Tivoli® Directory Integrator

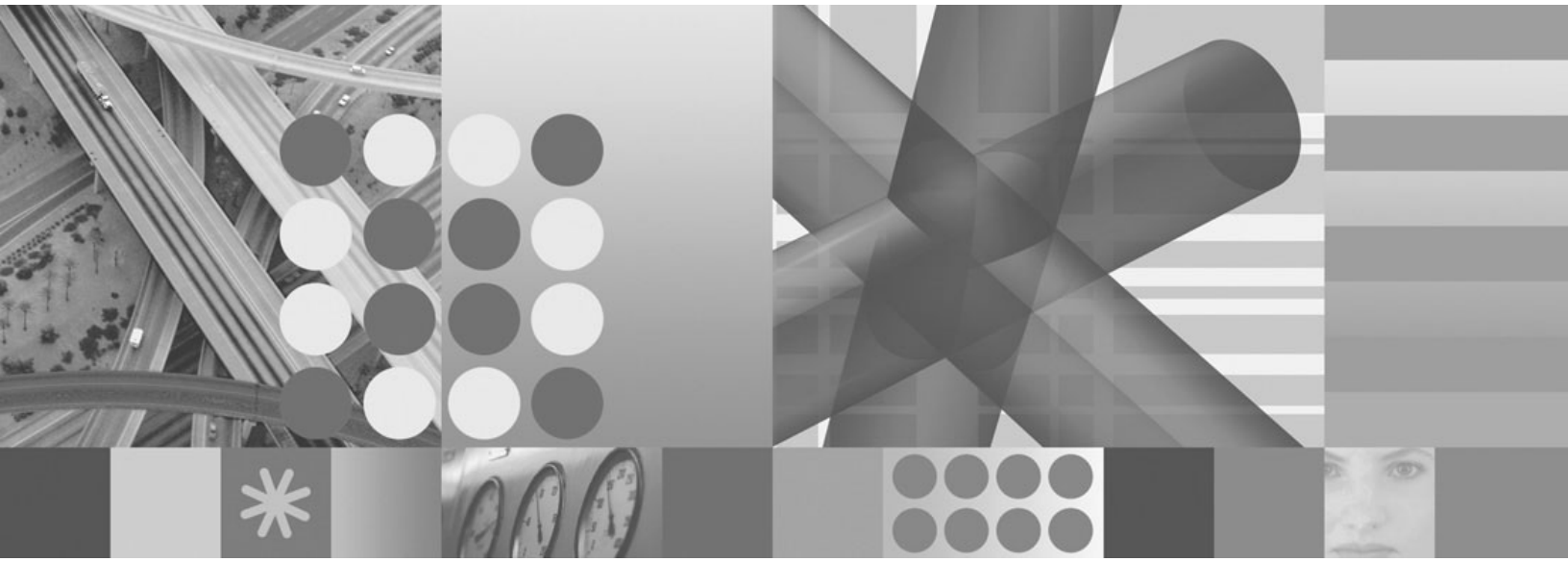
IBM

IBM Tivoli Directory Integrator 6.1.1: Problem Determination Guide

SC32-2565-01

Tivoli® Directory Integrator

IBM



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SC32-2565-01

Note

Note: Before using this information and the product it supports, read the general information under Appendix B, "Notices," on page 49.

Second Edition (February 2007)

This edition applies to version 6.1.1 of the IBM Tivoli Directory Integrator and to all subsequent releases and modifications until otherwise indicated in new editions.

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Preface

This book provides information about possible problems and corrective actions that can be tried before contacting IBM® Software Support. It also includes information about tools you can use for problem determination with IBM Tivoli® Directory IntegratorIBM Tivoli Directory Integrator 6.1.1.

Who should read this book

This book is intended for those responsible for the identification and resolution of problems in the IBM Tivoli Directory Integrator.

Publications

Read the descriptions of the IBM Tivoli Directory Integrator library and the related publications to determine which publications you might find helpful. After you determine the publications you need, refer to the instructions for accessing publications online.

IBM Tivoli Directory Integrator library

The publications in the IBM Tivoli Directory Integrator library are:

IBM Tivoli Directory Integrator 6.1.1: Getting Started
A brief tutorial and introduction to IBM Tivoli Directory Integrator 6.1.1.

IBM Tivoli Directory Integrator 6.1.1: Administrator Guide
Includes complete information for installing the IBM Tivoli Directory Integrator. Includes information about migrating from a previous version of IBM Tivoli Directory Integrator. Includes information about configuring the logging functionality of IBM Tivoli Directory Integrator. Also includes information about the security model underlying the Remote Server API.

IBM Tivoli Directory Integrator 6.1.1: Users Guide
Contains information about using the IBM Tivoli Directory Integrator 6.1.1 tool. Contains instructions for designing solutions using the IBM Tivoli Directory Integrator tool (**ibmditk**) or running the ready-made solutions from the command line (**ibmdisrv**). Also provides information about interfaces, concepts and AssemblyLine/EventHandler creation and management. Includes examples to create interaction and hands-on learning of IBM Tivoli Directory Integrator 6.1.1.

IBM Tivoli Directory Integrator 6.1.1: Reference Guide
Contains detailed information about the individual components of IBM Tivoli Directory Integrator 6.1.1 AssemblyLine (Connectors, EventHandlers, Parsers, Plug-ins, and so forth).

IBM Tivoli Directory Integrator 6.1.1: Problem Determination Guide
Provides information about IBM Tivoli Directory Integrator 6.1.1 tools, resources, and techniques that can aid in the identification and resolution of problems.

IBM Tivoli Directory Integrator 6.1.1: Messages Guide
Provides a list of all informational, warning and error messages associated with the IBM Tivoli Directory Integrator 6.1.1.

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IBM Tivoli Directory Integrator 6.1.1: Password Synchronization Plug-ins Guide
Includes complete information for installing and configuring each of the five IBM Password Synchronization Plug-ins: Windows Password Synchronizer, Sun ONE Directory Server Password Synchronizer, IBM Directory Server Password Synchronizer, Domino Password Synchronizer and Password Synchronizer for UNIX® and Linux®. Also provides configuration instructions for the LDAP Password Store and MQe Password Store.

IBM Tivoli Directory Integrator 6.1.1: Release Notes
Describes new features and late-breaking information about IBM Tivoli Directory Integrator 6.1.1 that did not get included in the documentation.

Related publications

Information related to the IBM Tivoli Directory Integrator is available in the following publications:

- IBM Tivoli Directory Integrator 6.1.1 uses the JNDI client from Sun Microsystems. For information about the JNDI client, refer to the *Java™ Naming and Directory Interface™ 1.2.1 Specification* on the Sun Microsystems Web site at http://java.sun.com/products/jndi/1.2/javadoc/index.html.
- The Tivoli Software Library provides a variety of Tivoli publications such as white papers, datasheets, demonstrations, redbooks, and announcement letters. The Tivoli Software Library is available on the Web at: http://www.ibm.com/software/tivoli/library/
- The *Tivoli Software Glossary* includes definitions for many of the technical terms related to Tivoli software. The *Tivoli Software Glossary* is available on the World-Wide Web, in English only, athttp://publib.boulder.ibm.com/tividd/glossary/tivoliglossarymst.htm

Accessing publications online

The publications for this product are available online in Portable Document Format (PDF) or Hypertext Markup Language (HTML) format, or both in the Tivoli software library: http://www.ibm.com/software/tivoli/library.

To locate product publications in the library, click the **Product manuals** link on the left side of the Library page. Then, locate and click the name of the product on the Tivoli software information center page.

Information is organized by product and includes READMEs, installation guides, user's guides, administrator's guides, and developer's references as necessary.

Note: To ensure proper printing of PDF publications, select the **Fit to page** check box in the Adobe Acrobat Print window (which is available when you click **File->Print**).

Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use information technology products successfully. With TDI 6.1.1, you can use assistive technologies to hear and navigate the interface. After installation you also can use the keyboard instead of the mouse to operate all features of the graphical user interface.

Accessibility features

The following list includes the major accessibility features in TDI 6.1.1:

- Supports keyboard-only operation.
- Supports interfaces commonly used by screen readers.
- Discerns keys as tactually separate, and does not activate keys just by touching them.
- Avoids the use of color as the only way to communicate status and information.
- Provides accessible documentation.

Keyboard navigation

This product uses standard Microsoft®Windows® navigation keys for common Windows actions such as access to the File menu, copy, paste, and delete. Actions that are unique to TDI use TDI keyboard shortcuts. Keyboard shortcuts have been provided wherever needed for all actions.

Interface Information

The following points include accessibility features of the TDI 6.1.1 user interface and documentation:

- Steps for changing fonts, colors, and contrast settings in the Config Editor (CE):
  1. Type **Alt-F** to access the CE **File** menu. Using the downward arrow, select **Edit Preferences** and press **Enter**.
  2. Under the **Appearance** tab, select **Theme** settings to change the font.
  3. Under **Theme Colors**, select the colors for the CE, and by selecting colors, you can also change the contrast.
- The TDI 6.1.1 Information Center and its related publications are accessibility-enabled for the JAWS screen reader and the IBM Home Page Reader. You can operate all documentation features using the keyboard instead of the mouse.

Vendor software

The IBM Tivoli Directory Integrator installer uses the FLEXnet Publisher Installation Module (FNPIM).

Related accessibility information

Visit the *IBM Accessibility Center* at http://www.ibm.com/able for more information about IBM's commitment to accessibility.

Contacting IBM Software support

Before contacting IBM Tivoli Software support with a problem, refer to IBM System Management and Tivoli software Web site at:

http://www.ibm.com/software/sysmgmt/products/support/

If you need additional help, contact software support by using the methods described in the *IBM Software Support Handbook* at the following Web site:

http://techsupport.services.ibm.com/guides/handbook.html

The guide provides the following information:

- Registration and eligibility requirements for receiving support

- Telephone numbers and e-mail addresses, depending on the country in which you are located
- A list of information you must gather before contacting customer support

Chapter 1. Introduction to problem determination

This guide provides information about IBM Tivoli Directory Integrator 6.1.1 tools, resources, and techniques that can aid in the identification and resolution of problems.

IBM Tivoli Directory Integrator6.1.1 overview

IBM Tivoli Directory Integrator (TDI) manages the technicalities of connecting to and interacting with the various data sources that you want to integrate, abstracting away the details of their APIs, transports, protocols and formats. Instead of focusing on data, TDI lifts your view to the information level, enabling you to concentrate on the transformation, filtering and other business logic required to perform each exchange.

The architecture of IBM Tivoli Directory Integrator is divided into two parts:

- The kernel, where most of the system's functionality is provided, and which you leverage to quickly build the framework of your solution.
- The components, which abstract away the technical details of the data systems, platforms and formats that you want to work with. TDI provides you with a number of component types, such as: Connectors, Parsers and Function Components.

When faults and errors occur, several built-in diagnostic tools are used to collect information and determine the exact cause of the problem.

Troubleshooting topics

This guide contains troubleshooting information for the following topics:

- Installation: See Chapter 3, "Installation and uninstallation," on page 7 for more information.
- Configuration Editor: See Chapter 4, "Configuration Editor," on page 17 for more information.
- Administration and Monitoring Console: See "Administration and Monitoring Console (AMC) Problem Determination" on page 21 for more information.
- Components: See Chapter 6, "Components," on page 25 for more information.
- Known limitations and general troubleshooting: See Chapter 8, "Known limitations and general troubleshooting," on page 35 for more information.
- Scenarios: See Chapter 9, "Troubleshooting scenarios," on page 41 for more information.

Built-in troubleshooting features

Note: Many of the built-in troubleshooting features are documented elsewhere in the IBM Tivoli Directory Integrator 6.1.1 documentation library. The following sections tell you where to look for information about these features.

Logging

IBM Tivoli Directory Integrator relies on log4j as a logging engine. It is a very flexible framework that lets you log to file, NT eventlog, Unix syslog

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and more, and can be tuned so it suits most needs. It can be a great help when you want to troubleshoot or debug your solution.

For information about IBM Tivoli Directory Integrator logging, see the "Logging and debugging" chapter in the *IBM Tivoli Directory Integrator 6.1.1: Administrator Guide*.

To see examples of the logging windows of the Config Editor see the "Config Editor" chapter in the *IBM Tivoli Directory Integrator 6.1.1: Users Guide*

Debugging

TDI 6.1.1 offers an AssemblyLine debugging tool called the AL Stepper. The AL Stepper allows you to:

1. Define breakpoints for AssemblyLines.
2. Pause AssemblyLine processing at the defined breakpoints to examine the AssemblyLine for errors.

The AL Stepper is part of the Config Editor. For more information about how to use the AL Stepper, refer to the "Config Editor" chapter of the *IBM Tivoli Directory Integrator 6.1.1: Users Guide*.

Tracing and First Failure Data Capture (FFDC)

IBM Tivoli Directory Integrator is instrumented throughout its code with tracing statements, using the JLOG framework, a logging library similar to log4j, but which is used inside TDI specifically for tracing and First Failure Data Capture (FFDC).

For information about IBM Tivoli Directory Integrator logging, see the "Tracing and FFDC" chapter in the *IBM Tivoli Directory Integrator 6.1.1: Administrator Guide*.

Action Manager (AM)

The Action Manager is an error management mechanism that allows you to create Action Manager rules for your AssemblyLines.

An Action Manager rule consists of two parts:

1. The condition under which the rule is to be invoked, called a "trigger." Some examples of triggers are Server API failure, AssemblyLine failure, or failure of the AssemblyLine to run at specified intervals.
2. A set of alternate actions to perform when the trigger is encountered.

The Action Manager is part of the Administration and Monitoring Console (AMC). For instructions on how to use the Action Manager, consult the Administration and Monitoring Console chapter in the *IBM Tivoli Directory Integrator 6.1.1: Administrator Guide*

Performance Test and Debug Utilities

IBM Tivoli Directory Integrator 6.1.1 includes Performance Test and Debug Utilities tools. The Performance Test Tool monitors the system-level parameters and the server, records and logs information for the system and server at specified intervals of time. Performance test parameters are then used for throughput measurement and capacity planning.

The Debug Utilities tool identifies memory usage and memory leaks in specific TDI components by collecting information at specific intervals and upon certain actions.

See Chapter 2, “Performance Test Utilities and Debugging,” on page 5 for more information about TDI's benchmarking tools.

Using the Messages Guide to resolve errors

See the *IBM Tivoli Directory Integrator 6.1.1: Messages Guide* for information about why the error occurred and how to resolve it.

Chapter 2. Performance Test Utilities and Debugging

There are two performance tools included with IBM Tivoli Directory Integrator 6.1.1: a Performance Test Utilities tool and a Performance Debugging tool. These tools monitor and log system and server information at specified intervals of time. The information gathered can then be used for throughput measurement and capacity planning.

This chapter describes these tools and explains how to configure and gather information from them.

Performance Test Utilities

The Performance test utilities are shell scripts that launch a server instance for a particular configuration and log system-level (Input/Output (IO), Central Processing Unit (CPU), network) and Java Virtual Machine (JVM) level information. The test utilities can be used to benchmark macro parameters such as throughput, application memory and CPU usage. Data is logged into the performance logs at user specified intervals.

Running the Performance Test Utilities scripts

There are two shell scripts: The ibmdisrvtp.sh utility and the ibmdibenchmark.sh utility. The ibmdisrvtp.sh utility measures server throughput. The ibmdibenchmark.sh utility logs system-level information. The utilities must be executed separately.

Note: The Performance Test Utilities shell scripts are not supported on Windows operating systems.

Running the ibmdisrvtp.sh utility

1. Copy the ibmdisrvtp.sh, benchmark.properties, and tdiperfhead.sh files from the `<itdi_install_dir>/performance` directory to the `solution` directory.
2. Open the benchmark.properties file, and specify the following settings:
   - ibmdiroot: Specify the TDI install directory:
   - solutiondir: Specify TDI solution directory
   - configfile: The name of the Config file to be loaded
   - assemblyline: The AssemblyLine to be started
   - eventhandlers: The Event handler to be started
   - cmdoptions: The ibmdisrv command line options. By default, the value for cmdoptions is None.
   - jvmcmdoptions: The JVM command line options. By default, the value for jvmcmdoptions is `None`.
3. At a command prompt, execute the following command from the command line:

   ```
   ./ibmdisrvtp.sh –f benchmark.properties
   ```

Running the ibmdibenchmark.sh utility

1. Copy the ibmdibenchmark.sh, benchmark.properties, and tdiperfhead.sh files from `<itdi_install_dir>/performance` directory to `solution` directory.
2. Open the benchmark.properties file, and specify the following properties:

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- duration: Duration time in seconds, set it to-1 to run it for an infinite time period.
- interval: Interval time in seconds to collect system-level information. If duration is not set to -1 then interval should be less than the duration.
- ios: enable or disable input-output information recording (y to enable, n to disable)
- vms: enable or disable memory usage/information recording (y to enable, n to disable)
- nets: enable or disable network information recording (y to enable, n to disable)

3. From the command line, execute the following command:

```
./ibmdibenchmark.sh –f benchmark.properties
```

Performance debugging

The Performance Debugging tool identifies memory usage and memory leaks in specific TDI components by collecting information at specific intervals and upon certain actions.

Data collected by the Performance Debugging tool

This feature logs the following information:

- Component name
- Time (in milliseconds)
- Memory usage

Component names are prefixed with the name of the AssemblyLine instance that uniquely identifies each component.

Memory usage is the difference between total memory available (JVM) at start and total memory available at end for each component during its execution.

Before AssemblyLine terminates, the performance entry that contains performance statistics is logged. This is then followed by logging of the overall AssemblyLine performance statistics.

Running the Performance Debugging tool

To run the Performance Debugging tool, use one of the following methods:

- Start the server using the -T parameter

```
ibmdisrv -T
```

- Start the server by setting the following property in the global.properties or solution.properties file:

```
## Enable\Disable performance logging
com.ibm.di.server.perfStats=true
```

Note: The -T parameter takes precedence over the solution.properties file setting. If the com.ibm.di.server.perfStats value is set to `false`, you can still obtain performance statistics by starting the server using the -T parameter.

Chapter 3. Installation and uninstallation

Troubleshooting Installation

Installation and uninstallation of IBM Tivoli Directory Integrator (TDI) is scripted and implemented using Macrovision FLEXnet Publisher Installation Module 1.2.1.

Note: Throughout the following sections you will be asked to gather information for the IBM Solution installation directory (`SI_install_dir`). The location of this directory varies based on operating system and user type:

- On Windows operating systems:
  - If IBM Solution Install was installed by an Administrator (root) user, the IBM Solution installation directory is: `C:\Program Files\IBM\Common\asci`
  - If IBM Solution Install was installed by a non-Administrator (non-root) user, the IBM Solution installation directory is: `C:\Documents and Settings\<username>\asci_<username>`
- On UNIX operating systems:
  - If IBM Solution Install was installed by an Administrator (root) user, the installation locations are in two directories: `/var/ibm/common/acsi` and `/usr/ibm/common/acsi`
  - If IBM Solution Install was installed by a non-Administrator (non-root) user, the installation directory is: ~/.acsi_<*username*>/
- On i5/OS operating systems:
  - The Solution installation directory can be found at the following location: QSECOFR (Admin):

    ```
    /QOpenSys/QIBM/ProdData/acsi
    ```

    Non-OSECOFR (non-Admin):

    ```
    ~/.acsi_<username>/
    ```
  - Macrovision files (such as installation logs, etc.) are found in the `/tmp/InstallShield` directory.
  - The commands used on i5/OS are the same as on UNIX:

    ```
    si_inst.sh
    listIU.sh
    setenv.sh
    ```
  - The executable on i5/OS is a shell script and not a native executable. If you need to turn on debugging, you should invoke the .jar file directly.

    ```
    /QIBM/ProdData/Java400/jdk14/bin/java -Dis.debug=1 -jar <path where jar is> /TDIV611.JAR -console -is:log <pathname>
    ```

Gathering installation information

Gathering information about your installation can help IBM Support determine the source of your problem. The following sections describe troubleshooting information that you can generate for different segments in the installation.

There are four segments in a TDI installation:

1. The initialization, during which the IBM Tivoli Directory Integrator 6.1.1 Installer either installs or upgrades IBM Solution Install (SI), and the SI service is created or started.

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2. The pre-install, which involves stepping through the TDI Installer windows and selecting installation options.
3. The installation action, which occurs after you have selected all the installation options and you begin the product installation.
4. The post-install, which occurs when the installation action is completed, and the TDI install is handling post-install actions such as migration and installing Deployment Engine Update Installer (DEUI).

Troubleshooting initialization

If the IBM Tivoli Directory Integrator install fails to open, or the Initializing Installation Data window hangs, collect the following logs and send them to IBM Support for analysis:

1. <*tempdir*>/acu_si.log
2. <*tempdir*>/<*userid*>/SIInstall.log
3. <*SI_install_dir*>/logs/si_trace.log

To determine if IBM Solution Install (SI) is installed on your machine, run the following two commands:

1. Run the `setenv` command from the IBM Solution Install directory:
   - Windows operating systems:

     ```
     setenv
     ```
   - UNIX operating systems:

     ```
     setenv.sh
     ```
2. Run the `listIU` command
   - Windows operating systems:

     ```
     listiu
     ```
   - Unix operating systems:

     ```
     listIU.sh
     ```

After running these commands, if IBM Solution Install is installed, you should see two entries for IBM Solution Install at 1.2.1.16 or higher. If other products have been installed using IBM Solution Install, you will also see those entries.

To gather debug information about this segment of the installation, run the installation in console mode with debugging enabled:

1. Create a .sp file that has the same name as the launcher. This file needs to be in the same place as the launcher too; for example:
   - install_tdiv61_windows.sp
   - install_tdiv61_linux.sp

   This .sp file contains the following line `is.debug=1`
2. Invoke the launcher with the following command:

   ```
   -is:log<pathname>
   ```

   Send the resulting log and the console output to the IBM Support team.

Troubleshooting the pre-install

If the TDI installer does not recognize that a previous version of TDI has been installed, or if the TDI installer does not detect that IBM WebSphere® Application Server is present, please gather the following files and send them to IBM Support:

1. The `tdiv61install.log` file. This file is located in the following directory: <*tempdir*>/tdiv61install.log.

2. The `vpd.properties` file. On Windows operating systems, this file is located in the C:\WINDOWS or C:\WINNT directory. On UNIX operating systems, this file is located in either the /root or / directory. On AIX® operating systems, this file is located in the /usr/lib/objrepos/ directory.

TDI 6.1.1 supports WAS 6.0.2 and WAS 6.1 as pre-installed Application Servers that TDI can install AMC into. Moreover, for WAS 6.0.2 you must be at the 6.0.2.13 level or later.

Note: On the i5 / OS operating system, with WAS 6.0.2 as the pre-installed Application Server, TDI installation works, but it may not be able to deploy AMC. To resolve the issue, install WAS level 6.0.2.13 or later.

For any other problem with the TDI wizard windows, please gather the tdiv61install.log. If you are uninstalling, gather the tdiv61uninstall.log.

Troubleshooting the installation

To troubleshoot installation, gather the following log files and send them to IBM Support:

1. Collect the <*SI install directory*>/logs/si_trace.log file.
2. <*tempdir*>/tdiv61install.log or the <*tempdir*>/tdiv61uninstall.log

Troubleshooting the post installation

If the Deployment Engine Update Installer (DEUI) fails to install, gather the following log files and send them to IBM Support:

1. All DEUI logs found in the <*tempdir*>
2. <*SI install directory*>/logs/si_trace.log

If there is a problem migrating TDI from 6.0 to 6.1, gather the following files and send them to IBM Support:

1. <*tempdir*>/tdiv61install.log
2. All TDI migration logs found in the <*tempdir*>

Performing a manual uninstallation

If an unexpected error causes uninstallation to fail, you must manually remove IBM Tivoli Directory Integrator, Deployment Engine Update Installer (DEUI) and the IBM Solution Install.

Attention: Removing IBM Solution Install also removes information about all products installed using IBM Solution Install. Before removing IBM Solution Install, make sure there is no necessary information that will be lost as part of the removal.

Windows

To manually uninstall DEUI and Solution Install (SI) on a Windows operating system:

1. Uninstall DEUI using the following command: `<DEUI_install_dir>\_uninst\uninst.cmd`.
   - If DEUI was installed by an Administrator (root) user, the installation location is: `C:\Program Files\IBM\Common\ci\gmi`.
   - If DEUI was installed by a non-Administrator (non-root) user, the installation directory is: `C:\Documents and Settings\<username>\ci_<username>`.
2. Remove SI:
   - Run the following command from the IBM Solution Install directory:

<SI_install_dir>\setenv

- Run the following command from any location:

  si_inst –r

- Remove any remaining files from the IBM Solution Install installation directory.

3. Delete the TDI installation directory. Optionally, delete the TDI Solutions Directory as well.

UNIX

To manually uninstall DEUI and SI on a UNIX operating system:

- If DEUI was installed by an Administrator (root) user, the installation location is: /usr/ibm/common/ci/gmi
- If DEUI was installed by a non-Administrator (non-root) user, the installation directory is: ~/.ci_<username>/

1. Uninstall DEUI using the following command:

   <DEUI_install_dir>/_uninst/uninst

2. Remove SI:

   - Run the following command from the IBM Solution Install directory: /var/ibm/common/acsi/setenv.sh
   - From any directory, run the following command:

     si_inst.sh –r

   - To confirm that IBM SI has been uninstalled, run the following command to verify that the IBM SI directory no longer exists.
     – ls /usr/ibm/common
     – ls /var/ibm/common

3. Delete the TDI installation directory. Optionally, delete the TDI Solutions Directory as well.

i5/OS

To manually uninstall DEUI and SI on an i5/OS operating system:

- If DEUI was installed by an QSECOFR (Admin) user, the installation location is: /QOpenSys/QIBM/ProdData/ci.
- If DEUI was installed by a Non-OSECOFR (non-Admin) user, the installation directory is: ~/.ci_<username>.

1. Uninstall DEUI using the following command: <DEUI_install_dir>/_uninst/uninst
2. Remove SI:

   - Run the following command from the IBM Solution Install directory: <SI_install_dir>/setenv.sh
   - From any directory, run the following command:

     si_inst.sh –r

3. To confirm that IBM Solution Install has been uninstalled, run the following command to verify that the IBM Solution installation directory no longer exists:

   ls <SI_install_dir>

4. Delete the TDI installation directory. Optionally, delete the TDI Solutions Directory as well.

Troubleshooting Problems

This section explains troubleshooting problems and explains any workarounds you can use.

Responses are not being stored during installation in console mode

TDI installation has difficulty storing some selections when installing in console mode. If you select **Custom** as the installation type, click **Next** and move forward in the installation process, and later use the **Back** button to return to the installation type window, the installer shows that **Typical**, and not custom, is selected. If you select **Custom** again, and if you do not use the **Back** button in the installer again, it performs a **Custom** installation. The other setting that is stored by the installer, the destination directory, does not change when you use the **Back** button. If you want more detail, see the following steps:

1. Select **Next** when the Welcome panel appears.
2. Accept or reject the Software License Agreement. The installation ends if you do not accept the agreement. Click **Next**.
3. Select the type of installation you want, for example, **Custom**. Click **Next**.
4. Select a directory where the product will be installed and click **Next**.
5. Press **Back** twice to navigate to where the installer asks for type of installation. The choices are **Typical** and **Custom**. You selected **Custom** in step 3 above, but **Typical** is now selected.
6. Select **Custom** again.

Remember that you can always select a **Custom** installation by selecting it again any time you use the **Back** button to reach the **Installation Type** window.

For a more detailed Installation procedure, see *IBM Tivoli Directory Integrator 6.1.1: Administrator Guide*.

When you use a nonAdmin user id, upgrading from TDI 6.1 to TDI 6.1.1 works but may throw exceptions

You have installed a local copy of TDI 6.1. Using a nonAmin user id, you want to upgrade from TDI 6.1 to TDI6.1.1. The upgrade should be successful. However, there are some exceptions that will be logged. You can ignore these exceptions. If the upgrade is done using the console option, you may see these exceptions as part of the console output. If you used the GUI (for example, `install_tdiv611`) to upgrade from TDI 6.1 to TDI 6.1.1, these exceptions may appear in the TDI install log (found in the `temp` directory).

```
(Jan 30, 2007 1:48:39 PM), Install, com.installshield.si.iu.service.actions.ISUninstallerArchive, wrn, java.io.IOException:
entry 4e3d0fdf37265f40b6e42c104eaf08bb/services.xml does not exist in C:\TDI\install\_uninst\assembly.dat
STACK_TRACE: 11
java.io.IOException: entry 4e3d0fdf37265f40b6e42c104eaf08bb/services.xml does not exist in C:\TDI\install\_uninst\assembly.dat
 at com.installshield.boot.streamhandler.ZipURLConnection.getInputStream(Unknown Source)
 at java.net.URL.openStream(URL.java(Compiled Code))
 at com.installshield.qjml.QJML.read(Unknown Source)
 at com.installshield.product.actions.UninstallerArchive.updateAssemblyClassArchive(Unknown Source)
 at com.installshield.product.actions.UninstallerArchive.install(Unknown Source)
 at com.installshield.si.wizardbeans.TransferAction$TransferOperation.updateIU(Unknown Source)
 at com.installshield.si.wizardbeans.TransferAction$TransferOperation.execute(Unknown Source)
 at com.installshield.wizard.service.AsynchronousOperation.run(Unknown Source)
 at java.lang.Thread.run(Thread.java:570)

(Jan 30, 2007 1:48:39 PM), Install, com.installshield.si.iu.service.actions.ISUninstallerArchive, wrn,
java.io.IOException: entry 4e3d0fdf37265f40b6e42c104eaf08bb/services.xml does not exist in C:\TDI\install\_uninst\assembly.dat
STACK_TRACE: 11
java.io.IOException: entry 4e3d0fdf37265f40b6e42c104eaf08bb/services.xml does not exist in C:\TDI\install\_uninst\assembly.dat
 at com.installshield.boot.streamhandler.ZipURLConnection.getInputStream(Unknown Source)
 at java.net.URL.openStream(URL.java(Compiled Code))
 at com.installshield.qjml.QJML.read(Unknown Source)
 at com.installshield.product.actions.UninstallerArchive.updateAssemblyClassArchive(Unknown Source)
 at com.installshield.product.actions.UninstallerArchive.install(Unknown Source)
 at com.installshield.si.wizardbeans.TransferAction$TransferOperation.updateIU(Unknown Source)
 at com.installshield.si.wizardbeans.TransferAction$TransferOperation.execute(Unknown Source)
 at com.installshield.wizard.service.AsynchronousOperation.run(Unknown Source)
 at java.lang.Thread.run(Thread.java:570)

(Jan 30, 2007 1:48:40 PM), Install, com.installshield.si.iu.service.actions.ISUninstallerArchive, wrn,
 Could not update product uninstaller classes.
(Jan 30, 2007 1:48:40 PM), Install, com.installshield.si.iu.service.actions.ISUninstallerArchive, err,
java.lang.ClassCastException:
com.installshield.si.runtime.service.impl.ChangeableInstalledRootIUImpl
STACK_TRACE: 9
java.lang.ClassCastException: com.installshield.si.runtime.service.impl.ChangeableInstalledRootIUImpl
 at com.installshield.si.iu.service.actions.ISUninstallerArchive.createBootInf(Unknown Source)
```

```
at com.installshield.product.actions.UninstallerArchive.updateEngineArchives(Unknown Source)
at com.installshield.product.actions.UninstallerArchive.install(Unknown Source)
at com.installshield.si.wizardbeans.TransferAction$TransferOperation.updateIU(Unknown Source)
at com.installshield.si.wizardbeans.TransferAction$TransferOperation.execute(Unknown Source)
at com.installshield.wizard.service.AsynchronousOperation.run(Unknown Source)
at java.lang.Thread.run(Thread.java:570)
```

Attempting to install TDI to the root directory

You cannot install TDI version 6.1 or 6.1.1 to the root directory of a Windows or UNIX system.

On Windows, the root directory is `<any drive:\>`, for example, `C:\`. On UNIX, the root directory is `"/"`. If you do try to install to the root directory, the installation fails with the following error:

```
[java.lang.NullPointerException
com.ibm.ac.si.cm.hosts.CreationFailedException::]
```

Attempting to install TDI version 6.1 or 6.1.1 to the same version and location

If you try to install TDI (version 6.1 or 6.1.1) with a TDI (version 6.1 or 6.1.1) installer to the same directory where the identical TDI version (version 6.1 or 6.1.1) is already installed, you will get an error indicating:

```
Nothing selected to install, or the product is already installed at this location.
```

The following steps produce the error:

1. The user selects to install TDI to a new location.
2. When prompted for the installation directory, the user selects the same directory and version as are already installed for the existing installed instance.
3. The following errors appear:

   ```
   Nothing selected to install, or the product is already installed at this location.
   Instance exists.
   ```

The solution is to install TDI to a different directory from the one where it is already installed.

If you select to install new features when prompted, the new features will be added to the existing installation instance, just like they would if you selected **Adding Features**.

ikeyman file needs executable permissions on HP-UX and Solaris operating systems

On HP-UX and Solaris operating systems, the ikeyman file requires executable file permissions; for example, 555. The ikeyman file is located in the jre/bin directory.

Unable to migrate Cloudscape System Store of TDI 6.0 to TDI 6.1.

These conditions are symptoms of a failed migration from Cloudscape™ System Store 6.0 to Cloudscape System Store 6.1.

- The TDISysStore folder is empty.
- Unable to access TDI 6.0 System Store data.
- Installer failed with message similar to: Unable to migrate Cloudscape Database.

The migration failed because the Cloudscape Database could not be migrated by the installer.

TDI 6.1 uses Derby (Cloudscape v 10) drivers that are not compatible with previous versions of Cloudscape. Because TDI 6.0 uses Cloudscape version 5.1 as its System Store, Cloudscape must be migrated to a Cloudscape version 10 database in 6.1.

To migrate to Cloudscape version 10, you need the `migrateCS` script shipped with TDI 6.1. This script is located in the following directory:

`<Install_dir>/tools/CSMigration`

To migrate your older Cloudscape database, invoke the `migrateCS` script as follows:

`migrateCS <oldCSdirectoryDB> <newCSdirectoryDB>`

For example, if your old Cloudscape DB is in the `E:\MyDB` directory, and you wish to create a new one in the `E:\TDI61\MyDB_10` directory, you would run the following command:

```
migrateCS E:\MyDB E:\TDI61\MyDB_10
```

Note: The MyDB_10 folder will be automatically created by the script. It must not exist before invoking the script.

Known limitations

The following issue statements represent know issues with the TDI installation process. Workarounds are provided where available.

When an Administrator id installs Solution Install and the Update Installer on the target system, and a non-Administrative id attempts to invoke the Update Installer for maintenance on a locally installed instance of TDI V6.1.1

Assume the following case:

1. An administrative user id installs a global instance of the Solution Install (SI) and Update Installer to the target system.
2. A non-administrative user id installs a local instance of TDI 6.1.1.
3. The non-administrative user wants to use the global Update Installer to apply maintenance to the local instance of TDI 6.1.1.

Because the global instance of SI and the Update Installer were on the system when the local TDI install took place, there is no local version of SI or Update installer installed. However, when a non-administrative user id tries to execute the Update Installer using the `-siinstall true` command line option, the user may see the following exception in the console window:

```
C:\>"C:\Program Files\IBM\Common\ci\gmi\bin\gmi.cmd" -siinstall true  C:\>set
ACU_COMMON=C:\Program Files\IBM\Common\acsi  C:\>set SI_PATH=C:\Program Files\IBM\Common\acsi
C:\>set SI_JAVA_HOME=C:/Program Files/IBM/Common/acsi\jre
C:\>goto RUNCMD
C:\> "C:/Program Files/IBM/Common/acsi\jre\bin\java" -jar
"C:\Program Files\IBM\Common\ci\gmi\bin\..\lib\gmi.jar"
-siinstall true could not locate SI:  ACUINI0040W User does not have proper
authority!  (Feb 1, 2007 4:46:46 PM), Install, com.installshield.si.commandline.SIResolveRuntime,
err,
java.lang.Exception: si package failed to install successfully
  at com.installshield.si.commandline.SIResolveRuntime.execute(Unknown Source)
  at com.installshield.wizard.Wizard.executeStartupBeans(Unknown Source)
  at com.installshield.wizard.Wizard.startup(Unknown Source)
  at com.installshield.boot.BootMain.bootstart(Unknown Source)
  at com.installshield.boot.BootMain.executeBoot(Unknown Source)
```

```
  at com.installshield.boot.si.SIBootMain.run(Unknown Source)
  at java.lang.Thread.run(Thread.java:570) java.lang.NullPointerException
      at com.installshield.si.commandline.SIResolveRuntime.execute(Unknown Source)
  at com.installshield.wizard.Wizard.executeStartupBeans(Unknown
  at com.installshield.wizard.Wizard.startup(Unknown Source)
  at com.installshield.boot.BootMain.bootstart(Unknown Source)
  at com.installshield.boot.BootMain.executeBoot(Unknown Source)
  at com.installshield.boot.si.SIBootMain.run(Unknown Source)
  at java.lang.Thread.run(Thread.java:570)
WARNING: an unhandled error occurred during the processing of command line
option siinstall:   java.lang.NullPointerException  WARNING: an unhandled
error occurred during the processing of startup bean com.ibm.ci.gmi.issi.commandline.InitializeGmi:
java.lang.NoClassDefFoundError: org/eclipse/hyades/logging/events/cbe/impl/EventFactoryImpl
```

Non-administrative installation may not complete when IEHS is selected

When you do a non-administrative installation with the IBM Eclipse Help System (IEHS) option selected, installation may not complete. Perform a non-administrative, Custom installation and do not select to install IEHS. Your installation should be successful.

Creation.Failed errors can occur during TDI installation

Creation.Failed errors can arise during TDI installation. If you encounter a Creation.Failed error during installation, the following steps may allow you to restart the installer and complete the installation successfully:

- Make sure there is enough room in `<TDI_install_dir>` and in temp space.
- Deselect the IBM Eclipse Help System (IEHS) during a nonAdmin, Custom installation.

The exit value or message of the `CreationFailedException` may vary. The following errors are examples only:

Creation.Failed examples

Example 1:

```
Install of IBM Tivoli Directory Integrator v6.1.1 failed due to the following reasons:

[com.ibm.ac.si.ap.action.ActionException: ACUASI0186E
Error running subprocess, exit value was : 15,
com.ibm.ac.cm.hosts.CreationFailedException: : ]

Click Finish to exit the wizard.
```

Example 2:

```
Initializing FLEXnet Wizard ........
Launching FLEXnet Wizard ........

Install of IBM Tivoli Directory Integrator v6.1.1 failed due to the following reasons:

[com.ibm.ac.si.ap.action.ActionException: ACUASI0186E Error running
subprocess, exit value was:1,
com.ibm.ac.cm.hosts.CreationFailedException::]
```

NonAdmin installation on AIX can will result in errors

When a non-administrative user id tries to install TDI 6.1.1 on the AIX operating system, an error similar to this one will be displayed:

```
Error in copying /tmp/ismp001/4485082/data/faddba0181b51d9316ef30cc8eb4700d/6.1.
1.0/resource.map there may not be enough space on device
Feb 9, 2008 3:43:08 AM java.util.prefs.FileSystemPreferences$2 run
INFO: Created user preferences directory.
```

```
Install aborted.

Root permission is required to run this installer.
The wizard cannot continue because of the following error: unknown error code (1001)

$ id
uid-221(rujuta) gid=(staff)
$
```

NonAdmin installation on i5/OS will result in errors

Non-administrative installs of TDI 6.1.1 are not supported. The install will fail to start.

Glibc package 2.3 or higher required for installation on Linux operating systems

When installing TDI on a Linux operating system, the *glibc* package must be at level 2.3 or higher.

To determine the level of the glibc package, run the following command:

```
rpm -qa|grep glibc
```

Maintenance Level 3 required for installation on an AIX 5.3 operating system

Make sure that Maintenance Level 3 has been applied before installing IBM Tivoli Directory Integrator 6.1.1 on an AIX 5.3 operating system.

Incorrect text emphasis when installing TDI on a Windows operating system in Simplified Chinese

During TDI installation on a Windows operating system in Simplified Chinese, some text strings in normal text should be in bold text.

Some messages display when installing TDI 6.1 using the -console option on an HP-UX operating system

These messages might display when you install TDI 6.1 using the -console option on an HP-UX operating system:

```
rm: java not removed.  Text file busy
rm: directory PA_RISC2.0 not removed.  Directory not empty
rm: directory bin not removed.  Directory not empty
rm: libhpi.sl not removed.  Text file busy
rm: directory native_threads not removed.  Directory not empty
rm: libjvm.sl not removed.  Text file busy
rm: directory server not removed.  Directory not empty
rm: libjava.sl not removed.  Text file busy
rm: libnet.sl not removed.  Text file busy
rm: libnio.sl not removed.  Text file busy
rm: libverify.sl not removed.  Text file busy
rm: libzip.sl not removed.  Text file busy
rm: directory PA_RISC2.0 not removed.  Directory not empty
rm: directory lib not removed.  Directory not empty
rm: directory jre not removed.  Directory not empty
rm: directory _bundledJRE_ not removed.  Directory not empty
rm: directory /tmp/istemp8353117173137 not removed.  Directory not empty
```

These messages do not cause the installer to fail. You can ignore these messages.

Some messages display when uninstalling TDI 6.1.1 using the -console option

Some errors are shown at the start of uninstallation in console mode.

Note: These messages could display when you uninstall TDI from any TDI supported operating system.

Messages similar to these could display when you uninstall TDI 6.1.1 using the `-console` option:

Windows:

```
Additional class path file not found: /tmp/istemp258274159235052/_bundledJRE_/jre/lib/ext/gskikm.jar
Additional class path file not found: /tmp/istemp258274159235052/_bundledJRE_/jre/lib/ext/oldcertpath.jar
Additional class path file not found: /tmp/istemp258274159235052/_bundledJRE_/jre/lib/ext/ibmjcefips.jar
Additional class path file not found: /tmp/istemp258274159235052/_bundledJRE_/jre/lib/ext/ibmjsseprovider2.jar
Additional class path file not found: /tmp/istemp258274159235052/_bundledJRE_/jre/lib/ext/ibmpkcs11impl.jar
Additional class path file not found: /tmp/istemp258274159235052/_bundledJRE_/jre/lib/ext/jaccess.jar
Additional class path file not found: /tmp/istemp258274159235052/_bundledJRE_/jre/lib/ext/indicim.jar
Additional class path file not found: /tmp/istemp258274159235052/_bundledJRE_/jre/lib/ext/dumpfmt.jar
Additional class path file not found: /tmp/istemp258274159235052/_bundledJRE_/jre/lib/ext/ldapsec.jar
Additional class path file not found: /tmp/istemp258274159235052/_bundledJRE_/jr/lib/ext/dtfj.jar
Additional class path file not found: /tmp/istemp258274159235052/_bundledJRE_/jre/lib/ext/svcdump.jar
```

AIX:

```
cat: 0652-050 Cannot open /tmp/istemp332024160032502/chunk2.
rm: /tmp/istemp332024160032502/chunk1: A file or directory in the path name does not exist.
rm: /tmp/istemp332024160032502/chunk2: A file or directory in the path name does not exist.
bash#
```

These messages do not cause the uninstaller to fail. You can ignore these messages.

Debug statements created when uninstalling TDI 6.1 using the -console option on UNIX operating systems

Debug statements might display when you uninstall TDI 6.1 using the -console option on Windows and AIX operating systems. These statements do not cause the uninstall to fail.

Product name does not appear following uninstallation of TDI 6.1 using the -console option

Following uninstallation using the -console option, the following message might appear:

```
{0} was successfully uninstalled from your computer
```

This message should read:

```
IBM Tivoli Directory Integrator was successfully uninstalled from your computer
```

This error does not cause the uninstallation to fail.

Migration from TDI 6.0 to TDI 6.1 on the HP-UX 11iv2 operating system is not supported

TDI 6.0 does not support the HP-UX 11iv2 operating system. Because of this, migration from TDI 6.0 to TDI 6.1 is not supported on HP-UX 11iv2 (11.23) PA-RISC platforms.

Chapter 4. Configuration Editor

Troubleshooting the Config Editor

The Config Editor (CE) is a graphical interface that allows you to create, test and debug your integration solutions. Configs are created and maintained in the Config Editor and deployed with the Server.

This chapter describes some problems you might encounter when using the Config Editor and suggests some workarounds.

AL Debugging: Problem debugging Server Mode AssemblyLines

When using the **Remote Config Editor** for debugging any AssemblyLine with a server mode connector, you can only debug the first instance of the AssemblyLine. But the server continues to accept the connections, even if you cannot debug them, and the debugger shows that the session is terminated.

Note: This problem, explained below, occurs in the **Remote CE**, but the **Local CE** works as expected.

If you run a remote AssemblyLine in the **Config Editor (CE)**, and if you select either the **Step (Break on Error)** or the **Step (Paused)** CE run option, the AssemblyLine (AL) may fail to terminate. When you open a Config file, and run an AL in the CE, a logging window opens. Run the AL with CE run option **Step (Break on Error)** or **Step (Paused)**. The logging window has two red buttons, a **Run** button (red triangle), and a **Stop** button (red bullet). In the Remote Server window of the CE, when your AL completes its run, and also completes sending its reply back to the client, the **Stop** button becomes disabled and the **Run** button becomes enabled.

Perform these tests to find out whether the AL has terminated properly:

1. In the Remote CE logging window, click **Close**.

   A dialogue box appears, prompting you to stop the running process.
2. Select **Yes** to stop the running AL.
3. Re-run the same AL that you just ran.

   A dialogue box appears, stating that the AL is still running. In the logging window, the **Stop** button is disabled so that you cannot use the button to stop the AL. The **Run** button is enabled.

   Note: The behavior detailing the inappropriate behavior of the **Run** and **Stop** buttons when running the CE remotely is observed with all types of Sever API connections (non-SSL, SSL).

Config Creation Save As command not working properly

This error occurs when the **Save As** command fails to save Autostart and Logconfig information in the Config file.

To work around this problem, use the shell copy command for your operating system to save Autostart and Logconfig information.

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Locking of parameter file

If you use Config Editor to open the external parameter file the file might become locked.

To work around this problem, do not use Config Editor to open the external parameter file.

Keyboard shortcuts might not work if JAWS is configured

The left navigation pane of Config Editor provides a tree view of the current configuration, as well as all the current AssemblyLines, EventHandlers, Connectors, and so forth. When JAWS (screen reader) is configured for TDI, keyboard shortcuts in the left Config Editor pane might not work properly. To work around this problem, use the mouse to obtain focus on the required component or components in the left Config Editor pane.

Error occurs when opening, closing or creating a Config file if JAWS is configured

When JAWS is configured for TDI, an error dialog box might appear when you open, close or create a Config file in the Config Editor. This error does not cause any JAWS or TDI malfunction, and you can safely close the pop-up error dialog box.

Drop-down elements in Config Editor do not have bottom border line the first time they are used

When you select a drop-down menu in the CE, the horizontal line below the element does not display the first time you activate it. When you select the same drop-down menu for the second time, the horizontal line at the bottom appears.

Resize Config Editor window if Password Store menu does not appear

The Password Store menu might not appear if the Config Editor window is too small. If the Password Store menu does not appear, resize the window to be bigger. The menu will reappear.

Known limitations

Alignment of text boxes and buttons slightly off on Config window for ScriptConnector

On the **Config** tab of a ScriptConnector, the **External Files** text box is smaller than the **Include global scripts** text box. The boxes should be the same size. Additionally, the **Select . . .** button is smaller than the **Add Files** button. The buttons should also be the same size.

Menu truncates the first time Inherit from: ibmdi.CSV button is clicked

Clicking **Inherit from: ibmdi.CSV** on a CSV Parser's **Config** tab launches the **Select** window. The first time you click **Inherit from: ibmdi.CSV**, the menu on the **Select** window truncates.

Slight truncation of column names in Simplified Chinese on Windows 2003 operating systems

There might be a slight truncation of Config Editor column names in Simplified Chinese on Windows 2003 operating systems.

IBM JavaScript limitations

The following sections describe limitations you might encounter when using IBM JavaScript™.

java.lang.OutOfMemoryError: Failed to fork OS thread

This section explains the following error:

```
java.lang.OutOfMemoryError: Failed to fork OS thread
```

This error occurs when thousands of threads are started in very quick succession (almost simultaneously). The error indicates that the upper limit on the number of concurrent threads for the JVM has been reached. Normally this error occurs when a Javascript loop starts thousands of threads in a very short period of time. This error should not occur in normal conditions in which TDI solutions usually operate. You can avoid this error by inserting a very small delay between starting successive threads (even as small as 1 millisecond). This delay can cause performance to decrease a little, but the error would disappear.

String representations of numbers not represented in exponential format

String representations of numbers do not use exponential format. For example, the following string:

```
String( -100000000000000000000 )
```

yields the following results:

```
"-100000000000000000000"
```

Package and class references do not return string values

Package and class references do not return string values. For example, the following reference:

```
main.logmsg ("String: " + java.lang.String);
```

results in an exception.

Date constructors cannot take values higher than the maximum integer value

Date constructors that use numeric values higher than 2.32 wrap and return the wrong date value.

All comparisons of prototypes return false

Comparisons of prototypes return false; for example:

```
Math.__proto__ == Object.prototype --> false
```

Arrays with high numeric values truncate

Creating an array with a numeric value higher than 2*32 results in a truncated value and a smaller array than requested.

Sandbox not supported with connectors that return nonserializable data

Nonserializable data returned cannot be stored in a database. For this reason, Sandbox is not supported for connectors that return this kind of data.

Variable override of standard types allowed

IBM JavaScript allows variables to override standard types; for example, the following string:

```
STRING = ""; new STRING())
```

does not result in an exception.

Declaring two or more functions on same line allowed

IBM JavaScript allows you to declare more than one function on the same line.

Redeclared variable does not retain the previous value

Redeclaring a variable does not retain the previous value, even if the declaration is unspecified; for example:

```
a = 10;   var a;   a --> null/undefined
```

Chapter 5. Troubleshooting the Administration and Monitoring Console

Administration and Monitoring Console (AMC) Problem Determination

This section explains problems found in the Administration and Monitoring Console, and provides workarounds, where available.

Unable to delete TDI Server and Config Views

You can configure Action Manager (AM) rules for a Config View, so that one rule references some other rule. If one rule references another rule in the Config View, then you cannot delete either the Config View or the server that is running the Config View. To avoid this problem, you can reference one rule to another rule if you associate either of the following with the rule:

- An Execute AM Rule action
- An Enable or Disable AM rule action

To delete the TDI server and Config Views where one rule references another in the Config View:

1. Navigate to **Operation Status and AM –> AM Configuration**.
2. Select the Config View you want to delete.
3. Select the rules that belong to this Config View and click **Delete**.
4. Navigate to **Config Administration –> Manage Config Views**. Select the Config View you want to delete and click **Delete**.
5. Navigate to **Console Administration –> Manage TDI Servers**.
6. Select the server you want to delete and click **Delete**.

TDI 6.0 AssemblyLines and EventHandlers run even if Config has been unloaded using Server clients like AMC or tdisrvctl

TDI 6.0 AssemblyLines (AL) and EventHandlers (EH) appear to be running, even if the Config file is unloaded using Server API clients like AMC or `tdisrvctl`. The reason why unloading the Config file does not prevent ALs and EHs from continuing to run is that in TDI 6.0, unloading a Config does not automatically stop the running AL or EH thread—even if the unload operation is initiated from a client of TDI 6.1 or later versions; if TDI connects to a 6.0 server, version is 6.0, the problem occurs. In TDI 6.1 and later, ALs and EHs do not continue to run after the Config file has been unloaded. Unloading a Config file in TDI 6.1 and later terminates all ALs and EHs contained in that Config.

String is truncated on the Start AssemblyLine window

The following string is truncated in the Start AssemblyLine window: `The attributes exposed for the selected operation`.

This problem occurs only in Internet Explorer, and only in Korean.

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Load and Reload functions using a TDI 6.1 remote server show all files in a remote Config folder

Note: This problem is fixed in TDI 6.1.1.

When the AMC is connected to a TDI 6.1 server, the **Load Reload** window lists all of the files in the remote Config folder, regardless of file type. The **Load Reload** window should only list the files in the remote Config folder that are Config files. The user must perform **Load** operations on valid TDI Config files only, otherwise an error message is displayed in AMC. In TDI 6.1.1, the AMC Load Reload function for a remote config lists config files only.

Unable to delete TDI server or Config view

If AM rules are configured for a Config View, such that one rule references some other rule, the result is that the **Config View** and the corresponding **Server** cannot be deleted. A rule can reference another rule if an **Execute AM Rule** action or an **Enable/Disable AM rule** action is associated with the rule. To delete the Config view and the server, perform the following steps:

1. On the AM configuration screen, delete all AM rules for the Config view you want to delete.
2. On the Manage Config view window, delete the Config view.
3. On the Manage TDI Server window, delete the server.

AMC scripts might fail if ksh not on UNIX operating systems

The createProfile.sh script makes use of ksh. If ksh is not installed on the Unix operating system, the script may fail.

If the script fails, you can run the createProfile command in the script. The createProfile the command is:

```
"$APPSRV_INSTALLROOT/bin/wasprofile.sh" -create -profileName amcprofile -profilePath
"$APPSRV_INSTALLROOT/profiles/amcprofile" -templatePath "$APPSRV_INSTALLROOT/profileTemplates/default"
-nodeName DefaultNode -hostName localhost -cellName DefaultNode
```

Replace the `$APPSRV_INSTALLROOT` with the path of AppSrv directory.

Unable to start AMC via the start_tdiamc script

If the TDI server error log contains the following exception it could mean that a port required by WebSphere Application Server (WAS) is already in use:

```
ORBX0390E: Cannot create listener thread. Exception=[ > java.net.BindException:
 Address already in use: NET_Bind ].
```

This error might also occur if you have Google Web Accelerator installed on the system from which you are attempting to start the Administration and Monitoring Console (AMC). You may need to uninstall Google Web Accelerator to resolve this problem.

Unable to deploy AMC .war file on Red Hat Enterprise Linux s390 operating system

When running the WAS **createProfile.h** and **start_tdiamc.sh** commands on a Red Hat Enterprise Linux s390 operating system, you might encounter the following error:

```
JVMDG080: Cannot find class com/ibm/jvm/Trace
JVMXM012: Error occurred in final diagnostics initialization
Could not create JVM.
```

To work around this problem, disable the Java Just-In-Time (JIT) compiler.

Chapter 6. Components

This chapter contains troubleshooting information about IBM Tivoli Directory Integrator (TDI) components.

Components overview

Components abstract away the technical details of the data systems, platforms and formats that you want to work with, allowing you to integrate your information across various data sources.

IBM Tivoli Directory Integrator provides you with a number of components types:

- Connectors
- Function Components
- EventHandlers
- Parsers

Note: The concept of EventHandlers is deprecated with this release; future versions of IBM Tivoli Directory Integrator will not contain any Eventhandlers. Use AssemblyLines with Server Mode connectors instead.

The following sections contain troubleshooting information for each type of component.

Connectors

Connectors help you to build your AssemblyLine. Each one is designed to tie a specific data source to your data flow.

Remote Agent Controller (RAC) Connector

The following four sections explain issues with the RAC Connector.

Agent controller on a non-Windows platform

Currently, the Remote Agent Controller (RAC) Connector in Iterator Mode cannot operate with a non-Windows installation of the Agent Controller. This problem is due to the instability of the Agent Controller implementation. Any attempt to run the RAC Connector in Iterator Mode on any non-Windows operating system could cause the Agent Controller process to stop.

Slow network connection to the agent controller

If the network connection between the RAC Connector in Iterator mode and the Agent Controller is very slow, the slow network connection may have the following results:

- The Agent Controller may stop.
- The RAC connector may throw a timeout error.

No agent is registered by the RAC Connector in AddOnly mode

If the RAC Connector is run in **AddOnly** mode, but it does not register a logging agent in the local Agent Controller, it may be because the RAC cannot locate Agent Controller binaries. The AddOnly mode of the RAC Connector requires that the binaries of the Agent Controller (.dll, .so) be available for the dynamic library

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loader of the operating system. The preferred way to make the Agent Controller binaries available to the .dll of the operating system is to locate the binaries folder of the Agent Controller in :

- the PATH environment variable on Windows platforms.
- the LD_LIBRARY_PATH environment variable on Linux platforms.

You can point to the binaries globally or just for the process of the TDI Server. For example:

- On Windows, modify the PATH environment variable from **My Computer** -> **Properties** -> **Advanced** -> **Environment variables**
- On Linux, add lines like the following in the startup scripts (ibmdisrv and ibmditk) after the PATH definition and before the startup line:

```
LD_LIBRARY_PATH=/AgentController/lib export LD_LIBRARY_PATH
```

Agent Controller is accessible using the LTA Eclipse tool but not by the RAC Connector in Iterator mode

The Agent Controller may be visible using the Log and Trace Analyzer Eclipse tool, but the RAC Connector in Iterator mode may report the following error:

```
Error: Unable to connect to the Agent Controller.
```

The reason for this error could be that the Agent Controller installation may not be a new technology Agent Controller. Releases of new technology Agent Controller support the new technology communication protocol. In Iterator mode, the RAC Connector uses the new technology communication protocol, but the Log and Trace analyzer uses the old communication protocol.

Assorted Connectors

This section documents the following issues:

- Axis Easy Web Service Server Connector.
- Inconsistency across Secure Socket Layer (SSL) clients.

Backlog parameter and server mode connectors: The Axis Easy Web Service Server Connector may generate exceptions if multiple clients are trying to access the server at the same time. The following exception code shows the content of the error:

```
2007-01-25 13:08:55,828 ERROR [AssemblyLine.AssemblyLines/Square_SimpleClient.753] - [EasyInvokeWebService]
  at com.ibm.di.fc.webservice.AxisEasyInvokeSoapWS.perform(Unknown Source)
  at com.ibm.di.server.FunctionComponent.callreply(Unknown Source)
  at com.ibm.di.server.AssemblyLine.msExecuteNextConnector(Unknown Source)
  at com.ibm.di.server.AssemblyLine.executeMainStep(Unknown Source)
  at com.ibm.di.server.AssemblyLine.executeMainLoop(Unknown Source)
  at com.ibm.di.server.AssemblyLine.executeMainLoop(Unknown Source)
  at com.ibm.di.server.AssemblyLine.executeAL(Unknown Source)
  at com.ibm.di.server.AssemblyLine.run(Unknown Source)
```

Cause: On initialization the AxisEasyWSServerConnector opens a server socket to accept connections from clients. In the listening state, the server socket adds each incoming client connection request to an internal queue called a *backlog*. If client requests arrive at a faster rate than the server program "accepts" them, the backlog starts filling up. Eventually the backlog fills up and newly arrived clients are refused a connection to the server.

Solution: Try increasing the value of the Connection Backlog parameter in the server mode connector. The maximum backlog size depends on the platform. For example, on Windows XP Professional the maximum limit for the backlog size is 200, so any backlog size above 200 will have no effect. Slow down the arrival of client connection requests. Use a TDI script to introduce a time delay between clients as they start. The goal is to bring client request arrival speed below the servicing speed of the server.

Some platforms do not throw exceptions when accepting post-dated SSL server certificates

There is a potential inconsistency across Secure Socket Layer (SSL) clients running TDI6.1.1. TDI components that use SSL can accept SSL server certificates whose ″valid From″ dates are not yet valid. Failure to issue an error could be a problem if users expect an exception to be thrown in these cases. This behavior is inconsistent across the platforms.

Cause: The JRE being used is accepting not yet ″valid From″ dates in certificates and is failing to warn the user of invalid certificates, therefore engaging in invalid behavior. If the client system has an earlier system date from the date of the certificate valid date, then the client should not connect to the server over SSL.

Example exception on Solaris when the issue is properly detected by the JRE:

```
javax.net.ssl.SSLHandshakeException: com.ibm.jsse2.util.h:
Certificate not valid yet
```

Note: The Solaris operating system demonstrates the desired behavior by throwing an exception when facing certificates with not yet valid ″valid From″ dates. By default, the IBM JRE will not throw the proper exception on any platform except Solaris. The Sun JRE will throw the proper exception on all platforms.

Solution: The Trust Manager configured in the JRE must be updated. For IBM JREs you can update the Trust Manager by doing the following:

1. Locate the line in the java.security file of the JRE that starts with the following:

   ```
   ssl.TrustManagerFactory.algorithm=
   ```

2. Modify the value to look like this if you want the JRE to validate the ″valid From″ dates in certificates and throw an exception when it encounters an error:

   ```
   ssl.TrustManagerFactory.algorithm=IbmX509
   ```

3. Modify the value to look like this if you want the JRE to ignore the ″valid From″ dates in certificates and not throw an exception:

   ```
   ssl.TrustManagerFactory.algorithm=PKIX
   ```

4. Restart the TDI Server to enable the configuration change in the JRE.

Connectors whose libraries do not ship with TDI

Some third-party libraries for TDI Connectors must be obtained from their proprietary sources, and do not ship with TDI. Using the Configuration Editor (CE), you can configure Connectors. However, if a Connector is missing its required library (.jar) file, the Connector in the CE GUI looks as if it supports *all* Connector modes. For example, a Connector such as the ibmdi.DominoChangeDetectionConnector may support Iterator mode only, but if you configure the Connector in the CE with the required .jar file missing, it will show as supporting all other modes, such as Lookup, Update, Delete, etc. To avoid this problem, you must obtain and supply (to TDI) the library for these Connectors. The following Connectors have libraries that do not ship with TDI. Obtain the .jar files for these Connectors before attempting to configure them in the CE GUI:

- ibmdi.DominoChangeDetectionConnector
- ibmdi.DominoUsersConnector
- ibmdi.Notes
- ibmdi.SapALEIDocConnector
- ibmdi.TAM

For information on how to use Connectors, see the *IBM Tivoli Directory Integrator 6.1.1: Reference Guide*.

BTree Connector

CTGDIS477W Unable to recover free-pointer list

"CTGDIS477W Unable to recover free-pointer list " is received when attempting to use BTree connector in AddOnly mode to create a BTree database file.

Cause: The BTree Connector excels at handling small lists, but breaks down when sorted lists are entered containing a few thousand entries and gives a "CTGDIS477W Unable to recover free-pointer list" warning. Essentially, the BTree implementation is not balanced, and hence is not efficient for large lists, especially pre-sorted ones.

Solution: Using the System Store Connector ("ibmdi.PESConnector") is a better option when large number of entries are needed. The System Store Connector supports all databases supported by the System Store including CloudScape and DB2®. And this connector relies on the underlying SQL Engine of the System Store to provide read or write access functionality. Since most databases provide robust and persistent data, it is a much better option for large data lists.

CommandLine Connector

AssemblyLine AssemblyLines/CommandLine failed with error: CreateProcess: dir error=2

If you are running Windows, and trying to execute an internal shell command (such as dir or any command listed by the command), you might have forgotten to prepend `cmd /c` . For example, the correct syntax for the `dir` command is `cmd /c dir`.

DOS-encoded output on Windows operating systems

When you use the Command Line Connector to run a program on a Windows operating system, the output from the program might be encoded using a DOS code page. This can cause unexpected results, because Windows programs usually use a Windows code page. Because a DOS code page is different from a Windows code page, it might be necessary to set the Character Encoding in the Command Line Connector's Parser to the correct DOS code page for your region; for example: `cp850`.

JDBC Connector

COM.ibm.db2.jdbc.DB2Exception: CLI0616E Error opening socket. SQLSTATE=08S01

A server service named DB2 JDBC Applet Server must be running on the Windows system where the DB2 server is running. If The DB2 JDBC Applet Server service is not running you will get this message.

CLI0616E Error opening socket

The remote DB2 server is not configured for DB2 net driver communications. Refer to the FAQ that has more information on connecting to a DB2 server.

java.sql.SQLException: ORA-01830: date format picture ends before converting entire input string

If you are getting this when inserting or updating date-fields, you are probably passing the Oracle driver dates as a string that does not match what the driver

expects. Problem Scenario: (For more detailed information about a situation where this can happen, skip to the "Suggestions" section if not interested). You have an AssemblyLine with a JDBC Connector in AddOnly mode that writes some records to an Oracle table with a field of type DATE. Normally, you can insert something like:

```
INSERT INTO table1 values (to_date('2005/03/01 10:05:13','YYYY/MM/DD HH:MI:SS'))
```

as part of an INSERT query. However with TDI, you can only do something like this in the output map:

```
ret.value = '2005/03/01 10:05:13';
```

But if Oracle fails with the following error:

```
java.sql.SQLException: ORA-01830:
```

The **Date Format** picture ends before converting entire input string.

Suggestions: When dates are supplied as strings (which is what you are doing here) the TDI JDBC Connector will attempt to parse the data using the pattern provided in its **Date Format** configuration parameter, as explained in the *IBM Tivoli Directory Integrator 6.1.1: Reference Guide*. To debug your problem: What is your Data Pattern configuration? Find out how TDI sees this field by checking in the schema tab of the Connector. A fair guess is that your JDBC driver will convert the Oracle Data type into a java.sql.TimeStamp or java.sql.Date type (and note that there are differences between java.util.Date and java.sql.Date, in terms of precision for example). In the case, for example, of a java.sql.Timestamp type, try specifying:

```
ret.value = java.sql.Timestamp(java.util.Date().getTime());
```

and see if this helps. Then you will be able to use:

```
ret.value = java.sql.Timestamp(system.parseDate(work.getString("yourDate"),
 "yyyyMMddHHmmssz").getTime());
```

If none of the above helps, run the Connector in detailed log mode and see whether the Connector is able to get the schema from the database. If not, the Connector does not use prepared statements, which makes it less efficient and more error-prone, so you'll have to make sure that the Connector's **schema** configuration parameter is set correctly.

Handling of CLOB/BLOB (Character/Binary large object)

If your attributes are of CLOB/BLOB type, the Connector does not handle them on output. On input, you can do something like this:

```
desc = conn.getObject("yourCLOBAttribute");
ret.value = desc.getSubString(1,desc.length());
```

but it is slow and clumsy. Also, it will only work if the JDBC driver actually returns a java.sql.Blob or java.sql.Clob interface object.

Disabling Prepared Statement can result in an exception for queries that exceed the maximum length value

If Prepared Statement is disabled, the JDBC connector attempts to construct a complete SQL query. If the database has a restriction on the length of the SQL query, and the query exceeds the maximum length value, an exception is thrown. This is a common problem with BLOB or binary data types.

Use ojdbc14.jar to transfer BLOB data from table to another in an Oracle database

Use ojdbc14.jar instead of using classes12.jar when using the JDBC Connector to transfer BLOB data from one table to another table in an Oracle database.

InitConnectors: com.ibm.db2.jcc.a.SqlException: The version of the IBM Universal JDBC driver in use is not licensed for connectivity to QDB2/<*OS*> databases.

To connect to this DB2 server, please obtain a licensed copy of the IBM DB2 Universal Driver for JDBC and SQLJ.

Cause: TDI 6.1.1 comes with updated Cloudscape and the driver needed for it. 6.1.1 also comes with a license file that is enables you to connect to Cloudscape, but not to other DB2 databases.

Solution: As of DB2 UDB v8.1.2 the Universal JDBC driver requires a license JAR file to be in the CLASSPATH along with the db2jcc.jar file. Here are the names of the required license JAR files:

- For Cloudscape Network Server V5.1: `db2jcc_license_c.jar`
- For DB2 UDB V8 for Linux, UNIX, and Windows servers: `db2jcc_license_cu.jar`
- For DB2 UDB for iSeries™ and z/OS® servers (provided with DB2 Connect™ and DB2 Enterprise Server Edition): `db2jcc_license_cisuz.jar`

An appropriate location for this license file to be placed in a TDI system would be <TDI *Install Directory*>_jvm\jre\lib\ext directory.

For more information, see http://www-128.ibm.com/developerworks/db2/library/techarticle/0307zikopoulos/0307zikopoulos.html.

Domino User's Connector

This sections explains exceptions for Domino User's Connector and provides a workaround.

java.lang.Exception: Connector Notes Thread not alive. Cannot perform.

```
at com.ibm.di.connector.dominoUsers.DominoUsersConnector.executeCommand(Unknown Source)
at com.ibm.di.connector.dominoUsers.DominoUsersConnector.initialize(Unknown Source)
at com.ibm.di.server.AssemblyLineComponent.initialize(Unknown Source)
at com.ibm.di.server.AssemblyLine.initConnectors(Unknown Source)
at com.ibm.di.server.AssemblyLine.msInitConn(Unknown Source)
at com.ibm.di.server.AssemblyLine.executeMainStep(Unknown Source)
at com.ibm.di.server.AssemblyLine.executeMainLoop(Unknown Source)
at com.ibm.di.server.AssemblyLine.executeMainLoop(Unknown Source)
at com.ibm.di.server.AssemblyLine.executeAL(Unknown Source)
at com.ibm.di.server.AssemblyLine.run(Unknown Source)
```

Cause: The exception can be caused by a wrong directory or misspelling in the LD_LIBRARY_PATH set within the ″ibmditk″ or ″ibmdisrv″ startup files. For example, `LD_LIBRARY_PATH=/opt/lotus/notes/latest/linux`.

Solution: Add the following two lines to the shell script (″ibmditk″ or ″ibmdisrv″) after the PATH definition and before the startup line:

```
LD_LIBRARY_PATH=<Domino Binary>
export LD_LIBRARY_PATH
```

where <*Domino Binary*> is the location of the Domino® Binary folder.

Example file: ibmdisrv.sh

```
#! /bin/sh
# start up script for Directory Integrator v6.1 for Unix platforms
JRE_PATH=_jvm/bin
OS=`uname`
if [ $OS = "Linux" -o $OS = "AIX" ];then
JRE_PATH=_jvm/jre/bin
fi

PATH="/opt/IBM/ITDI61/$JRE_PATH:$PATH:/opt/lotus/notes/latest/linux:/local/notesdata:"
export PATH

LD_LIBRARY_PATH=/opt/lotus/notes/latest/linux:
export LD_LIBRARY_PATH

#
# Only set TDI_SOLDIR if it hasn't been set already in caller's shell
#
if [ -z "$TDI_SOLDIR" ]; then
TDI_SOLDIR="."
fi

#
# -s overrides TDI_SOLDIR env
#
solnext=0
for s
do
case $s in
-s) solnext=1;;
-s*) TDI_SOLDIR="`echo $s | cut -c3-`";;
-*) solnext=0;;
*) if [ $solnext -eq 1 ]; then
TDI_SOLDIR=$s
solnext=0
fi;;
esac
done

if [ -n "$TDI_SOLDIR" ]; then
cd "$TDI_SOLDIR"
fi

# Check solution directory files
if [ ! -f IDILoader.jar -a ! -f log4j.properties ]; then
echo Copying log4j.properties to solution directory
cp -f "/opt/IBM/ITDI61/log4j.properties" log4j.properties
fi

"/opt/IBM/ITDI61/$JRE_PATH/java" -Dos.name=Linux -Djava.library.path=$PATH \
 "-Dlog4j.configuration=file:log4j.properties" -jar "/opt/IBM/ITDI61/IDILoader.jar" \
com.ibm.di.server.RS "$@"
```

For more information, see: IBM Tivoli Directory Integrator: Post Release 6.0 Issue.

Windows Users and Groups Connector

java.lang.UnsatisfiedLinkError: can't find library NTMetaData (libNTMetaData.so)

This error occurs when you attempt to use the Windows Users and Groups Connector on a non-Windows platform. The Windows Users and Groups Connector is supported on Windows platforms only.

SAP Connection Suite

JCO.classInitialize(): Could not load middleware layer 'com.sap.mw.jco.rfc.MiddlewareRFC'JCO.nativeInit()

After installation of the sapjco 2.1.7 SAP interface library, connections still fail. When the connector establishes a connection to the R/3 system, you get this JCO.classInitialize exception.

Cause: You are unable to start 32-bit programs from SAP Release 6.40 (or higher) because Microsoft runtime DLLs are missing (MSCVR71.dll and MSCVP71.dll).

Solution: For more information, see SAP Note 684106 for a procedure to fix this problem.

Function Components

Function Components are modeless components that facilitate wrapping of custom logic and external methods. Function Components are not data-source specific.

Currently there is no troubleshooting information about specific Function Components.

Event Handlers

EventHandlers extend the functionality of AssemblyLines and Connectors by providing a framework to control how they run.

Currently there is no troubleshooting information about specific EventHandlers.

Note: The concept of EventHandlers is deprecated with TDI6.1.1; future versions of IBM Tivoli Directory Integrator will not contain any Eventhandlers. Use AssemblyLines with Server Mode connectors instead.

Parsers

Parsers are used in conjunction with a transport Connector to interpret or generate the content that travels over the Connector's byte stream.

LDIF Parser

Performance degradation

The TDI 6.1.1 LDIF Parser shows some performance degradation in terms of execution time compared to the TDI 6.0 LDIF Parser. This is due to underlying JVM changes in TDI 6.1.1, in which certain APIs experience a performance drop when working with very large data sets.

The degradation is dependent on various considerations such as hardware, RAM, processor speed, and disk input/output.

Chapter 7. Password Synchronization plug-ins

This chapter contains problem determination information regarding the IBM Tivoli Directory Integrator6.1.1 Password Synchronization plug-ins. For general information about the plug-ins, see *IBM Tivoli Directory Integrator 6.1.1: Password Synchronization Plug-ins Guide*.

Verifying registry settings on Windows

On installation of the password plug-in on Windows, when choosing the MQe as the password store, the *class* registry entry is set to `com.ibm.di.plugin.mqe.store.MQeNTPasswordStore`. According to the documentation, it should be `com.ibm.di.plugin.idipwsync.IDIPasswordSynchronizer`.

Cause

The*IBM Tivoli Directory Integrator 6.1.1: Password Synchronization Plug-ins Guide* mentions these items:

The IBM Tivoli Directory Integrator Password Synchronization Plug-ins Installer creates the following registry entries in the key folder:

`HKEY_LOCAL_MACHINE\SOFTWARE\IBM\Tivoli Directory Integrator 6.1\Windows` Password Synchronizer.

The following keys should exist with the corresponding value:

Class: REG_SZ: `com.ibm.di.plugin.idipwsync.IDIPasswordSynchronizer`
Classpath: REG SZ: `c:\<`*`install_directory`*`>`
Java:REG_SZ: `c:\<`*`install_directory`*`>\jvm\jre\bin\java.exe`

Solution

1. When the ″Storage Method″ is chosen as ″WebSphere MQ Everyplace®″, it sets the class in registry settings as `com.ibm.di.plugin.mqe.store.MQeNTPasswordStore`.
2. When the ″Storage Method″ is chosen as ″LDAP″, it sets the class in registry settings as `com.ibm.di.plugin.idipwsync.IDIPasswordSynchronize`.

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Chapter 8. Known limitations and general troubleshooting

This chapter contains miscellaneous problem determination information.

Known limitations

Launchpad exit confirmation window title bar displays incorrectly in Firefox browser

When you start **Launchpad**, one of the options in the left navigation area is **Exit**. When you click **Exit**, a confirmation dialog box appears, giving the options **OK** and **Cancel**. The title bar of the confirmation window should display IBM Tivoli Directory Integrator Install Launchpad. Firefox browsers incorrectly display the following string in the **Exit** confirmation window: `Javascript Application`.

This is a current limitation of Firefox browsers. The problem may be fixed in future additions of TDI or Firefox browsers.

Arabic language characters may not display correctly in Configuration Editor

Corrupt characters may be displayed in the CE on MicroSoft Windows 2000 when:

- The locale on the system is set to Arabic.
- The Arabic language pack is installed.

The character display problem is caused by an issue in the Java Runtime Environment (JRE).

JVM Verification fails while installing TDI 6.1 on some slower platforms

Verification of JVM fails during installation on some slower platforms. Failure usually results because the verification takes more time than the installer expects it to take.

To fix this problem, launch the installer on the command line. Add the following switch to the invocation of the platform-dependent installer:

```
... -is:javatimer
```

Use a longer time span to give the verification step more time on slower platforms. Specify the time span in seconds. The syntax of this parameter is:

```
-is:javatimer <seconds>
```

Note: This is not a command, but a parameter that you need to specify along with the TDI installation executable.

SSL connects with expired self signed certificates

The TrustManager shipped with IBM Java Runtime Environment (JRE) 1.5.0 verifies a certificate chain up to the trusted certificate; it does not verify the trusted certificate itself. If the self-signed certificate is the trusted certificate, CERTPATH

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will not examine it to see whether the certificate is expired. Because CERTPATH does not check for self-signed certificate expiration, an SSL connection can be established with an expired certificate.

The TrustManager shipped with IBM JRE 1.4.2 verifies the entire certificate chain up to and including the trusted certificate. As a result, if an expired certificate is encountered, an exception is thrown. If you are using IBM JRE 1.5.0, but want to revert to 1.4.2 behavior regarding expired certificates, make the following changes:

In the java.security file of the Client JVM, change the following entry:

```
ssl.KeyManagerFactory.algorithm=IbmX509
ssl.TrustManagerFactory.algorithm=PKIX
```

to

```
ssl.KeyManagerFactory.algorithm=IbmX509
ssl.TrustManagerFactory.algorithm=IbmX509
```

If the SSL Client-Auth value is set to True, make the same change in the Server JVM's java.security file.

Programmatically disabling components

To disable components you will need to use the Initial Work Entry (IWE) to pass a control flag. If your AssemblyLine has an Iterator, store the value in a script variable and zero out the Work Entry; otherwise the Iterator will not engage on the first cycle.

For example, to disable a branch, you can use a script like this:

```
var branchEnabled = work.getString( "enableBranch" );     task.setWork( null );
```

Then set your Branch to ″Match All″ and include a scripted condition like this:

```
 ret.value = branchEnabled.equals( "yes" );
```

If you intend to use IWE, you must use an extra attribute that you must clear out before continuing.

Disabling Connectors is difficult and requires modifying the Config object before starting the AssemblyLine. If the Connector is not disabled before you start the AssemblyLine, it will be initialized even if you disable it in the prolog before initialization. Modifying the in-memory Config object is possible, but not advised. An alternative is to set your Connector to passive, but this will not help if you are trying to avoid an initialization completely.

"gg" script not required for execution of the pwsync_racf example

In the <*TDI_Install*>/examples/pwsync_racf/racf_decrypt.xml file, there is a script, `gg`, in the **Scripts** folder. The `gg` script is not used in the example and is not required for execution of the example.

Specifying multiple Configs to the ibmdisrv command

The `-c` switch does not work with multiple filenames.

Cause

The `-c` switch has been designed so that a single configuration filename can be passed to the `ibmdisrv` command. If you do not specify the `-d` switch, only one configuration file is allowed.

Solution

`ibmdisrv` cannot be used to specify the ALs and EHs (using `-r` and the `-h` switch respectively) when the `-c` (config file) option specifies multiple Configs. Because the `-r` and `-h` options are not operative while loading multiple Configs, you have to either use the autostart option or use `-d` and start the AL or EH using the AMC Interface.

Example:

With the ALs and EHs in the Autostart folder:

```
./ibmdisrv -d -c C1.xml,C2.xml
```

General troubleshooting

The following sections describe general problems and solutions in IBM Tivoli Directory Integrator:

Remote Command Line Function Component can execute shell scripts remotely only if there are no carriage returns in the shell script

You can use the Remote Command Line Function Component to execute shell scripts remotely (limited to the capabilites of the shell), but do not insert carriage returns into your shell script. Perform these steps:

1. Enter target system details such as:
   - Hostname
   - Remote user
   - Password
2. Enter the command `/bin/sh`.

   Note: Any shell script with a carriage return will not execute successfully. Avoid carriage returns in shell scripts.
3. Provide the local `stdin` source file as, for example, `test.sh`, where test.sh is the shell script, to be executed remotely, that is stored on the local system.

successfully.

java.io.IOException: The pipe has been ended

You can find the following message: `The java class is not found: Files\IBM\TDI\V6.1\IDILoader.jar com.ibm.di.server.RS - r AssemblyLines.allied -S C:\Documents` in either the:

- TDI Configuration Editor AssemblyLine output.
- `ibmdisrv` server log `<TDI Installation>\logs\ibmdi.log`.

Cause

This is a problem with the PATH variable that TDI references from the OS. TDI sets the PATH variable in both the ibmditk.bat and ibmdisrv.bat, and ends the assignment with the system path - %PATH%. If your system path ends with a ″\″, it will cause this error to occur.

Solution

The reason the PATH variable is misbehaving is because the last entry might have the PATH variable ending with a ″\″ , instead of ″;″.

Hence,

```
PATH=C:\SomeProgram\bin;C:\TDI   (This is OK).
PATH=C:\SomeProgram\bin;C:\TDI;  (This is OK).
PATH=C:\SomeProgram\bin;C:\TDI\;  (This is OK).
PATH=C:\SomeProgram\bin;C:\TDI\  (This is not OK).
```

Error occurs when an encrypted password exceeds the size of the table column in which the password is stored

An error occurs when an encrypted password exceeds the size of the column where the password is stored:

```
ORA 12899 value too large for column "System".TESTPASSWD"."test1"(actual 178 , maximum 50)
```

To work around this problem, ensure that the tables used to store passwords are sufficiently large.

AssemblyLine Flow

Connector in Lookup mode with no match in a loop component causes error

Normally a Connector in Lookup mode expects only one hit, and if more than one hit occurs, you are given the opportunity to remedy the situation using error Hooks **On Multiple Entries** or **On No Match**. Connectors in the Loop Component behave differently:

- **On Multiple Entry** is never called.
- **On No Match** is called only if no match is returned by the Lookup Connector.

If the Lookup Connector finds no entries, the following error occurs:

```
java.lang.Exception: [IF_MgrFound] Entry not found
```

Occasionally a crash also occurs if the exception is not caught.

To work around this error, enable the **No Entry Found** Hook without any code in it.

Advanced link criteria for a Lookup Connector in a Loop deleted when saving config

To prevent deletion of advanced link criteria, put your advanced Link Crit in a Connector in your Library that you use in the Loop. Then you will inherit the Link Crit as well.

-c switch does not allow you to work with mulitple file names

If you want to use more than one configuration file, you must also specify the -d switch (Run in daemon mode) in addition to the -c switch. If you do not specify the -d switch, only one configuration file is allowed.

Memory Leaks

Reinitialization of Connectors

If you reinitialize Connectors a lot, make sure to use their terminate() method before you call their initialize() method. The classic example is an AssemblyLine starting up but not able to connect to your data source. If the Connector is not terminated before being initialized again, you might leak memory.

Platform specific problems

IBM Message Queue (MQ) Connector (JMS) on z/OS

The following issue is for z/OS. An error results if you use the IBM MQ 6.0 and client jars from the MQ 6.0 installation. The following error is reported:

```
javax.jms.JMSException: MQJMS2005: failed to create MQQueueManager for '9.182.182.232:
  at com.ibm.mq.jms.services.ConfigEnvironment.newException(ConfigEnvironment.java:546)
```

To avoid the error, use MQ 5.3 library jar files on the JMS Connector system (z/OS).

When TDI runs on z/OS, the JMS Connector and the System Queue cannot use WebSphere MQ as the JMS provider, because of a limitation in WebSphere MQ (WebSphere MQ doesn't support client code on z/OS).

Domino User's Connector running on AIX 5.3 with Domino Server 7.0

The following issue is for the AIX operating system only.

While running the Local Server Session on AIX, the Domino User's Connector generates an error during initialization.

To avoid the error, use the Domino User's Connector on a different system and connect to the Domino server on AIX using a Local Client Session.

Chapter 9. Troubleshooting scenarios

This chapter contains some troubleshooting scenarios you might encounter and provides some solutions.

Log files not showing up or showing up after only the second run of the server

If log files are not showing up, the problem is probably that log4j.properties does not exists in the solution directory before the server is run. The log4j.properties is one of the places where (default) log-files location is configured, so you might want to check out the files content as well. For 6.0 this file is created by the server/ce batch-files that you start TDI with. If you are running TDI as a Windows service, make sure that you have followed the instructions on how to run TDI as a Windows service.

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Appendix A. Support information

This section describes the following options for obtaining support for IBM products:

- "IBM Support Assistant plug-in"
- "Searching knowledge bases" on page 44
- "Obtaining fixes" on page 44
- "Contacting IBM Software Support" on page 45

IBM Support Assistant plug-in

The IBM Support Assistant (ISA) is a free local software serviceability workbench that helps resolve questions and problems with IBM software products. It is a stand-alone application that can be installed on any workstation and then enhanced by installing plug-in modules for IBM products.

The basic features of ISA are:

- **Concurrent Search tool** – This searches across the bulk of IBM documentation as well as product infocenters and returns the results categorized by source for easy reviews.
- **Product Information feature** – This has links to the product home page, support page, news groups, forums and other links relevant to the product.
- **Service Feature** - This consists of a data collection tool and a problem submission tool. There are two types of data collection tools.

  The first type is the System Collector which is provided by ISA and gathers general information from your operating system, registry, etc.

  The second type is the product specific tool and is responsible for collecting relevant logs and properties files for the particular problem situation. A portable text based version of this collector can also be defined. The portable text based version of the collector can be used to collect diagnostic data from a different computer which does not have an installation of ISA.

  The problem submission tool helps in the creation and submission of problem reports. To log into the tool, called ESR (Electronic Service Request), you need the following information:

  – IBM ID
  – IBM password
  – IBM customer number
  – Country or region

IBM Support Assistant for Tivoli Directory Integrator (TDI)

These are the steps to use IBM Support Assistant to generate problem records for TDI:

1. Download ISA version 3.0.
2. Open ISA, select the **Updater** tab and then select the **New Products and Tools** tab.
3. Select IBM Tivoli Directory Integrator 6.1.1 from the available plug-ins list and install TDI.
4. Restart ISA to start using the tool for TDI.

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Data Collection for TDI

Go to the ISA **Service** tab ->**Collect data** tab-> IBM Tivoli Integrator 6.1.1.

To use this TDI specific data collector, you must specify the TDI Installation Directory (and Solution directory if relevant). The TDI data collector gathers all logs from the logs folder and all property, xml and rules files from the etc folder. It also lists all jars the user has in the jars folder as well as the version of each of the TDI components. If the user has installed the default server shipped with TDI, all logs and property files related to AMC are also collected.

IBM Support Assistant can be downloaded from http://www-306.ibm.com/software/support/isa/

A useful demo on ISA and its features can be found at <?IDD:Break> http://publib.boulder.ibm.com/infocenter/ieduasst/v1r1m0/index.jsp

Searching knowledge bases

If you have a problem with your IBM software, you want it resolved quickly. Begin by searching the available knowledge bases to determine whether the resolution to your problem is already documented.

Search the information center on your local system or network

IBM provides extensive documentation that can be installed on your local computer or on an intranet server. You can use the search function of this information center to query conceptual information, instructions for completing tasks, reference information, and support documents.

Search the Internet

If you cannot find an answer to your question in the information center, search the Internet for the latest, most complete information that might help you resolve your problem. To search multiple Internet resources for your product, expand the product folder in the navigation frame to the left and select **Web search**. From this topic, you can search a variety of resources including:

- IBM technotes
- IBM downloads
- IBM Redbooks™
- IBM developerWorks®
- Forums and newsgroups
- Google

Obtaining fixes

A product fix might be available to resolve your problem. You can determine what fixes are available for your IBM software product by checking the product support Web site:

1. Go to the IBM Software Support Web site (http://www.ibm.com/software/support).
2. Under **Products A - Z**, select your product name. This opens a product-specific support site.

3. Under **Self help**, follow the link to **All Updates**, where you will find a list of fixes, fix packs, and other service updates for your product. For tips on refining your search, click **Search tips**.
4. Select the name of a fix to read the description and optionally download the fix.

To receive weekly e-mail notifications about fixes and other news about IBM products, follow these steps:

1. From the support page for any IBM product, click **My support** in the upper-right corner of the page.
2. If you have already registered, skip to the next step. If you have not registered, click register in the upper-right corner of the support page to establish your user ID and password.
3. Sign in to **My support**.
4. On the My support page, click **Edit profiles** in the left navigation pane, and scroll to **Select Mail Preferences**. Select a product family and check the appropriate boxes for the type of information you want.
5. Click **Submit**.
6. For e-mail notification for other products, repeat Steps 4 and 5.

For more information about types of fixes, see the *Software Support Handbook* (http://techsupport.services.ibm.com/guides/handbook.html).

Contacting IBM Software Support

IBM Software Support provides assistance with product defects.

Before contacting IBM Software Support, your company must have an active IBM software maintenance contract, and you must be authorized to submit problems to IBM. The type of software maintenance contract that you need depends on the type of product you have:

- For IBM distributed software products (including, but not limited to, Tivoli, Lotus®, and Rational® products, as well as DB2 and WebSphere products that run on Windows or UNIX operating systems), enroll in Passport Advantage® in one of the following ways:
  - **Online**: Go to the Passport Advantage Web page (http://www.lotus.com/services/passport.nsf/WebDocs/ Passport_Advantage_Home) and click **How to Enroll**
  - **By phone**: For the phone number to call in your country, go to the IBM Software Support Web site (http://techsupport.services.ibm.com/guides/contacts.html) and select the name of your geographic region.
- For IBM eServer™ software products (including, but not limited to, DB2 and WebSphere products that run in zSeries®, pSeries®, and iSeries environments), you can purchase a software maintenance agreement by working directly with an IBM sales representative or an IBM Business Partner. For more information about support for eServer software products, go to the IBM Technical Support Advantage Web page (http://www.ibm.com/servers/eserver/techsupport.html).

If you are not sure what type of software maintenance contract you need, call 1-800-IBMSERV (1-800-426-7378) in the United States or, from other countries, go to the contacts page of the IBM Software Support Handbook on the Web (http://techsupport.services.ibm.com/guides/contacts.html) and select the name of your geographic region for phone numbers of people who provide support for your location.

Follow the steps in this topic to contact IBM Software Support:

1. Determine the business impact of your problem.
2. Describe your problem and gather background information.
3. Submit your problem to IBM Software Support.

Determine the business impact of your problem

When you report a problem to IBM, you are asked to supply a severity level. Therefore, you need to understand and assess the business impact of the problem you are reporting. Use the following criteria:

Severity 1	**Critical** business impact: You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.
Severity 2	**Significant** business impact: The program is usable but is severely limited.
Severity 3	**Some** business impact: The program is usable with less significant features (not critical to operations) unavailable.
Severity 4	**Minimal** business impact: The problem causes little impact on operations, or a reasonable circumvention to the problem has been implemented.

Describe your problem and gather background information

When explaining a problem to IBM, be as specific as possible. Include all relevant background information so that IBM Software Support specialists can help you solve the problem efficiently. To save time, know the answers to these questions:

- What software versions were you running when the problem occurred?
- Do you have logs, traces, and messages that are related to the problem symptoms? IBM Software Support is likely to ask for this information.
- Can the problem be re-created? If so, what steps led to the failure?
- Have any changes been made to the system? (For example, hardware, operating system, networking software, and so on.)
- Are you currently using a workaround for this problem? If so, please be prepared to explain it when you report the problem.

Submit your problem to IBM Software Support

You can submit your problem in one of two ways:

- **Online**: Go to the ″Submit and track problems″ page on the IBM Software Support site (http://www.ibm.com/software/support/probsub.html). Enter your information into the appropriate problem submission tool.
- **By phone**: For the phone number to call in your country, go to the contacts page of the IBM Software Support Handbook on the Web (techsupport.services.ibm.com/guides/contacts.html) and select the name of your geographic region.

If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Software Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Software Support provides a workaround for you to implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the IBM product support Web pages daily, so that other users who experience the same problem can benefit from the same resolutions.

For more information about problem resolution, see Searching knowledge bases and Obtaining fixes.

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