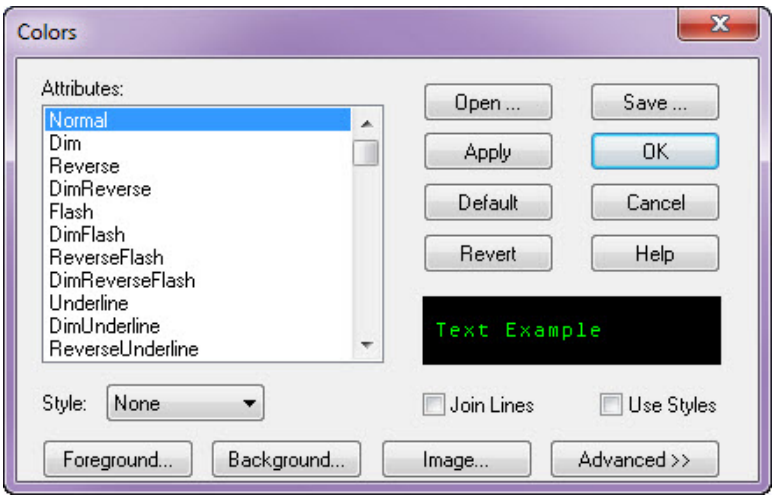
Changing the window colors

You can customize the look of the wIntegrate window by modifying the background and foreground colors. You can select a standard theme or create your own.

You can do this task in a couple of ways. One way is using the **Setup > Colors** method, described in the following steps.

1. From the main toolbar, select **Setup > Colors**.

Figure 20: Colors

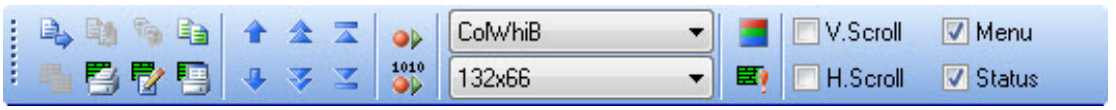


2. Click **Open**.
3. From the Load Color Settings dialog box, select a color scheme, and then click **Open**.
4. Click **OK** to close the Colors dialog box.

   The display changes to the selected color scheme.
5. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Another way to change the window color is right-clicking anywhere near the toolbars, and selecting **bar_tech** to show the technical toolbar, as shown in the following figure.

Figure 21: Technical toolbar



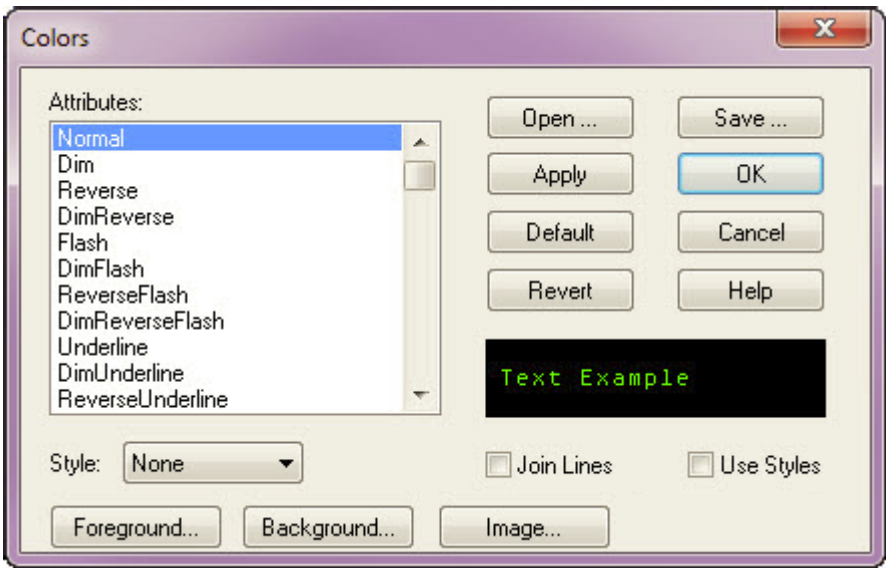
From the top drop-down menu, select a different color scheme, and click the **Apply** icon ( ) to apply a standard theme. Note that the options that are available in the **bar_tech** toolbar are the same options that are listed in the Load Color Settings dialog box.

Changing the colors of specific screen attributes

You can customize the look of the wIntegrate window by modifying the specific screen attributes that are shown.

1. From the main toolbar, select **Setup > Colors**.

Figure 22: Colors



2. Verify that the **Normal** attribute is selected.

   The Normal attribute defines the colors of the text that you most often see in the wIntegrate window.
3. Click **Foreground** to select a color for the text.
4. Click **Background** to select a background color.
5. After you change the colors, click **Apply**.

   The wIntegrate window updates to the colors that are selected.
6. Select other attributes to modify by using the same process that is described in steps 2-5.

> **Tip:** Click each attribute until the text in the Example Text box looks like the highlighted text in the wIntegrate main window. You can change the color and style of highlighted text to your preference.

7. To save the foreground and background color combination as a script that you can use in future sessions, click **Save**, and enter a name for the wIntegrate script file for the color combination that you selected. wIntegrate appends the `.wis` file extension by default. Click **Save**.

   You can select this script later by clicking **Open** in the Colors dialog box or by selecting it from the drop-down menu on the **bar_tech** toolbar, where it is automatically added.
8. Click **OK** to close the Colors dialog box.
9. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Changing the text style

You can superimpose a graphical style on specific screen attributes such as Normal and Dim. Results will depend on how your application uses screen attributes. You can change the style in the Colors dialog box.

1. From the main toolbar, select **Setup > Colors**.
2. From the **Attributes** list, select an attribute.

3. From the **Styles** drop-down menu, select a text style to apply to the selected attribute.

   If you select any text style other than None, the text style has borders.
4. You might want to join consecutive lines of the same effect to prevent wIntegrate from drawing extra borders between them. If you do not want wIntegrate to draw the border style between lines of the same effect, select the **Join Lines** check box.
5. If you selected any text style other than None, select the **Use Styles** check box. This option enables wIntegrate to display styles as the etched chiseled effect based on the attributes that are used in the terminal screen. If you do not select this check box, a chiseled effect might be displayed with no border.

   Tip: The added borders are displayed around the screen text so that they can overlap into the lines above and below. You can insert extra line space between the lines to accommodate the borders, as described in Changing the character display, on page 37.
6. Click **OK** to close the Colors dialog box.
7. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Changing the character display

You can select a different font style and size in the Character dialog box for the wIntegrate window. The font size controls the width and height of displayed characters. You can also auto scale the wIntegrate window to accommodate a new font size.

About this task

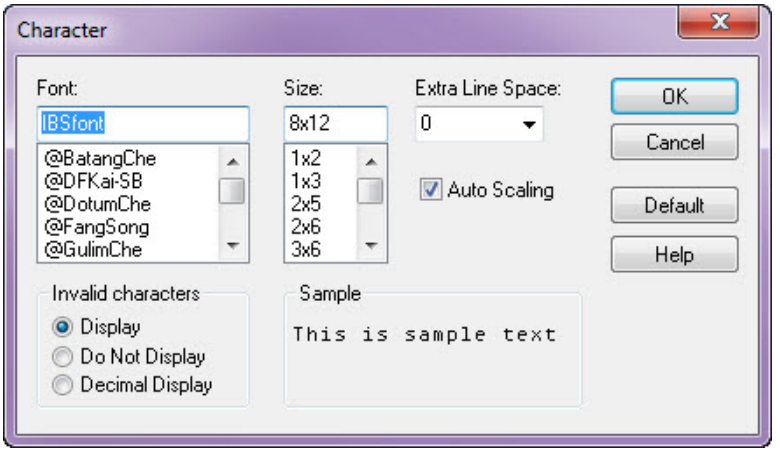
The font size is the limiting factor in what size a window can be, and the width of the font has priority over the height. For a given window size, if there is no font available that can display the 80 or 132 columns exactly, and Auto Scaling is off, the text will either extend to the right of the window border, requiring a horizontal scroll bar, or not fill the full width of the window. In either case, the vertical dimension of the window changes to fit the selected number of lines using the height of the font. If Auto Scaling is on, you cannot set the window dimensions; they are set automatically to fit the closest available font.

By selecting a different font size, you can set up your display to suit the current task. For example, if you are working exclusively on the host, you might want the host window to fill the screen. At other times, you might want to shrink the host window and work in other application windows.

Procedure

1. From the main toolbar, select **Setup > Character**.

Figure 23: Character



2. Select the font face and size.

   Only fixed-pitch Windows fonts such as Consolas, Courier, and Terminal are available.

   Tip: You can also change the font size without using the Character dialog box by selecting the increase font ( ) or decrease font ( ) icons on the general toolbar. If the general toolbar is not visible, see Adding or removing toolbars, on page 33 for instructions on how to add it.

3. In the **Extra Line Space** drop-down menu, you can add vertical space (measured in pixels) between lines in the display.
4. If you select the **Auto Scaling** check box, when you click and drag a window border or corner, the font automatically changes to fit the new window size to accommodate the number of Columns and Lines that are specified in the **Setup > Terminal** dialog box.

   Note: If the window is too small for the selected font size, some of the text and toolbars that no longer fit in the window are cropped.

   Tip: Auto Scaling works best when Snap To Size is enabled on the **General** tab in **Setup > Application**. Snap To Size cause the window to be trimmed to remove any border around the displayed characters.

5. From the **Invalid characters** options, select whether to display, not display, or only show decimal characters for invalid characters, such as control codes that are not associated with a legible character. These are most often seen with serial connections.

   The decimal display shows the character number of the invalid character within angle brackets, for example, `<4>`.
6. Click **OK** to close the Character dialog box.
7. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Resizing the window

You can change the size of the wIntegrate window in the following ways:

- Drag a corner, side, or the top or bottom of the window
- Click the increase font ( ) or decrease ( ) font icons on the general toolbar
- Select a specific size as described in Changing the character display, on page 37

You can also change the window size to be reduced to a thumbnail size by using the **Teeny** ( ) icon on the general toolbar.

When you use the **Teeny** icon, wIntegrate stays on top of other applications that you might use so you can use another application full-screen while monitoring the wIntegrate host screen. You can make all your sessions this thumbnail size and place them at the bottom of the screen.

You can change the **Always on Top** variable at any time in the System menu, which is accessed by right-clicking the wIntegrate title bar.

Important: You should restore the normal size by clicking the **Teeny** icon again. If you make it bigger by dragging the border, the menu and toolbars do not reappear automatically, so you would have to click **Restore Menu** in the System menu and restore the menus manually.

Changing the session title

You can change the title of a session and have the title bar of the wIntegrate window change. Additionally, when you minimize the session, the new title is displayed on the **Taskbar** icon so that you can distinguish this session from others.

The **Setup > Preferences** dialog changes settings for the current session only. The settings are stored in the session `.wic` file. This is different to the options set in **Setup > Application**, which apply to the Application as a whole and therefore all sessions. These settings are stored in the Registry.

1. From the main toolbar, select **Setup > Preferences**.
2. In the Preferences dialog box, verify that the **View** tab is open.
3. In the **Title** field, enter a descriptive title for your wIntegrate session. The title is displayed in the title bar.

   The following table describes symbols that are replaced with text in the session title:

   Table 4: Port symbols

Symbol	Replacement value
~	Displays the type of connection, such as U2 SSH or Windows Sockets.
@	Displays the name of the host that you are connected to.
|	Displays the port status: Open or Closed.

4. Click **OK** to save your changes.
5. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Adding or removing scroll bars and the status bar

The scroll bars are hidden by default. You can show them to see data or graphics that require more lines or columns than the wIntegrate window can display. The status bar gives you a **Ready** status if you are not selecting an option from a menu.

The status bar also shows:

- the line and column position of the cursor in the wIntegrate main window
- the backpage number when viewing backpages
- REC if the Edit Record option is in use
- PRT if the printer is the current output destination
- CAPS if the Caps Lock key is on
- NUM if the for the numeric key lock (on certain keyboards)

If you place your cursor over a menu option, the status bar displays a short description of the menu option.

1. From the main toolbar, select **Setup > Preferences**.
2. In the Preferences dialog box, verify that the **View** tab is open.
3. Select the **Vertical Scroll Bar** check box for a vertical scroll bar to appear on the right of the window.

   The vertical scroll bar is an alternative to using the Up and Down buttons on the General toolbar.
4. Select the **Horizontal Scroll Bar** check box for a horizontal scroll bar to appear at the bottom of the window.

   Note: If you selected the **Auto Scaling** option as described in Changing the character display, on page 37, then the window accommodates the full width of text that is displayed by the host, and the horizontal scroll bar is not needed.
5. Select the **Status Bar** check box to view a status bar below the bottom horizontal scroll bar.
6. Click **OK** to save your changes.
7. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Changing the session name

The session name is unrelated to the file name for the `.wic` file for the session. The session name is assigned as the Dynamic Data Exchange (DDE) topic name that is used by remote applications. You can change the name of a session by performing the following steps.

These steps do not change the title bar. For information about how to change a session's title bar, see Changing the session title, on page 39.

1. From the main toolbar, select **Setup > Preferences**.
2. Click the **Options** tab.
3. In the **Name** field, enter a new session name.
4. Click **OK** to save your changes.
5. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Changing the communications' port saving options

When you save a wIntegrate session, each aspect of its communications is saved so that communications can be restored the next time that the session is opened. The communications' state at the time of saving is also saved, for example, whether communications are open or closed. You can override how the communications' state are saved by performing the following steps.

1. From the main toolbar, select **Setup > Preferences**.
2. Click the **Options** tab.
3. From the **Save Port Open** drop-down menu, select one of the following options:
   - **Normal**: the current communications state is saved when the session is saved.
   - **Open**: the communications state is saved as open when the session is saved, regardless of the current state.
   - **Closed**: the communications state is saved as closed when the session is saved, regardless of the current state.
4. Click **OK** to save your changes.
5. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Closing the session automatically when the port is closed

You can set wIntegrate to close the application automatically when you log off from the host and the communications port is closed.

1. From the main toolbar, select **Setup > Preferences**.
2. Click the **Options** tab.
3. Select the **Exit Session on Port Close** check box to have the session exit when communications are closed.
4. Click **OK** to save your changes.
5. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Preventing the session from closing if the port is open

If you inadvertently close the application while logged on to the host, you can leave files locked. To prevent this from happening, perform the following steps.

1. From the main toolbar, select **Setup > Preferences**.
2. Click the **Options** tab.
3. Select the **Prevent Session Exit While Port Open** check box.
4. Click **OK** to save your changes.

   With the check box enabled, when you select **File > Exit**, a message appears that says you must log off and close the connection before exiting the session.
5. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Trimming trailing spaces with clipboard operations

When you copy or paste data, you might want to remove the spaces at the end of each line. To trim trailing spaces with clipboard operations, perform the following steps.

1. From the main toolbar, select **Setup > Preferences**.
2. Click the **Options** tab.
3. Select the **Trim Trailing Spaces on Copy** check box to remove trailing spaces before copying data to the clipboard.
4. Select the **Trim Trailing Spaces on Paste** check box to remove trailing spaces when pasting data from the clipboard.
5. Click **OK** to save your changes.
6. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Allowing tabs to be pasted into the terminal screen

When you paste data, only text characters and carriage returns are pasted into the terminal screen. Other non-visible control characters, including tab, are removed. To include any tab characters with the pasted data, perform the following steps.

1. From the main toolbar, select **Setup** → **Preferences**.
2. Click the **Options** tab.
3. Select the **Allow Tabs on Paste** check box to allow tab characters to be pasted.
4. Click **OK** to save your changes.
5. **Optional:** Save the custom settings as part of the session configuration file by selecting **File** → **Save** from the toolbar, or select **Save As** if you want to save the session as a new .wic file.

Using edit keys for local editing

You can change key settings to perform specific tasks. For example, you might want the up and down arrow key to scroll up or down through the backpage memory.

About this task

wIntegrate has a feature that is sometimes used by developers called local editing, which is useful for editing long text fields over multiple lines. However, local editing temporarily uses the up and down arrow keys for regular editing functionality, possibly conflicting with your own custom settings such as scrolling through backpages. If your application makes use of local editing for text fields, then you should enable this option to make the edit keys work there. To enable this option, perform the following steps.

Procedure

1. From the main toolbar, select **Setup > Preferences**.
2. Click the **Options** tab.
3. Select the **Edit Input Keys** check box.
4. Click **OK** to save your changes.
5. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Consuming one U2 license for multiple host connections using Device Licensing

wIntegrate supports U2 Device Licensing, meaning you can connect to a UniVerse or UniData host with multiple sessions/applications and consume a single U2 license. When U2 is running on Windows, Device Licensing is enabled automatically as part of the initial connection process. When U2 is running on Unix or Linux, Device Licensing is an option. To enable this option, perform the following steps:

1. From the main toolbar, select **Setup > Preferences**.
2. Click the **Options** tab.
3. Select the **Enable Device Licensing for UniVerse and UniData on UNIX** check box.
4. Click **OK** to save your changes.
5. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Suppressing the File Transfer Monitor Dialog

A File Transfer Monitor dialog is shown by default when files are transferred to and from the U2 host. If you do not want to show this dialog, check the **Suppress File Transfer Dialog** check box. This option minimizes the dialog at the beginning of the file transfer. It can be useful for WIN.EDIT, where a File Transfer Monitor dialog may look like an extra dialog and the AutoExit option is enabled for the dialog.

1. From the main toolbar, select **Setup** → **Preferences**.
2. Click the **Options** tab.
3. Check the **Suppress File Monitor Dialog** check box.
4. Click **OK** to save your changes.
5. (Optional) Save the custom settings as part of the session configuration file by selecting **File** → **Save** from the toolbar, or **Save As** if you want to save the session as a new `.wic` file.

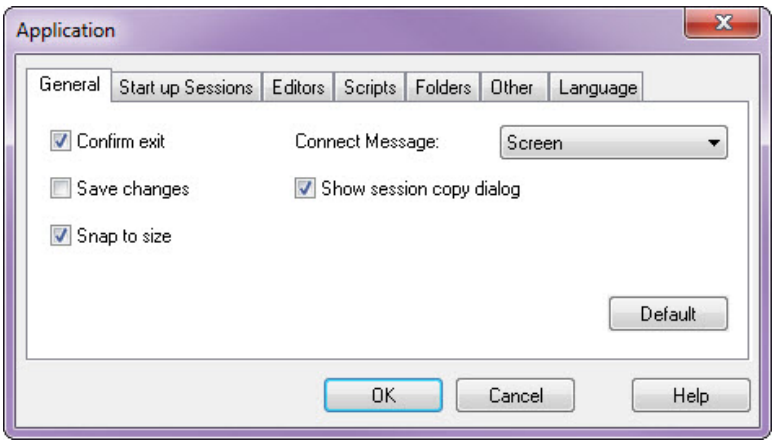
Changing application preferences

You can set up options to automatically confirm each exit from your wIntegrate session, save your changes, and more. The options that are selected in **Setup > Application** apply to the Application as a whole, and therefore all sessions, and are stored in the Registry. Perform the following steps to specify these options.

Note: Application settings are stored in the Registry. This differs from the preferences, which are stored in the session `.wic` files.

1. From the main toolbar, select **Setup > Application**.

Figure 24: Application



2. From the **General** tab, select the check boxes next to the application options that you want.
   - **Confirm exit**: A dialog box appears when you close a wIntegrate session, asking you to save changes and confirm your exit.

     Note: If you clear the **Confirm exit** check box, you might consider selecting the **Save changes** check box to automatically save changes.

   - **Save changes**: This sets the default value for the "Save changes to session parameters" check box on the Confirm Exit dialog box. If you choose to disable the Confirm Exit dialog box, the Save Changes setting is applied when the session closes.
   - **Snap to size**: When you click and drag a window border or corner to resize the screen, Snap to size removes excess borders.

     Note: If you also select the **Auto Scaling** check box in the Character dialog box, wIntegrate snaps the window to fit 80 columns and 24 lines, or the number of columns and lines that are selected in the Character dialog box. For more information, see Changing the character display, on page 37.

   - **Connect Message**: The destination for displaying network connection messages.
   - **Show session copy dialog**: When you start a second session by using a session file that is already being used, wIntegrate warns you that you are already running this session and lets you confirm that you want to start a duplicate session. If this check box is not selected, the duplicate session is created automatically without the message.
3. To change the startup session, click the **Start up Sessions** tab.
   a. Click **Add**.

      Select from where to get settings. If you are using the regular local version, select the **Standard location**. Thin client users should select the **Specify location** option.

      Note: You can also make a session one of your startup sessions by clicking the appropriate check box on the **File > Exit** dialog box.

   b. Click **Remove** to remove a session from the startup list.

4. To change the text, bitmap, and HTML editor you want to use with wIntegrate, click the **Editors** tab.

   Click the ellipsis (**...**) buttons to browse to a different default program to open for each editor type.

5. To change the pre-session open and post-session open scripts that run every time you start a session, click the **Scripts** tab.

   Click the ellipsis (**...**) buttons to browse to a different script to open for both open options.

   - The pre-session open script runs every time that you start a session before the configuration file is loaded. The default pre-session open script is `wIntSys\Script\NewSess.wis`. It is used to modify every session, for example, to add or remove menu options.
   - The post-session open script runs every time that you start a session after the configuration file is loaded and after the configuration's load script has been run. The post-session script field is blank by default, so no post-session open script runs.

     This script is available for developers who want to customize the application's behavior after the configuration file is loaded, for example, to customize toolbars according to the connected host.

6. You can use custom folder locations to store files used by the application. To change the default folders, click the **Folders** tab.

   Select a folder location and click **Modify** to browse to a different folder to open.

7. To enable and configure Rocket R/Link integration, click the **Other** tab. When you enable R/Link in this dialog, it becomes available in the Query Builder so files can be uploaded automatically for sharing with others. There are options for logging all interactions with R/Link servers and for managing the created log files. Log files are stored in `Documents\wIntegrate\Logs`.

   Rocket R/Link is a secure online file sharing and managed file transfer solution that resides on your network or private cloud. Visit www.rocketsoftware.com for more information.

   R/Link integration is currently only available in the local version which is installed entirely to the local PC. R/Link integration is not currently available in the thin client deployment.

8. You can view the dialogs and messages in English or Chinese. To change the language, click the **Language** tab.

   > **Note:** This setting does not affect input and display in the terminal emulation window, which is always enabled for display in supported multi-byte languages.

   Select the language, and then enter the surrogate font. Surrogate fonts are advanced Unicode fonts that provide many more characters than are available in the standard Unicode fonts. If you want to use a surrogate font, enter the name of the font in the **Surrogate Font** field. Note that you must first ensure that the font is installed.

9. Click **OK** to close the Application dialog box.
10. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

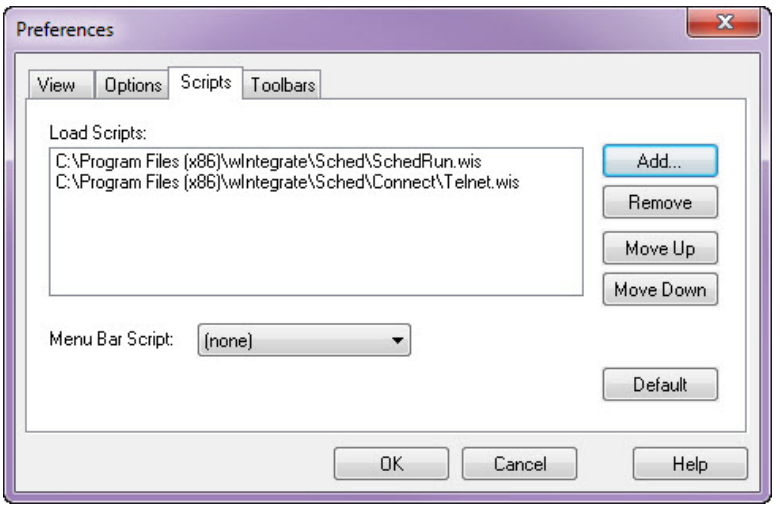
Adding custom scripts

You can run custom wIntegrate scripts each time a specific session is started, for example, a script to log you in to the host. To add a custom script, perform the following steps.

1. From the main toolbar, select **Setup > Preferences**.
2. Click the **Scripts** tab.
3. To load scripts, click **Add**.
4. In the Browse for load script dialog box, select and open the script file that you want to use.

5. Continue adding or removing scripts as necessary.

Figure 25: Scripts tab



6. If you have more than one script loaded, and you want to change the order in which they are loaded, select a script and then click **Move Up** or **Move Down** to change the order.
7. If you have created a custom wIntegrate menu script that you want to run each time that a specific session is started, from the **Menu Bar Script** drop-down menu, select the name of the script file.

Note: Menu bar scripts add to the existing wIntegrate menu rather than replacing it.

8. Click **OK** to save your changes.
9. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Customizing mouse and keyboard functions

You can customize the buttons on your mouse as well as keyboard keys to have more functionality.

Assigning functions the mouse

You can assign different functions to the mouse buttons.

About this task

Standard mouse actions are:

- Left Button Drag – Selects complete lines of text from the point at which you click the button to the point at which you release the button.
- Right Button Drag – Selects columns of text from the point at which you click the button to point at which you release the button.

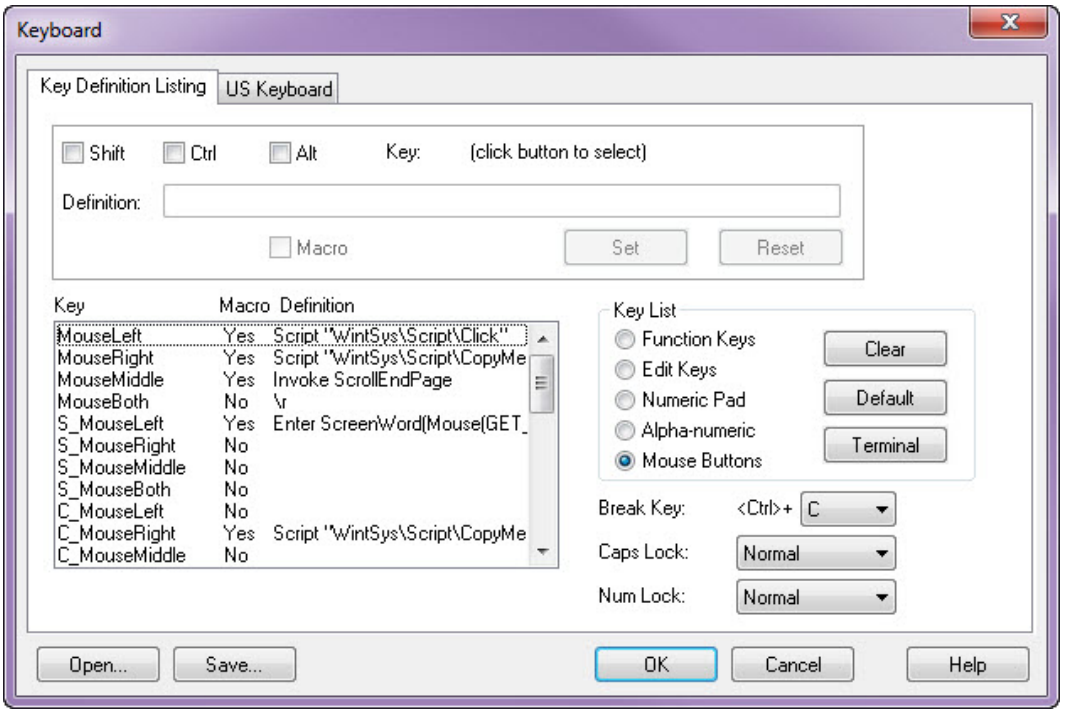
You can assign other tasks to the mouse buttons by using scripts.

Procedure

1. From the main toolbar, select **Setup > Mouse**.

   The Keyboard dialog box appears. The **Key List** section has **Mouse Buttons** selected by default, and the **Key/Macro/Definition** section lists all of the mouse button and mouse + key combinations.

   Figure 26: Keyboard



2. Select an option for the left-click or right-click button on the mouse. In this example, **S_MouseRight** (Shift + right-click) is selected.

   The top section of the dialog box updates based on your selection.

3. Add a script to the selection. The following steps describe how to add a Copy Special To script to the Shift + right-click combination.

   Note: In the **Definition** field, you can enter either a script statement, for example `Show EditCopyTo`, or reference a script stored in a folder, for example `Script "WintSys\Script\CopyMenu"`.

   a. If there is a value in the **Definition** field, highlight it and delete it.
   b. In the **Definition** field, type `Show EditCopyTo`.
   c. Select the **Macro** check box.

      wIntegrate interprets a macro definition internally as a script. If the **Macro** check box is cleared, the definition is sent to the host as text.

   d. Click **Set**.

4. Click **OK** to close the Keyboard dialog box.
5. Verify the Shift + right-click combination works. The Copy Special To dialog box should open.
6. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

For information about the types of scripts, see Copy menu scripts, on page 114.

Assigning functions to the keyboard

You can assign a different function to a function key by using a wIntegrate script.

About this task

When you set up terminal emulation and select a keyboard extension, wIntegrate maps some of the keys on your keyboard to perform the most commonly used functions. For example, when you use VT220 emulation and the key_norm extension, the Up arrow key scrolls up through backpages one line at a time. You can use the default settings for the function keys or customize the settings to perform other functions.

You can remap, or assign a different function to, most keys or key combinations. For example, you can assign a new function to F1 and to the key combinations Shift+F1, Ctrl+F1, and Alt+F1. However, you cannot remap the Shift keys themselves and a few other keys that are reserved by Microsoft Windows for special uses.

Procedure

1. From the main toolbar, select **Setup > Keyboard**.

   The Keyboard dialog box appears. The **Key List** section has **Function Keys** selected by default, and the **Key/Macro/Definition** section lists all of the function key combinations.
2. Select an option for a function key. In this example, **F5** is selected.
3. Add a script to the selection. The following steps describe how to add a script that opens the Preferences dialog box.
   a. If there is a value in the **Definition** field, highlight it and delete it.
   b. In the **Definition** field, type `Show SetupPreferences`.
   c. Select the **Macro** check box.

      wIntegrate interprets a macro definition internally as a script. If the **Macro** check box is cleared, the definition is sent to the host as text.
   d. Click **Set**.
4. Click **OK** to close the Keyboard dialog box.
5. Verify that the F5 function key works. The Preferences dialog box should open.
6. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Keyboard Caps Lock

The default wIntegrate setup keyboard in Windows 7 and newer has a drop-down Caps Lock option for controlling upper and lower-case lettering.

The four options for the drop-down are as follows:

Normal	No processing for the Caps Lock key.
On	Caps Lock is switched on when wIntegrate is the focus.
Off	Caps Lock is switched off when wIntegrate is the focus
Force	Caps Lock is switched on, and is independent of other applications. Shift + letter will result in lowercase input.

Creating a macro

You can create a macro and assign it to a function key.

About this task

A macro specifies how a certain input sequence should be mapped to a replacement output sequence according to a defined procedure.

For example, assume that you use an accounting application to perform your daily work. On the main menu of your application, you select option 2 and press Enter to go to an Accounts Payable menu, then select option 4 and press Enter for the Check Processing menu, and finally select option 1 and press Enter to open the Print Checks dialog box.

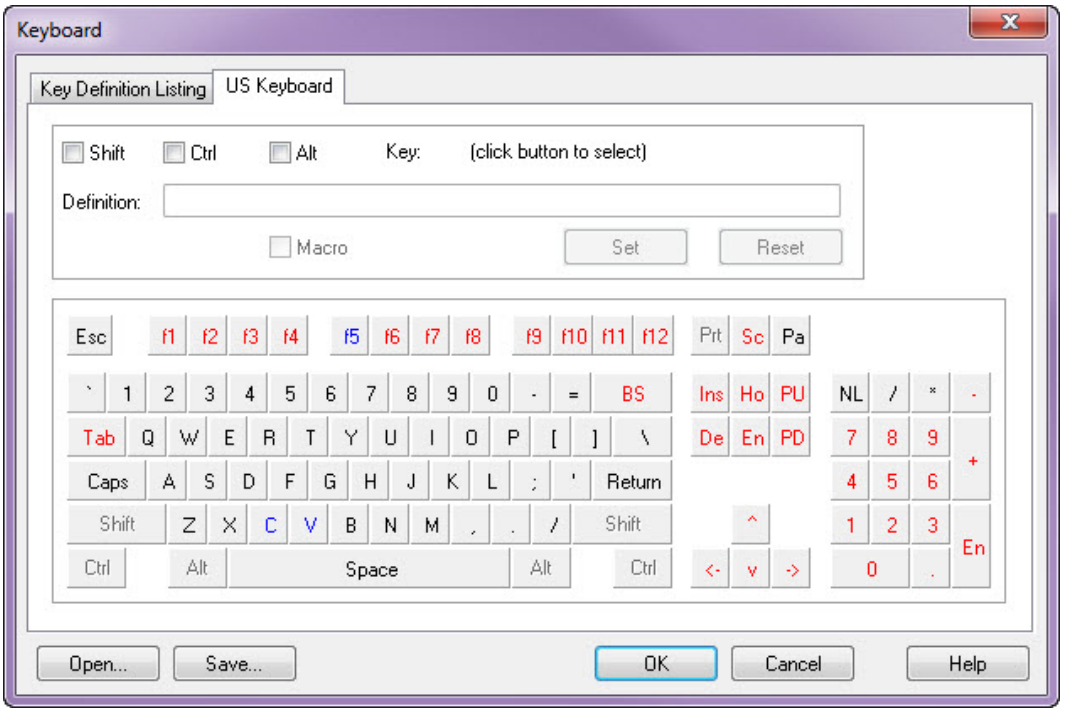
To navigate to the Print Checks dialog box, you performed six keystrokes: one for each option and another for each time you pressed Enter. If this is a common activity for you, you might want to map this series of keystrokes to a function key.

Procedure

1. From the main toolbar, select **Setup > Keyboard**, and then click the **US Keyboard** tab.

   Note: The keyboard layout and the title on the tab will change according to your keyboard settings. For example, in the United Kingdom, **UK Keyboard** appears on the tab, and the UK keyboard layout appears.

   Figure 27: US Keyboard tab



2. Define the macro. The following steps describe how to define a macro for the Shift+F12 combination using the accounting application described previously.
   a. Select the **Shift** check box.
   b. Click the **F12** button.
   c. In the **Definition** field, type `ENTER 2;ENTER 4;ENTER 1.`

The wIntegrate script `ENTER` command sends text to the host, followed by a carriage return. When you enter the definition for a macro, use a semicolon to separate each command.

d. Select the **Macro** check box.

wIntegrate interprets a macro definition internally as a script. If the **Macro** check box is cleared, the definition is sent to the host as text.

e. Click **Set**.

3. Click **OK** to close the Keyboard dialog box.
4. **Optional:** Save the custom settings as part of the session configuration file by selecting **File > Save** from the toolbar, or select **Save As** if you want to save the session as a new `.wic` file.

Configuring break keys

You can configure break keys and their keyboard shortcuts.

About this task

There are two types of break; Break and the Interrupt. The Break is a single ASCII character 3 sent to the host. Unless a custom setting is defined, pressing `<ctrl>C` will send the ASCII character 3 to the host in the same way that pressing `<shift>A` will send the ASCII character 65.

The Interrupt is essentially a brief corruption of the communications connection. On a Telnet session this might instantly close the connection and log you off, possibly leaving host files locked. The Interrupt is usually invoked by pressing the `<ctrl>Break` key.

Pressing `<ctrl>Break` and invoking the Interrupt without realizing the consequences can inconvenience users and system administrators. As a result, in wIntegrate Setup Communications, in the Telnet tab for Windows Sockets (Telnet) and SSL, you can customize the behavior of `<ctrl>Break` by setting the Break Signal as either Interrupt or Break.

The Break and Interrupt will give different results depending on how the host is configured. Also, if you connect to one Linux host, and then use the telnet command to connect to a second host, the Interrupt acts on the connection to the first machine, but a Break using ASCII character 3 results in the character being passed on to the second machine.

Procedure

1. In **Setup > Communications > Windows Sockets**, or **Setup > Communications > SSL**, click the **Telnet** tab.
2. For the **Break Signal**, choose if you want to send a Break or Interrupt when <ctrl>Break is pressed. Most users prefer the Breaks so the supplied configuration `.WIC` files are configured this way.
3. In addition to the `<ctrl>Break` key, some users are accustomed to pressing `<ctrl>C` to break the host. You can choose the behavior for this key. In **Setup Keyboard**, the **Break Key** drop-down is set to C by default in the supplied configuration `.WIC` files. This means pressing `<ctrl>C` will invoke the same behavior as pressing `<ctrl>Break`.

   If the **Break Key** setting in **Setup Keyboard** is a value other than C, pressing <ctrl>C sends the actual keystroke (ASCII character 3).

   If you have set the **Break Signal** in **Setup Communications** to **Break** (rather than **Interrupt**), then it does not matter if the **Break Key** in **Setup Keyboard** is set to C or not, as both will have the same result.

   If you employ SSH for your connection, `<ctrl>C` may not initially perform the break. However, there are two things you can check to ensure that `<ctrl>C` performs the break:

- on UNIX/Linux platforms, enter `stty -a` at the command prompt to check the server break key setting and set to `^c` (or your preferred key combination).
- select **Setup** → **Keyboard** from your wIntegrate session and set the **Break Key** drop-down to `(None)`.

Creating a login script

You can create login script to automatically log in to your host computer when you start a macro, and you can assign it to a wIntegrate session.

Prerequisites

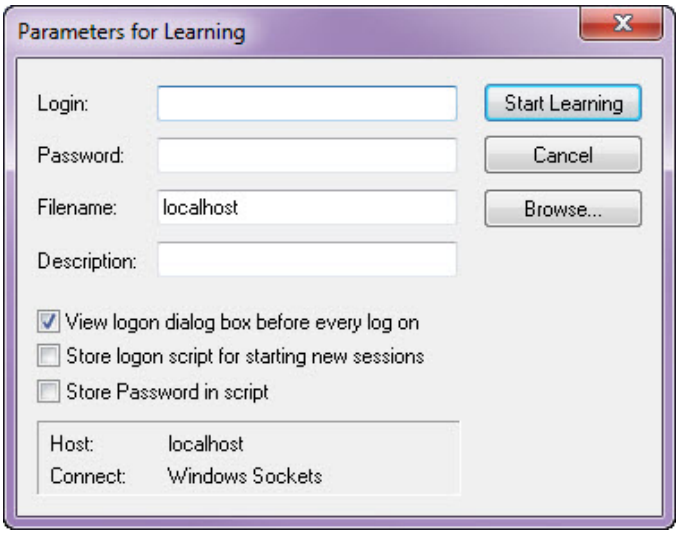
If you are connected to a host computer, enter the logout command at the UNIX prompt to close the connection.

Procedure

1. From the wIntegrate main toolbar, select **Run > Script**.
2. From the Run Script dialog box, navigate to `C:\Program Files (x86)\wIntegrate\wIntSys\Script` and select **learn.wis**. Click **Open**.

   The Parameters for Learning dialog box appears.

   Figure 28: Parameters for Learning

3. Enter the parameters as described in the following steps:
   a. Enter the login user name and password that is used on the host computer.
   b. In the **Filename** field, enter a name for this login script file. The host computer name is the default value.
   c. **Optional:** In the **Description** field, enter a description of the script.
   d. Select the check boxes next to the options you want.

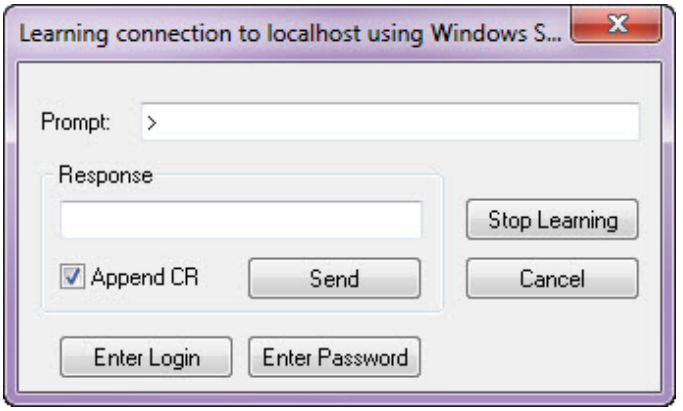
      Selecting the **Store logon script for starting new sessions** check box automatically runs the script each time you start wIntegrate with the current session name. Selecting this check box has the same effect as entering the name of the script file that is created by this procedure in the Load Scripts box in the Preferences dialog box, as described in Adding custom scripts, on page 45.

Selecting the **Store Password in script** check box stores the user name and password in a non-readable format in the login script file that you are creating. If this check box is cleared, you must enter the password each time the login procedure runs. It is recommended that you do not store passwords in the login script.

4. Click **Start Learning**.

   A Learning connection dialog box appears.

   Figure 29: Learning connection



5. Click **Enter Login**.

   wIntegrate uses the login name that you entered in the Parameters for Learning dialog box. Your login name is entered automatically in the wIntegrate main window, and the Learning connection contains the text of the password prompt in the **Prompt** field.

6. Click **Enter Password**

   wIntegrate uses the password that you entered in the Parameters for Learning dialog box. Your password is entered automatically in the wIntegrate main window.

7. Click **Stop Learning**.

   wIntegrate creates a script file containing the sequence of characters that are received and sent during the learning procedure. This script is written to the `C:\Program Files (x86)\wIntegrate` folder with the file name that you entered in the Parameters for Learning dialog box. The file extension `.wis` is automatically added to the file name. Capable users can edit the script manually if necessary to change its functionality.

8. Test the login script.

   - If you selected the **Store logon script for starting new sessions** check box, the login script runs automatically when you close and restart this wIntegrate session.
   - If you selected the **View logon dialog box before every log on** check box, when you start a new wIntegrate session, a Login dialog box appears, confirming the script worked.

Copying text

wIntegrate allows you to copy text from a right-click menu.

The functionality described here is driven by the `CopyMenu.wis` script in the `C:\Program Files (x86)\wIntegrate\wIntSys\Script` folder. Capable users can modify this script to customize the functionality.

Note: You can select lines on the current page and backpages by using the left mouse button, or by column by using the right mouse button.

To copy text, select the text, then right-click the screen and select an option.

The requested Windows application opens a new file if you do not already have a file open. If you have a file open in the application, wIntegrate pastes your selection into the open file.

Table 5: Copy menu options

Option	Description
Copy	Copies selected text.
Paste	Pastes text from the clipboard.
Text to Notepad	Copies selected text, starts the Notepad application if it is not running, and pastes the copied text into a Notepad document.
Text to Wordpad	Copies selected text, starts the WordPad application if it is not running, and pastes the copied text into a WordPad document.
Bitmap to Paint	Copies a selected part of the window as a graphic, starts the Paint application if it is not running, and pastes the graphic as a bitmap into a Paint session.
Table to Report Viewer	Copies the selected text, parses it into tab-separated columns with consistent vertical spaces, starts the built-in Report viewer grid, and pastes in the data.
Table to Excel	Copies the selected text, parses it into tab-separated columns using consistent vertical spaces, starts the Microsoft Excel application if it is not running, and pastes the data into an Excel spreadsheet. If you have an Excel spreadsheet open, wIntegrate pastes the selected table into the spreadsheet starting at the current cell position.
Table to Lotus 123	Copies the selected text, parses it into tab-separated columns using consistent vertical spaces, starts the Lotus 1-2-3 application if it is not running, and pastes the data into a Lotus 1-2-3 spreadsheet.
Table to Word	Copies the selected text, parses it into tab-separated columns using consistent vertical spaces, starts the Microsoft Word application if it is not running, and pastes the data into a formatted table.
Text to Word	Copies the selected text, starts the Microsoft Word application if it is not running, and pastes the text into a Word document.
Bitmap to Word	Copies the selected area of the wIntegrate main window as a bitmap, starts the Microsoft Word application if it is not running, and pastes the bitmap into a Word document.
Screen to Word	Copies all the text currently displayed in the wIntegrate main window, which might be a backpage, starts the Microsoft Word application if it is not running, and pastes the displayed data into a Word document. You should format the text using a fixed pitch font such as Courier to see the screen properly, and perhaps put a border around it.
Screen to Printer	Prints all of the text currently displayed in the wIntegrate main window, which might be a backpage. The print job is routed to the wIntegrate-specific printer set in **File > Printer Setup** or to your Windows default printer.
Create Pie Chart	Copies selected data and creates a wIntegrate pie chart. The selected data must be in two columns; the left column must be text, and the right column must be numbers.
Create Bar Chart	Copies selected data and creates a wIntegrate bar chart. The selected data must be in two columns; the left column must be text, and the right column must be numbers.
HTML to Editor	Copies the selected text, parses it into tab-separated columns using consistent vertical spaces, starts the HTML editor that you specified in **Setup > Application** if it is not running, and pastes the table selection into the HTML editor window.

Option	Description
HTML to Browser	Copies the selected text, parses it into tab-separated columns using consistent vertical spaces, starts the HTML browser program that is associated with the `.htm` extension in the registry, and pastes the table selection into the HTML browser window.
Text to Mail	Copies the selected text, starts your Windows email application if it is not running, and pastes the selected text or table into an untitled email message. You can edit the email message before sending it.

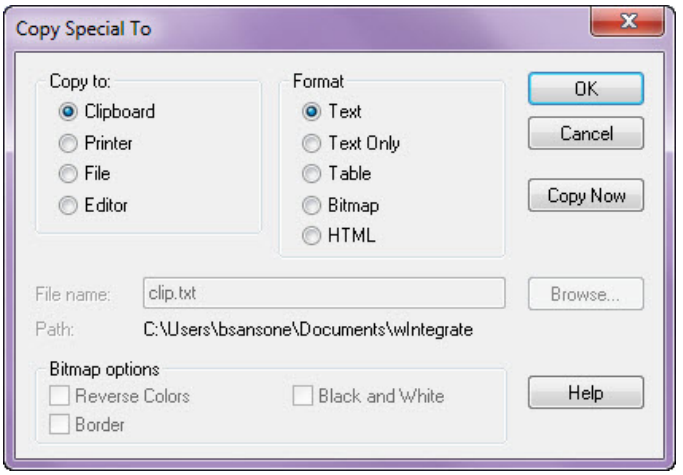
You can also copy data to other applications by assigning a script command to a mouse button. For more information, see Assigning functions the mouse, on page 46.

Copying text with Copy Special to

wIntegrate allows you to copy text or images from the screen in a variety of formats and destinations by using the Copy Special To dialog box.

1. To copy with special options, select **Edit > Copy Special to**.

Figure 30: Copy Special To



2. In the Copy Special To dialog box, select the destination from the **Copy to** options.
3. From the **Format** options, select the format for the copied data as described in the following table.

Table 6: Format options

Option	Description
Text	Includes Carriage Returns and Linefeeds when multiple lines are selected
Text Only	Omits Carriage Returns and Linefeeds when multiple lines are selected
Table	Looks for consistent vertical space in the selected lines and assumes that these are column breaks. These spaces are replaced with the tab character, which is used as a column delimited in spreadsheets.
Bitmap	Copies the selected area to the clipboard as a bitmap image. The image can be pasted into applications such as Windows Paint and Word.
HTML	Looks for consistent vertical space in the selected lines and assumes that these are column breaks. These spaces are removed, and the remaining text is embedded in HTML table code ready for use in an HTML editor.

4. Click **Copy Now** to copy the selected data immediately using the parameters specified.
5. If the destination is File or Editor, specify the file name or click **Browse** to select a file.
6. Select the **Reverse Colors** check box to print, for example, black as white and white as black. This saves printer ink.
7. Select the **Border** check box to have a border around the selected data.
8. Select the **Black and White** check box to convert the on-screen colors to monochrome black and white for easy legibility.
9. To save the settings, click **OK**.
10. When you are ready to copy text, select the text, then select **Edit > Copy Special**.

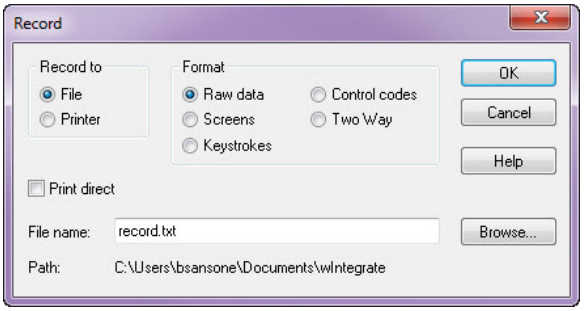
    The text is copied to the destination with the specified format options.

Recording and playing back data

You can record data and send it to a file in various formats.

1. From the main toolbar, select **Edit > Record**.

Figure 31: Record



2. Select the **File** option to save recorded data to the hard disk with the displayed file name, or **Printer** to send the data to the printer.

   The **Printer** option does not save your recorded data to a file for later use.
3. From the **Format** section, select the purpose of recording the data:

   - **Raw data** records data exactly as the host sends to your computer, including terminal command sequences.

     You can use the **Edit > Play** menu option with the **Local** option to reproduce what was originally seen on screen. If you have an issue with terminal emulation, support might ask you to send a Raw Data recording so that they can reproduce what you saw.
   - **Screens** records a series of screens as each one was displayed just before the next screen was shown.

     This option might not work with all applications or terminal emulations because it relies on recognizing the FormFeed character.
   - **Keystrokes** records your keystrokes.

     In the **Edit > Play** menu option, you can send the keystrokes to the host as input. This is useful for repeating known keyboard sequences.
   - **Control Codes** records the incoming data analyzed in relation to the current terminal emulation.

     This option is used to isolate unknown or incorrect escape sequence definitions.
   - **Two Way** records the incoming and outgoing data so you can see your interaction with the host. Each line is prefixed by the date, time, and millisecond count, and all fields are delimited by tabs so you can easily paste into Excel.

4. In the **File name** field, enter a name to save the recording as.
5. The **Print direct** check box is cleared by default. If you want wIntegrate to send the recorded characters to the Windows printer driver as bytes rather than format them for the printer driver, select the **Print direct** check box.
6. To start recording, click **OK**.

   Data is now recorded according to your settings. While recording is active, the **Edit > Record** menu option has a check mark, and **REC** appears in the Status bar.
7. To stop recording, select **Edit > Record**.

   When you stop the recording, the check mark is removed.
8. If appropriate to the type of recording you made, you can now select **Edit > Play**.
9. In the Play dialog box, enter the file name for the recording that you entered in step 4. Select the **Local** and **Pause** check boxes if necessary.

   The **Local** option displays the recorded data on the computer as though it had been received from the host. You would select this option when playing back a Raw Data recording. If this check box is cleared, the recorded data is sent to the host computer as input, for example, with a Keystrokes recording.

   The **Pause** option causes a delay before each new page displays. The Play File Pause dialog box will prompt you to display the next page.

   The **Text Characters only** option removes the terminal emulation escape sequence so only regular text characters are processed.
10. To start the playback, click **OK**.

Chapter 4: Transferring multivalued data

The **Run** menu provides options for transferring data to and from the host and your computer between two different host computers. You can select the appropriate transfer method for any task that requires moving information from one computer to another.

For example, you can transfer all or selected items to your PC, choosing which fields to transfer or all fields. The data is formatted for popular applications such as Excel and Word. This is called importing because data is brought from a remote host into your desktop. You can also export data from your desktop to the host. Check with your system administrator before transferring data to your host computer.

Generally, if you are importing data, the **Query Builder** menu option is preferable to **Run > Import File**. The Query Builder has more options and will, for example, open up Excel with the newly created spreadsheet. The **Run > Import File** menu option simply creates the file. Behind the scenes, the Query Builder uses the `Run ImportFile` processing to import the data before adding its own features to improve usability of the new file. For more information about the Query Builder, see Building queries with Query Builder, on page 81.

The following file transfer methods are available:

- Importing data to the PC, on page 57
- Exporting data to the multivalued host, on page 65
- Bridge copying files, on page 72
- Using FTP, on page 78

Importing data to the PC

You can import data from your host account to your PC. This is useful for using your host data in other applications such as creating marketing and accounting reports in Excel.

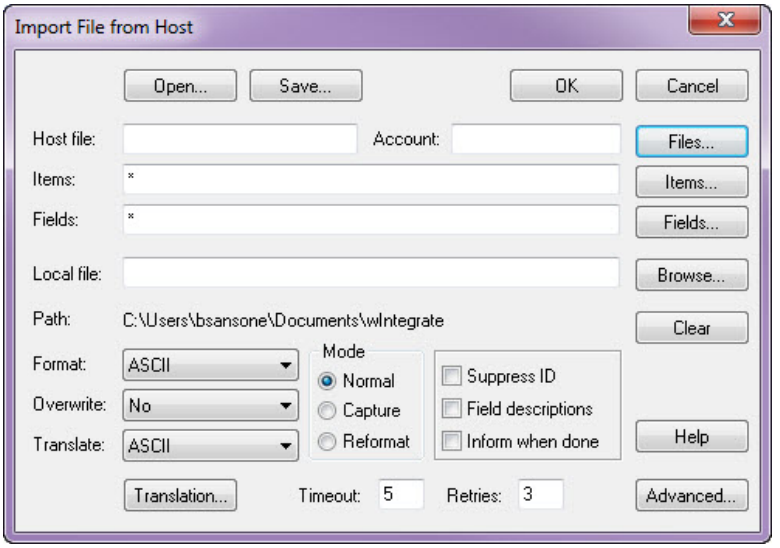
Prerequisites

You must first install the wIntegrate host programs in the database account. See Installing host programs, on page 28.

Procedure

1. From the main toolbar, select **Run > Import File**.

Figure 32: Import File from Host



2. From the Import File from Host dialog box, click **Files**.

   The File Selection dialog box lists files in the current account by default. If you want to see a list of files in a different account, type the name of the account in the **Account** field before you click the **Files** button. The **Files** list is blank, and the **Status** box displays progress information while the host computer transfers a list of files in the current account. Wait for the **Status** box to read, "File transfer finished OK" before continuing.

   Note: You must be at your host database TCL/ECL prompt in order for the wIntegrate host program `WIN.TRANSFER` to run. Otherwise, the File Selection dialog box is blank and files cannot be transferred.

   If you want to import the dictionary of a file, enter `DICT` before the file name in the **Host File** field. For example, to import the dictionary of the `ORDERS` file, enter `DICT ORDERS`

3. In the File Selection dialog box, select a file to import, then click **OK**.

   The file name is added to the **Host file** field in the Import File from Host dialog box. The file name can be up to 63 characters.

   Tip: You can enter information in any text box if you know the name of the file, item, or other selection criteria. Otherwise, you can click a query button to search for the information that you need.

4. In the Import File from Host dialog box, click **Items**.

   In the **Items** field, you can:

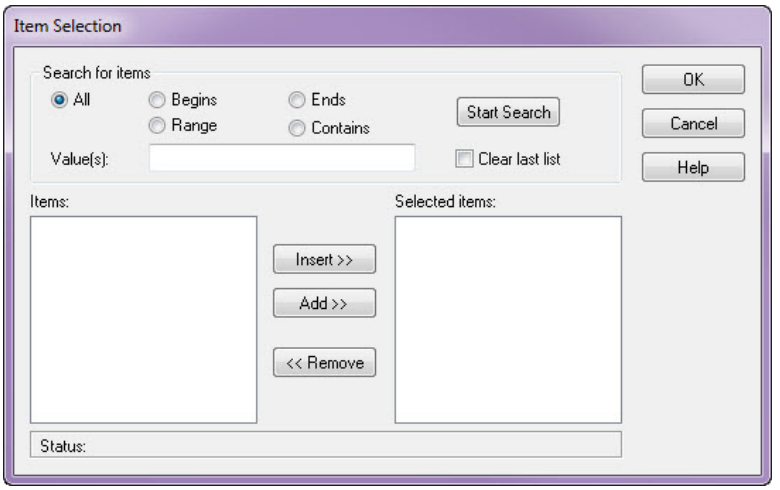
   - manually enter specific item IDs,
   - enter a selection statement (for example, `SELECT CUSTOMERS WITH STATE = "CA"`)
   - use the Item Selection dialog box. For more information, see Additional methods of selecting items for import, on page 63.

   The maximum length of the **Items** field is 2,047 characters.

5. Click the **Items** button

   The Item Selection dialog box appears.

Figure 33: Item Selection



The Item Selection dialog box lets you view items according to certain criteria, and then choose which ones to transfer. After setting your search criteria, click **Start Search**.

> **Note:** The item IDs are transferred to the Items box, but no other data is transferred at this point.

The **Status** box displays progress information while the host computer transfers a list of items in the selected file.

Select the **Clear last list** check box to clear the list that was previously generated; otherwise, the items that are found in the new search are added to the list of existing items.

Searching for specific items or ranges can reduce the search time on a large file. wIntegrate provides other options to narrow your search for items in the file, for example, **Begins** or **Ends** to search for beginning or ending characters in the **Value(s)** field. These methods can be especially useful when searching large blocks of data.

6. From the **Items** list, select the items that you want to transfer, and then click **Add**.

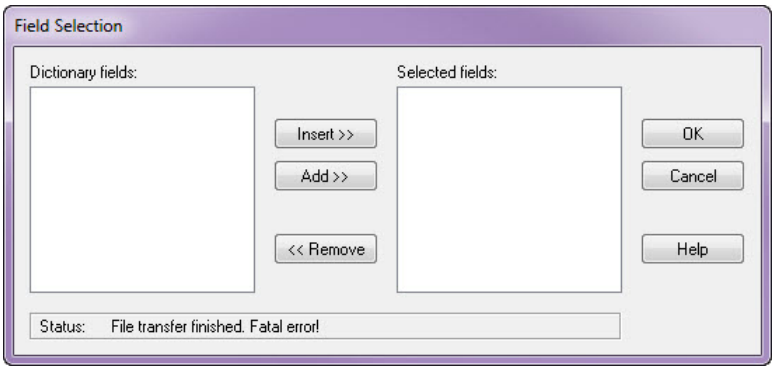
   The items appear in the **Selected items** list.

7. When you are done adding items, click **OK**.

   The selected items are added to the **Items** field in the Import File from Host dialog box.

8. In the Import File from Host dialog box, click **Fields**.
   The Field Selection dialog box appears.

Figure 34: Field Selection



> **Tip:** Instead of using the Fields dialog box, you can manually enter the dictionary names of each field to import. For more information, see Importing Excel formulas and applying formats to imported fields, on page 64.

The **Dictionary fields** list is blank and the **Status** box displays progress information while the dictionary of your chosen file is transferred to your computer. Wait for the **Status** box to read, "File transfer finished OK" before continuing.

9. From the **Dictionary fields** list, select the fields that you want to transfer, and then click **Add >>**.
10. When you are done adding fields, click **OK**.
    The selected items are added to the **Fields** field in the Import File from Host dialog box. The maximum length of the **Fields** field is 1,024 characters.

> **Note:** Individual fields larger than 2 MB can be imported to text-based files such as CSV. However, Excel 2016 supports a maximum size of 32,767 characters per cell.

11. In the **Local file** field, enter a name or click **Browse** to select the file to which you are importing data on your computer.
12. From the **Format** drop-down menu, select a format that is based on how you intend to use the data.

    Normally, you specify the file format by entering an extension in the **Local file** field. wIntegrate automatically selects the appropriate format in the **Format** list that is based on the extension you enter. However, you can override the automatic selection in the **Format** field by selecting a different format from the list.

    The available formats are described in Format.
13. From the **Overwrite** drop-down menu, specify how file overwrites are handled.
    The available overwrite options are described in the following table.

Table 7: Overwrite options

Option	Description
Yes	If the file already exists in the specified folder, it is overwritten.
No	If the file already exists in the specified folder, a wIntegrate dialog box gives you the choice of overwriting the file or canceling the transfer.

Option	Description
Append	If the file already exists in the specified folder, the imported data is appended to it. If the file does not exist, wIntegrate creates the file. This option is valid with ASCII, Comma Separated, Comma Quoted, Fixed length, and Raw data file formats only.

14. From the **Translate** drop-down menu, select the method wIntegrate uses to translate characters while transferring them.

    Each translate option is described in Translate.

15. If translation is available for your current settings, click the **Translation** button to open the Translation dialog box. Here, you can set up the host characters wIntegrate translates.

    Warning: When you import a file, wIntegrate translates values as it receives them before the editor converts values to specific file formats. Be careful not to translate remote characters that the editor requires to create the local file.

    If you are using the ASCII translate option to import host data to an ASCII text file, use the system default translation for characters 254 and 255. The default translation is required to create line breaks and page breaks in the ASCII file. The attribute mark (character 254) is set up to translate as a line break sequence, consisting of a carriage return and new line (represented as \r and \n respectively). The item mark (character 255) is set up to translate as a page break sequence, consisting of a carriage return, new line, new page, carriage return, and new line (represented as \r\n\f\r\n).

    If you are using the All translate option, delete the system default translations for characters 254 and 255. For example, if you are importing host data to an Excel file, wIntegrate uses attribute marks (character 254) and record marks (character 255) to split incoming data into separate columns and rows of the spreadsheet. If you translate these characters, Excel cannot create a spreadsheet.

16. From the Mode section, select **Normal**, **Capture**, or **Reformat**.

    Note: The Mode controls the way data is transferred to the client. If data isn't being imported as expected, you can try a different Mode.

Mode	Description
Normal	A host program has a “conversation” with the PC to transfer the data, which means received data is error-checked to verify accuracy. This method cannot process virtual fields or correlatives (such as I-descriptors) because the host program cannot interpret them. wIntegrate transfers data according to the attribute numbers in the dictionary items. Output conversion codes are processed.
Capture	The output from a SORT statement is displayed invisibly on the terminal screen, captured and parsed into columns. This method handles virtual fields. However, host-to-PC error checking is not performed, so data integrity is not guaranteed.
Reformat	The output from a SORT statement is captured to a temporary file on the host. This file is then transferred to the PC using the error-checked Normal transfer method. This mode supports both virtual fields with error-checked transfer. The Reformat mode also removes the limits on field length required by some hosts. This process takes additional time to create the work file.

17. Select any additional options as necessary.

Table 8: Other options

Option	Description
Suppress ID	Prevents the host item ID from displaying as the first field of each item.
Field descriptions	Transfers descriptions of specified fields as the first line. This option is useful when importing data into a spreadsheet.
Inform when done	A message informs you when the file import is complete. This option is useful if you want to run another application full-screen while wIntegrate transfers data.
Timeout	The maximum number of seconds wIntegrate waits for a response to a protocol message. The default value of five seconds is sufficient. Valid values range 1 - 9999 seconds. A timeout occurs when wIntegrate sends a protocol message, and it does not get a response within a specified length of time. When a timeout occurs, wIntegrate resends the protocol message until the maximum number of retries is reached.
Retries	The maximum number of times that wIntegrate sends a protocol message before a file transfer is abandoned. The default value of three is sufficient, or five retries in any case. Valid values range 0 - 9999. When transferring data in Capture mode, the Retries value applies only to the initial exchange of internal parameters. It is not relevant to the data transfer, which is dependent on capturing the output of a host query statement.

18. If you need to convert numbers from the display format that is used in your host data to a different display format on your computer, click **Advanced**.

    The Advanced Import Options dialog box appears.

Figure 35: Advanced Import Options

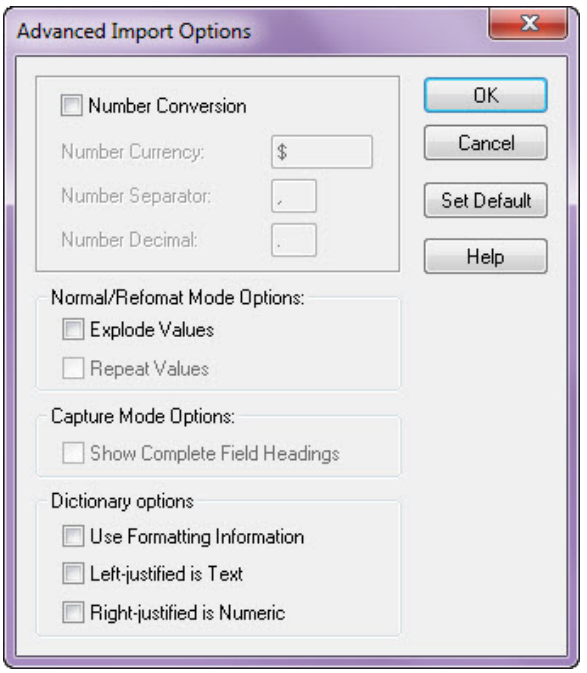


Table 9: Advanced options

Option	Description
Number conversion	Enable the **Number Conversion** option to recognize numbers which might otherwise be seen as text fields. For example, when creating an Excel spreadsheet. This is used to import numbers which include currency symbols and comma separators on the original output. **Number Currency** - The currency symbol, for example $, € or £ **Number Separator** - The character between thousands. In English-speaking countries this is usually “,” and in Europe this is usually “.” **Number Decimal** - In English-speaking countries this is usually “.” and in Europe this is usually “,”
Explode values	When importing data in Normal or Reformat modes, you can enable the **Explode Values** options to cause multi-valued fields to appear one per row instead of all in the same cell. During processing, the host record is expanded in memory into new rows, and then written to disk. If a set of new rows exceeds 5mb an error is reported.
Repeat Values	When importing data in Normal or Reformat modes and **Explode Values** is enabled, you can enable the **Repeat Values** option to cause the last value in a column to be repeated and fill in blank cells below.
Show Complete Field Headings	Column widths are determined by the length of the column heading rather than the length specified in the dictionary definition. This option is useful when the column heading is wider than the data.
Use Formatting Information	Enable the **Use Formatting Information** option to format the field using the conversion, length, and justification information from host dictionary items where appropriate.
Left-justified is Text	When importing data into Excel, a field containing numbers is normally created as a numeric field. Enable the **Left-justified is Text** option to cause, for example, a numeric part number to be stored as a text field.
Right-justified is Numeric	When importing data into Excel, enable the **Right-justified is Numeric** option to force right-justified fields to be stored as a numbers

19. Click **Save**. In the Save File Import settings dialog box, enter a file name with the extension `.wis`. Click **Save**.
20. In the Import File from Host dialog box, click **OK**.

    The File Import Monitor dialog box appears. When the status bar indicates that the file transfer is finished, click **Exit**.

You can verify that the file transfer worked by selecting **File > Edit** and opening the newly created file. The file opens in Notepad, containing the data that you imported from the host. You can now use this imported data for reports by copying and pasting it into other Windows applications, such as Microsoft Word and Excel.

Any errors during the transfer will be shown in red in the File Transfer Monitor. Errors are written to the standard Logs folder keyed as `FT_YYMMDD_HHMMSS.log` where `YYMMDD` represents the date and `HHMMSS` represents the time of the transfer.

Additional methods of selecting items for import

Use these methods to select items when you import a file from the host.

Using statements to select items

In the Import File from Host dialog box, in the **Items** field, you can enter a SELECT, SSELECT, GET.LIST, XEQ, or similar commands with sort criteria.

Enter REPORT to force a statement to execute. Using this method, you can run a SORT or SELECT statement and import the data all in one step. For example, to show a request for a report on the STAFF file in the UniData demo account, enter REPORT SORT STAFF LNAME SAL BY SAL.

UniData, UniVerse, Advanced Pick, and R83 Pick databases support two SELECT statements in the **Items** field, or one SELECT and one REPORT statement if you are using Capture mode. The format is as follows:

<sep_char><first_select><sep_char><last_select>

where *sep_char* is either a slash (/) or pipe (|). You cannot have a space between the *sep_char* and the SELECT statement, for example:

For Normal or Reformat mode:

```
/SSELECT ORDER WITH CUSTOMER=”Artful Frames”/SELECT ORDER WITH PRODUCT= ”COMPUTER”
```

For Capture mode:

```
/GET-LIST PAYMENT.LIST/REPORT SORT ORDER BYCUSTNAME CUSTNAME PRODUCT QUANTITY
VALUE ORDER.DATE
```

Using host programs to select items

Another method for selecting items is to run a host program. You might create a host program to select items for a report when you need to get data from several files or perform any type of complex item selection.

You create the host program in the native database language, such as UniBasic or Pick BASIC. The last line of the program should be a SELECT statement that the file transfer program executes.

Enter the wIntegrate XEQ file name command in the **Items** field to tell the host to run the program. For example, you can run a host program to select items from a globally cataloged program that is named COURSES.SEL by entering XEQ COURSES.SEL.

Importing Excel formulas and applying formats to imported fields

Use these methods to control how imported data appears in the resulting file.

In the **Fields** field of the Import File from Host dialog box, you can enter the dictionary names of each field to import. If you use Normal mode, the fields must be simple attribute definitions, not virtual fields or correlatives (also called calculated or derived fields). For example, in UniVerse and UniData, the fields must be D-type dictionary items, not V-type or I-type items.

With certain file formats, you can modify the way wIntegrate imports data by using the following functions:

- NUMBER()
- STRING()
- PAD()
- FORMULA()

The following sections describe these functions.

Number fields

With Microsoft Excel formats, you can force a field to be imported as numeric data instead of text characters by using the `NUMBER()` function in the **Fields** field. This is useful if the dictionary item does not specify a numeric format for the field.

Syntax: `NUMBER(field.name {, number.of.decimal.places} )`

String fields

With the Microsoft Excel and Lotus formats, you can force a field to be imported as text instead of numeric data by using the `STRING()` function in the **Fields** field. This is useful when importing, for example, long numeric part numbers that Excel would otherwise display with exponential notation.

Syntax: `STRING(field.name)`

Padded fields

With the Fixed length format, fields are padded to fixed lengths determined by the dictionary items. You can specify the ASCII characters to insert as padding by using the `PAD()` function in the **Fields** field.

Syntax: `PAD(ASCII.character.number {, number.of.occurrences} )`

Formulas

You can store a Microsoft Excel formula in your multivalued database, then import it to Excel with other fields. In Microsoft Excel, the formula takes effect and perform its calculations.

Syntax: `FORMULA(field.name)`

Exporting data to the multivalued host

Use the **Run** → **Export File** menu option to transfer data from your computer to the host computer. Typically you would not export data to the main files in your database; data would be exported to a temporary file on the host for use by a program in your application.

Prerequisites

Exporting data from the computer to the host requires some planning. One reason is that you do not want to overwrite an existing database file that you need. Another reason is that the host data file to which you are exporting must exist and have a dictionary file that defines the data you are exporting. For example, you have dictionary items 1, 4, 5, and 7 in your computer file. You must have corresponding dictionary items in the host file.

- You must first install the wIntegrate host programs in the database account. See Installing host programs, on page 28.

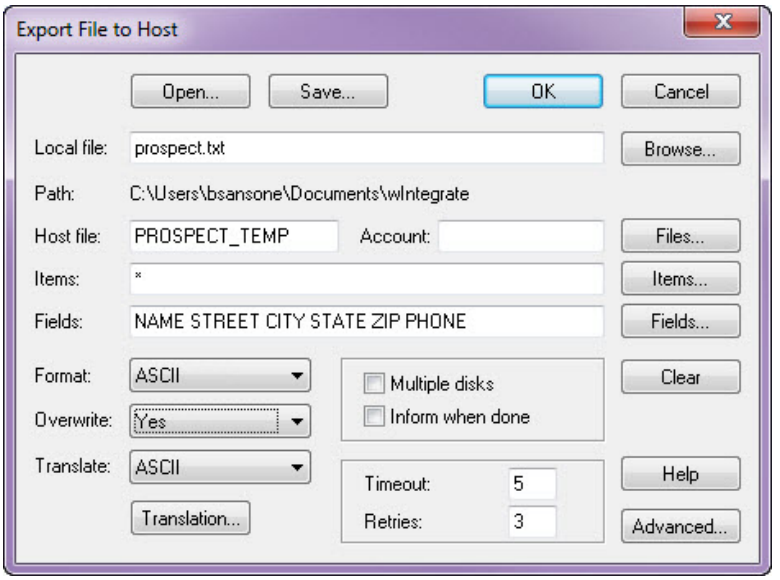
When creating records on the host, a maximum record size is applied. This is defined in the WIN.PARAM.XX subroutine where *XX* represents the machine type (for example, UV represents the UniVerse Ideal Flavor). See Installing host programs for a list of supported hosts and related machine types. Generally, the largest record which can be created on the host is 10MB, but you can create records of up to 100MB on UniVerse and UniData, depending on limitations imposed by the host.

Caution: You must be very careful when exporting data from the desktop to your host system, as you might overwrite critical files. For methods of preventing or controlling data transfers, see the *Appendix A: Preventing users from running file transfers* in the *Installation and Configuration Guide*. The recommended method is to use the service subroutine as described in the *Host Subroutines Reference Guide*.

Procedure

1. Create a temporary file so that you do not accidentally export data into a file that you need.
2. From the main toolbar, select **Run** → **Export File**.

Figure 36: Export File to Host



3. In the Export File to Host dialog box, navigate to and select the file that you want to export, and click **Open**.

   The file name is added to the **Local file** field in the Export File to Host dialog box.

   Note:

   Text files should be in ANSI format. You can check this by opening the file in Notepad, clicking **File**, then **Save As**, and looking at the **Encoding** option. If a file is shown to be encoded as Unicode, it is in UTF-16 format and cannot be exported. The program will decline to transfer files in UTF-16 format because, for example, there might be characters we cannot convert to the host format.

   Files in UTF-8 encoding will be exported as we cannot easily distinguish these from regular encoding. This might result in issues with character conversion, and hidden control characters being transferred.

   If you selected **Developer Additions** during installation, you can use the Hex Viewer to look at the contents of the file. The Hex Viewer is in `Program Files\wIntegrate\Examples\Script`.

4. From the Export File to Host dialog box, click **Files**.

   The File Selection dialog box lists files in the current account by default. If you want to see a list of files in a different account, type the name of the account in the **Account** field before you click the

Files button. The **Files** list is blank, and the **Status** box displays progress information while the host computer transfers a list of files in the current account. Wait for the **Status** box to read, “File transfer finished OK” before continuing.

Note: You must be at your host database TCL/ECL prompt in order for the wIntegrate host program `WIN.TRANSFER` to run. Otherwise, the File Selection dialog box is blank and files cannot be transferred.

---

5. In the File Selection dialog box, select the temporary file that you created in step 1, then click **OK**.

   The file name is added to the **Host file** field in the Export File to Host dialog box The file name can be up to 63 characters.

6. In the Export File to Host dialog box, click **Items**.

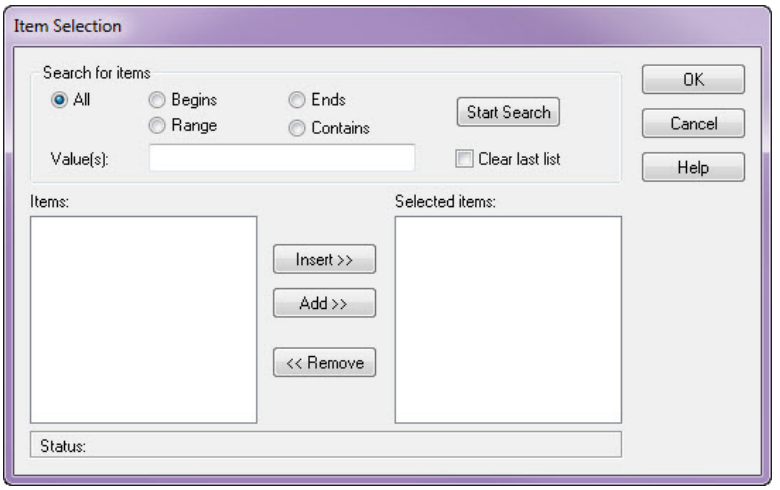
   In the **Items** field, you can:

   - Use the default * to use the item names from the local file as the host item IDs.
   - Enter # if you want wIntegrate to assign sequential numeric IDs.
   - Manually enter specific item IDs. wIntegrate assigns these names as the host item IDs until all of the items names are used. If you enter fewer item names than the number of items (or records) in the local file, wIntegrate assigns sequential numeric IDs (beginning with 1) to the remaining host items.
   - Use the Item Selection dialog box.

7. Click the **Items** button

   The Item Selection dialog box appears.

Figure 37: Item Selection



The Item Selection dialog box lets you view items according to certain criteria, and then choose which ones to transfer. After setting your search criteria, click **Start Search**.

> **Note:** The item IDs are transferred to the Items box, but no other data is transferred at this point.

The **Status** box displays progress information while the host computer transfers a list of items in the selected file.

Select the **Clear last list** check box to clear the list that was previously generated; otherwise, the items that are found in the new search are added to the list of existing items.

Searching for specific items or ranges can reduce the search time on a large file. wIntegrate provides other options to narrow your search for items in the file, for example, **Begins** or **Ends** to search for beginning or ending characters in the **Value(s)** field. These methods can be especially useful when searching large blocks of data.

8. From the **Items** list, select the items that you want to transfer, and then click **Add**.

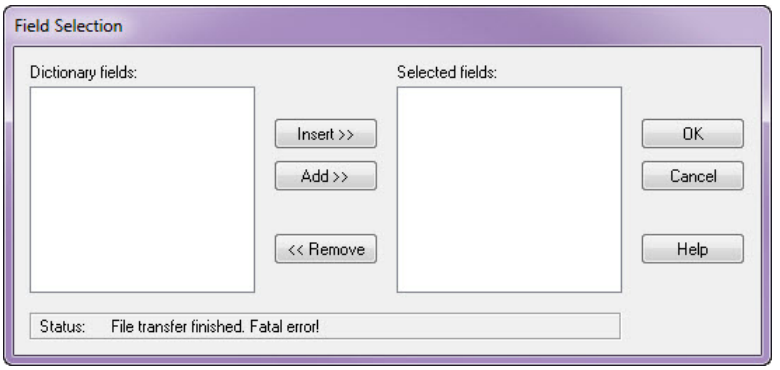
   The items appear in the **Selected items** list.

9. When you are done adding items, click **OK**.

   The selected items are added to the **Items** field in the Export File to Host dialog box.

10. In the Export File to Host dialog box, click **Fields**.
    The Field Selection dialog box appears.

    Figure 38: Field Selection

    Instead of using the Fields dialog box, you can manually enter the dictionary names of the destination fields. For more information, see Additional methods of selecting fields for export, on page 71.

    The **Dictionary fields** list is blank and the **Status** box displays progress information while the dictionary of your chosen file is transferred to your computer. Wait for the **Status** box to read, “File transfer finished OK” before continuing.
11. From the **Dictionary fields** list, select the fields that you want to transfer, and then click **Add >>**.
12. When you are done adding fields, click **OK**.
    The selected items are added to the **Fields** field in the Export File to Host dialog box.
13. From the **Format** drop-down menu, select a format that is based on how you intend to use the data.

    Normally, you specify the file format by entering an extension in the **Local file** field. wIntegrate automatically selects the appropriate format in the **Format** list that is based on the extension you enter. However, you can override the automatic selection in the **Format** field by selecting a different format from the list.

    The available formats are described in Format.
14. From the **Overwrite** drop-down menu, specify how file overwrites are handled.
    The available overwrite options are described in the following table.

    Table 10: Overwrite options

Option	Description
Yes	If the host file already exists in the specified directory, it is overwritten.
No	If the host file already exists, it is not overwritten.
Combine	This option integrates exported data with existing data according to the dictionary fields you specified in the **Fields** field, and adds any new multivalued attributes. If you did not specify dictionary fields, the data is appended to the host record.

15. From the **Translate** drop-down menu, select the method wIntegrate uses to translate characters while transferring them.
    Each translate option is described in Translate.
16. When exporting a file to the host, you can specify characters that wIntegrate translates to ensure a match between the local and multi-valued data. If translation is available for your current

settings, click the **Translation** button to open the **Translation** dialog box. Here, you can set up the host characters wIntegrate translates.

If you are using the **ASCII** translate option to export ASCII data to the host, use the system default translation for characters 254 and 255. The default translation is required to convert line breaks and page breaks in the ASCII file to attribute marks and item marks on the host.

The line break sequence, consisting of a carriage return and new line (represented as \r\n), is set to translate to the attribute mark (character 254).

The page break sequence, consisting of a carriage return, new line, new page, carriage return, and new line (represented as \r\n\f\r\n), is set up to translate to the record mark (character 255).

17. Select any additional options as necessary.

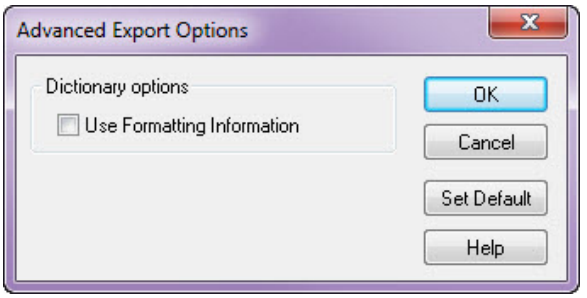
Table 11: Other options

Option	Description
Multiple disks	wIntegrate prompts you to insert disks during the export if multiple disks are involved.
Inform when done	A message informs you when the file import is complete. This option is useful if you want to run another application full-screen while wIntegrate transfers data.
Timeout	The maximum number of seconds wIntegrate waits for a response to a protocol message. The default value of five seconds is sufficient. Valid values range 1 - 9999 seconds. A timeout occurs when wIntegrate sends a protocol message and it does not get a response within a specified length of time. When a timeout occurs, wIntegrate resends the protocol message until the maximum number of retries is reached.
Retries	The maximum number of times that wIntegrate sends a protocol message before a file transfer is abandoned. The default value of three is sufficient, or five retries in any case. Valid values range 0 - 9999. When transferring data in Capture mode, the Retries value applies only to the initial exchange of internal parameters. It is not relevant to the data transfer, which is dependent on capturing the output of a host query statement.

18. If you need to convert numbers from the display format that is used in your host data to a different display format on your computer, click **Advanced**.

The Advanced Export Options dialog box appears.

Figure 39: Advanced Export Options



Select the **Use Formatting Information** check box to use the conversion information from host dictionary items where appropriate.

19. Click **Save**. In the Save File Export settings dialog box, enter a file name with the extension `.wis`. Click **Save**.

Note: If the local file you are about to export is open on your computer, be sure to close it before you start the file transfer process.

20. In the Export File to Host dialog box, click **OK**.

    The File Export Monitor dialog box appears. When the status bar indicates that the file transfer is finished, click **Exit**.

    Any errors during the transfer will be shown in red in the File Transfer Monitor. Errors are written to the standard Logs folder keyed as `FT_YYMMDD_HHMMSS.log` where `YYMMDD` represents the date and `HHMMSS` represents the time of the transfer.

Additional methods of selecting fields for export

This section describes additional methods for selecting fields when you export a file to the host.

In the **Fields** field of the Export File to Host dialog box, you can enter the dictionary names of the source fields. The dictionary items must be simple attribute definitions, not calculated or derived fields. Otherwise, enter * to insert fields in the host records in the same sequence in which they appear in the local file. When you enter *, the first field in each record will be used as the host ID.

Note: With the Fixed length format, fields are padded to fixed lengths in the local file, so wIntegrate checks each host dictionary item to find the actual length of the field. To export padded fields, you must specify the dictionary items in the **Fields** field. You cannot enter * with the Fixed length format.

If you enter the dictionary names of the destination fields, wIntegrate checks the attribute number of each host dictionary item to position the local fields in the host file. If you enter a field that defines the host item ID (attribute 0), wIntegrate ignores instructions in the **Items** field and assigns this field as the host item ID. If you specify the dictionary items but none of the items define attribute 0, wIntegrate uses information in the **Items** field to assign the host item ID.

With the Fixed length format, you can skip over characters in the file by using the `IGNORE()` function in the **Fields** field. For example, if the file contains carriage returns and linefeeds, you can use the `IGNORE()` command to skip over them:

- `ID IGNORE(1) NAME`: ignores one character between the ID and NAME fields.
- `ID CUSTOMER IGNORE(3) ADDRESS IGNORE(10)`: ignores three characters between the CUSTOMER and ADDRESS fields, and ignores ten characters at the end of each record.

Issues with Excel exponential notation when exporting data

This section refers to the way wIntegrate handles apparent anomalies in the way the Excel `.xlsx` files store data.

Data is not always stored in the `.xlsx` file the way you see it in the spreadsheet. Most numbers are stored as you see them, but some are stored with exponential notation. For example, the two cell values of `0.06` and `0.07` are stored respectively as `0.06` and `7.0000000000000007E-2`.

Note: You can see this for yourself as follows. First, create a new spreadsheet with two cell values of `0.06` and `0.07`. Save the spreadsheet as, for example, `myfile.xlsx`. Then, change the file extension so the file is named `myfile.zip`. Open this `.zip` file in Windows Explorer and navigate to the `xl\worksheets` folder. Open the `sheet1.xml` file in a text editor. You can see the data `0.06`, but where you would expect to see `0.07`, you see `7.0000000000000007E-2` instead.

Exponential notation poses a question when wIntegrate exports the data to the host. Even in this simple example, you don't know if the user wants `7.0000000000000007E-2` to be sent to the host as `0.07`. All you can do is move the decimal point twice to the left and return the resulting number, in this case `0.070000000000000007`. It follows that there may be unexpected values in your host data.

When wIntegrate encounters a cell in a `.xlsx` file stored with exponential notation, the following message is displayed in the File Transfer Monitor:

```
Warning! Exponential Notation! See User Guide for info.
```

The warning message is also written to the log folder, typically `Documents\wIntegrate\Logs`, with a file name of `FT_YYMMDD_HHMMSS.log`, where *YYMMDD* is the date and *HHMMSS* is the time.

Bridge copying files

With **Bridge Copy Files**, you can transfer data from one host computer to another. In a bridge copy transfer, one host provides the data for the transfer, and the other host receives the data.

Prerequisites

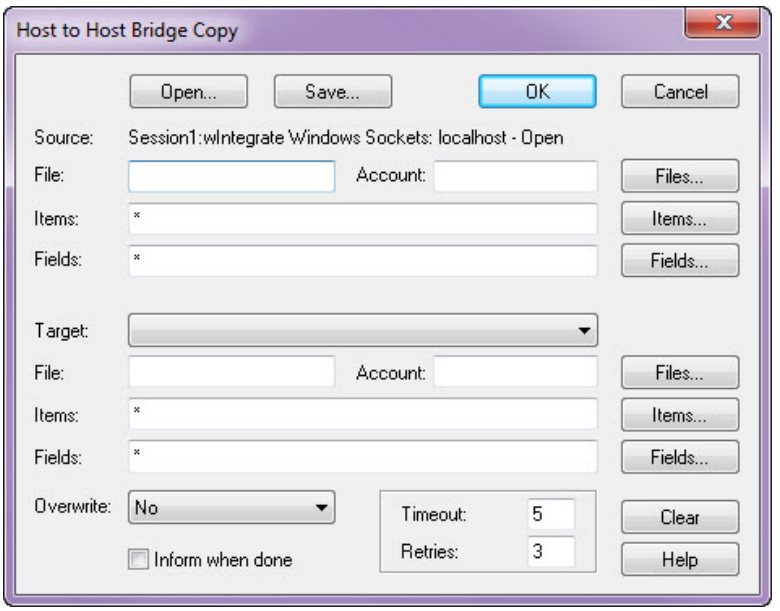
- You must first install the wIntegrate host programs on both host computers. See Installing host programs, on page 28.
- You must be running two sessions of wIntegrate.

Procedure

1. Create a temporary file on the target host so that you do not accidentally overwrite critical data.

2. On the source host computer, from the main toolbar, select **Run > Bridge Copy File**.

Figure 40: Host to Host Bridge Copy



3. From the Host to Host Bridge Copy dialog box, click **Files** from the Source group.

   The File Selection dialog box lists files in the current account by default. If you want to see a list of files in a different account, type the name of the account in the **Account** field before you click the **Files** button. The **Files** list is blank, and the **Status** box displays progress information while the host computer transfers a list of files in the current account. Wait for the **Status** box to read, "File transfer finished OK" before continuing.

   Note: You must be at your host database TCL/ECL prompt in order for the wIntegrate host program `WIN.TRANSFER` to run. Otherwise, the File Selection dialog box is blank and files cannot be transferred.

   File is the name of the source file to be transferred. You can use a defined file or file synonym. If you are importing from a dictionary file, enter DICT before the file name (for example, DICT CUST).

4. In the File Selection dialog box, select the file containing the data that you want to copy to the other host, then click **OK**.

   The file name is added to the **File** field in the **Source** group of the Host to Host Bridge Copy dialog box.

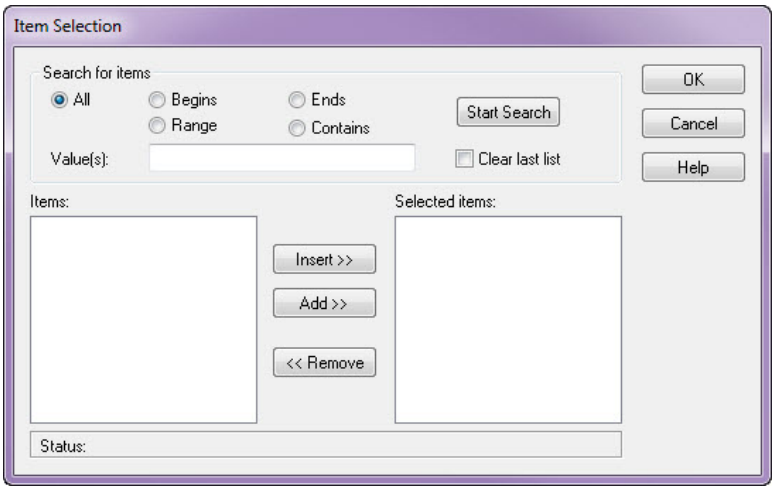
   Note: Notice the asterisk (*) in the **Items** and **Fields** fields. The asterisk denotes that you want to transfer all of the items or fields in the file. Instead, you can select particular items or fields to transfer by clicking the **Items** or **Fields** button and selecting from a list. If you decide to use the default asterisks, the headings for the report will not appear because no dictionary items are specified.

   ---

5. In the **Account** field, enter the name of the account that contains the file on the source host computer. If you leave this field blank, the data transfer uses the current account.

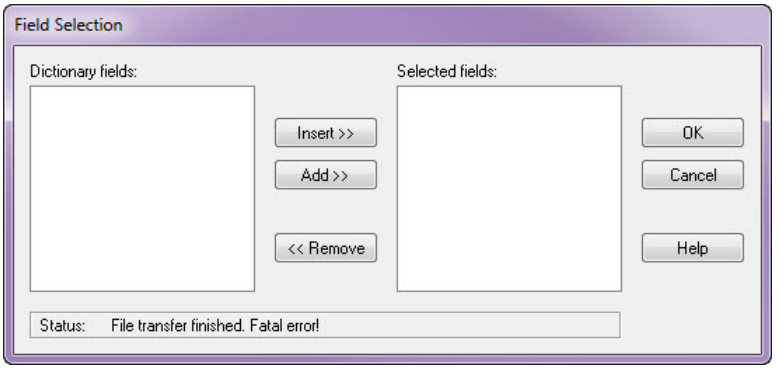
6. In the Export File to Host dialog box, click **Items**.
   The Item Selection dialog box appears.

Figure 41: Item Selection



7. The Item Selection dialog box provides several ways to select items, or records, in the source file.
   - All items in the file in random order – Enter an asterisk (*).
   - Specific items – Enter the IDs of the source items separated by spaces.
   - Item selection – Enter a SELECT, SSELECT, GET.LIST, or similar command with sort criteria if required. If you are not using UniData, enter a similar selection command for your database.
8. When you are done adding items, click **OK**.
   The selected items are added to the **Items** field in the Host to Host Bridge Copy dialog box.
9. In the Host to Host Bridge Copy dialog box, click **Fields**.
   The Field Selection dialog box appears.

Figure 42: Field Selection



In the **Fields** field of the Host to Host Bridge copy dialog box, you can enter the dictionary names of the destination fields. The dictionary items must be simple attribute definitions, not calculated or derived fields. Otherwise, enter * to insert fields in the host records in the same sequence in which they appear in the local file. When you enter *, the first field in the host file is the host item ID.

10. From the **Dictionary fields** list, select the fields that you want to transfer, and then click **Add >>**.
11. When you are done adding fields, click **OK**.
    The selected items are added to the **Fields** field in the Host to Host Bridge Copy dialog box.

12. The **Target** drop-down menu shows other wIntegrate sessions. From the **Target** drop-down menu, select the wIntegrate session and the destination computer.

    Note: The destination computer might be the same as the source computer.

13. From the **Target** group, click **Files**.

    In Target, this field specifies the destination file.

14. In the File Selection dialog box, select the temporary file that you created in step 1, then click **OK**.

    The file name is added to the **File** field in the **Target** group of the Host to Host Bridge Copy dialog box.

15. In the **Account** field, enter the name of the account on the target machine. If you leave this field blank, the data transfer uses the current account.
16. From the **Target** group, in the **Items** field, perform one of the following actions:click **Items**.

    - Leave the default * if you want to assign the original item IDs to the incoming records.
    - Enter # if you want wIntegrate to assign sequential numeric IDs to all records.
    - Click **Items** and in the Item Selection dialog box, select the names of the files on the target host. When you are done adding items, click **OK**.

    If you do not specify enough item IDs for the incoming records, wIntegrate uses sequential numeric IDs starting at 1 for the remaining records.

17. From the **Target** group, click **Fields**.

    The Field Selection dialog box appears. Fields contain the names for the incoming fields as defined in the dictionary file.

18. From the **Dictionary fields** list, select the fields that you want to transfer, and then click **Add >>**.
19. When you are done adding fields, click **OK**.

    The selected items are added to the **Fields** field in the **Target** group of the Host to Host Bridge Copy dialog box.

20. From the **Overwrite** drop-down menu, specify how file overwrites are handled.

    The available overwrite options are described in the following table.

    Table 12: Overwrite options

Option	Description
Yes	If the target item already exists in the specified file, it is overwritten.
No	If the target item already exists, it is not overwritten.
Combine	This option integrates exported data with existing data according to the dictionary fields you specified in the **Fields** field, and adds any new multivalued attributes. If you did not specify dictionary fields, the data is appended to the host record.

21. Select any additional options as necessary.

    Table 13: Other options

Options	Description
Inform when done	A message informs you when the file import is complete. This option is useful if you want to run another application full-screen while wIntegrate transfers data.

Options	Description
Timeout	The maximum number of seconds wIntegrate waits for a response to a protocol message. The default value of five seconds is sufficient. Valid values range 1 - 9999 seconds. A timeout occurs when wIntegrate sends a protocol message and it does not get a response within a specified length of time. When a timeout occurs, wIntegrate resends the protocol message until the maximum number of retries is reached.
Retries	The maximum number of times that wIntegrate sends a protocol message before a file transfer is abandoned. The default value of three is sufficient, or five retries in any case. Valid values range 0 - 9999. When transferring data in Capture mode, the Retries value applies only to the initial exchange of internal parameters. It is not relevant to the data transfer, which is dependent on capturing the output of a host query statement.

22. In the Host to Host Bridge Copy dialog box, click **OK**.

    The Bridge Copy Monitor dialog box appears. When the status bar indicates that the file transfer is finished, click **Exit**.

You can verify that the file transfer worked by listing the new file in the target wIntegrate session.

Any errors during the transfer will be shown in red in the File Transfer Monitor. Errors are written to the standard Logs folder keyed as `FT_YYMMDD_HHMMSS.log` where `YYMMDD` represents the date and `HHMMSS` represents the time of the transfer.

Resolving file transfer issues

This section describes common issues with the file transfers.

Install the host programs

Before you can transfer data between the host and PC, you must install the wIntegrate host programs. For more information, see the Installation and Configuration manual. The host programs are installed into a file `WIN.PROGS`. To transfer data, you need only install the File Transfer host programs and not the Host API.

Check the machine type

The host programs are slightly different for each type of multi-valued host, such as UniVerse, UniData, and D3. The appropriate programs for your host are executed according to a record `MACHINE.TYPE` stored in `WIN.PROGS`. You choose the `MACHINE.TYPE` when installing the host programs. The choices are:

Table 14:

MACHINE.TYPE	Host
AP	D3 and Advanced Pick
MV	mvBase
UD	UniData
UC	UniData (P mode)
UP	UniVerse (Pick flavor)
UV	UniVerse (Ideal and Prime flavors

The current MACHINE.TYPE is shown on screen when you run the Query Builder. If you installed the wrong one for your host, you can fix if by simply re-installing the host programs and selecting the correct one.

Can WIN.TRANSFER and WIN.SERVER run?

The data import and export use the same host program WIN.TRANSFER. The Query Builder uses WIN.SERVER. If these programs cannot execute, then the process will fail. The simplest way to allow WIN.TRANSFER / WIN.SERVER to run is to be at your TCL command prompt. In organizations where user permissions do not permit this, the user prompt can be modified to allow these programs to run.

To check that WIN.TRANSFER can run:

1. Go to the point where you would use Run ImportFile or Run ExportFile.
2. Type WIN.TRANSFER into the host. Press Return.

   Note: If WIN.TRANSFER starts, 868ConnectOK will appear.

3. Type 215END. Press Return.
4. The WIN.TRANSFER program will exit with 224BYE.

Check that WIN.SERVER can run:

1. Go to the point where you would use Query Builder.
2. Type WIN.SERVER into the host. Press Return.

   Note: The **PC SERVER** box appears.

3. In the title, check the host program version and the current MACHINE.TYPE.
4. To dismiss the **PC Server** box by doing either of the following:
   - Click **Run** → **Query Builder** → **Cancel**
   - Click **Help Status**. Enable **Keyboard Active** and **Full Screen Scrolling**. TypeEND. Press Return.
5. The WIN.SERVER program will exit.

On UniVerse systems, the host program WIN.SERVER tries to execute PTERM -CASE NOINVERT if this command is not already active. If case inversion is not active, the transfer might fail.

Log files show error messages

During the transfer, the **File Transfer Monitor** dialog appears, sometimes with a moving green bar to indicate progress. If an error occurs during the transfer, a red message will most likely appear in this dialog. This message disappears when you close the dialog, but you can see it again in the saved log file. wIntegrate saves log files in one of two places:

- Local version: Documents\wIntegrate\Logs
- Thin client version: C:\ProgramData\Rocket Software\wIntegrate Server\Users\<username>\Logs

The file name of the log is FT_ YYMMDD_HHMMSS.log, where YYMMDD is the date and HHMMSS is the time of the file transfer. The file will contain one or more messages relating to one transfer.

Error: "Receive buffer overflow. Check WIN.TRANSFER started"

You are likely to see this error in the Query Builder if WIN.TRANSFER wasn't able to start. The PC is confused because it sent a message to the host and received back a much longer response than it was expecting. This could happen if you try to run the Query Builder at a host menu which does not

recognize "WIN.TRANSFER". So the host redisplays the menu, sending a lot of data to the PC which it does not understand.

Error: "Unable to open/create reformat host file"

When you import data form the host to the PC, there is a choice of three modes. If you choose **Reformat** mode, the data is written to a host file and then sent to the PC by an error-check protocol. In order for this to happen, a host file WIN.RFMTnn must be available, where nn represents the port. If the file does not exist, the wIntegrate host program tries to create it. Subsequently if the logged-in user does not have privileges to create the file, this message will appear. The solution is to create files WIN.RFMTnn for each port which is likely to import data using the **Reformat** mode.

User permissions, and errors accessing writing folders and files

Login credentials can limit access to certain folders. All users can generally access their own Documents folder, so this is the default destination for file transfers. If you are unable to read or write files, check whether you have access to the folder and file within the folder. The Query Builder and file transfer dialogs have an **Open** button that lets you retrieve a set of file transfer settings. If these settings were saved by another user, they might try to access a file or folder which is not available to your login credentials.

Debugging file transfers

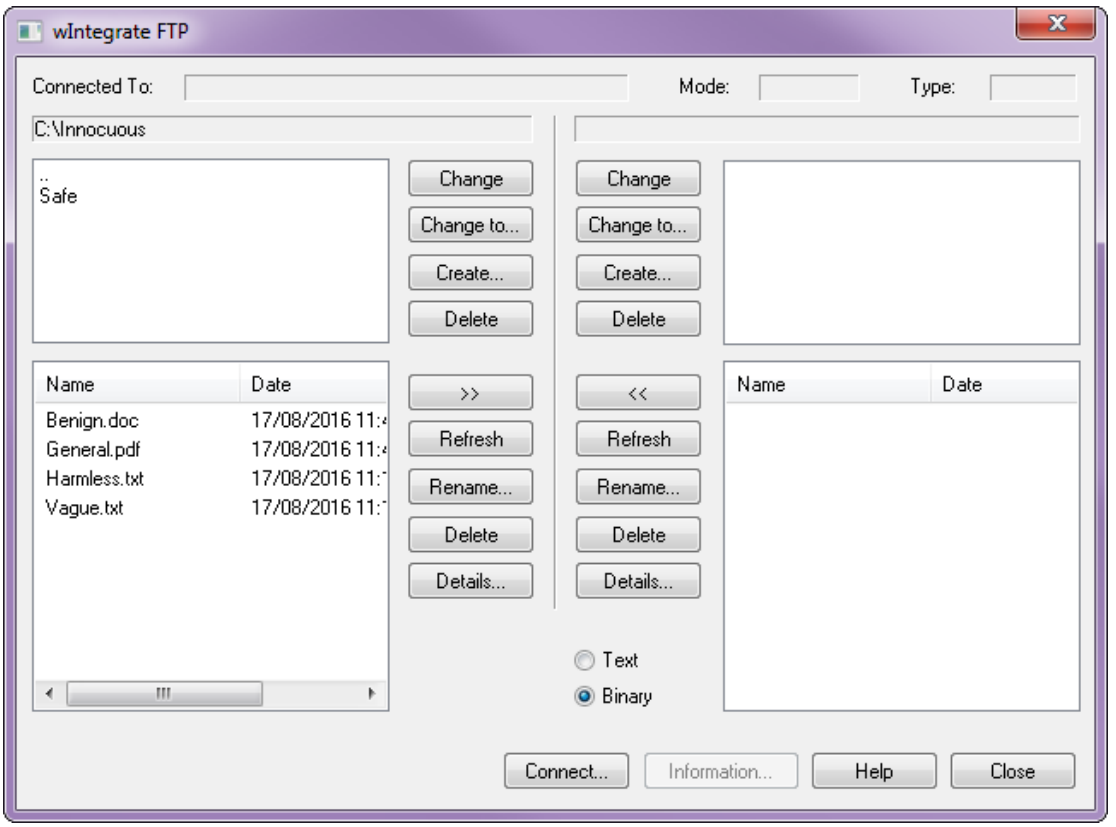
For some errors, it might be helpful to see the data and other exchanges between the PC and host. To do this, before starting the transfer, go into **Edit Record** and set the **Format** as **Two Way**. The resulting file shows everything that was sent and received and might help with understanding issues. This recording and any log files could help Rocket Support analyze file transfer issues.

Using FTP

The wIntegrate FTP dialog lets you transfer files using the standard FTP file transfer protocol.

1. From the main toolbar, select **Run > FTP**.

Figure 43: wIntegrate FTP



2. Click **Connect**.
3. From the Connect to Remote Host dialog box, select a profile, or enter the name of the host, your user name, and your password for the host. You can also specify the initial local and remote folders, if necessary. You can also select the connection mode (Active or Passive), as well as the connection type (FTP, SFTP, or FTPS). Click **OK**.

   FTPS requires an SSL certificate to be installed on the FTP server.

   If you are using SFTP and connecting to an FTP server for the first time, you will be prompted to accept the server key. A list of known servers is kept in a file `HostSSHKeys.txt` along with the SSH server's "fingerprint". The local version stores `HostSSHKeys.txt` in the `Documents\wIntegrate` folder. The wIntegrate Server stores `HostSSHKeys.txt` in user's folder in `C:\ProgramData\Rocket Software\wIntegrate Server\Users\`. If you accept the server key, it will be added to the list of known servers and you will not be prompted again when connecting to that server (unless its key has changed). If you are using FTPS and connecting to an FTP server which has an issue with its SSL certificate, you will be prompted to accept the certificate.

   Profiles save the information that you enter in the Connect to Remote Host dialog box. For more information, see Creating a host profile, on page 80.
4. In the top dialog boxes, navigate to the required folders on the local machine and the remote host.
5. In the bottom list boxes on the left or right side, select one or more files that you want to transfer, and click the **<<** or **>>** button.

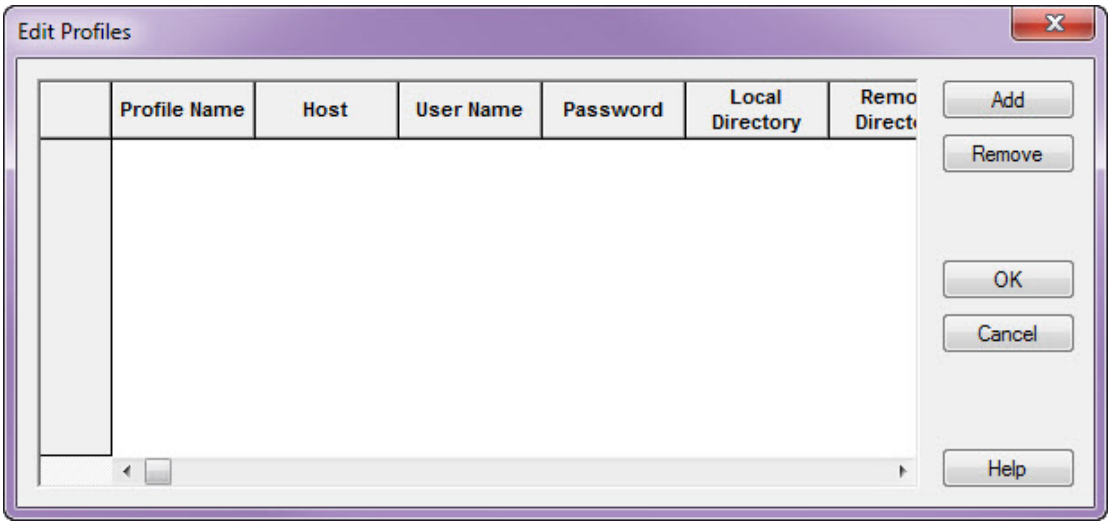
   You can select multiple files from the list boxes by using **Shift + click** and **Ctrl + click**.
6. When you are done transferring files, click **Close** on the wIntegrate FTP dialog box.

Creating a host profile

The **Profiles** drop-down menu on the Connect to Remote Host dialog box allows you to save host information and create a profile. With a profile, you can quickly connect to the host using the FTP instead of entering host details each time.

1. To add a new profile, in the Connect to Remote Host dialog box, click **Edit**.
   The Edit Profiles dialog box appears.

   Figure 44: Edit Profiles



2. Click **Add**.
3. In the blank row that appears, enter the information for each column: **Profile Name**, **Host**, so on.
4. Continue adding profiles as necessary. If you need to delete one, select the row and click **Remove**.
5. When you are done adding profiles, click **OK**.

Chapter 5: Building queries with Query Builder

The Query Builder helps you transfer data from your host computer to the desktop and use it in a variety of popular formats including Excel and Word Mailmerge. The functionality is scripted, making use of the Import File process to actually transfer the data. Because it is a script, it can be modified by capable users to customize the functionality.

You might want to display the results of the query on the terminal screen or in the Report Viewer. If you choose to import the data, the program opens the destination application such as Excel or Word Mailmerge by default, depending on your chosen format.

If you are importing data, the advanced options that control many aspects of how data is imported help you maximize the usability of multi-valued data into the desktop.

If you right-click the toolbar area, you can enable the Queries toolbar, which has four options:

- Select a saved query from a drop-down
- Execute the query selected in the drop-down
- Show the main Query Builder dialog box
- Show the Batch Queries dialog box

For more technical users, the Query Builder is provided as a script that you can customize to suit your needs. Behind the scenes, it uses the `Run ImportFile` processing to import the date from the host to the PC.

After you create a query that generates a report, you can go back into the Query Builder where it will still be displayed. Click the **Save** button to save the query for later use. Saved queries are immediately available in the **Query** toolbar dropdown, which is displayed by right-clicking the toolbar area and selecting **Queries**. The saved query is stored as a script in `Documents\wIntegrate\Queries`, and it can be edited.

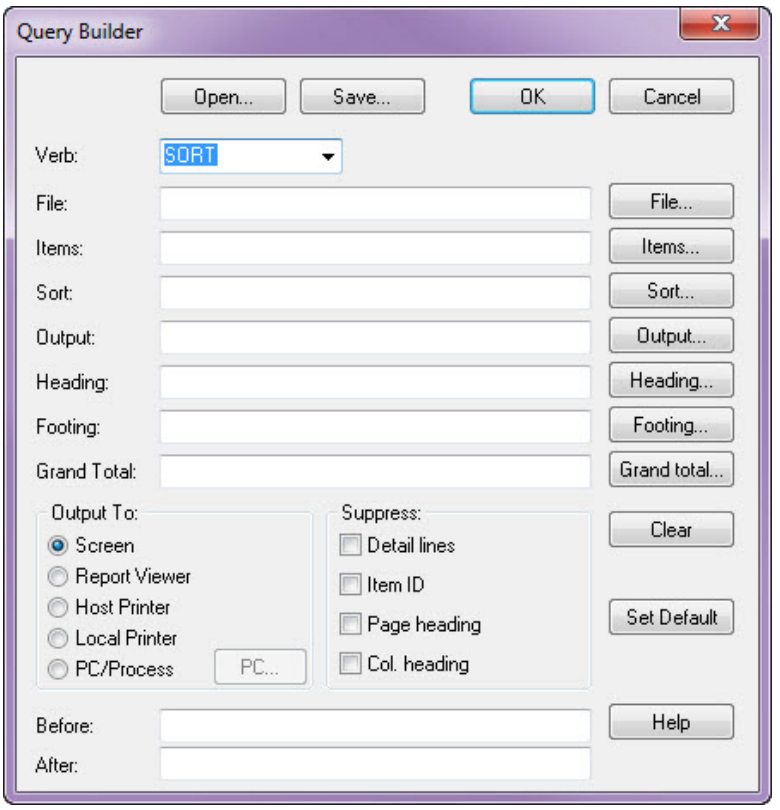
If you are not familiar with this type of database query, refer to your database documentation.

Building queries

You can quickly build queries to enter at the command prompt using the Query Builder. The Query Builder allows you to select items and decide the sorting of them, as well as add header and footer options, and then select an output option to display the results.

1. From the main toolbar, select **Run > Query Builder**.

Figure 45: Query Builder



> **Tip:** You can type information in any field if you know the name of the file, item, or other selection criteria. Otherwise, you can click a query button to search for the information you need.

2. From the **Verb** drop-down menu, select a verb to start the query.

   You will usually use `SORT` to create a report. You might use `SSELECT` if you want to select items and save the list with a SAVE-LIST statement in the **After** field.

3. Click **File**.

   The Files dialog box lists the files in the current account. Depending on the number of files in the account, you might need to wait a few seconds for the complete list to appear.

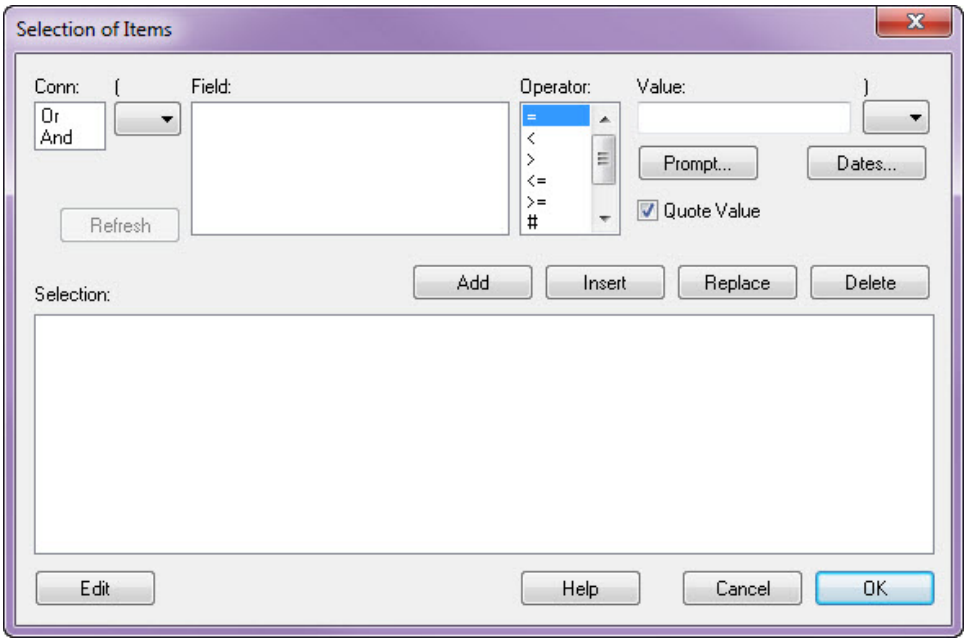
> **Caution:** File names that include comma characters (`,`) will cause inconsistent results in the layout of your query results. For example, D3 users entering `dm,bp` in the **File** text box will get inconsistent layouts in query results when output is directed to the Report Viewer. To avoid this, click the **File** button to browse to and select the file explicitly.

4. Select a file, and then click **OK**.

   After choosing the data file, you can back into the Files dialog box to choose to use the dictionary of a different file. Select the required dictionary file and the appropriate option. In the main dialog box, the **File** field is updated accordingly.

5. Click **Items**.
   The Selection of Items dialog box appears.

Figure 46: Selection of Items



6. In the Selection of Items dialog box, specify your selection criteria, as described in the following table.

Table 15: Selection of Items options

Option	Description
And	Select this check box if you want to precede the phrase with AND.
Field	wIntegrate automatically obtains the fields in the selected file from the host the first time you open the Query Builder. These fields are retained until you select a different file.
Operator	Select a relational operator to be used to evaluate data in the selected field against a specified value.
Value	Enter a value to be used to evaluate data in the field.
Prompt	Prompt the user for selection criteria at runtime with your custom message if the pattern is not matched.
Dates	Select run-time resolution of predefined dates, such as *lastmonth* or *today*. You can also control the parentheses for complex AND/OR criteria.
Quote Value	Select this check box if you want to enclose the value in quotation marks in the query statement. Typically, you will add quotation marks around text, not number.
Add	Click this button to add the current line below the displayed lines.
Insert	Click this button to insert the current line above the highlighted line in the Selection list.
Replace	Click this button to replace the highlighted line with the current line in the Selection list.
Delete	Click this button to delete the highlighted line in the Selection list.
Edit	Click this button to display the highlighted line in the Field, Operator, and Value boxes for editing.

You can also list user-defined prompts, as described in User-defined prompts, on page 88.

Select the **Field** that you want to use in the selection criteria, the **Operator**, and the **Value** to apply. Click the **Add** button to add this filter to the **Selection** list.

You can also enter specific item IDs in the **Field** section, or enter an asterisk (*) to import all of the fields in the file. Note that because no dictionary items are specified, the data is imported without field headings.

7. When the selection box is complete, click **OK**.
8. On the Query Builder, click **Sort**.
9. In the Sort criteria dialog box, select the fields that you want to sort by, then click **Add >>**.

   You can sort on multiple fields by adding or inserting field names. The field at the top of the Sort sequence list is the primary sort. The **Add** button places the selected field at the bottom of the **Sort sequence** list. The **Insert** button places the selected field above the selected line in the **Sort sequence** list.

   To insert a field, select the line in the **Sort sequence** list above where you want to place the new sort field, and click the **Insert** button.

   When you are done sorting, click **OK**.
10. On the Query Builder, click **Output** or type an asterisk (*) in the **Output** field.

    Note: When you type an asterisk, no dictionary items are included that you could use to find out anything about the data. Because of this reason, no headings appear for the fields.

    Note: If you are importing host data to the PC, individual fields larger than 2 MB can be imported to text-based files such as CSV. However, Excel 2016 supports a maximum size of 32,767 characters per cell.

11. In the Output Criteria dialog box, select a **Modifier** and a **Field**. The modifier controls the output type for a selected field. Click **Add**.

    Note: The TOTAL modifier option works in numeric fields only. For example, you might want to list the names of all staff members, then total the number of staff members listed. The TOTAL option does not work in this case because the information in the column is not numeric. However, the total number of records is always listed at the end of every report. The BREAK.ON modifier option creates a break line in the report when the value changes in the selected field. If you select BREAK.ON, enter the text to appear on break lines in the **Option Text** field.

12. After you select the output criteria, click **OK**.
13. On the Query Builder, click **Heading**.
14. In the Heading dialog box, enter a descriptive title for the report.

    Note: If you select **PC/Process** from the **Output To** group on the Query Builder, and use any format other than a chart, the heading is not used. However, if you use a chart format, the heading is used as the title of the chart.

15. Add options to the title, such as the date or time, by clicking the buttons in the **Add Option** group, described in the following table.

For example, if you want to add a blank line after the report title, in the **Add Option** group, click **New Line**. The 'L' command, used to add a blank line, appears after the report title in the **Definition** field.

Table 16: Heading and footing options

Option	Description
Break	Inserts a command to place the `BREAK` value in the report heading or footing. The command for a break is `B`. If you use this option, you must also select the **BREAK.ON modifier** in the Output Criteria dialog box. See your database query language documentation for information about using the BREAK option.
New Line	Inserts a command to add a blank line between heading lines or between the heading or footing and the body of the report. Click this button once for every blank line you need. The command for a new line is `L`.
Date	Inserts a command to add the host system date to the report heading or footing. The command for the date is `D`.
Center	Inserts a command for centering the text on this line of the report heading or footing horizontally. The command for a centered line is `C`.
Time	Inserts a command to add the host system time in the report heading or footing. The command for the time is `T`.
Page No.	Inserts a command to add the page number to the report heading or footing. The command for the page number is `P`.
File Name	Inserts a command to add the file name to the report heading or footing. The command for the file name is `F`.
Page Justification	Sets the number of characters for right-justification of the page number. For example, if you expect the report to be 100 pages or more, enter 3 in this field so the page number is right-justified in a field of three spaces.
File Justification	Sets the number of characters for left-justification of the file name. With this option, you can set up identical spacing for the report heading and footing in similar reports.

Note: If you select **PC/Process**, do not use options in the **Add Option** group. The commands that are added are interpreted as literal characters and appear in the chart title.

16. After you add a title for the report, click **OK**.
17. On the Query Builder, click **Footing**.
18. In the Footing dialog box, enter a footer. Add options to the footer in the same way that you added options for the heading.

    See the previous table for descriptions of each option.

    Note: If you select **PC/Process** from the **Output To** group on the Query Builder, the footing is not used.

19. After you add a footer for the report, click **OK**.
20. On the Query Builder, click **Grand Total**.

    The Grand Total dialog box allows you to compute the grand total in a numeric column. Grand Total only works in numeric fields, and might not work on some host machines.

21. In the Grand Total dialog box, enter a descriptive label for the grand total field in the **Definition** field.

    The additional options that you can add are described in the following table.

    Table 17: Grand Total options

Option	Description
Underline	Inserts a command to add a line between the final line of the report and the Grand Total line.
Page Eject	Inserts a command that forces the Grand Total line to be displayed on a new page. The command for page ejection is `P`.
Line Suppress	Inserts a command that suppresses the blank line between the last line of the report and the Grand Total line. The command for line suppression is `L`.

22. When you are done adding a Grand Total definition, click **OK**.
23. From the **Output To** group, select an output option as described in the following table.

    Table 18: Output To options

Option	Description
Screen	Displays the results of the report to the screen.
Report Viewer	Displays the report in the built in Report Viewer grid. This is a good alternative to the emulation screen because it removes the height and width limitations of the terminal screen. In the Report Viewer, you can sort data, move columns, and copy to Excel.
Host Printer	Prints the report to the printer for which your host computer is set.
Local Printer	Prints the report to the printer for which your computer is set. This can be the Windows default printer or a printer you selected for use in this session, as described in Setting up the printer, on page 30.
PC/Process	Saves the report to a file in a specified application format, opens the application, and loads the report file. For example, you might select **Excel worksheet format** and name the file `report.xls`. Excel starts and opens `report.xls`. See Importing a report to an application, on page 89 for information about the PC button that becomes available when you select the **PC/Process** option.

24. From the **Suppress** group, select an option as described in the following table.

    Suppress prevents the printing of certain information on a report.

    Table 19: Suppress options

Option	Description
Detail lines	No detail lines are printed. The only lines that are printed are those that you specified with the `BREAK.ON` modifier and a final total.
Item ID	Does not print the item ID at the beginning of each line.
Page heading	Does not print the default page heading.
Col. heading	Does not print the default column heading.

25. In the **Before** field, type an ECL statement to execute before generating the report.

    This might be a stand-alone program that, for example, configures a printer. Or you might want to use a `GET-LIST` or `SELECT` statement to retrieve an existing list of item IDs before running a report.
26. In the **After** field, type an ECL statement or command to execute after the report.

    For example, you might want to use a `SAVE-LIST` statement to store a list of item IDs.

27. On the Query Builder, click **Save**. Enter a file name with the extension of `.wis` to save the query as a wIntegrate script file in the `My Documents/wIntegrate/Queries` directory, and click **Save**.

    When you click **Open** next time, the dialog box will populate with the same values.

    The Queries toolbar has a drop-down menu that automatically shows saved queries.
28. On the Query Builder, click **OK** to run the report.

    wIntegrate exits the WIN.SERVER host program and enters the query statement at the command prompt as you entered it.

Pre-defined dates

When using the Query Builder to run a regular report that returns data based upon dates (e.g. a list of invoices for "last month"), it can be tedious to enter the date range each time the report is run. Additionally, if the Scheduler is used to automatically run reports, the date range must be changed in the saved script before running the report.

You can save time by using pre-defined date definitions, which results in the required date being resolved and inserted at runtime. The pre-defined dates supported are as follows (they can be modified to create your own):

Definition	Format
Yesterday	mm/dd/yy or dd/mm/yy
Today	mm/dd/yy or dd/mm/yy
Tomorrow	mm/dd/yy or dd/mm/yy
LastWeekMon (Monday of last week)	mm/dd/yy or dd/mm/yy
ThisWeekMon (Monday of this week)	mm/dd/yy or dd/mm/yy
NextWeekMon (Monday of next week)	mm/dd/yy or dd/mm/yy
LastMonth (in January this is 12)	mm
ThisMonth	mm
NextMonth (in December this is 01)	mm
LastMonthYear (the year for last month; in January this would be the year before the current year)	yyyy
NextMonthYear (the year for next month; in December this would be the year after the current year)	yyyy
LastYear	yyyy
ThisYear	yyyy
NextYear	yyyy

The following example would report orders dated today:

```
LIST ORDERS WITH ORDER.DATE = <%Today%>
```

The following example would report last month's invoices:

```
LIST INVOICES WITH INV.MONTH = <%LastMonth%> AND WITH INV.YEAR =
        <%LastMonthYear%>
```

Note that:

- Definitions are not case sensitive
- Specific dates are mm/dd/yy or dd/mm/yy (depending on local settings)
- Months are two digits
- Years are four digits
- Values and conversions can be customized in the definition scripts

Definition scripts are stored with other Query Builder files in the `Query\QueryVar` folder, in the wIntegrate or wIntServ folder in `Program Files`. You can modify and create your own definitions. For example, the script Yesterday.wis is:

```
* Return yesterday's date in D2/ format
*$Version 6.1.0
Query_ReplaceVal = Date()- 1
Query_ReplaceConv = "D2/"
```

User-defined prompts

You can set up a query to prompt for values each time it runs. To do so, enter prompts in the **Items** or **Before** fields.

Use the following format when entering a prompt:

Table 20: User-defined prompts

Option	Description
<<	Symbol indicating the start of user prompt data.
label	The label for the field to appear in the dialog box.
length	The length of the input field (default = 10). This does not restrict the number of characters entered.
pattern	The pattern for validation. Pattern format: ▪ "" – No validation. ▪ nt – Can be repeated as often as necessary. 0 means 0 or more, and t is a type. ▪ N – Numeric. ▪ A – Alphabetic. ▪ X – Any character. ▪ 'text' – Specific text that is enclosed in single quotation marks. The following examples show you how to use these formats in patterns: ▪ 1N0N specifies a whole number, such as 1, 12, or 456. ▪ 2A1N specifies two letters followed by one digit, such as ab1 or df8. ▪ 2N'/'2N'/'2N specifies three sets of two digits that are separated by slashes, such as 10/12/14. ▪ 2N'.'2N'.'2N specifies three sets of two digits that are separated by dots, such as 12.31.98.
error	The text of the error message to be displayed if validation fails. (The default is a generic error message.)
>>	Symbol indicating the end of user prompt data.

User-defined prompts example

This example uses the ORDERS file in the UniData demo database. In the Query Builder, enter information in the **Items** field as shown in the following example.

```
WITH STATE = "<<State:;2;1X0X;The State must be entered>>"
AND WITH QTY >= "<<Minimum quantity:;6;1N0N;Minimum quantity
must be entered as a number>>" AND WITH ORD_DATE >
"<<Ordered after:;8;2N'.'2N'.'2N;Date format must be NN.NN.NN>>"
```

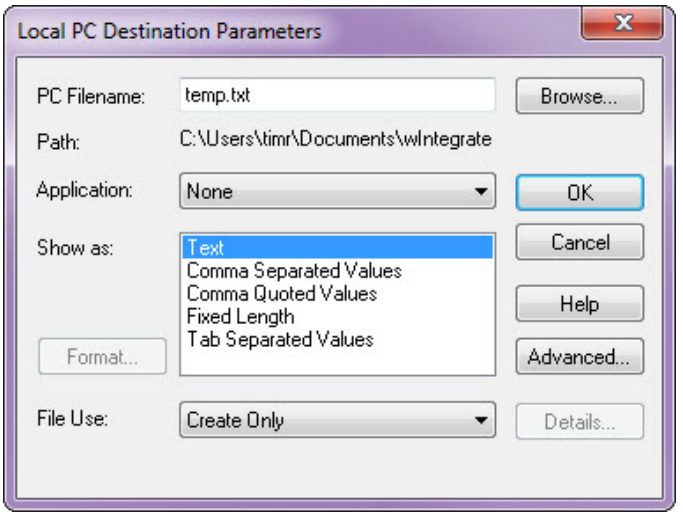
Importing a report to an application

With Query Builder, you can import a report to a file by selecting the **PC/Process** option from the **Output To** group. wIntegrate gives you several choices of application file types, including Microsoft Word and Microsoft Excel.

1. From the main toolbar, select **Run > Query Builder**.
2. On the Query Builder, click **Open** to select a saved report, or create a new report as described in Building queries, on page 81.
3. From the **Output To** group, select the **PC/Process** option.
4. Click the **PC** button.

   The Local PC Destination Parameters dialog box appears.

Figure 47: Local PC Destination Parameters



5. In the Local PC Destination Parameters dialog box, enter or browse to a file name, select the output application, and select the format that you want.
6. Click **Advanced**.
7. On the Advanced PC/Process Options dialog box, enter the following information. When you are done, click **OK**.

Table 21: Advanced options

Option	Description
Timeout	The maximum number of seconds wIntegrate waits for a response to a protocol message. The default value of five seconds is sufficient. Valid values range 1 - 9999 seconds. A timeout occurs when wIntegrate sends a protocol message and it does not get a response within a specified length of time. When a timeout occurs, wIntegrate resends the protocol message until the maximum number of retries is reached.
Retries	The maximum number of times that wIntegrate sends a protocol message before a file transfer is abandoned. The default value of three is sufficient, or five retries in any case. Valid values range from 0 - 9999. When transferring data in Capture mode, the Retries value applies only to the initial exchange of internal parameters. It is not relevant to the data transfer, which is dependent on capturing the output of a host query statement.
Mode	**Normal** - wIntegrate checks the data transfer to verify accuracy. This method cannot process virtual fields or correlatives (such as I-descriptors) because the host program cannot interpret them. wIntegrate transfers data according to the attribute numbers in the dictionary items. Output conversion codes are processed. **Capture** - The output from a SORT statement is displayed invisibly on the terminal screen, captured and parsed into columns. This method handles virtual fields. However, host-to-PC error checking is not performed so data integrity is not guaranteed. **Reformat** - The output from a SORT statement is captured to a temporary file on the host. This file is then transferred to the PC using the error-checked Normal transfer method. This mode supports both virtual fields with error-checked transfer. The Reformat mode also removes the limits on field length required by some hosts. This process takes additional time to create the work file.
Translate characters	Enable the **Translate** option to change characters as they are received by the PC. Click **Translate** to specify which characters should be translated
Append	If the file already exists in the specified folder, the imported data is appended to it. If the file does not exist, wIntegrate creates the file. This option is valid with ASCII, Comma Separated, Comma Quoted, Fixed length, and Raw data file formats only.

Option	Description
Number conversion	Enable the **Number Conversion** option to recognize numbers which might otherwise be seen as text fields, for example when creating an Excel spreadsheet. This is used to import numbers which include currency symbols and comma separators on the original output. **Number Currency** - The currency symbol, for example $, € or £ **Number Separator** - The character between thousands. In English-speaking countries this is usually “,” and in Europe this is usually “.” **Number Decimal** - In English-speaking countries this is usually “.” and in Europe this is usually “,”
Explode values	When importing data in Normal or Reformat modes, you can enable the Explode Values box to cause multi-valued fields to appear one per row instead of all in the same cell.
Repeat values	When importing data in Normal or Reformat modes and Explode Values is enabled, you can enable the Repeat Values box to cause the last value in a column to be repeated and fill in blank cells below.
Show complete field headings	Column widths are determined by the length of the column heading rather than the length specified in the dictionary definition. This option is useful when the column heading is wider than the data.
Use formatting information	Enable the **Use Formatting Information** option to format the field using the conversion, length and justification information from host dictionary items where appropriate.
Left-justified is text	When importing data into Excel, a field containing numbers is normally created as a numeric field in Excel. Enable the **Left-justified is Text** option to cause, for example, a numeric part number to be stored as a text field.
Right-justified is numeric	When importing data into Excel, enable the **Right-justified is Numeric** option to force right-justified fields to be stored as a numbers.

8. On the Load PC Destination Parameters dialog box, select an option in the **File use** section. The following list explains the possible options. Note that not all options may be available.

   - Select **Open Application** to open in an application, for example, open Excel with the newly created spreadsheet. This option will only be available if an application was selected from the **Application** drop-down menu
   - Select **Create Only** to prevent the application from opening.
   - Select **Email To** to send the report in an email. Use the **Details** option to select email addresses to send the report to. This option is not available if system email facilities are not available to wIntegrate.
   - Select **R/Link** to send the report to a Rocket R/Link server. Use the **Details** option to choose an R/Link destination for the report. This option will currently only be available to local versions and only if R/Link is enabled (see Changing application preferences for more information on enabling R/Link). For more details, see Selecting an R/Link destination for a report.

9. Click **OK** to close the Load PC Destination Parameters dialog box.
10. On the Query Builder, click **OK** to run the report.

    The File Import Monitor appears while wIntegrate imports the file. wIntegrate starts the requested application, and your report displays within the application.

Any errors during the transfer will be shown in red in the File Transfer Monitor. Errors are written to the standard Logs folder keyed as `FT_YYMMDD_HHMMSS.log` where `YYMMDD` represents the date and `HHMMSS` represents the time of the transfer.

Note: When importing data you can pad fields, force data formats, and import formulas to Excel spreadsheets. For more information, see Importing Excel formulas and applying formats to imported fields, on page 64.

Selecting an R/Link destination for a report

Rocket R/Link is a secure online file sharing and managed file transfer solution that resides on your network or private cloud. Visit www.rocketsoftware.com for more information.

1. **Note:** Before you use wIntegrate to send a report to an R/Link folder, try transferring a file using the standard R/Link interface to verify your credentials and the validity of the folder you want to access.

   Select a folder on an R/Link server as the destination for a Query Builder report by selecting the **R/Link** option from the **File Use** menu of the Local PC Destination Parameters dialog, and then clicking the **Details** option. The R/Link File Details dialog displays.
2. Specify an R/Link server by clicking the **Connect** button of the R/Link File Details dialog.

   The Connect to R/Link Server dialog displays. In this window, enter or select a server and enter login credentials for that server. There is also an option to specify a secure connection (using Secure Sockets Layer, SSL). Click **OK** when you have specified connection parameters.
3. A list of R/Link folders and files display in the R/Link File Details dialog. Navigate through the folders by double-clicking a folder in the folder list or by selecting a folder and clicking **Change**. The parent folder, if there is one, is represented by a double-dot (..). Each time you navigate to a new folder, the full path of the folder is displayed in the **Path** field. When selecting the destination folder, use care as some folders are not writeable, including the initial root folder.
4. Create or delete R/Link folders as required using **Create** and **Delete** respectively.
5. The name of the Query Builder report file to be generated displays in the **File Name** field. This can be specified in the Local PC Destination Parameters dialog.
6. Select the **Overwrite** option if the report file already exists and you want overwrite it. Otherwise the report will not be generated.
7. When you have selected a folder and the Path reflects your selection, click **OK**. Your selected R/Link server and folder display in the Local PC Destination Parameters dialog.

Chapter 6: Viewing reports with the Report Wizard

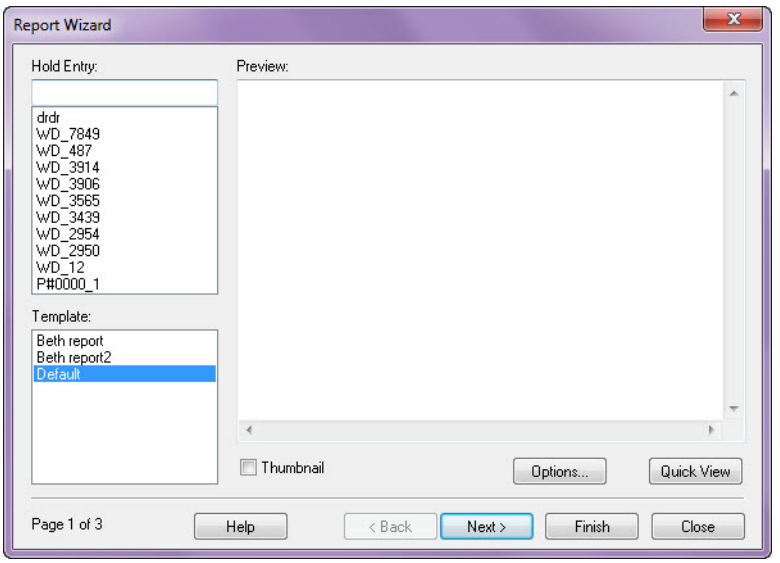
The Report Wizard lets you view host print reports on the PC. It allows you to parse out rows and columns from reports, and send the output to popular file formats such as Excel, HTML, PDF, and more.

Importing a report with the Report Wizard

To view host print reports on the PC, you must first import them using the Report Wizard.

1. From the main toolbar, select **Run > Report Wizard**.

Figure 48: Report Wizard

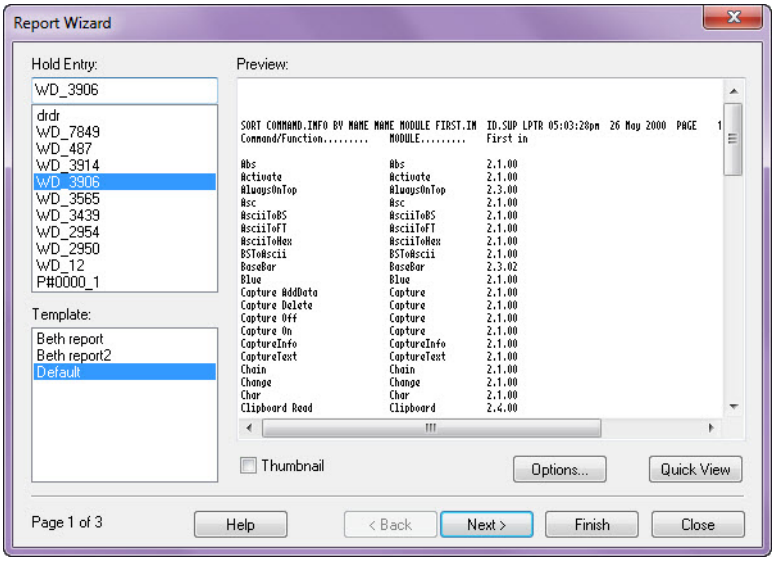


The **Hold Entry** list box shows all hold entries in the current account. You can restrict the displayed hold entries to match user needs and privileges by creating a custom Service Subroutine. For more information about how to create a Service Subroutine, see the *Host Subroutines Reference*.

2. From the **Hold Entry** group, select a report.

   The **Preview** section populates with a preview of the report. You can select the **Thumbnail** check box to view the full report in a thumbnail.

   Figure 49: Report Wizard with preview



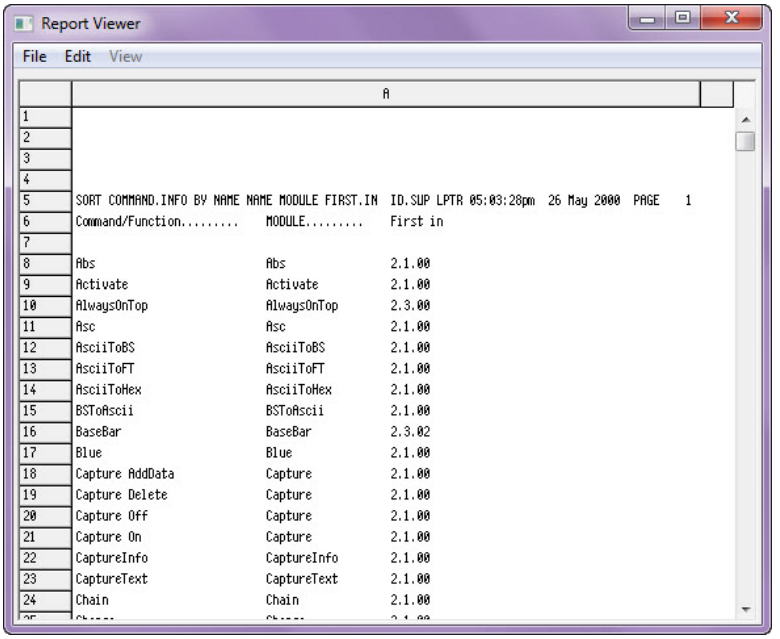
   If you have already saved the header/footer, column header, and column delimiter parameters as a template, you can select a template from the **Template** section.

3. **Optional:** Click **Options**.
   a. In the **Form feed sequence** field, specify the character received to start each new page. Usually this will be the regular CHAR 10 known as form feed. On VT emulations, this value might be different.
   b. If your report has initial lines on the beginning of the report that should be ignored, specify the number of **Lines to skip**.
   c. If your report has initial pages at the beginning of the report that should be ignored, for example, a banner heading, specify the number of **Pages to skip**.
   d. In the **Character Mapping** section, you can specify character strings that should be deleted or replaced.

4. If you want to review the report without parsing columns, click **Quick View**.

   The Report Viewer shows your complete report with no parsing, so you see the report exactly as it is stored on the host.

   Figure 50: Report Viewer



   Click the **X** to close the Report Viewer.

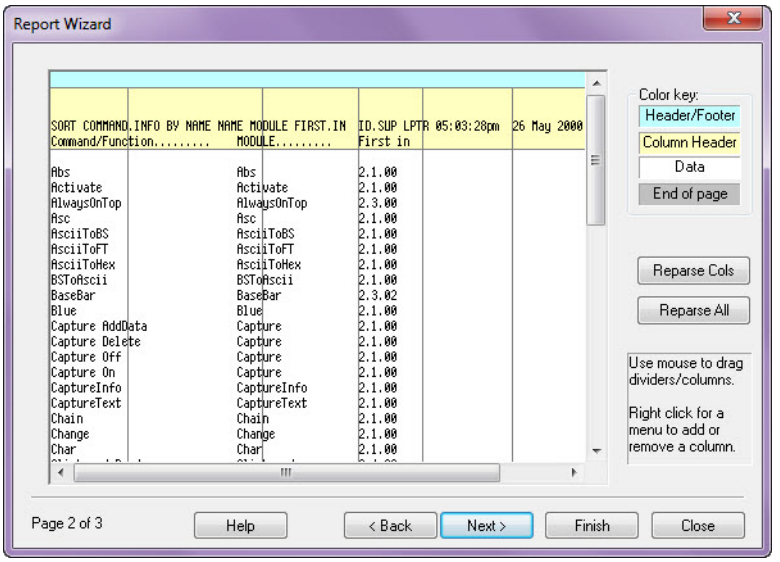
5. To continue with the import, click **Next**.

   The program attempts to determine the header/footer, column header, and column delimiters of the report. The color key on the right describes what each color means.

   The program needs the header and column information to parse the report properly. When the host report is brought into the PC, the program removes embedded headers and footers from the body of the report, leaving only the first page header and the last page footer. The column headings are used to determine how the columns are parsed in Excel.

   Note: The results might not be correct and may require some manual adjustment.

Figure 51: Report Wizard with borders specified

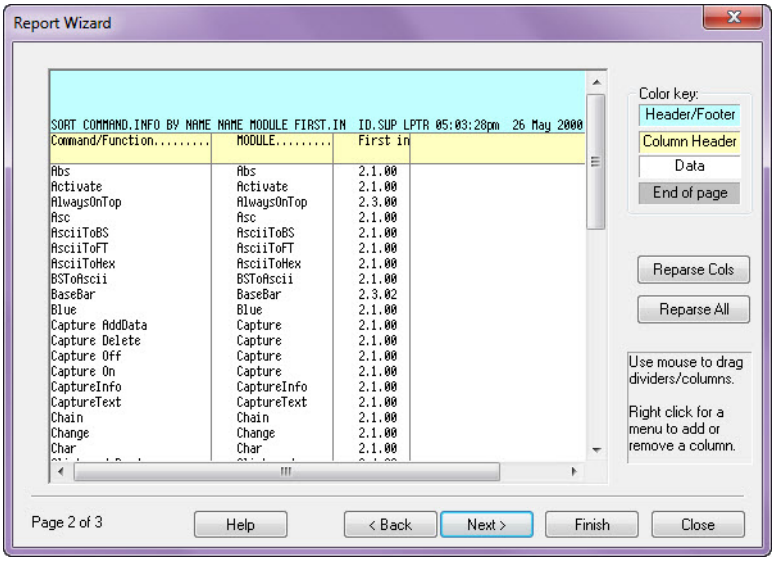


To modify the borders for the report, perform the following steps.

a. Place your cursor over a horizontal border, and drag the border to complete the specified color area. Some areas might not appear; for example, if you are working in a header, but do not see the blue color appear, you can drag the border to the header area to make the color specified area appear.
b. Continue specifying the horizontal borders for the heading, column headings, the top of the footer, and the end of the page. When a multi-page report is imported, the embedded headings/footings between pages will be removed.
c. Before modifying the vertical column borders, click **Reparse Cols**.

   The columns realign based on the yellow column header area and the headings.

Figure 52: Report Wizard with columns reparsed



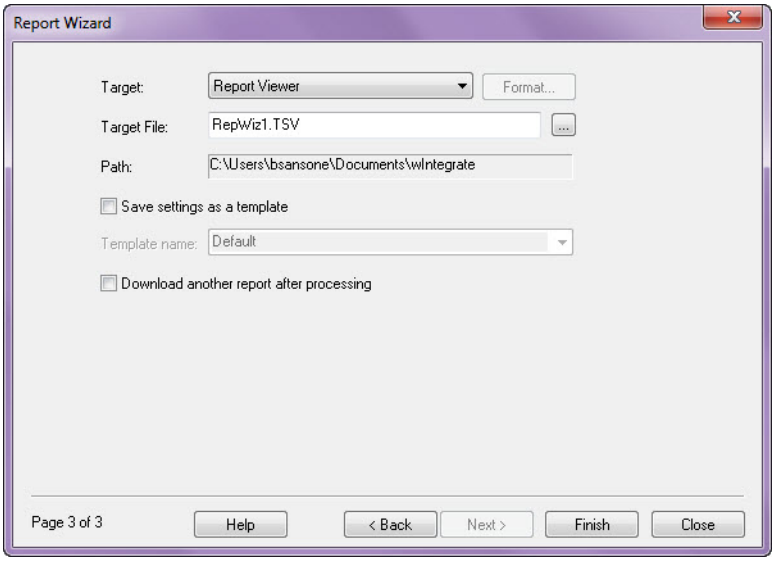
d. If you need to readjust the columns, place your cursor over one, and drag it to the correct location.
e. To insert new columns, right-click in the report where you want the column, and select **Insert Column**.

f. To delete a column, right-click a column and select **Delete Column**.

g. Click the **Reparse All** button to automatically recalculate the position of all borders.

6. When the report looks like you want it to, click **Next**.

Figure 53: Report Wizard



7. From the **Target** drop-down menu, select the target application for the report.
8. In the **Target File** field, accept the default file name or enter a new one. Click the ellipsis button (**...**) to modify the file path.
9. If you want to save the settings that you specified in the previous page of the wizard as a template, select the **Save settings as a template** check box and name a new template.

   When you use the Report Wizard again, the template name appears in the first page of the wizard.

   Templates are saved as scripts in the `My Documents/wIntegrate/RwTemplates` folder. You can edit templates in a text editor and copy them to user machines.
10. If you want to return to the first screen of the wizard after the selected report has been generated, select the **Download another report after processing** check box.
11. Click **Finish** to create the final local PC file.

    The report appears in your chosen application.

Chapter 7: Troubleshooting

The following sections contain information to help you troubleshoot wIntegrate.

Session Copy dialog box appears when starting a session

When you first start wIntegrate, or attempt to start another wIntegrate session, the Session Copy dialog box appears asking you to make a temporary copy of the session.

By default, wIntegrate shows the Session Copy dialog box when an attempt is made to use a `.wic` file already in use. If you cleared the option to **Show the session copy dialog box in future**, you will not be prompted to use a copy of the `.wic` file – it will occur automatically.

If the Session Copy dialog box is disabled, you can enable it by selecting **Setup > Application > General**, and then selecting the **Show session copy dialog** check box. This option applies to all wIntegrate sessions.

There are two situations when the Session Copy Dialog will be displayed:

- when you attempt to start a session using the `.wic` file in use by another running session; or
- when a wIntegrate session terminated abnormally.

Windows keeps track of the files that have been opened. If a wIntegrate session terminates abnormally, Windows might believe a `.wic` file is still in use when it really is not. If you try to open a session using a `.wic` file, Windows believes it is already in use and the Session Copy Dialog will be displayed.

If a wIntegrate session terminated abnormally, and you have a `.wic` file still locked by Windows, you must reboot the PC to clear the lock. Once you have rebooted, you can open a session using the original `.wic` file.

There is nothing wrong with using a copy of a `.wic` file already in use. If you have a standard 'look' you always want to use in a session, opening a copy of an existing `.wic` file is an easy way to accomplish this. As noted above, just be sure to not save this copy as a default startup session when you exit wIntegrate.

Detecting scripts stuck in a loop

The wIntegrate Server attempts to close a hung session in a thin client deployment that is stuck in a loop.

The hung session might be because of a programming error causing the script to run indefinitely, make heavy use of resources, and consume a user license.

Note: Closing an apparent hung session might interrupt a valid script that is executing a legitimate, long-running process. Developers can use the scripting Yield statement occasionally to trigger polling and prevent this from happening.

The Script Loop Timeout value can be changed in the Registry by using the DWORD value:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Rocket Software\wIntegrate Server\Script
\ScriptLoopTimeout
```

If the Registry entry is not present, the default value is 600,000 milliseconds (10 minutes). The DWORD setting allows a number of milliseconds in the range 0 to around 49 days. A reasonable maximum value for Script Loop Timeout might be 30 minutes. When the wIntegrate Server generates a poll, the poll is shown in the Administrator log and written to file if the Log To File option is turned on.

Issues with side-by-side assemblies (SxS, WinSxS, and Manifests)

wIntegrate is compiled using Microsoft Visual Studio, which includes the Microsoft Foundation Classes (MFC) to handle low-level tasks. wIntegrate installs the required MFC modules automatically if they are not already present. Different versions of these same executables can be present on one machine, and sometimes it seems like the Registry is not properly in synch.

When you upgrade to newer versions of Visual Studio, you have to use the newer version of MFC that comes with it. The release notes contain any changes to the version of Visual Studio and MFC. The simplest way to see which version of MFC is used with a particular version of wIntegrate is to search the documentation for comments containing “MFC.”

For example, VS 2010 was first used in wIntegrate 6.3.2, released in 2012. See the 6.3.2 Release Notes, case UWIN-873.

wIntegrate deliberately plans its releases far enough after Visual Studio releases so that any potential issues with the new MFC modules have been identified and resolved by some other application.

If you see an issue that mentions Side-by-Side Assemblies, WinSXS, or something similar, the best course of action is to download the appropriate Microsoft Visual C++ Redistributable Package, which refreshes the MFC installation. Go to www.microsoft.com and search for "visual c++ redistributable package." Select the one that matches your installation.

Sluggish performance and the Nagle option (TCP_NODELAY)

TCP/IP was developed many years ago when networks were less capable than today. The Nagle algorithm was implemented to reduce the number of packets. It delays the sending of each packet by 200 milliseconds in case more data must be added to the packet.

The Nagle algorithm is probably enabled by default. Turning off the Nagle algorithm (behind the scenes, this is the TCP_NODELAY option) causes packets to be sent immediately, resulting in a larger number of smaller packets. This can give a noticeable improvement in performance with tasks that involve exchanges across the network, for example, GUI interfaces and/or thin client deployment. In wIntegrate, you disable the Nagle algorithm in **Setup > Communications** by selecting the **TCP No Delay** check box.

You can also do the same on the U2 server as follows:

- UniVerse: `SET.TELNET NODELAY ON`
- UniData: `UDT.OPTIONS 109 ON`

Data import/export issues when running with Chinese host encoding

When importing or exporting data with the Chinese host encoding enabled, wIntegrate cannot properly handle the data.

If wIntegrate is working with the Chinese GB18030 character set on the host UniVerse system, the settings must be configured accordingly.Set the Host Encoding to GB18030 in **Setup > Terminal**. Ensure that the UniVerse terminal map setting is set to "GB18030+MARKS". Without the "+MARKS" setting, wIntegrate cannot split the data into the correct fields using data delimiters such as attribute marks.

The UniVerse terminal map can be set by the `SET.TERM.TYPE` command, for example:

```
SET.TERM.TYPE VT100 MAP GB18030+MARKS
```

See the UniVerse documentation for more information.

Enabling binary file transfers: Kermit, Xmodem, Ymodem, and Zmodem

Binary file transfer protocols are Kermit, Xmodem, Ymodem and Zmodem. These protocols were popular with dial-up connections before the introduction of networking and faster protocols such as FTP. Binary file transfers were available as options on the **Run** menu until they were removed in the v6.3.4 release. You can reinstate binary protocols on the **Run** menu by doing the following:

1. Start a text editor such as Notepad, and open the `NewSess.wis` file in `Program Files (x86)\wIntegrate\wintSys\Script`.
2. Find the following lines (approximately lines 61 - 74):

```
*If Not(IsOnMenu(Run, "RunReceiveFile")) And
IsMenuItem(RunReceiveFile,1) Then
*    If Not(IsMenu(RunKermitCommand)) Then
*       Menu Create RunKermitCommand
*       Attach RunKermitGetFile, T("&Get File..."), 1
*       Attach RunKermitSendFile, T("&Send File..."), 2
*       Attach RunKermitFinish, T("&Finish"), 3
*       EndCreate
*    EndIf
*    Menu Attach Run, RunReceiveFile, T("Receive Bi&nary File..."), 1
*    Menu Attach Run, RunSendFile, T("Send Bin&ary File..."), 2
*    Menu Attach Run, RunKermitCommand, T("Kermit Ser&ver Command"), 3
*    Menu Attach Run, RunKermitServer, T("&Kermit Server"), 4
*    Menu Separator Run, 5
* EndIf
```

3. Remove the asterisks and save the file (the lines are currently disabled because of the asterisk at the beginning of the lines).
4. Close and restart wIntegrate. The **Binary File Transfer** menu options are available on the **Run** menu.

Enabling the Dialer option on the run menu

The **Dialer** option has been removed as a default option from the **Run** menu starting from version 6.4.2. This functionality has been considered outdated.

If needed, this option can be reinstated on the **Run** menu by performing the following actions:

1. Start a text editor such as Notepad, and open the `NewSess.wis` file located in `Files(x86)\wIntegrate\wIntSys\Script”` or “`Program Files(x86)\wIntServ \wIntSys\Script”`.

2. Locate the following lines (approximately lines 21-25):

```
*If Not(IsOnMenu(Run, "RunDialer")) Then
*   Menu AddItem Run, RunDialer, T("&Dialer..."), "Script
'wintsys\script\dialer'", 1
*   Menu Help Run, RunDialer, T("Set up names and phone numbers for Dialer")
*   Menu Separator Run, 2
*EndIf
```

3. Remove the asterisks, and save the file (the lines are currently disabled because of the asterisk at the beginning of the lines).
4. Close and restart wIntegrate. The **Dialer** menu option should now be available on the **Run** menu.

Spooling files

The Spool File option has been removed as a default option from the Run menu starting from version 6.3.6. This functionality has been considered outdated.

If needed, this option can be reinstated on the Run menu by performing the following actions:

1. Start a text editor such as Notepad, and open the `NewSess.wis` file located in `Program Files(x86)\wIntegrate\wIntSys\Script" or "Program Files(x86)\wIntServ\wIntSys\Script`.
2. Locate the following lines (approximately lines 87-92):

```
If Not(IsOnMenu(Run, "RunImportFile")) And IsMenuItem(RunImportFile,1)  Then
    Menu Attach Run, RunImportFile, T("&Import File..."), 1
    Menu Attach Run, RunExportFile, T("&Export File..."), 2
    Menu Attach Run, RunBridgeCopy, T("&Bridge Copy File..."), 3
    * Menu Attach Run, RunSpoolFile,  T("&Spool File..."), 4
    Menu Separator Run, 4
```

3. Remove the asterisk, change the separator on the next line to position 5 instead of 4, and save the file (the line is currently disabled because of the asterisk at the beginning of the line).
4. Close and restart wIntegrate. The **Spool File** menu option should now be availabe from the Run menu.

Linux terminal emulation and UTF-8 encoding

When displaying text on the character screen, some emulation escape sequences might not be handled properly. You might see this when viewing manual pages on Centos using the `man pwd` command.

This can happen when characters are not received as expected due to mismatched encoding on the server and client.

To resolve this issue:

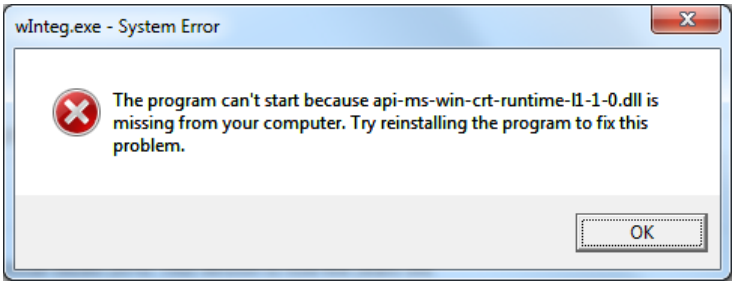
1. Select **Setup** > **Terminal** to open the wIntegrate Terminal window.
2. Change **Host Encoding** to either **UTF-8** or **UVUTF-8**.

The characters will display correctly. See the *Installation and Configuration Guide* for more information on host encoding and UVUTF-8.

api-ms-win-crt-runtime-l1-1-0.dll is missing

wIntegrate 6.4.0 is built with Microsoft Visual Studio 2015. This version of Visual Studio creates a dependency on the Windows 10 Universal CRT runtime environment. At the time of this writing,

Windows does not install the file `api-ms-win-crt-runtime-l1-1-0.dll`, which is required by this platform. You might encounter the following error:



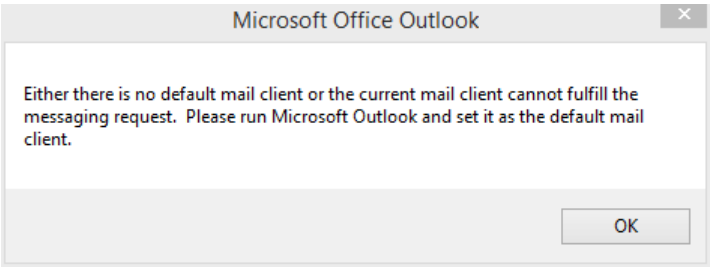
We recommend you use one of the following methods to ensure the file is installed and present on your system:

- Ensure all Windows Updates are complete, including Optional updates
- Search https://support.microsoft.com for `2999226`, the Knowledgebase article *Update for Universal C Runtime in Windows*. Download and install the package appropriate to your machine.

If you install wIntegrate v6.4.0 without running one of these updates, and the file has not already been installed on your system, the licensing program will not run during installation. Later, if you see a message that the v6.4.0 license is not present, rerun the Licensing program from the **Start** > **wIntegrate** menu and enter your license details.

Missing default mail client

When you run the Query Builder to import host data, the following message could appear:



This message occurs on recent versions of Windows when wIntegrate checks to see if MAPI is available, before showing email as a possible destination for the imported data. After you acknowledge the message it is not shown again until you restart wIntegrate.

Refer to the Microsoft Knowledge Base for possible solutions.

Program hangs on UniVerse during PC-to-host interactions

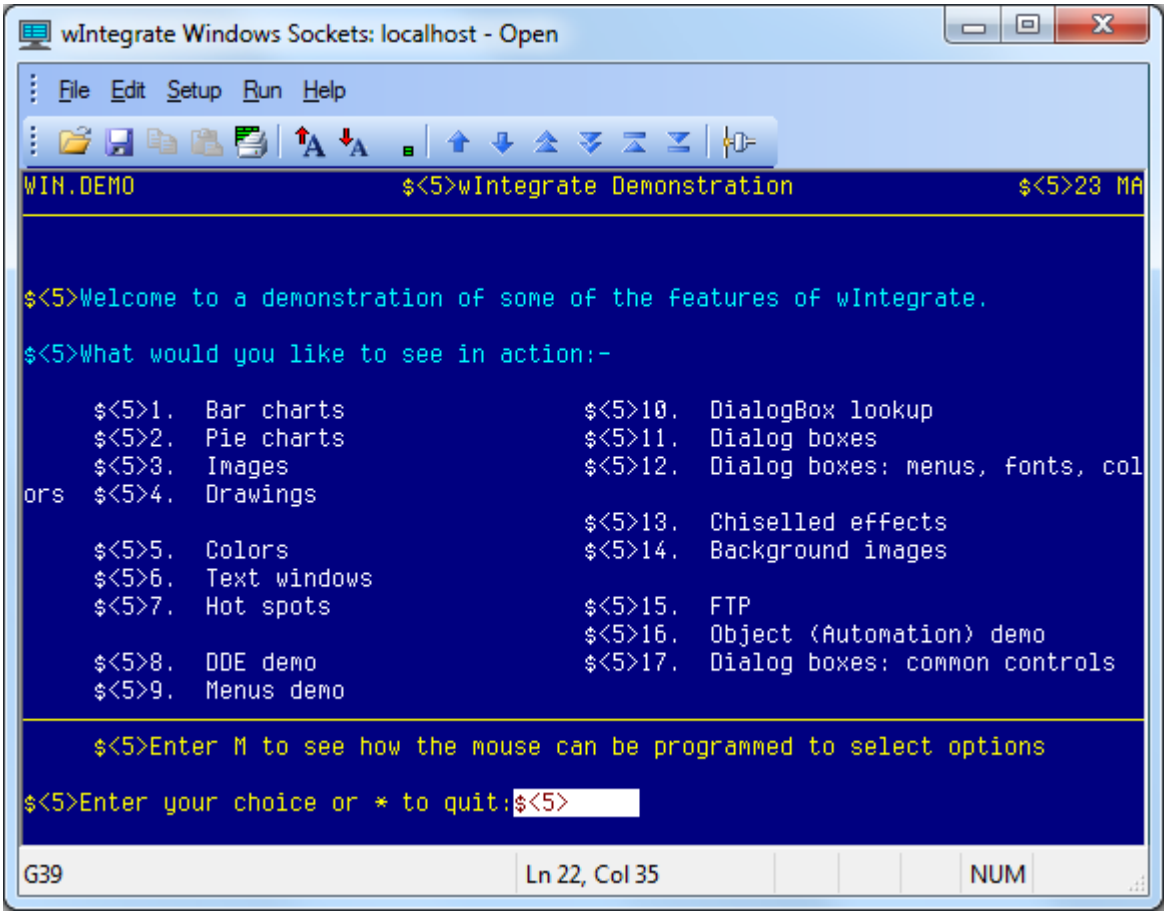
When connected to a UniVerse host, the program can hang when wIntegrate tries to communicate with the host using the wIntegrate host routines.

To resolve this, ensure that UniVerse is not inverting the case of entered characters, as this can prevent input from being recognized. One way to achieve this is to add the following line to your LOGIN paragraph:

```
PTERM -CASE NOINVERT
```

Spurious characters displayed with VT100 emulation running on UniVerse/CentOS Linux

When connected to a UniVerse host, the screen might show spurious characters `$<5>`, as in the following display of the WIN .SERVER demonstration program:



The `$<n>` strings reference pad characters (essentially null characters), which are present in some older Unix/Linux terminfo terminal definitions to provide a delay. They were necessary with slow terminals with little or no buffering.

These pad characters are no longer needed. They might disappear if you recompile the UniVerse terminal definition. Otherwise, you will need to edit the pads out of the terminfo database and then recompile. See your *UniVerse* documentation for more information. (RocketTrack case UNV-17452).

Menu appears with very large font

When using a laptop and switching between the native and external displays, users might see menus and other text displayed in a very large font for no apparent reason.

This is a known issue with classic "Win32" Windows applications using high-resolution displays. For more information, visit their web page: https://msdn.microsoft.com/library/windows/desktop/mt843498(v=vs.85).aspx

As a workaround, try the following option (which is present in the Creators Update):

- Right-click on the file `wInteg.exe` in folder `C:\Program Files (x86)\wIntegrate`.
- Select **Properties** → **Compatibility**.
- Enable the "Override high DPI scaling..." option.
- In the dropdown, choose either **System** or **System (Enhanced)**.

Some users have found this helps mitigate the issue, until such time as we might add high DPI support to the product.

Exporting Excel .XLSX files puts data into the wrong records/fields

Exporting data from an `.XLSX` file to the host resulted in some fields being put into adjacent records. In the spreadsheet supplied by the customer, empty cells had an internal format we had not seen before.

wIntegrate now handles spreadsheets with this particular anomaly. However, users should take care when using files in proprietary formats which were created by third parties rather than the native application.

Post-installation issues

There are a couple of issues that can prevent the program from starting as expected after installation or upgrade.

Invalid license

If you upgraded an earlier version of wIntegrate, the license for that version will probably not support a later version. You have the option to install a new license during the upgrade procedure. If you choose to cancel the licensing dialog without entering a valid license for the new version, the program will not start. Instead it will display a message about the invalid license.

Program will not start

After a new installation, if you are using a pre-existing session file copied from another machine, any custom files specified by the session file must also be present. (A session file usually has a .WIC or possibly a .WIS extension.) A session file might specify that custom scripts should be used, for example as specified in the menu option **Setup Preferences** → **Scripts**. If a session specifies a script which is not present on your machine, a script error will occur and a log file with a name beginning with "`wIntError`..." will be written to the folder `Documents\wIntegrate\Logs`. The error will be “Invalid script file name”. You should ensure that any specified scripts are copied from the source machine along with the session file. If you selected Developer Additions during installation, you can

use the Editor to edit the binary .WIC session file to get a comprehensive view of what is specified in the session.

Unable to open/create reformat host file WIN.RFMT<port>

Three modes are available when you import data from the multi-valued host to the PC.

The Reformat mode runs a query statement and captures the results to a temporary file on the host. The contents of the file are then transferred to the PC using an error-checked protocol. The temporary file is called `WIN.RFMTnn`, where nn is the port number of the user's session on the host. If the file does not already exist, it is created automatically. However, if the file does not exist, and the user does not have privileges to create it, then the transfer cannot be completed. A red message appears in the File Transfer Monitor saying "Unable to open/create reformat host file `WIN.RFMT`<port>"

To avoid this error, create the temporary files in advance if you want to use the Reformat option.

Issues when using 64-bit Microsoft Office

wIntegrate is a 32-bit application. There are some restrictions when interacting with 64-bit applications. If you have 64-bit Microsoft Office installed on your PC, mail operations with Outlook will fail.

For example, when you click on an email address on the host screen, 32-bit Outlook will pop up a new email with that address in the **To** field. However if you're using 64-bit Outlook, a message similar to the following might display:

```
Server Busy. This action cannot be completed because the other program
is busy. Choose 'Switch To' to activate the busy program and correct
the problem.
```

White screen and IBSFont

The Setup Character dialog lets you choose the font for the terminal screen. For many years the default font was IBSFont. This was originally created as a 16-bit raster font. This type of font may not be supported in future versions of Windows.

In the v6.3.7 release, we changed the standard session .WIC files to use Consolas instead of IBSFont. Consolas is a ClearType font and will be supported by Windows for the foreseeable future. If you have a long-standing session file using IBSFont we recommend you switch to Consolas.

If your terminal screen is not displayed properly, or displayed entirely as white, check that IBSFont is not being used.

wIntegrate screen remains on top of other applications

You can click the icon in the top left corner of the application to display the Windows System menu. This menu has options common to other Windows applications such as Restore, Move, and Size.

We have added two options to this menu. They are **Always On Top** and **Restore** Menu. If **Always On Top** is enabled, then the wIntegrate screen will obscure all other applications even if you are using them.

The **Always On Top** is automatically enabled when you click the Teeny button on the standard toolbar. (The Teeny button also removes the File, Edit… menu, and the toolbars.) The resulting very small window is kept on top of other applications, so you can keep an eye on your host screen while working full-screen with another application such as Word or Excel.

Later, to restore the wIntegrate screen to its previous, larger state, you should click the Teeny button. This will also restore menus and toolbars.

You could also drag the teeny screen bigger but then you'd have to click Restore Menus on the System menu, and re-enable the toolbars though the wIntegrate Setup menu options.

Excel can store numbers in exponential notation

If you export an Excel spreadsheet from the PC to your host, the values you see in your multi-valued system might be different to what you see in the spreadsheet. The example we reproduced had a cell with a numeric value of 0.07. When exported to the multi-valued host the field contained the value 7.0000000000000007E-2

This conversion to exponential notation does not happen with other values such as 0.06 and 0.08.

In fact Excel itself stores 0.07 as 7.0000000000000007E-2 internally. (To see this, create a spreadsheet with a single value of 0.07; change the spreadsheet's file extension from .XLSX to .ZIP; find the file Sheet1.xml in the resulting folder structure; and open Sheet1.xml file in Notepad.)

When wIntegrate exports a cell showing as 0.07, it actually encounters the value stored on disk which is 7.0000000000000007E-2. This is converted and saved to your host system as 0.070000000000000007. We believe this is the best we can do as, even in this simple example, we don't know if the user really wanted just 0.07. It's not for us to change these data values.

When exponential notation is encountered we display a warning on the File Transfer Monitor, and write a log to the Logs folder.

As a workaround, you can save the file in comma-separated CSV format and transfer that.

Error message "Receive buffer overflow. Check WIN.TRANSFER started"

When you transfer data between the PC and the multi-valued host, a "conversation" takes place between the PC and the host.

This requires two host programs to be available to execute on the host:

- WIN.SERVER – supports general interaction between the PC and host
- WIN.TRANSFER – the host side of the file transfer processes

If your host is at the TCL command prompt when you start the transfer, there should be no issues executing these programs.

If your host is not at the TCL command prompt when you start the transfer, for example at a host application menu, you might see the error message "Receive buffer overflow. Check WIN.TRANSFER started"

This error happens because, if the WIN.TRANSFER program fails to start, the host re-displays the menu. The stream of menu data is received on the PC by the wIntegrate file transfer process which thinks it is file transfer data. This data didn't contain the expected Carriage Returns so cannot be parsed and the file transfer receive buffer overflowed.

The resolution is to ensure that both WIN.SERVER and WIN.TRANSFER can be executed from your host application menu.

Note: In earlier releases this message was “Local computer host buffer overflow”. In v6.4.1 it was made more meaningful and changed to “Receive buffer overflow. Check WIN.TRANSFER started“.

Chapter 8: Scheduling a task

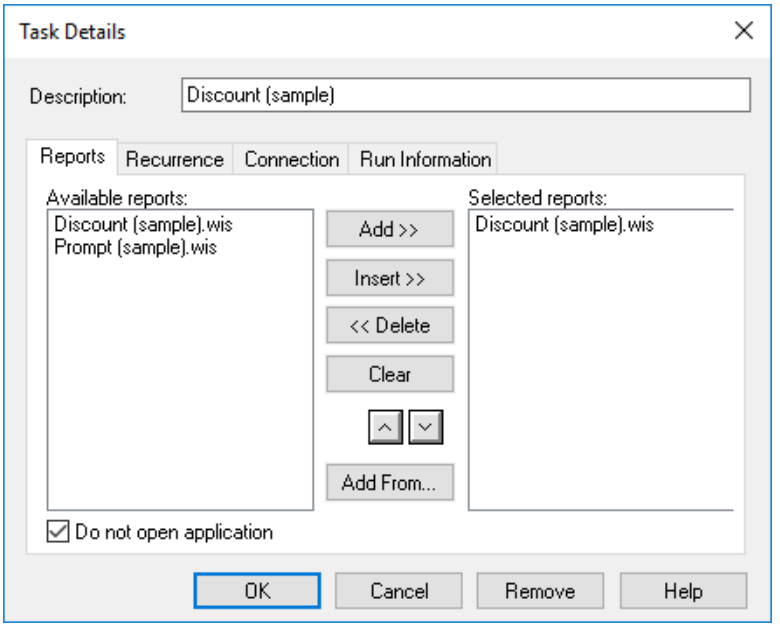
The wIntegrate Scheduler allows you to schedule saved Query Builder scripts for unattended processing. Each script to be run will have information saved in the Scheduler about when to run and what server to log into.

Configuring a scheduled task

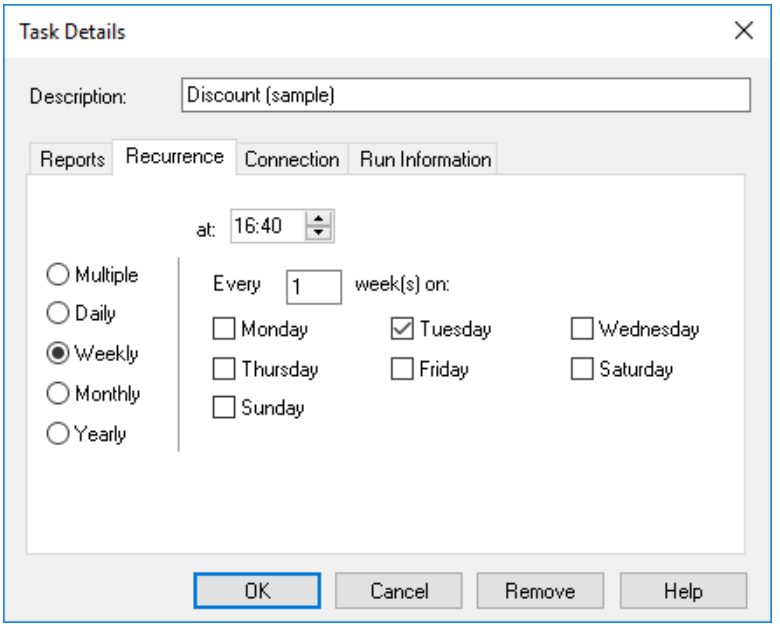
These steps will help you configure a scheduled task.

1. Create a new reporting script in `Documents\wIntegrate\Queries\`. You can also edit one of the existing samples from the folder. More info on building queries can be found in: Building queries.
2. Log out from current session with the `OFF` command, or start new one by running wIntegrate from Windows Start Menu.
3. From the wIntegrate toolbar, select **Run** → **Scheduler**.
4. The Scheduler dialog box is displayed.
5. **Add**, **Modify**, or **Copy** your scheduled task by clicking the appropriate button on the right.
6. In the new window, you can change the task Description. In this window, you can also delete the scheduled task by clicking the **Remove** button.
7. The **Reports** tab will allow you to add one of the available reports.
   - To insert any report from **Available** list to the **Selected**, choose a script from the left pane and a script to which it will be inserted on the right and press **Insert >>**.
   - To change the Selected reports sequence use the **^** and **v** buttons.
   - To delete one of the Selected reports, highlight it and select **<< Delete**. The **Clear** button will delete all Selected reports from the list.
   - All of the Available reports scripts are located in the `Documents\wIntegrate\Queries\` directory, but you can add a script from any directory using the **Add From** button.
   - Select **Do not open application** to force the Query Builder to close the application used to create a local PC file after the report has finished.

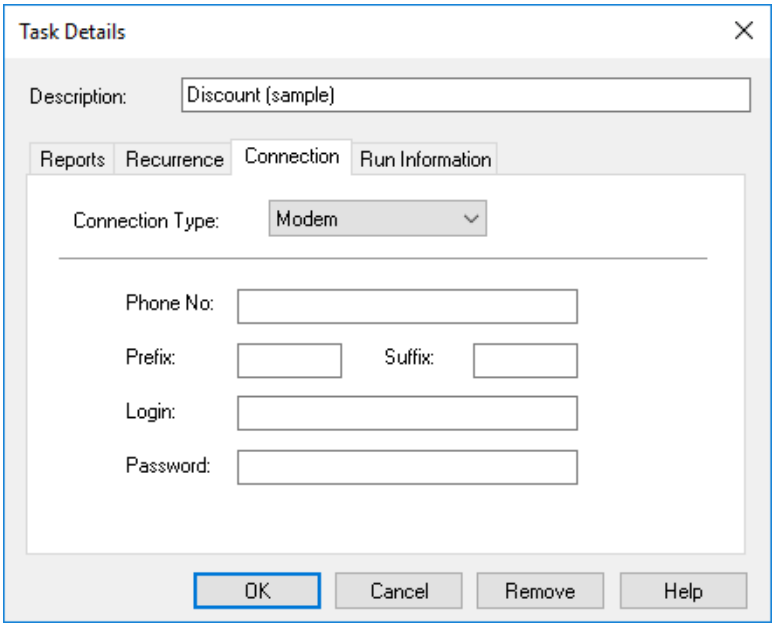
Note: This option only applies to Local PC formats in the Query Builder that have a create only option.



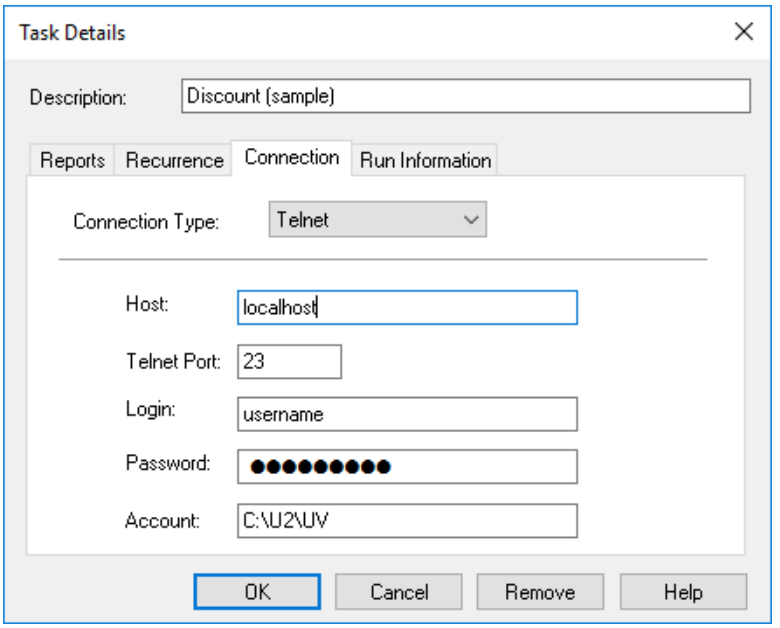
8. After the report scripts were selected, you can edit the frequency in the **Recurrence** tab. There are opportunities to run scheduling task **Multiple** times a day, **Daily**, **Weekly**, **Monthly**, and **Yearly**.



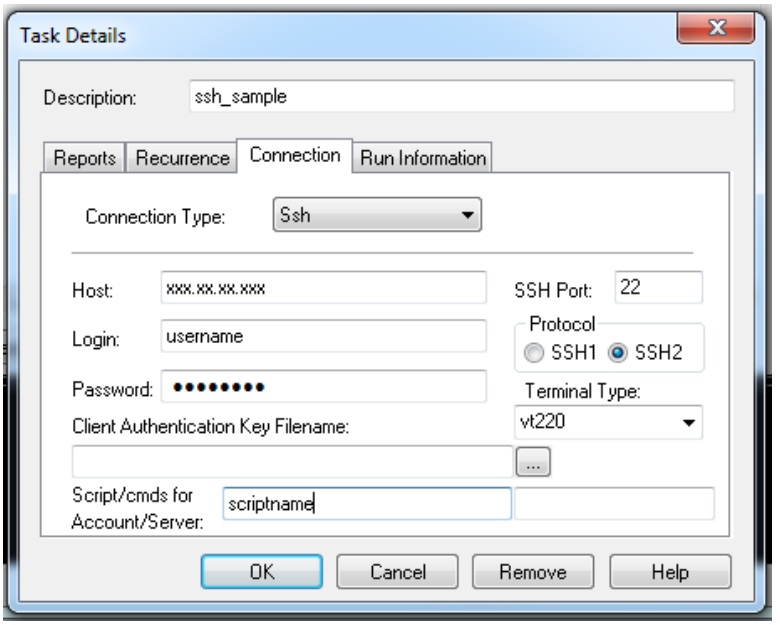
9. You can specify your U2 network connection settings in **Connection**. You can choose between **Modem**, **Telnet**, and **SSH** connection types. Parameters differ from type to type. For the **Modem** connection, insert **Phone No.**, **Prefix**, **Suffix**, **Login** and **Password** into the appropriate fields.



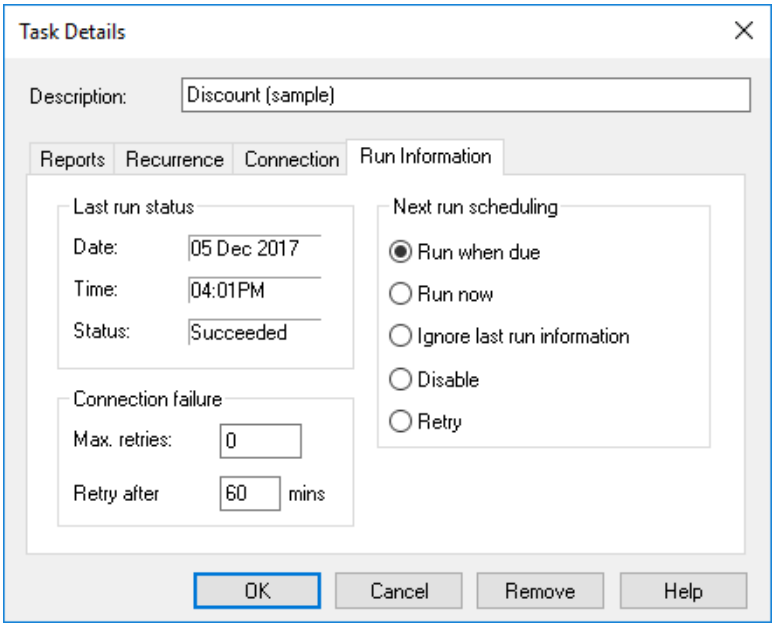
If your connection type is **Telnet**, you need to change **Host**, **Telnet Port** (default it is 23), **Login**, **Password** and **Account**.



If your connection type is **SSH**, you need to change **Host**, **SSH Port** (default is 22), **Login**, and **Password**. Specify your *scriptname* in the first field following **Script/cmds for Account/Server:**. The Scheduler will use an SSH connection for UNIX accounts. If you are connecting to an SSH host for the first time, you will need to setup a proper connection with the Setup Communication interface, and then restart the Scheduler. More on setting up communications can be found in Setting up U2SSH Communications on step 11.



10. Choose **Run Information** to view when this report last ran and if it was executed successfully.



Choose the appropriate selection:

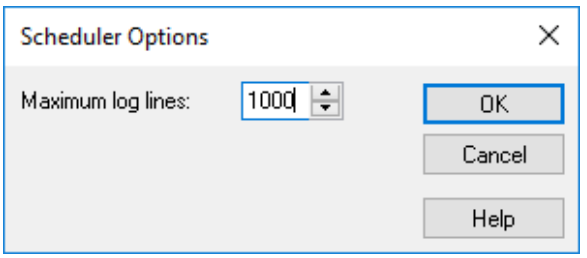
- **Run when due** to schedule the report normally.
- **Run now** to run this report when the Scheduler is started.
- **Ignore last run information** if you want the Scheduler to reschedule the report as new.
- **Ignore last run information** if you want to disable this task, so that it will not be run. This is selected automatically if the task has failed when the retries have been set.

- **Disable** if you want to disable this task so that it will not be run. Use the **Remove** button on the dialog box if the task will never be used again.
- **Retry** to retry the task after it has failed. This is selected automatically if the task has failed when the retries have been set.

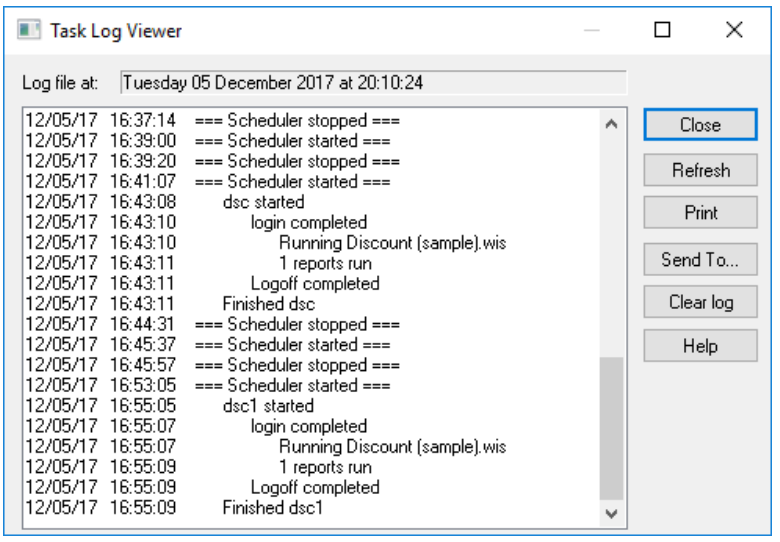
Enter the maximum number of times to retry this task if it fails in the **Max. retries** text box. Leave this field blank or enter zero if the task should not be retried.

Enter the number of minutes to wait before retrying the task in the **Retry after** text box. This will only be used if the **Max. retries** has had a value entered greater than zero.

11. Press **OK** to apply the changes or **Cancel** to return to the Scheduler common view.
12. You can manipulate the task log in the common view by clicking **Options** to change **Maximum log lines** as shown in a figure below. You can also use the **View Log** buttons.



13. If you have pressed the **View Log** button in Scheduler, the **Task Log Viewer** will appear. In the viewer, you can upload the latest log changes by clicking the **Refresh** button. You can also **Print** the current log to PDF file or **Send To** by email. To remove all log content click the **Clear log** button.



14. After all necessary options have been configured, you can run the Scheduler by clicking **Start Scheduler** in the lower left of the common view.

Troubleshooting the Scheduler log

On some servers, the Scheduler will initiate the saved script, but not be able to log in. On others, the username may be passed to the server, but not the password. These problems can be troubleshooted.

There are two main issues that can prevent the Scheduler from being able to successfully log into the server.

1. Sometimes, the username is passed to the server, but then hangs at the password. When a script attempts to log into a server, the Scheduler first passes the username without prompting the server. Then it waits for the password prompt before sending the password. The password prompt expected is "password". On some servers, the password prompt may be "Password", or some other variation. The Scheduler will not complete the login procedure when this is the case. If the password prompt on the server is not "password", change the `telnet.wis` script to match the server. Locate `telnet.wis` in the `<wIntegrate home>\Sched\Connect` directory. Edit it using any text editor. Search for the following lines of code:

   ```
   Set Port = "Windows Sockets"
   Set Host = host_name
   Set PortOpen = 1
   Enter user_name
   Wait ForText "password","10s", found
   If found Then
   Enter password
   ```

   Change this instance of "password" so that it matches the script above, then save the file.

2. Sometimes the connection is established, but no username is sent. When the Scheduler opens the port, the server banner page is typically displayed, then the Username prompt. On slower servers, it is possible for the Scheduler to send the username before the server has completed displaying the banner and is ready to accept the username. The solution is to add a delay to the `telnet.wis` script so the username is not sent until the username prompt is displayed. As before, edit `<wIntegrate home>\Sched\Connect\telnet.wis` using any text editor. Locate the lines:

   ```
   Enter user_name
   Wait ForText "Password","10s", found
   If found Then
   ```

   Add the first line, as shown below:

   ```
   Wait Delay "5s"
   Enter user_name
   Wait ForText "Password","10s", found
   If found Then
   ```

   This will add a 5 second delay before the Scheduler sends the username. You can adjust the interval as necessary to best work with your server.

Appendix A: Scripts

Copy menu scripts

You can assign the script for any **Copy** menu option to a mouse button or keyboard key.

The following table lists the options on the wIntegrate **Copy** menu and their script commands.

For descriptions of the **Copy** menu options and the functions they perform, see Copying text, on page 52.

Table 22: Copy menu scripts

Copy menu option	wIntegrate script
Text to Notepad	`Library 'wintsys\script \CopyMenu';CopyTextNotepad`
Text to Wordpad	`Library 'wintsys\script\CopyMenu';CopyTextWrite`
Bitmap to Paintbrush	`Library 'wintsys\script \CopyMenu';CopyBitmapPbrush`
Table to Excel	`Library 'wintsys\script \CopyMenu';CopyTableExcel`
Table to Lotus 123	`Library 'wintsys\script\CopyMenu';CopyTable123`
Text to Word	`Library 'wintsys\script\CopyMenu';CopyTextWord`
Bitmap to Word	`Library 'wintsys\script \CopyMenu';CopyBitmapWord`
Screen to Word	`Library 'wintsys\script \CopyMenu';CopyScreenWord`
Screen to Printer	`Library 'wintsys\script \CopyMenu';CopyScreenPrinter`
Create Pie Chart	`Library 'wintsys\script\CopyMenu';Script 'example\script\PieChart'`
Create Bar Chart	`Library 'wintsys\script\CopyMenu';Script 'example\script\Bar- Chart'`
HTML to Editor	`Library 'wintsys\script\CopyMenu';HTMLEdit`
HTML to Browser	`Library 'wintsys\script\CopyMenu';HTMLBrowse`
Text to Mail	`Library 'wintsys\script\CopyMenu';CopyTextMail`

Other scripts

You can modify any of these additional scripts if you want another menu or dialog box to appear. For example, in the script `Menu Popup Edit, Mouse(Get_X), Mouse(Get_Y)`, you can replace `Edit` with the name of another menu, such as **Setup**. With this modification, the script opens the **Setup** menu instead of the **Edit** menu.

The following table lists scripts that you can edit and assign to a mouse button or keyboard key.

Table 23: Other scripts

Function	Script
Display the Edit menu as a pop-up window at the point where the mouse was clicked	`Menu Popup Edit, Mouse(Get_X), Mouse(Get_Y)`
Display the Copy Special To dialog box	`Show EditCopyTo`
Send to the host as input the word under the mouse click	`Enter ScreenWord(Mouse(Get_X),Mouse(Get_Y),0)`
Send a character that the host highlighted within a word as input to the host	`Enter ScreenWord(Mouse(Get_X), Mouse(Get_Y),1)`

Appendix B: SSL and SSH

wIntegrate supports the industry-standard Secure Sockets Layer (SSL) and SSH (Secure SHell) protocols for secure connections. Be aware that managing security and the required certificates for SSL can be a significant task for system administration. The encryption processing adds an overhead that can slow down communications.

Overview of SSL

SSL is by far the most widely deployed security protocol on the World Wide Web. It is a protocol implemented in the communications transport layer, so most TCP/IP processes can support it. For example, HTTPS and FTPS are SSL-secured implementations of HTTP and FTP. In wIntegrate, SSL is used with the Telnet process. SSL is used by the U2 databases UniVerse and UniData for secure communications.

The disadvantage of SSL is that performance will suffer to some extent due to the complexity of the encryption process.

The primary goal of the SSL Protocol is to provide privacy and reliability between two communicating applications. It aims to ensure that:

- The client can authenticate the server (digital certificate)
- Optionally, the server can authenticate the client (digital certificate)
- A connection is private (data encryption)
- A connection is reliable (message integrity checks)

Data encryption is automatically negotiated during initial connection, and message integrity checks are also automatic. Once the peer identity has been authenticated, everything else is automatic.

Certificates

Certificates (sometimes called digital certificates or digital IDs) are used during initial connection as a kind of electronic passport so that the recipient can authenticate that the sender is who it claims to be. Certificates are issued by trusted authorities called certification authorities. These include VeriSign, Thawte, and GlobalSign.

Once a recipient has authenticated the connection peer and is satisfied that the peer's certificate has been issued by a trusted authority, the connection can proceed.

Server certificates

When a client initiates a connection to a server, the server responds with its server certificate. This certificate allows the client to verify that the communication is coming from a trusted authority, not an imposter, so the connection can proceed. If the server certificate cannot be authenticated or the client chooses to reject it, the connection will be terminated. This process is called Server Authentication.

Client certificates

When a server responds to a client initiating a connection, in addition to sending its certificate to the client, the server might request Client Authentication. If this happens, the client must provide its client

certificate to the server for authentication after the client has successfully authenticated the server certificate. Client Authentication is not normally used.

Obtaining certificates

Both server and client certificates can be obtained from Certification Authorities. The procedure for obtaining and installing certificates is explained on Certification Authority websites. You will provide information to a Certification Authority such as your organization name, department, country, email address, and certificate name. The Certification Authority in turn provides a certificate as a disk file that can be installed either into the disk filing system or into the Windows Certificate Stores.

Installing certificates

All servers that use SSL must have at least one server certificate installed somewhere on their system. This is true of the wIntegrate Server when it is acting as a server to wIntegrate Clients. wIntegrate uses the Windows Certificate Stores for all certificate authentication purposes. The procedure for obtaining and installing certificates is explained on Certification Authority websites, and most browsers can also be used to install newly-acquired certificates. A server certificate must be installed with an Exportable Private Key.

Viewing certificates

If you are unsure about whether you have a particular certificate installed and whether it is in the correct place, you can use your browser to view the certificates in the Windows Certificate Store. You can also run the Certificate Manager by clicking **Start**, entering `certmgr.msc` in the **Search** box, and pressing `Return`. You may be prompted for an administrator password. For more information about viewing SSL certificates in wIntegrate, see Viewing certificates in wIntegrate, on page 118.

Specifying certificates in wIntegrate

wIntegrate uses the Windows Certificate Stores for all certificate authentication purposes. Certificates are specified during wIntegrate configuration by name. This name is the certificate Common Name and will be the name you gave for the certificate when you requested one from a Certification Authority.

Protocols

It is possible to communicate with one of several SSL protocols:

- SSL2 - SSL protocol version 2
- PCT - Private Communication Technology; developed by Microsoft to address security flaws in SSL2 (not generally used)
- SSL3 - SSL protocol version 3
- TLS1 - The first version of the Transport Layer Security protocol based on SSL3
- TLSv1.1 - TLS protocol version 1.1
- TLSv1.2 - TLS protocol version 1.2 (currently the preferred protocol)

The protocol is automatically negotiated during initial connection. When a choice of protocols is available, the most secure protocol supported by both parties communicating with each other should be chosen. When possible, use TLSv1.1 or TLSv1.2 instead of SSL2, SSL3 or TLS1, as they are no longer considered secure.

Note that the Payment Card Industry Data Security Standard (PCI DSS) forbids the use of SSL 2, PCT, SSL 3 and TLS 1.0. If you are a merchant accepting credit cards, you must comply with PCI Security Council standards. See below for information on using SSL in wIntegrate.

Viewing certificates in wIntegrate

You can view the SSL certificates and their details in the certificate chain. In each case below, the certificates in the certificate chain are shown in a grid with the following fields:

- Issued To
- Issued By
- Valid From date
- Valid To date

You can select a line and click the **Details** button to see all the fields contained in the certificate.

Errors during initial connection

Certificates are checked during the initial connection between wIntegrate (or wIntegrate Server) and the U2 host, and between the Windows/Java thin client and the wIntegrate Server. If a certificate is found to be invalid for any reason, a warning dialog appears and you can click a button to see the certificate details before making the connection.

Certificates between wIntegrate and the U2 host

To see the certificate chain between the U2 server and wIntegrate (or the wIntegrate Server), click the **SSL Certificates** button from the wIntegrate **Help > Support Information** menu option.

Certificates between wIntegrate thin clients and wIntegrate Server

To see the certificate chain between the Windows/Java thin client and the wIntegrate Server, click the **SSL Certificates** button from the wIntegrate **Setup > Thin Client** menu. This is a special menu option available only on the Windows and Java thin clients.

SSL options in wIntegrate

SSL support in wIntegrate is created by U2 Engineering, and based on the OpenSSL libraries. The same functionality is used by all U2 clients with the benefits of a common interface and easier debugging of any issues.

The following U2 database releases support SSL. Use the U2 Extensible Administration Tool (XAdmin) to configure SSL on your U2 server. Check the database documentation to ensure that the version of SSL on your database is appropriate for your needs as upgrades become available periodically. Also ensure that the protocols supported by the server are available in the clients you will use.

- UniVerse 10.1 and later
- UniData 6.1 and later

UniVerse and UniData use a security context record (SCR) to control the characteristics of secure connections. You should use the SCR to restrict availability of protocols and ciphers which are considered secure, such as SSL 3 and RC4. See your database documentation for more information about SCRs.

Communications can be secured between:

- wIntegrate as client to a U2 server

  This applies equally to the wIntegrate local install and the wIntegrate Server. The server certificate is mandatory. The client certificate is optional.

  To configure wIntegrate for SSL this way, see Setting up U2 SSL communications, on page 21.

- the wIntegrate Server and the Windows/Java thin client

  The server certificate is mandatory. Client certificates are not supported in this release.

  To configure wIntegrate for SSL this way, see Configuring the wIntegrate Server and thin client for SSL, on page 119.

The connection between the U2 server and wIntegrate uses Telnet, which runs over TCP/IP. However, the connection between the wIntegrate Server and the Windows/Java thin client is a simple TCP/IP connection. The difference in these communication protocols is irrelevant to SSL, as it works at a lower layer. A certificate works equally for any protocol based on TCP/IP.

If you choose not to use SSL to secure communications between the thin client and the wIntegrate Server, the transmitted data is “scrambled” so that plain text is not transmitted. However, this should not be considered secure encryption.

Configuring the wIntegrate Server and thin client for SSL

This section applies to the connection between the wIntegrate Server and wIntegrate thin clients.

The wIntegrate Server runs as a service so it has no interface of its own. The wIntegrate Administrator acts as the interface for the wIntegrate Server allowing you to set options, including SSL. Most options can be set when using the Administrator remotely, but SSL options are only available when the Administrator is connected to a wIntegrate Server on the same computer.

There are two configurable SSL options under the Server tab:

- **SSL** lets you specify that communications between the wIntegrate Server and the Windows/Java thin clients should be secured using SSL. Only TLS1.1 and TLS1.2 protocols are supported in this scenario and TLS1.2 will be used by default.
- **SSL Certificate** specifies which certificate to use as the Server Certificate. The name specified here will be a certificate Common Name. See Specifying certificates in wIntegrate, on page 117.

  There is an option to browse for and select a certificate. The Select Certificate dialog box allows you to select a certificate from one of two certificate stores, Root or CA, in one of two locations, Machine Stores or User Stores. The Root certificate store is sometimes referred to as Trusted Root Certification Authorities and the CA certificate store as Intermediate Certification Authorities.

SSL tracing when using the Windows thin client

If you have configured the wIntegrate Server to use SSL for the thin client connections, you can set the Windows thin client to trace SSL communications. This is useful in troubleshooting problematic connections (although the majority of SSL connection problems are caused by an invalid or inappropriate server certificate).

The thin client login dialog box has an **Advanced** button that lets you enable tracing before you log in to a wIntegrate Server. The Advanced Settings dialog box has the **SSL Tracing** options to determine the level of detail to be recorded in the trace file.

The options are:

- **None** – turns off all trace activity
- **Basic** – simple SSL information
- **Detailed** – more detailed SSL information
- **All** – detailed SSL information plus all incoming and outgoing data.

Tracing should be used with extreme caution as the trace files can grow to any size on disk. Trace files will grow continuously while the connection is open, even though you are not active on the session. Note that the tracing option only remains enabled for the duration of the connection with a wIntegrate Server. The next time you show the thin client login dialog, the tracing options will be set to **None**. The default location of the trace file is the `Documents` folder on the local computer.

Enabling insecure SSL protocols

Although strongly discouraged, it is possible to connect wIntegrate to a U2 server using an SSL protocol that is now considered insecure (SSL 3 or TLS 1, for example). To connect to an insecure protocol, you must enable these protocols on the computer running wIntegrate. This requires making a change to the Windows Registry, which can be done only by Windows Administrators using the Windows Registry Editor program, `regedit.exe`.

Warning: Modifying the registry incorrectly could cause serious problems so modify it at your own risk.

The following registry key defines which SSL protocols are enabled on the computer:
`HKEY_LOCAL_MACHINE\SOFTWARE\Rocket Software\UniClient\SSL_PROTOCOLS`

Or, for 64-bit Windows computers: `HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Rocket Software\UniClient\SSL_PROTOCOLS`

The registry key has a string value of enabled SSL protocols, each separated with a comma (for example, "TLSv1.1,TLSv1.2"). These are the default values if the SSL_PROTOCOLS string value is not present. To enable other protocols, such as SSL 3 or TLS 1, add them to the registry key value (for example, SSLv3,TLSv1,TLSv1.1,TLSv1.2). You may have to restart wIntegrate for the modified setting to take effect.

Overview of SSH

SSH is a cryptographic network protocol that is used for secure data communication, remote command-line login, remote command execution, and other secure network services between two networked computers. It connects a server and a client running SSH server and SSH client programs, respectively, via a secure channel over an insecure network.

SSH differs from SSL in that the latter is a transport layer protocol that can be used by other network services to add a level of security. These network services are not considered part of the SSL specification.

The best-known application of SSH is for access to shell accounts on UNIX-like operating systems, but it can also be used in a similar fashion for accounts on Windows. SSH was designed as a replacement for Telnet and other insecure remote shell protocols such as the RSH and REXEC protocols, which send information (notably passwords) in plain text, rendering them susceptible to interception.

The protocol specification distinguishes between two major versions that are referred to as SSH-1 and SSH-2. The protocol has been continually evolving, but because a number of security flaws were discovered in the earlier versions of the protocol, it was decided to create a more secure, more feature-rich but incompatible protocol, SSH-2, to address these issues. Because of the inherent flaws in SSH-1, its use should be avoided if possible. The default server port number of SSH connections is 22.

SSH options in wIntegrate

SSH can be used by wIntegrate or the wIntegrate Server for secure communications between it and a host server.

- **Protocol**: wIntegrate works with either SSH-1 or SSH-2 protocols, but because of the inherent flaws in SSH-1, SSH-2 should always be used if possible, for example, if the SSH server supports it.
- **Terminal Type**: Because SSH servers provide a secure shell, it might be necessary to set the terminal type for shell terminal emulation.
- **Client Authentication Key Filename**: This is the name of the file containing the key that will be used for public-key client authentication (see Authentication, on page 121). If no key file is specified, then public-key client authentication will not occur.

Keys

SSH uses Keys for client/server authentication and data encryption/decryption.

Public-key cryptography

Public-key cryptography, also known as asymmetric cryptography, is used in SSH connections for client/server authentication. It is a class of cryptographic algorithms that require two separate keys, one of which is secret (or private), and one of which is public.

Although different, the two parts of this key pair are mathematically linked. The public key is used to encrypt plaintext or to verify a digital signature; whereas the private key is used to decrypt ciphertext or to create a digital signature. The important feature of public and private keys is that data encrypted by one can only be decrypted by the other. Systems that use this type of cryptography rely on the freedom to share the public key.

Secret-key cryptography

Secret-key cryptography, also known as symmetric cryptography, is similar to public-key cryptography except that the same key is used to encrypt plaintext as is used to decrypt ciphertext. It is used in SSH connections for encrypting and decrypting session data, but only after server authentication has taken place and both client and server have agreed on a key to use.

Certificates

Certificates (sometimes called Digital Certificates, Public Key Certificates, or Digital IDs) are electronic documents that are used to verify the identity of an individual. They are used by SSH to authenticate server and client, one to the other.

Certificates are issued by trusted authorities called Certification Authorities such as VeriSign, Thawte, or GlobalSign. A certificate contains information about the certificate holder, a serial number, expiration dates, a copy of the certificate holder's public key, and the digital signature of the Certification Authority that issued it.

Authentication

An important part of establishing a secure client/server connection using SSH is authenticating the identity of each end of the connection. The client should be confident that the server it is attempting to connect to is not an imposter and vice versa. With SSH, several different authentication methods can be available depending on specific implementations.

Server authentication

Server authentication is the process whereby the server identifies itself to the client and the client authenticates the server.

- **Public-key authentication**

  Implementation of this is required by the SSH specifications. Each SSH server has a public and private key pair that uniquely identifies the server. The first time an SSH client connects to a server, the client prompts the user to accept a copy of the server's public key. If accepted, the client uses this public key to authenticate the SSH server on subsequent connections.

- **Authentication with certificates**

  This is similar to public-key authentication except that certificates are used to verify the name and public key combination of an SSH server. The SSH server name-to-key association is certified by a trusted Certification Authority. The SSH client knows only the Certification Authority root key and can verify the validity of all server keys certified by accepted Certification Authorities.

Client authentication

This is the process whereby the client identifies itself to the server and the server authenticates the client. The server identifies to the client which authentication methods it supports, and the client chooses which method, or methods, to adopt.

- **Public-key authentication**

  Implementation of this is required by the SSH specifications. In essence, the client sends a message to the server that contains the client's public key with the message signed by the client's private key. When the server receives this message, it checks to see whether the supplied key is acceptable for authentication and, if so, it checks to see whether the digital signature is correct.

- **Authentication with certificates**

  The client sends a certificate, which includes the client's public key, to the server. The packet also contains random data that is unique to the session and signed using the client's private key. The server uses the Certification Authority certificate to check that the client's certificate is valid. It also verifies that the client has a valid private key by checking the digital signature in the packet.

- **Password authentication**

  The client user enters a log in name and password, which the client sends to the server for authentication.

- **Keyboard-interactive authentication**

  A versatile authentication method where an SSH server sends one or more prompts to enter information, and the client displays them and sends back responses keyed-in by the user. Often used in conjunction with a Pluggable Authentication Module (PAM).

- **Authentication with Generic Security Service Application Programming Interface (GSSAPI)**

  This is an extensible scheme to perform SSH authentication using external mechanisms such as Kerberos or NTLM, providing single sign on capability to SSH servers.

- **Host-based client authentication**

  Authentication is performed on the client's host rather than the client itself. Thus, a host that supports multiple clients would provide authentication for all of its clients. This method works by having the client send to the server a digital signature created with the private key of the client. Rather than directly verifying the user's identity, the SSH server verifies the identity of the client host, trusting that the user has already authenticated on the client side.

Appendix C: Common network communication error codes

The following section describes the errors that might appear in Windows Sockets and U2 SSL communications. Messages are preceded by the Windows Sockets message or error number. You can use this number to search for more information on the message.

Connection closed by host (1)

An existing connection was forcibly closed by the remote host. This normally results if the peer application on the remote host is suddenly stopped, the host is rebooted, the host or remote network interface is disabled, or the remote host closes the connection.

Connection closed by host (2)

The remote host was found to be out of action during a network operation on the connection.

Network failure

Indicates that a serious network failure has occurred.

Host unreachable (1)

The remote host is not accessible on the network. This usually occurs when an attempt is made to connect to a remote host that exists but cannot be reached.

Host unreachable (2)

The remote host is on a network that is not accessible. This usually occurs when an attempt is made to connect to a remote host.

Host failure

The remote host reset itself causing the connection to be closed. This typically means the remote host has been rebooted.

Connection closed

The local host has closed the connection because it encountered a problem or it detected that the remote host is not responding.

Connection refused

A connection to a remote host has been actively refused. This can occur when the service associated with the port number used to make the connection is unavailable or inactive. It typically occurs because the remote host name/alias or the port number used to make the connection are not specified as intended.

Connection request timed out

Indicates that the remote host has not responded after a predetermined amount of time. This can occur during a connection attempt or after a connection has been established (typically the former).

Host not found (1)

The remote host could not be located on the network. This typically occurs when an attempt was made to connect to a remote host with an invalid name/alias or with a name/alias that could not be resolved into a network address.

Host not found (2)

An invalid argument was supplied for a network operation. This can occur when an attempt is made to connect to a remote host using an invalid specification.

Appendix D: Using ActiveX controls in wIntegrate with Excel

Complete these steps to setup ActiveX controls in Excel.

1. From the **Developer** ribbon in Excel, click **Insert** and select the **More Controls** option (tools icon) from the **ActiveX Controls** options.
2. Select **wIntegrate Session Control** and click **OK** from the More Controls dialog box.
3. From your Visual Basic project, open the Toolbox and select the **Additional Controls** option.
4. Select **wIntegrate Session Control** from the Additional Controls dialog box and click **OK**.

Example

The subroutine below illustrates using wIntegrate ActiveX controls in an Excel environment.

```
Private Sub cmdTest_Click()
Dim SessionWindow As wSESSIONLib.AutoWindow

Set SessionWindow = Session1.Window

'//Column = 0
'//Row = 1

SessionWindow.MoveCaret 3, 8

'//This works
'//If Not SessionWindow.CaretPosition(1) = 8 Then

'//This doesn't
'To use the wPositionRow and wPositionColumn or any attibutes of wSESSIONLib
'from the CaretPosition it is not supposed to call in the way
'wSESSIONLib.wPositionEnum.wPositionRow
'This can be called directly as the reference of wSESSIONLib is alredy provided.

'If Not SessionWindow.CaretPosition(wSESSIONLib.wPositionEnum.wPositionRow) = 8 Then
If Not SessionWindow.CaretPosition(wPositionRow) = 8 Then
    MsgBox "Error"
Else
    MsgBox "It's working"
    MsgBox SessionWindow.CaretPosition(wPositionColumn)
End If

End Sub
```