ARBUTUS ANALYZER

INSTALLATION GUIDE

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Published January 2016 by:

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About this Guide

This guide is provided to licensed users of Analyzer Version 5 and will assist you with installing and configuring Analyzer. For more information about our products and services, visit our web site at:

www.ArbutusSoftware.com

Need Help?

Resources

For assistance in using Analyzer or ConnectPlus, refer to these additional resources:

- Analyzer Online Help
- ConnectPlus Installation Guide

Contacting Us

If you have suggestions for improvements or if you can not find a solution to a problem, you can contact technical support for assistance. Please include:

- Your Analyzer serial number.
- A description of what you were doing when the problem occurred.
- The error message, if any, displayed by Analyzer.

Support Center

Global Help Center

- Phone: +1-604-437-7873 or +1-877-333-6336 ext. 333 (Toll Free in North America)
- Fax: +1-604-437-7872
- Email: support@ArbutusSoftware.com

Or write to us at:

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CHAPTER 1 INTRODUCTION
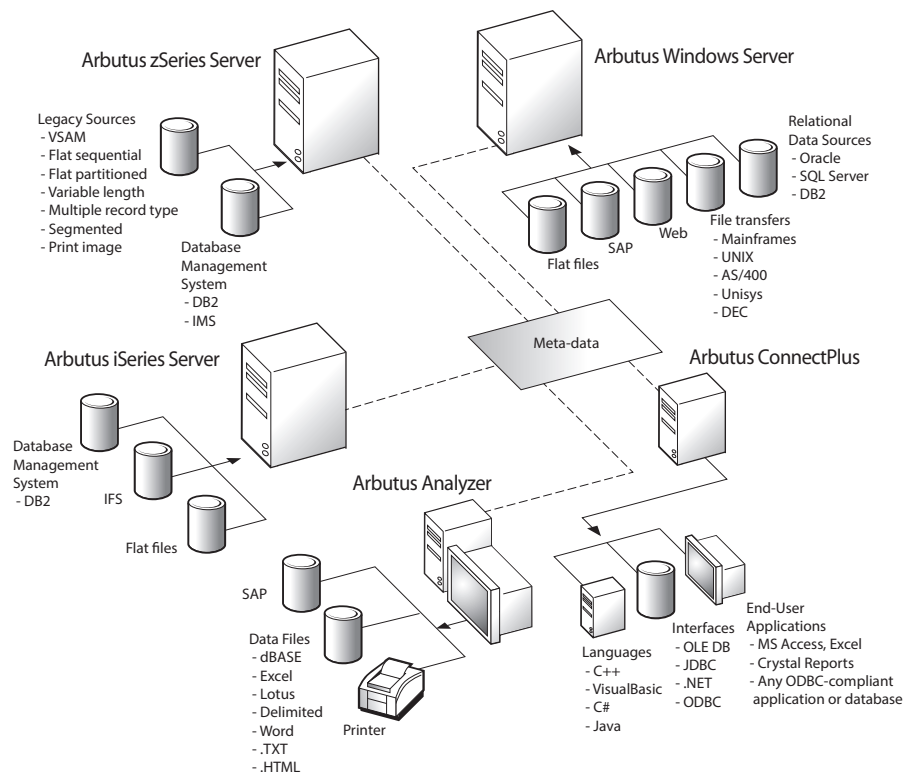
System Description

The Arbutus Solution - Overview

The Arbutus Solution consists of:

1. One or more of the Arbutus Servers.
   - A zSeries mainframe computer running the Arbutus zSeries Server
   - An iSeries midrange computer running the Arbutus iSeries Server
   - A Windows server running the Arbutus Windows Server
2. One or more of the PC-based Arbutus Clients.
   - Arbutus Analyzer
   - Arbutus ConnectPlus
3. A TCP/IP network connection linking the clients and servers together
4. Optional background offline batch processing for the Arbutus zSeries Server.

Note: For visual depictions of "The Arbutus Solution" see the diagrams on the following pages.

The Arbutus Solution

Arbutus zSeries Server

Arbutus Windows Server

Legacy Sources
- VSAM
- Flat sequential
- Flat partitioned
- Variable length
- Multiple record type
- Segmented
- Print image

Relational
Data Sources
- Oracle
- SQL Server
- DB2

Database
Management
System
- DB2
- IMS

Flat files

SAP

Web

File transfers
- Mainframes
- UNIX
- AS/400
- Unisys
- DEC

Arbutus iSeries Server

Meta-data

Arbutus ConnectPlus

Database
Management
System
- DB2

IFS

Flat files

Arbutus Analyzer

SAP

Data Files
- dBASE
- Excel
- Lotus
- Delimited
- Word
- .TXT
- .HTML

Printer

Languages
- C++
- VisualBasic
- C#
- Java

Interfaces
- OLE DB
- JDBC
- .NET
- ODBC

End-User
Applications
- MS Access, Excel
- Crystal Reports
- Any ODBC-compliant
  application or database

The Arbutus Solution - Components

An Arbutus "session controller" is provided to manage TCP/IP communications and Arbutus end-user sessions ("server sessions") for configurations that connect across multiple platforms, as is the case when running the PC-based Arbutus Clients with any of the Arbutus Servers.

When a PC-based Arbutus Client sends a connection request to the session controller, the session controller authenticates the request and creates an end-user server session. The session controller then establishes a direct communications link between the client and the end-user server session, and hands off the communication link to them.

Once this connection is established, the end-user server session runs independently of the session controller, and the session controller goes back to listening for incoming requests.

For each connection it accepts, the session controller starts a separate end-user server session. Connection requests from different users result in multiple, independent server sessions. A server session ends when the connection is terminated from the PC-based client.

Arbutus Server Session Management
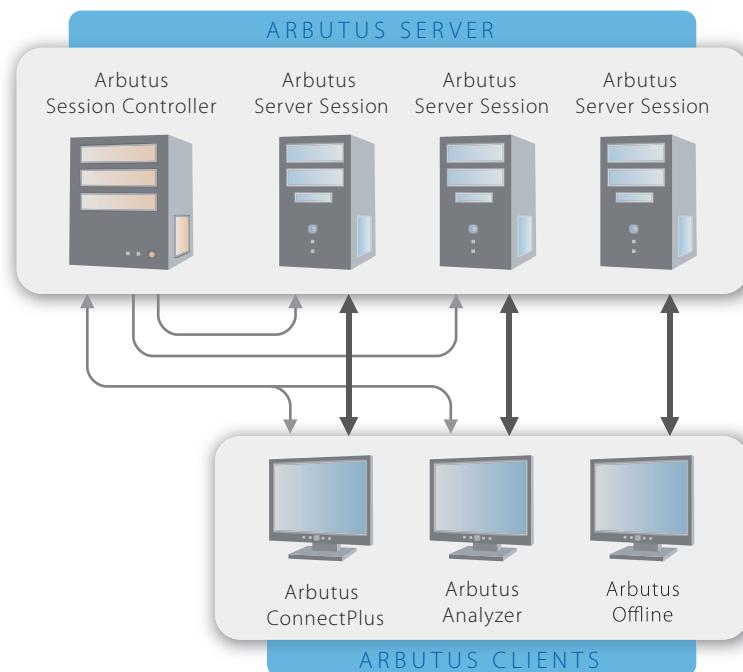
System Requirements

Arbutus Analyzer

The installation steps described in "Installing Analyzer" on page 5 are those required to install Arbutus Analyzer.

Analyzer can be installed on a Windows machine running any version of Windows XP or later and requires 500 MB of RAM and 20 MB of hard disk space.

In order to activate the software, the Windows machine must have the 32-bit version of Microsoft .NET Framework 4.0 installed.

In addition, to activate the software, the installer must be connected to the internet and have administrator rights on the Windows machine to ensure that all required activation settings can be properly set in the machines registry.

Note: You will also need sufficient disk space for all of the data files you will be analyzing.

Neither Arbutus Windows Server nor Analyzer should be installed on your network server. Network servers can be identified as machines running any version of Windows Server (2003, 2008, 2012, etc.) as the operating system. Data analytics is a very resource-intensive task, and installing on a network server could severely impact the performance of the Windows Server. Instead, a separate application server, running Windows, should be allocated for Analyzer, ConnectPlus or Arbutus Windows Server use.

Recommended Optimal Resources

To obtain the best results when using Analyzer, we recommend the following:

- Arbutus Client software will run on any PC configuration using Windows XP or later, with any amount of memory and disk.
- If you are processing data locally, we recommend an i5 or i7 level processor (or equivalent), with at least 8GB of RAM and at least 1TB hard disk space.
- Solid state drives (SSDs) can significantly enhance speed, where performance is at a premium.

CHAPTER 2 INSTALLING ANALYZER

Installing Arbutus Analyzer is quick and easy. Here you will learn how to download and install Analyzer from the Arbutus Web Site.

> Note: When installing Analyzer, the installer must have administrative access rights to write to the registry of the local machine that Analyzer is installed on in order to allow necessary registry settings to be established. To activate the software, the user must have access to the internet and access rights to write to the registry at the time they activate the software.

Neither Arbutus Windows Server nor Analyzer should be installed on your network server. These can be identified as machines running any version of Windows Server (2003, 2008, 2012, etc.) as the operating system. Data analytics is a very resource intensive task, and installing on a network server could severely impact the performance of the Windows Server. Instead, a separate application server, running Windows, should be allocated for Analyzer, ConnectPlus or Arbutus Windows Server use.

Installation Procedures

The Analyzer components can be downloaded directly from the Arbutus Web site to the desired workstation and then installed.

Step 1 - Downloading Executable from Arbutus Web Site

Go to the following Arbutus Web Site Download page:

`http://www.arbutussoftware.com/downloads/`

Download the following install file from the Arbutus Web site:

`Analyzer.exe`

Place the install file into a temporary directory:

`e.g. C:\Temp\`

To run the install file, double-click on the Analyzer.exe file.

Step 2 - Installing Arbutus Analyzer

After unzipping the install file, double clicking on the Setup.exe will:

- require you to accept the licence agreement
- prompt you to install Analyzer into the default location "C:\Program Files\Arbutus\" or to specify an alternate install location (local or network drive)
- install a set of three sample data files and a project file in a project folder called "My Documents\Arbutus\Sample". The project file in this folder is

called "Sample Data.ASI" and is automatically opened the first time you
start Analyzer. These files are for evaluation purposes

*Note: To connect Analyzer to any of the Arbutus Servers, a valid Profile must be established
for each server. For more information on server profiles see "Profiles" on page 8 of this
Install Guide and "Creating a Server Profile" in the Analyzer Online Help.*

*Note: For evaluation purposes we recommend that Analyzer is run from "C:\Program
Files\Arbutus\" as this is the default installation method. Issues for choosing locations
and sharing access to table definitions are discussed in more detail in "Security and
Shared Access" on page 8.*

Need for Administrator Rights

The local user should install Analyzer. If the local user does not have
administrator rights to the local machine, they will be prompted to have an
administrator for the local machine specify their credentials to complete the
installation.

Once installed, the local user should start Analyzer and activate the software
licence. The administrator (if different from the local user) must not activate the
software as this will not activate the software for the intended local user.

Step 3 - Activating Analyzer

Once the software installation is complete, the first time the user starts Analyzer
they will be prompted to activate (register) their copy of Analyzer online. Users
must enter their company and user name and the software licence key provided
with their copy of Analyzer. Optionally, users can also enter any information
related to their proxy server.

*Note: To activate the software, the local workstation that Analyzer is installed on must also
have the 32-bit Microsoft .NET 2.0 Framework installed. To obtain and install the 32-bit
Microsoft .NET 2.0 Framework, go to: http://www.microsoft.com/en-
us/download/details.aspx?id=1639*

*Note: To activate the software, the local workstation must be connected to the internet.
Additionally, to activate the software, the user must have administrative rights to the
local machine that Analyzer is installed on in order to allow necessary registry settings
to be established.*

The user can begin using Analyzer once their copy is activated.

Manual Activation (Single-User Licensing Only)

If the internet activation is unsuccessful (typically due to internal corporate
restrictions for accessing the internet) an Analyzer dialog box will pop up listing
certain local machine information. Save this information (for example, using
Notepad).

Then refer to the accompanying PDF entitled "Manual Activation.pdf" that is found in the Arbutus program folder. This guide documents the appropriate steps for manually activating your software for single-user licensing.

Concurrent User Licensing

When installing Analyzer using concurrent user licensing, the user's machine must have an internet connection at all times, as concurrent user licensing cannot be manually activated and concurrent usage licensing is dynamically managed via the internet. All users will enter the same concurrent user licensing key when installing the software.

Installation of Arbutus Analyzer is now complete!

Note: Analyzer auto-checks for updates every 10 days.

Customizing the Install

The Analyzer installation is set up by default to be a single user installation per machine. To customize the installation, please contact Arbutus Technical Support to obtain a set of files for a customized installation.

CHAPTER 3 SECURITY AND SHARED ACCESS

This document discusses security and shared access considerations for connecting the Arbutus Analyzer client to an Arbutus Server.

Security

Profiles

Server profiles are used by Analyzer and ConnectPlus to store security and configuration information necessary for connecting to an Arbutus Server.

Profiles can be created using the Analyzer Server Profile dialog, which is described in the Analyzer Online Help. Profiles created using Analyzer are private as they are stored in the registry of the local machine and are only accessible on that machine.

Note: Creating profiles via the Analyzer Server Profile dialog is useful for someone running both Analyzer and ConnectPlus from the same local machine, such as the system administrator or installer.

Server profiles can also be specified by creating a PROFILES.TXT file. This provides a simple method for ensuring users work with a common set of server profiles. If used, the PROFILES.TXT file must reside in the same location as the Analyzer.exe or Legacy.dll file, as appropriate. The PROFILES.TXT file should reside in a secure, read-only location.

Note: A sample PROFILES.TXT file is supplied with the software and is named PROFILES.XTX. Simply edit this file, enter the necessary profile information sequentially and then save it as PROFILES.TXT

An example of typical settings within a Profile.txt file are:

```
[server_profile_name]
server_type=0
username=UserID
password=********************
prefix=ARBSM2
input=ARBSM1.PRD.FIL
hostname=132.90.0.12
port=7008
encryption=1
compression=1
ims_enabled=0
timeout=15
```

There are several possible parameters for each server profile, and each supplied value is used for connection to an Arbutus Server. The values shown in the example above are typical of a server profile for an Arbutus zSeries Server, but can be tailored to suit any target Arbutus Server (zSeries, iSeries or Windows).

The parameters correspond to the values found in the Analyzer Server Profile dialog and are as follows (optional values are noted):

Item 1 - Server Profile Name

Shown as [server_profile_name] in the example above. This is a descriptive name to identify the server profile. It must be surrounded by square brackets and may include spaces.

Item 2 - Server Type

Shown as "0" in the example above, this value indicates zSeries (0), Windows (1), Linux (2), or iSeries (3) server.

Item 3 - User Name (optional)

Shown as "UserID" in the example above. The User ID is the system logon User ID for the server.

> Note: Though valid for all Windows servers, Windows 7 and higher servers require that the User ID be specified in the format user_name@domain_name where the domain_ name is the active directory domain name (see your server administrator for more information).

The user name should only be included when all end-users using a Profiles.txt file will be connecting to the server with the same user name. Where this is not the case, then leaving the user name out of the Profiles.txt file will cause each end-user to be prompted for both their unique user name and password.

> Note: If the user name is entered for a server profile in the Profiles.txt, the user name associated with this profile can not be changed at the time of connection.

Item 4 - Password (optional)

Shown as "*********************" in the example above. If omitted, the end-user will be prompted to enter the password associated with their user name at the time the server connection is made.

The password can be stored in a server profile contained in the Profiles.txt file but we recommend caution when doing so, as this would allow any Analyzer or ConnectPlus user of this Profiles.txt file access to the Arbutus Server with all the rights of the default user name.

If the password is stored in a server profile contained in the Profiles.txt, the password must be encrypted, and cannot be changed by the end-user unless prompted to do so by Analyzer, as may happen in the case of an expired password.

Note: Please call Arbutus Technical Support for information on generating encrypted passwords.

If the user name or password are omitted from a server profile contained in the Profiles.txt, the end-user can supply default values for either, or both, of these items by editing the server profile within Analyzer or the ODBC Manager. Any values supplied in Analyzer's server profile dialog are then stored in the user registry of the local machine, not the Profiles.txt.

If the administrator wants to prevent end-users from being able to save the password and/or user name to their registry, then the user name and/or password parameters in the Profiles.txt should contain an exclamation mark (!) as the only value (i.e., password=!).

Item 5 - Prefix

Shown as "ARBSM2" in the example above. The prefix is used by Analyzer as the default high level qualifier or location for creating output files. This value can easily be changed during processing.

Note: If this value is not stored in the Profiles.txt file, each user will need to enter it in Analyzer's server profile dialog and have the value stored in their registry.

Item 6 - Input

Shown as "ARBSM1.PRD.FIL" in the example above. This value is used by Analyzer as the default high level qualifier or initial location for reading input files in the Data Definition Wizard's Select File to Define dialog. This dialog allows the user to manually change the value.

Note: If this value is not stored in the Profiles.txt file, the user will need to enter it in Analyzer's server profile dialog and have the value stored in their registry.

Item 7 - Host Name

Shown as "132.90.0.12" in the example above. This value is used to specify the host name or explicit IP address.

Item 8 - Port

Shown as "7008" in the example above. This is the Port Number selected by the Server Installer where the Arbutus Server is running.

Item 9 - Encryption On/Off

Shown as "1" in the example above. This flag is set as either ON (1) or OFF (0) to enable or disable encryption of communication between the Arbutus client and server. Encryption is most appropriate when communications are being carried over public lines.

Note: Arbutus uses 128-bit encryption.

Item 10 - Compression On/Off

Shown as "1" in the example above. This flag is set to enable / disable compression of communication between the Arbutus client and server. Compression is always recommended. Compression values range from 0 to 9 with 0 indicating no compression and 9 indicating maximum file compression.

Item 11 - IMS Interface On/Off

Shown as "0" in the example above. This flag is set as either ON (1) or OFF (0) to enable or disable the IMS interface.

> Note: This parameter is only applicable for Arbutus zSeries Servers.

Item 12 - Inactivity Time Out

Shown as "15" in the example above. This value specifies the time (in minutes) that an idle Arbutus Server session will time out. If not specified, the time-out defaults to 60 (minutes).

> Note: All Arbutus Server sessions will time out unless you set the time-out to 999. We do not recommend this setting, as failed communications may result in a server session that must be manually terminated by operations.

Optional Parameters for Relational Data Sources

When connecting Analyzer to the Arbutus Windows Server, some relational data sources (SQL Server, Oracle, etc.) will require a user name and password to be accessed. The user name and password can be entered manually when defining the relational data source in the Data Definition Wizard, or can be preset by storing them in the Profiles.txt file using the following optional parameters:

```
[database name]
profile=server_profile_name
username=database_username
password="*********************"
```

The optional parameters for one or more relational data sources must immediately follow the related Arbutus Windows Server profile to which they relate.

Item 1 - Server Profile Name

Shown as [server_profile_name] in the example above. This is a descriptive name to identify the server profile. It must be surrounded by square brackets and may include spaces.

Item 2 - Database Name

Shown as "database_username" in the example above.

Item 3 - Password (optional)

Shown as "*********************" in the example above. To be stored in the Profiles.txt, the password must be encrypted, and cannot be changed by the end-user.

> *Note: Please call Arbutus Technical Support for information on generating encrypted passwords.*

Shared Folders

Project items created using Analyzer, in particular table layouts, are by default read from the location where the currently open Analyzer project resides.

Analyzer will also read project items from shared folders locally (on a mapped network drive) or on an Arbutus Windows Server.

While convenient, use of a single Analyzer project reading project items from a single location will often not accommodate the disparate requirements of a complex organization comprised of many end-users having diverse interests and business needs.

To accommodate sharing of project items that are common to a group of end-users, shared folders can be specified on any Arbutus Windows Server in a location that is shared by all end-users. Analyzer will then access project items from any shared folders in addition to those accessed via each end-user's Analyzer project.

It is possible that there are table layouts that should be shared by all end-users, regardless of their department. These should be placed in a shared folder in a location that is shared by all end-users. It is also possible that there are table layouts that are only relevant to a particular department, or subset of end-users. These table layouts should be placed in a separate shared location that can only be referenced by the appropriate subset of end-users.

Steps should be taken to ensure appropriate level of privacy for this information. If the very existence of a particular table or tables should only be known to certain groups, then other groups should have no access rights (not even read rights) to the shared folder location that stores the table layouts. If controlling access to the actual data is sufficient, then appropriate access controls over the data should be set up on the physical server, using the standard operating system capabilities.

In general, shared folders should be made read-only to the end-users, to ensure that there is no unauthorized altering or corruption of the shared objects.

Additionally, local shared folders are useful for providing centralized access and maintenance for a common set of master project items (table layouts, workspaces and procedures) that are required across a number of distinct

projects. This avoids the need to duplicate and maintain master project items within each project.

The following diagram illustrates the structuring of departmental and shared access to table layouts created using Analyzer:
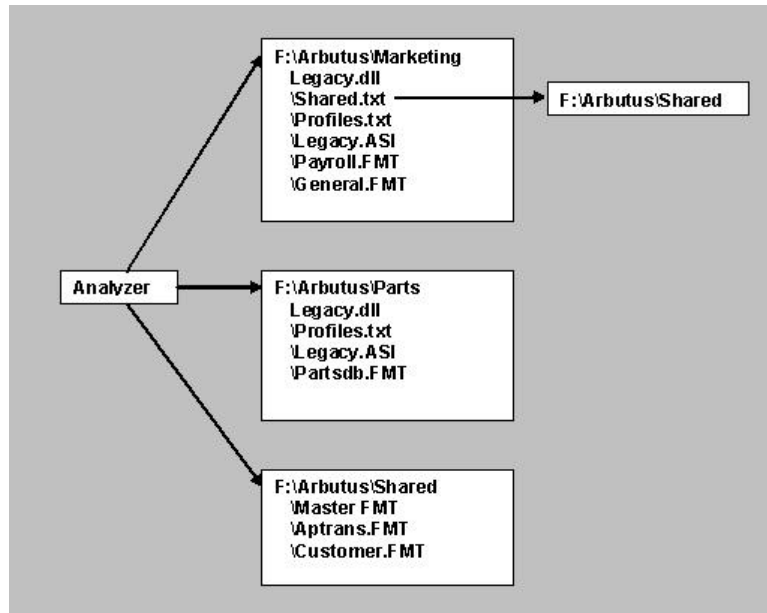
In the preceding diagram, the Marketing department can access table layouts created for them by the System Administrator and written to the F:\Arbutus\Marketing folder, as well as all the table layouts written to the shared folder F:\Arbutus\Shared. The Parts department can only access the table layouts that reside in the F:\Arbutus\Parts folder.

Specifying Shared Folders

To specify shared folders, end-users can do either of the following:

- Click on the Share menu in Analyzer. You can specify a:
  - Personal Share - this is a shared folder unique to each user and is used when a user wants to share project items between various Analyzer projects but not other users. The shared folder can be located in a folder on a local or network drive.
  - Team Share - this is a shared folder for use by several Analyzer users on the same local network and is used to share common project items. The shared folder must be located in a folder on a local network drive that all intended users have rights to access.
  - Enterprise Share - this is a shared folder for use by users throughout the organization who may work remotely from different locations and therefore do not necessarily have access to the same network drive. In

this case, the shared folder is established on an Arbutus Windows Server that all users access via TCP/IP.

- Manually create a Shared.txt file to specify shared folders that will be available to all end-users, regardless of their Analyzer project. Save this file in the same folder as the Analyzer executable.

For either method, any number of shared folders can be established.
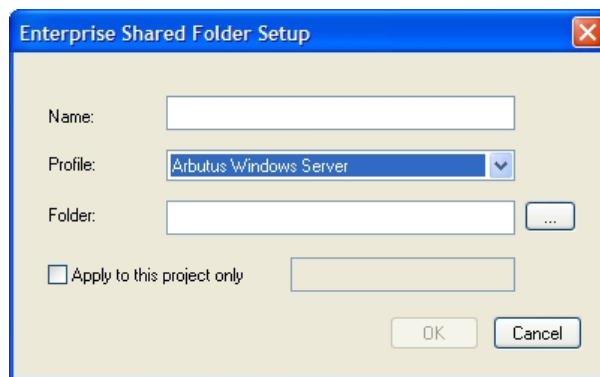
Note: Shared folders on the Arbutus Windows Server operate using TCP/IP and therefore do not require specific network architectures to be in place. In addition, shared folders on an Arbutus Windows Server may be accessed from anywhere, whether the user is on the road or in a remote office.

Specifying Shared Folders using Analyzer

This method is used for the data administrator or end-user to easily establish shared folders for the individual end-user, and requires that Analyzer is installed on the end-user's local machine.

To specify shared folders in Analyzer:

1. Open Analyzer.
2. Click on the Share menu
3. Choose to add a:
   - Personal Share
   - Team Share
   - Enterprise Share
4. A Shared Folder Setup dialog appears:.

5. Specify a name for the Shared Folder, then browse to select the desired physical Windows folder. For an Enterprise Share, specify the server profile to be used to access the Arbutus Windows Server and then specify the server folder.

   For an Enterprise Share, the users of the Shared Folder must specify an associated server profile with the same name for every user. As a result, it is

essential that each user ensures that the associated server profile for the shared folder specifies a unique output prefix for each user, otherwise users risk overwriting each other's work.

6. By default, the contents of a shared folder apply to all of an end-user's Analyzer projects. If the shared folder contents only apply to specific Analyzer projects, then click the "Apply to this project only" checkbox and then specify the name(s) of the Analyzer project(s), separating each project name with a comma (no spaces should be used other than those included as part of the project name).

7. Click [OK].

Note: For more information on establishing shared folders on an Arbutus Windows Server, please see the Server and Shared Folder sections in the Analyzer Online Help.

Specifying Shared Folders using a SHARED.TXT file

Shared folders can also be specified by creating a SHARED.TXT file. This provides a simple method for ensuring users work with a common set of shared folders. If used, the SHARED.TXT file must reside in the same location as the Analyzer.exe or Legacy.dll file, as appropriate.

Note: A sample SHARED.TXT file is supplied with the software and is named SHARED.XTX. Simply edit this file, enter the necessary shared folder pathing information sequentially and then save it as SHARED.TXT

When using a SHARED.TXT file, each shared folder must be specified as an individual entry in the SHARED.TXT file as follows:

Arbutus Shared Folder entry

Example:

```
"Shared_Folder_Name" "C:\Shared_Folder_Path\" "LOCAL"|"Server_Profile"
<"Project_Name">↵
```

Note: Parameters in parenthesis are optional and only applied to shared folders on an Arbutus Server. Each item in the shared folder entry must be separated by a space.

In this example,

- the "Shared_Folder_Name" is the descriptive name for the physical shared folder (specified as the second parameter) that appears in the Overview Window in Analyzer. This entry must be surrounded by quotes and must be followed by a space.

- "C:\Shared_Folder_Path" is the full path and name of the physical Windows folder serving as the shared folder (either locally or on an Arbutus Server). This entry must be surrounded in quotes and followed by a space.

- For a local shared folder (Personal or Team Share), specify "LOCAL". For an Arbutus Windows Server shared folder (Enterprise Share), specify the

name of the server profile in quotes. In either case, this entry must be surrounded in quotes and followed by a space.

- "Project_Name" is an optional entry. If included, this value is the name of the specific Analyzer project(s) for which the shared folder is active. When specifying more than one project, separate project names within the quoted string using a comma. No spaces should be used except for spaces that are part of a project name. If this entry is omitted, the shared folder is active for all Analyzer projects. This entry must be surrounded by quotes and is separated from the preceding entry by one space.

Note: The specified shared folder location as well as all sub-folders under the specified location are read when compiling the list of available project items to present to the end-user in the Overview Window.