Tivoli® Change and Configuration Management Database

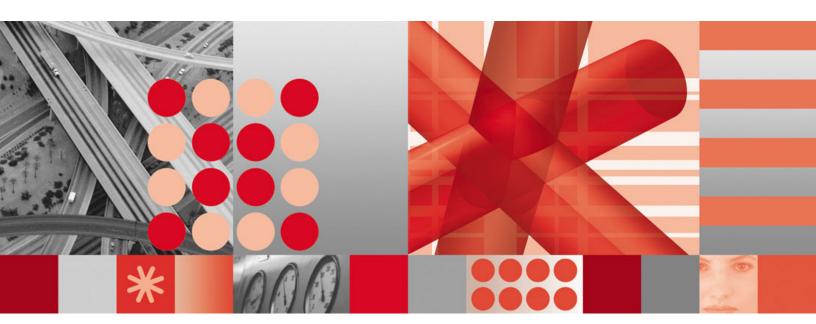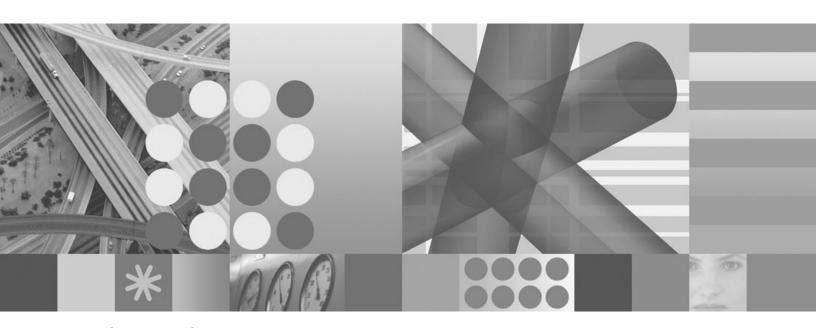**Version 1 1.1**

IBM

IBM Tivoli Change and Configuration Management Database 1.1.1 Fix Pack 002 Readme (1.1.1.0-TIV-CCMDB-FP0002)

Tivoli® Change and Configuration Management Database

Version 1 1.1

IBM

**IBM Tivoli Change and Configuration Management Database 1.1.1 Fix Pack
002 Readme (1.1.1.0-TIV-CCMDB-FP0002)**

This edition applies to version 1, release 1, modification 1 Fix Pack 002 of IBM Tivoli Change and Configuration Management Database and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

About this publication

This publication describes how to install the fix pack for the Configuration Discovery and Tracking and Process Management and Integration Platform features of the Tivoli Change and Configuration Management Database (IBM Tivoli CCMDB).

In addition, there is information about changes to the Configuration Discovery and Tracking and Process Management and Integration Platform features.

Intended audience

This publication is for administrators who want to install and use the latest fix pack.

Publications

Publications for the IBM Tivoli CCMDB library are available at the following Tivoli® software library Web site:

http://publib.boulder.ibm.com/infocenter/tivihelp/v10r1/topic/
com.ibm.ccmdb.doc/ccmdb_welcome.htm

Accessing terminology online

The *Tivoli Software Glossary* includes definitions for many of the technical terms related to Tivoli software. The *Tivoli Software Glossary* is available at the following Tivoli software library Web site:

http://publib.boulder.ibm.com/tividd/glossary/tivoliglossarymst.htm

The IBM® Terminology Web site consolidates the terminology from IBM product libraries in one convenient location. You can access the Terminology Web site at the following Web address:

http://www.ibm.com/software/globalization/terminology

Accessibility

Accessibility features help users with a physical disability, such as restricted mobility or limited vision, to use software products successfully. With this product, you can use assistive technologies to hear and navigate the interface. You can also use the keyboard instead of the mouse to operate all features of the graphical user interface.

Tivoli technical training

For Tivoli technical training information, refer to the following IBM Tivoli Education Web site at http://www-306.ibm.com/software/tivoli/education/.

Support information

If you have a problem with your IBM software, you want to resolve it quickly. IBM provides the following ways for you to obtain the support you need:

Online
Go to the IBM Software Support site at http://www.ibm.com/software/support/probsub.html and follow the instructions.

IBM Support Assistant
The IBM Support Assistant (ISA) is a free local software serviceability workbench that helps you resolve questions and problems with IBM software products. The ISA provides quick access to support-related information and serviceability tools for problem determination. To install the ISA software, go to http://www.ibm.com/software/support/isa.

Conventions used in this publication

This publication uses several conventions for special terms and actions, operating system-dependent commands and paths, and margin graphics.

Typeface conventions

This publication uses the following typeface conventions:

Bold
- Lowercase commands and mixed case commands that are otherwise difficult to distinguish from surrounding text
- Interface controls (check boxes, push buttons, radio buttons, spin buttons, fields, folders, icons, list boxes, items inside list boxes, multi-column lists, containers, menu choices, menu names, tabs, property sheets), labels (such as **Tip:**, and **Operating system considerations**:)
- Keywords and parameters in text

Italic
- Citations (examples: titles of books, diskette, and CDs)
- Words defined in text (example: a nonswitched line is called a *point-to-point line*)
- Emphasis of words and letters (examples: "Use the word *that* to introduce a restrictive clause." and "The LUN address must start with the letter *L.*")
- New terms in text (except in a definition list): a *view* is a frame in a workspace that contains data.
- Variables and values you must provide: ... where *myname* represents...

`Monospace`
- Example and code examples
- File names, programming keywords, and other elements that are difficult to distinguish from surrounding text
- Message text and prompts addressed to the user
- Text that the user must type
- Values for arguments or command options

Operating system-dependent variables and paths

This publication uses the UNIX® convention for specifying environment variables and for directory notation.

When using the Windows® command line, replace $*variable* with %*variable*% for environment variables and replace each forward slash (/) with a backslash (\) in directory paths. The names of environment variables are not always the same in the Windows and UNIX environments. For example, %TEMP% in Windows environments is equivalent to $TMPDIR in UNIX environments.

Note: If you are using the bash shell on a Windows system, you can use the UNIX conventions.

Chapter 1. Prerequisites for Fix Pack 002

One or both features of IBM Tivoli Change and Configuration Management Database, Version 1.1.1 must be installed on your machine.

It is not required that you install the Configuration Discovery and Tracking server, version 1.1.1.1 (Fix Pack 001).

For information on upgrading to version 1.1.1, visit the IBM Tivoli CCMDB information center at http://publib.boulder.ibm.com/infocenter/tivihelp/v10r1/index.jsp

For the latest information regarding Fix Pack 002, go to the IBM Tivoli CCMDB Product Support Web site at http://www-306.ibm.com/software/sysmgmt/products/support/IBMTivoliChangeandConfigurationManagementDatabase.html. To download Fix Pack 002, click **Fixes by version**. This link is under the Download heading.

Important: If you have CCMDB 1.1.1 and ITAPM (Availability) installed, there are two tables that you have to backup **before** you install Fix Pack 002. After Fix Pack 002 is installed, you have to restore these tables because they do not get recreated with the Fix Pack 002 installation. The tables are **incident_rec** and **incident_doc**. These tables exist in the **IBMPDB** database.

> **Note:** The import must be done in this order. A foreign key dependency exists between the **incident_doc** table and the **incident_rec** table.

Complete the steps in the following order:

1. Launch the DB2 control center on the IBMPDB DB host.
2. Select **IBM IBMPDB** from the **Object View**.
3. Expand the **Object View** to view the tables.
4. Select **Export** to export the **incident_doc** table.
5. Specify an output file.
6. Select **Integrated exchange format (IXF)** file format.
7. Specify a message file.
8. Click **Ok**
9. Repeat steps 4 to 8 to export the **incident_rec** table.
10. Apply the 1.1.1.0-TIV-CCMDB-FP0002 fix pack.
11. Launch the DB2 control center on the IBMP DB host.
12. Select **IBM IBMPDB** from the **Object View**.
13. Expand the **Object View** to view the tables.
14. Select **Import** to import the **incident_rec** table.
15. Specify an import file.
16. Select **Integrated exchange format (IXF)** file format.
17. Specify a message file.
18. Click **Ok**

19. Repeat steps 14 to 18 to import the **incident_doc** table.

Chapter 2. APARs and defects in Fix Pack 002

The following APARs and defects have been addressed in Fix Pack 002:

Configuration Discovery and Tracking feature APARs for Fix Pack 002

The following APARs are addressed by this fix pack for the Configuration Discovery and Tracking feature:

APAR number	Abstract
IY86993	Topology build for small scope discoveries takes an excessively long time in large environments.
IY90384	The contactinfo, siteinfo, and admininfo classes are missing relationships in the ITSM CI portlet view.
IY90625	Unable to sort columns by name.
IY90759	DB2 sensor is consuming the DB2 client processes and not returning them to be further processed when it ultimately fails.
IY90985	Validation.jar does not work.
IY91604	Access collections do not have an icon.
IY92149	SAP sensor does not work after upgrading from 5.1 to 5.1.1
IY92250	Copy of custom server template is not working.
IY92296	No possibility to create custom application template based on oracleappserver.
IY92297	Oracle Application Servers with common domain are getting merged.
IY92418	WebSphere Application Server-> DB2 dependencies are not discovered if the WebSphere Application Server resource is created to a virtual interface on the DB2 server.
IY92728	Single IP scopes create and update CIs even if there is no device on the IP
IY92800	Windows systems are stored twice.
IY93028	Authorization file becomes corrupted if the access list is updated from two different users at the same time. This change addresses the auth file corruption, but multiple administrators **should not** update access lists at the same time. If multiple administrators update access lists at the same time, results are unpredictable. In the database, the entire access list that the administrator sees at the moment of clicking **Yes** is saved. If there are two administrators, they should refresh after each administrator makes a change. If the refresh does not occur, an administrator can undo the other administrator's changes. Customers should back up auth and userdata XML files on a regular basis to ensure recovery from such scenarios.
IY93164	Pop message typo: This operation may take a long time. Do you 'with' to continue? change with to wish.
IY93239	There is a problem with the business application finding an unexpected switch in the destination directory which can cause a blank line in the log file.
IY93365	Performance to retrieve CI details can take 45+ seconds.
IY93383	Full synchronization takes up to 30+ minutes to synchronize the eCMDB and the domain CMDB.

APAR number	Abstract
IY93505	Installing 5.1.1 fix pack 1 fails when running with TADDM userid, FP1 install requires ROOT.
IY93527	Authorization process: Sequential processing of authorization requests by eCMDB Authorization Manager with a significantly large number of users and permissions, access collections, roles associated with users results in a performance hit.
IY93581	After restarting the Configuration Tracking and Discover (CDT) server, you cannot log in to either CDT or the eCMDB using USERS created in eCMDB.
IY93656	GUI installer does not work on AIX.
IY93717	DB2 discovery on Windows.session layer not allowing DB2 authorizations to be used to establish WMI sessions.
IY93839	Cannot create relationships on ITSYSTEM classes using the bulk load program.
IY93877	The eCMDB CI retrieval performance is slow due to going to domain for detail. Before implementing this change, back up your database. In order to turn on full sync edit the *%ECDT_HOME%*/dist/etc/domainquery on the eCMDB and add this to the first list SYNC_ALL_ATTRS Complete a 'full synchronization' so all attributes can be pulled in. A full synchronization operation can take a long time with this change. To backout this change, you need to restore the database backup taken above.
IY93911	Chained anchor server does not deploy.
IY93968	Need the index on cause_id for incremental synchronizations.
IY93969	Improve Storage sensor performance.
IY94097	Cannot delete unwanted custom server templates.
IY94118	Not able to discover Weblogic if the host has multiple IP's.
IY94282	No configuration files are not collected if a single one of the configuration files fails due to permissions.
IY94603	The items listed in the packages field need to display in the software installed report. This APAR also added some new database views. **Note:** See Technote#: 1249657 on the support Web site for the list of added database views. You can also go to this link: http://www-1.ibm.com/support/docview.wss?rs=3036&context=SSPLFC&q1=1249657&uid=swg21249657&loc=en_US&cs=utf-8&lang=en
IY94908	DB2FIND.SH script fails on the grep command when there are two or more users with a common leading subset of characters.
IY94932	Configuration Tracking and Discovery is unable to discover WAS using the WAS 6.0 client.
IY94996	WMI discovery fails across Domain environment.
IY95227	During SQL server discovery, the SQL sensor stops if it finds a null in SID or VERSION field.
IY95509	RMID stops processes that take too long to respond.
IY95510	z/OS DLA inserts the wrong tables.
IY95579	The loadscopy.jy script does not check duplicated entries. The loadscope.jy script is not parsing IP address correctly.
IY95770	Deploying Windows gateway install fails.

APAR number	Abstract
IY95947	When a new gateway with a scope limitation is added, if Configuration Discovery and Tracking is not restarted, the first discovery using that gateway fails, as the scope is not recognized.
IY95954	It take a long time (several minutes) to open the Product Console when there are many collections.
IY96078	The discovery does not complete. Change propagation in ChangeHistory causes excessive memory consumption in ChangeManager (inside of EventsCore).

Configuration Discovery and Tracking feature defects for Fix Pack 002

The following defects are addressed by this fix pack for the Configuration Discovery and Tracking feature:

Defect number	Abstract
5382	When deleting a business application containing many components, getting the "changes detected, please reload view" message at the bottom of the UI more than once. sometimes twice, sometimes three times.
6692.2	Go to the application topology graph, go to Topology -> Options and click on the "Hide components with no dependencies" checkbox, then click on OK. The resulting graph still has the components with no dependencies and, in fact, many of the components that had dependencies are hidden.
8116	Change history appears to not be working because of default date choice.
9111	Error msg requiring scope despite assigned scope to schedule.
9266	When you try to create a schedule, and you don't choose a scope to run against, it brings up an error message which says, "no scopes are defined. define a scope".
9267	For a scheduled discovery run, multi-selection of scope sets is not allowed. If you try to select multiple scope sets, only the first scope set is displayed as part of the schedule. You can select one scope set for a scheduled discovery run.
9268	Re-created schedules with same name have unexpected scopes.
9374	The wrong error coming from OracleAppSensor.
9763	Inventory report for databases does not identify type of database.
9798	StorageErrors on AppConfigJdo.
9950	Can not set extended attributes from CustomServer extensions.
9951	GenericComputerSystemSensor should launch a CustomComputerSystemSensor if it is unable to determine OS type.
10143	Scope restrictions on gateways do not work reliably.
10807	Problem with PATH due to globalization changes.
11083	Delete component failing from dormant component report.
11084	Discover runs are never deleted from the database.
11092	Suppress "ignore" custom server templates in app templates.
11098	Custom Server Template for OracleInstance does not work.
11222	WAS sensor fails if WAS 6 client jars are used.

Defect number	Abstract
11396	System Inventory report needs sort capabilities.

Process Management and Integration Platform feature APARs for Fix Pack 002

The following APARs are addressed by Fix Pack 002 for the Process Management and Integration Platform feature:

APAR number	Abstract
IY92712	Deleting of CI in protected lifecycle state is possible
IY93905	Missing computer system name rule in PMIP
IY94029	Performance: >15 minutes to view a CI
IY94703	NAME attribute not set
IY94713	FINDRELATIONSHIP API is used and for each relationship getting
IY94714	ASSIGNCITOACCOUNT performance issue
IY94717	CCMDB performance issue
IY94846	Auditing doesn't pull all data causing unknown to be displayed
IY95267	Remove CI from account failed
IY95294	Report "INSTALLED SOFTWARE" returns no data
IY95334	Get organizations that are used by any account
IY95188	Assign person to organization performance issue
IY95433	Audit report returns negative number in results report

Process Management and Integration Platform feature defects for Fix Pack 002

The following defects are addressed by Fix Pack 002 for the Process Management and Integration Platform feature:

Defect number	Abstract
201642	Change getPermissions to use find instead of findCollections
201779	RAT: Fixes for Report Definition Editor
201817	Enforce aggregation operations run in query->sort->group order
201952	CI: Create Computer System CI, erroneous char in IP interface

Chapter 3. APARs and defects for Fix Pack 001

The following APARs and defects were addressed in Fix Pack 001:

Configuration Discovery and Tracking feature APARs for Fix Pack 001

The following APARs are addressed by Fix Pack 001 for the Configuration Discovery and Tracking feature:

APAR number	Abstract
IY85344	Access errors in DB2 sensor due to not using CSH.
IY89029	An issue with CLOB tables and the 9i Oracle driver. This is corrected by an updated Oracle driver, which has been included in this Fix Pack.
IY89316	Discovery results are corrupted because of lack of server filesystem space.
IY89859	Extended attributes not showing up in eCMDB.
IY90792	The change history does not list current version change.
IY90926	If a software server is listening only on the loopback interface (127.0.0.1), its name does not match the computer system it was actually running on.
IY91098	A WebSphere custom server template does not identify the application running on a WebSphere server.
IY91226	Cannot access the User tab in the Domain Manager.
IY91509	Dependencies disappear after running a discovery.
IY91570	ComputerSystem objects stored excessively.
IY91596	Generic server sensor takes too long to store if there are NFS dependencies.
IY91688	When running a discovery, the system hangs after the TopologyBuilder progress shows 100% complete.
IY91791	Discovery of network devices yields excessive amount of storage errors.
IY92072	SSH fails on OpenVMS due to use of "echo" command.
IY92164	WebSphere discovery does not work through an anchor server.
IY92499	JAVA UI unknown server report fails if any attributes are missing.
IY92555	Application templates are not stored after creation.
IY85393	The change report is not available until 6 hours after changes are made.

Configuration Discovery and Tracking feature defects for Fix Pack 001

The following defects are addressed by Fix Pack 001 for the Configuration Discovery and Tracking feature:

Defect number	Abstract
5399	Delete any component in the topology or tree, and it gives you an error that says, "Error: Component is in use by other components".
5451	When you are discovering a Windows system, without a gateway, extra files are left on the Windows system.

Defect number	Abstract
7618	Reading the memory size from the /dev/mem directory on HPUX systems with more than 64 GB of memory causes CPU spin on the HPUX system.
8041	The confirmation window for the Dormant Component report needs a scrollbar.
8787	The Topobuilder intermittently hangs in cache clearing.
9110	Externalized the adb command so it can be invoked with sudo access by modifying the collation.properties file.
9114	A WebLogic discovery shows following error on the console: sensor failed in remote server:null.
9117	Multiple JMS servers running on a machine, collecting a configuration file from each server, all JMS servers getting the same configuration file back.
9119	Compare two HP computer systems and click on the link to show the difference between installed patches. The link seems to be ineffective and the Product Console shows an NPE error.
9121	Create a version, then try to compare against it, and it does not show up in the list. Only the current version is listed. If you restart the GUI, then the new version appears.
9122	Run a comparison between the configuration files of threeJMS servers, click on the link that should show the difference between the JSM/main_config file. You get an NPE error.
9123	When you compare the configuration files from two custom servers, the two columns at the top of the report are both named JMS/main_config.
9130	When doing a specific query, get NPE error.
9251	The custom server template for WebSphere will not collect configuration files.
9260	Launch in context URLs are not working.
9358.1	The configuration file changes are not detected correctly.
9370	Trying to edit a configuration file that has been captured causes a NPE error.
9380	Running dist/bin/dbupdate.sh drops all the CCMDB database views if CDT is using a DB2 CMDB database.
9383	The Runtime tab for Custom Servers lists the process ID and program name in the "Ports" section. The actual ports are not visible.
9401	Application descriptors do not work on a Windows system.
9407	CDT/TADDM do not discover an application on Windows if the application's listen socket is the first one on the process list.
9614	The Windows WMI provider was using aports.dll to get network socket information on Windows 2003 when it should be using the built-in netstat command.

Process Management and Integration Platform feature APARs for Fix Pack 001

The following APARs were addressed in IBM Tivoli CCMDB Fix Pack 001 and are also included in this fix pack for the Process Management and Integration Platform feature:

APAR number	Abstract
IY88838	Cancel from a CM navbar action returns to a blank window
IY91457	CI sort does not sort drop-down data
IY92024	Unable to Launch in Context from PMIP computer system to CDT Java client

Process Management and Integration Platform feature defects for Fix Pack 001

The following defects were addressed in IBM Tivoli CCMDB Fix Pack 001 and are also included in this fix pack for the Process Management and Integration Platform feature:

Defect number	Abstract
193987	Coordinate two-table udpates, if one fails both must roll back
196593	Beginning spaces as part of the MSS name
197570	Disable Save as Draft feature in the Define Targets and Refine SPB task portlets
198501	When selecting a RFC to transfer from the Work with RFC table, get the RFC from the back end database instead of the cached RFC from the Work with RFC table
198511	Add ChangeAdmin, ChangeManager, ReleaseManager, and ReleaseAdmin groups to the DynamicFlowAdmin role of the HWEProcessController EJB application
199166	Add help descriptions to the "Manage Areas" extended attribute
199288	Update MSS does not check dup to the existing MSS
199296	Prevent wrapping of Filter by label in the Forward Schedule of Change filter
199312	Increase window size of Close Window pop-up box to prevent wrapping of text descriptions in different languages
199328	Use resource bundle for TCMIM labels that missed translation
199467	Need to add Read permission to ITAPM roles
199868	Make sure that the correct table row is selected after a sort in the TCM software package selection task portlet
199977	Get Exception After Trying to Update DSC Relationship Panel
200495	Create sql scripts to query and update the version for component
200553	Application always exported, even when path isn't supplied
200691	Uninstall is broken - subsequent re-installs will fail
200706	Read permission is not created for ConfigAuditor role
200737	Incorrect directory used for Config Management metadata
200754	Re-associate BPEL applications with libraries after upgrade
200758	Uninstall: Exception in CCMDB_uninstall.log
200924	Uninstall after fixpack - needs to support changed IDs
200934	ECMDB domain port needs to be set to correct port
201101	Upgrade of IMs failed ExternalCommandException

Defect number	Abstract
201113	Uninstall is failing to uninstall change/config and dynaflows
201214	Assign People to Organization selects first User in list
201215	ExtendAttribute: Attribute not defined with 2 accounts assigned
201216	ExtendAttribute: Remove from Single Acct leave Acct Label in CI
201232	Exception if cancel button is used before running install
201271	Search: with Match Case not selected no data returns
201296	Audit: When multiple accounts is not enabled Acct Column display

Chapter 4. Installation instructions for Fix Pack 002

If you have installed only the Configuration Discovery and Tracking feature, follow the steps in Section A and skip Section B.

If you have installed both features, Configuration Discovery and Tracking and Process Management and Integration Platform, read both Sections A and B.

Important: If you have installed both features on different machines, you must apply the fix pack to the Configuration Discovery and Tracking first.

First, download the fix pack and unzip it on the machine where you want to apply it.

Section A: Installing Fix Pack 002 for the Configuration Discovery and Tracking feature

You must install the Configuration Discovery and Tracking portion of this fix pack using the same method that you used when you installed the base Configuration Discovery and Tracking feature.

That is, if you installed the Configuration Discovery and Tracking feature for the first time using its own installer, you must use that same method to install this fix pack, as described in Section AA.

If you installed the Configuration Discovery and Tracking feature for the first time using the Tivoli Change and Configuration Management Database installation wizard, you must use that method to install this fix pack, as described in Section AB. This requirement holds whether you initially installed Version 1.1 and then upgraded to Version 1.1.1, or whether you initially installed Version 1.1.1.

This fix pack is supported on a limited number of operating systems. Before beginning the installation, verify that your system is running a supported platform and that you meet all hardware and software requirements.

Supported platforms

The following operating systems are supported for this fix pack:
- AIX® V5.2 (PowerPC®)
- AIX V5.3 (PowerPC)
- Solaris V9 (SPARC)
- Solaris V10 (SPARC)
- Red Hat Server 3.0
- Red Hat Server 4.0
- SuSE Linux® Enterprise Server 8.0
- SuSE Linux Enterprise Server 9.0
- SuSE Linux Enterprise Server 10.0

Hardware requirements

The following list describes the processor, memory, and disk space requirements for a discovery server. The requirements are the same whether the machine is a single discovery server, an enterprise discovery server, or a domain discovery server.

Each discovery server requires a machine with:
- 2-4 CPUs with a minimum process speed of 2 GHz
- 2-8 GB of memory (4 GB minimum if the database is on the same machine)
- 100 GB of available disk space

If you install the database on the discovery server, that machine must have 4 GB of memory. If you install the database on a different machine, that machine and the discovery server must each have 2 GB of memory. For medium to large environments, use more memory.

Software requirements

Before you install this fix pack, you must have one of the following software components installed:
- The Configuration Discovery and Tracking feature for Tivoli Change and Configuration Management Database Version 1.1.1
- The Configuration Discovery and Tracking feature for Tivoli Change and Configuration Management Database Version 1.1.1 Fix Pack 001

Firewall considerations

If a firewall exists between IBM Tivoli CCMDB and Configuration Discovery and Tracking resources, you cannot use the silent install and silent uninstall options.

Section AA. Using the Configuration Discovery and Tracking installer

If you originally installed the Configuration Discovery and Tracking feature using its own installer, complete the following tasks to install Fix Pack 2 using the Configuration Discovery and Tracking installation wizard.

First, you should create a backup of the database.
- Create a backup of the database. To create a backup of a DB2® database, complete the following steps:
  1. Log in as the DB2 database instance owner. For example, you could use the **db2inst1** ID.
  2. Run the following command:

     ```
     db2 backup database cmdb
     ```

     Replace *cmdb* with the name of your database.

  If you use an Oracle database, refer to the Oracle documentation for instructions about how to back up the database.
- If you created any custom database views or triggers, drop them. If you do not drop the custom database views and triggers, the installation process can not complete successfully.
- Create a complete backup of the Configuration Discovery and Tracking server files. Copy all of the server files to another directory.

Installing Fix Pack 002 for the Configuration Discovery and Tracking feature

When installing this fix pack, if you installed the Configuration Discovery and Tracking server with a root user ID, use a root user ID to install the fix pack. Likewise, if you installed the Configuration Discovery and Tracking server with a non-root user ID, use a non-root user ID to install the fix pack.

To install Fix Pack 002 of the Configuration Discovery and Tracking feature, complete the following steps:

1. Open a command prompt window and set the *JAVA_HOME* environment variable:

   For Linux operating systems
   ```
   export JAVA_HOME=$COLLATION_HOME/external/jdk-1.5.0-Linux-i686
   ```

   For Solaris operating systems
   ```
   export JAVA_HOME=$COLLATION_HOME/external/jdk-1.5.0-SunOS-sparc
   ```

   For AIX operating systems
   ```
   export JAVA_HOME=$COLLATION_HOME/external/jdk-1.4.2-AIX-powerpc
   ```

2. Navigate to the directory where you downloaded the fix pack.
3. Unpack the fix pack file.
4. Change to the CMDB directory.
5. Change the access profile for the installation file with the following command:
   ```
   chmod 755 installFixPack.sh
   ```
6. Run the installation process. For example, type the ./installFixPack.sh command. This command works for the Linux, Solaris, and AIX operating systems. A Welcome page is displayed.

   You can run the installation process in silent mode. You do not need a response file for the silent installation mode. To run the silent installation mode, type the following command:
   ```
   ./installFixPack.sh -silent
   ```
7. Click **Next**. A page that provides information about a Java™ time zone update tool is displayed.
8. Read the information about installing the Java time zone update tool. At any time you can download and run the IBM Time Zone Update Utility for Java tool. You do not have to download and run the tool before going to the next step.
9. Select the **I have reviewed the information above.** checkbox and click **Next**.
10. The installation process identifies a previously installed release of the Configuration Discovery and Tracking feature and asks if you want to upgrade. Click **Yes** to upgrade to Fix Pack 002. The installation process backs up the files it replaces from the previous release to the *$COLLATION_HOME/ ../fp2.backup* directory. The installation process copies the files for the fix pack to the system. The progress of the installation is not displayed.
11. After the installation process is complete, a page, indicating the status of the installation, is displayed. Click **Finish** to close the installation program.

If the installation fails, the log files contain information that you can use to troubleshoot the problem.

At any time you should download and run the IBM Time Zone Update Utility for Java tool from the following IBM developerWorks® Web page: http://www-128.ibm.com/developerworks/java/jdk/dst/index.html.

Locating log files

The software generates log files that contain message information. You can access this information for general use or when requested by IBM Software Support.

For Linux, Solaris, and AIX operating systems, message log files can be found in the following directory: *<install_dir>*/installLogs.

Upgrading the database manually

If the database failed to upgrade during the fix pack installation process, you receive a message explaining that the database failed to upgrade and that you need to manually upgrade the database. Instructions for manually upgrading the database follow. You can complete these steps multiple times.

To manually upgrade the database, complete the following steps:
1. Stop the installation process.
2. Restore your backup database. Do not store your backup server files.
3. Change to the directory where the Configuration Discovery and Tracking server is installed. For example, the /opt/IBM/cmdb/dist/bin directory.
4. Use one of the following procedures:
   - If you use a DB2 database, run the following commands to upgrade the database:
     ```
     db-update.sh /opt/IBM/cmdb/dist/etc/schema_upgrade/5.1.1/
       DB210_ModSchema.sql
     db-update.sh /opt/IBM/cmdb/dist/etc/schema_upgrade/5.1.1/DB220_Meta.sql
     ```
   - If you use an Oracle database, run the following commands to upgrade the database:
     ```
     db-update.sh /opt/IBM/cmdb/dist/etc/schema_upgrade/5.1.1/
       Oracle10_ModSchema.sql
     db-update.sh /opt/IBM/cmdb/dist/etc/schema_upgrade/5.1.1/Oracle20_Meta.sql
     ```
   Errors are reported in the command prompt window. If you have a lot of discovery data in the database, the commands can take a long time to run.
5. Start the Configuration Discovery and Tracking server. Before you go to the next step, ensure the server is running.
6. If you are upgrading a Domain Configuration Discovery and Tracking server, not an Enterprise Configuration Discovery and Tracking server, run the following command:
   ```
   /opt/IBM/cmdb/dist/bin/template-upgrade.sh
   ```

Roll back for the Configuration Discovery and Tracking feature Fix Pack 002

To roll back Fix Pack 002 for the Configuration Discovery and Tracking feature, complete the following steps:
1. Use the following command to stop the server:
   ```
   $COLLATION_HOME/bin/control stop
   ```
2. Restore the backup files for the Configuration Discovery and Tracking server. (You created a backup of these files before you installed the fix pack.) To restore the backup files for the server, complete the following steps:

a. Go to the /opt/IBM directory.
b. Rename the current installation directory to *cmdb.bak*.
c. Unzip the backup files. For example, use the following command:

```
unzip cmdb.zip
```

3. Restore the database. Use one of the following procedures:
   - To restore a DB2 database, complete the following steps:
     a. Log in as the DB2 database instance owner. For example, you could use the **db2inst1** ID.
     b. Run the following command:

        ```
        db2 restore database cmdb
        ```

        Replace *cmdb* with the name of your database.
   - To restore an Oracle database, refer to the Oracle documentation for instructions.

4. Save a backup copy of the product registry file. The location of the product registry files depends on the type of user ID used for the installation process. For example, if you used the root ID for the installation process, the product registry file is located in the following path:

   For Linux operating systems
   /root/InstallShield/Universal/common/Gen2/_vpddb/vpd.script

   For Solaris operating systems
   /InstallShield/Universal/common/Gen2/_vpddb/vpd.script

   For AIX operating systems
   /usr/lib/objrepos/InstallShield/Universal/common/Gen2/_vpddb/vpd.script

   If you used the non-root ID for the installation process, the product registry file is located in the *<user_home>*/InstallShield/Universal/common/Gen2/_vpddb/vpd.script path.

5. Open the InstallShield product registry file in a text editor.
6. Change the version number to the previous version. To change the version number, complete the following steps:
7. Start the Configuration Discovery and Tracking server.
   a. Search for entries that contain the string *5.1.1.2*.
   b. Change all instances of *5.1.1.2* to *5.1.1.1*. If the Fix Pack 001 is not installed, change *5.1.1.2* to *5.1.1.0*.

After you roll back the Configuration Discovery and Tracking server, you must clear the Java Webstart cache on each client machine where you log in to the Product Console.

Note: This must be done each time you do an upgrade too.

To clear the Java Webstart cache, complete the following steps:
1. Go to the directory where Java 1.5 is installed.
2. Change directories to the \jre\bin directory.
3. Double-click on **javaws.exe**.
   a. In the Java Application Cache Viewer window, click **Edit → Preferences**.
   b. In the Java Control panel, under the Temporary Internet Files section, check all three boxes, and click **Delete Files**.

Section AB. Using the Tivoli Change and Configuration Management Database installer

If you originally installed the Configuration Discovery and Tracking feature using the Tivoli Change and Configuration Management Database installation wizard, complete the following steps to install Fix Pack 002 using the Tivoli Change and Configuration Management Database installation wizard.

First, you should create a backup of the database.

- Create a backup of the database. To create a backup of a DB2 database, complete the following steps:
  1. Log in as the DB2 database instance owner. For example, you could use the **db2inst1** ID.
  2. Run the following command:

     ```
     db2 backup database cmdb
     ```

     Replace *cmdb* with the name of your database.

  If you use an Oracle database, refer to the Oracle documentation for instructions about how to back up the database.

- If you created any custom database views or triggers, drop them. If you do not drop the custom database views and triggers, the installation process can not complete successfully.

- Create a complete backup of the Configuration Discovery and Tracking server files. Copy all of the server files to another directory.

To install Fix Pack 002 using the Tivoli Change and Configuration Management Database installation wizard, complete the following steps:

1. Change to the Tivoli Change and Configuration Management Database directory within the fix pack directory and launch the Tivoli Change and Configuration Management Database installation wizard for your operating system:
   - Linux: setupLinux.bin
   - AIX: setupaix

2. The installation wizard detects the previous release and prompts you to upgrade. Follow the panels to enter the required information and start the installation.

3. Upon completion of the installation, the wizard displays a success or failed status.

   Note: The Fix Pack 002 installation log files are located in: /CCMDB_1111install.log and /logs/fixpackAll.log

By default, the installation process for the Tivoli Change and Configuration Management Database installation wizard feature sets the **com.collation.topomgr.generateExplicitRelationship** parameter to *true*. However, if you use only the Configuration Discovery and Tracking feature and this parameter is set to *true*, performance is not optimal.

If you plan to add the Process Management and Integration Platform feature of IBM Tivoli CCMDB, leave the parameter set to *true*. In addition, leave the parameter set to *true* if you plan to use the TBSM DLA.

If you do not plan to add the Process Management and Integration Platform feature of IBM Tivoli CCMDB and do not plan to use the TBSM DLA, change the **com.collation.topomgr.generateExplicitRelationship** parameter to *false*. This parameter is located in the collation.properties file (/opt/IBM/cmdb/dist/etc/collation.properties).

Upgrading the database manually

If the database failed to upgrade during the fix pack installation process, you receive a message explaining that the database failed to upgrade and that you need to manually upgrade the database. Instructions for manually upgrading the database follow. You can complete these steps multiple times.

To manually upgrade the database, complete the following steps:

1. Stop the installation process.
2. Restore your backup database. Do not store your backup server files.
3. Change to the directory where the Configuration Discovery and Tracking server is installed. For example, the /opt/IBM/cmdb/dist/bin directory.
4. Use one of the following procedures:
   - If you use a DB2 database, run the following commands to upgrade the database:
     ```
     db-update.sh /opt/IBM/cmdb/dist/etc/schema_upgrade/5.1.1/
       DB210_ModSchema.sql
     db-update.sh /opt/IBM/cmdb/dist/etc/schema_upgrade/5.1.1/DB220_Meta.sql
     ```
   - If you use an Oracle database, run the following commands to upgrade the database:
     ```
     db-update.sh /opt/IBM/cmdb/dist/etc/schema_upgrade/5.1.1/
       Oracle10_ModSchema.sql
     db-update.sh /opt/IBM/cmdb/dist/etc/schema_upgrade/5.1.1/Oracle20_Meta.sql
     ```
   Errors are reported in the command prompt window. If you have a lot of discovery data in the database, the commands can take a long time to run.
5. Start the Configuration Discovery and Tracking server. Before you go to the next step, ensure the server is running.
6. If you are upgrading a Domain Configuration Discovery and Tracking server, not an Enterprise Configuration Discovery and Tracking server, run the following command:
   ```
   /opt/IBM/cmdb/dist/bin/template-upgrade.sh
   ```

Roll back Fix Pack 002 when using the Tivoli Change and Configuration Management Database installation wizard

Roll back for Fix Pack 002 when using the Tivoli Change and Configuration Management Database installation wizard is not supported.

Section B. Installing Fix Pack 002 for the Process Management and Integration Platform feature

This section provides fix pack installation instructions for the Process Management and Integration Platform feature.

The Process Management and Integration Platform feature Fix Pack 002 installation instructions

To install this fix pack for the Process Management and Integration Platform feature, complete the steps described in this section.

Before installing Fix Pack 002, install the latest IBM WebSphere® Application Server Java SDK Interim Fix for V6.0. Visit http://www.ibm.com/support/docview.wss?rs=180&uid=swg24011133 to download and install the most recent interim fix for your platform.

Note: It is important to make a make a copy of the disk image of the system on which you are planning to install the fix pack. There is no automated uninstall feature supplied with this fix pack. If the installation fails, you have to restore the system to its previous working state using the copy of the disk image prior to attempting the installation again.

In order to upgrade successfully, you must ensure that there are no tasks running. Follow these steps to prepare to upgrade:

1. Terminate all running tasks:
   a. Point your browser to http://<*hostname*>9080/bpc, where <*hostname*> is the host name on which IBM® WebSphere® Portal Server is installed.
   b. Log in as wasadmin.
   c. Click **Task Instances > Administered By Me**.
   d. Select **All tasks**.
   e. Click **Terminate**.
2. Stop all Task Module applications that have human tasks or BPEL processes running:
   a. Log on to the WebSphere Administration console as wasadmin.
   b. Click **Applications > Enterprise Applications**.
   c. Click each of the following applications and repeat steps d through k to stop all BPEL and human tasks associated with the applications:
      - CTGCMChMTasksModuleApp
      - CTGWETasksModule
   d. Click on the CTG application link.
   e. Go to **Related Items > EJB Modules** and click on each jar file link.
   f. Click **Business processes**.
   g. Select and stop any task entries that are listed.
   h. Click **Save**.
   i. Click **Human tasks**.
   j. Select and stop any task entries that are listed.
   k. Click **Save**.

To install the fix pack, complete the following steps:

1. Ensure that the WebSphere Application Server and Tivoli Directory Server are running.
2. Open a command prompt and source the DB2 profile used for the process database. For example:
   ```
   Windows: set DB2INSTANCE=ctginst1
   Linux: ./home/ctginst1/sqllib/db2profile
   ```

From this same command prompt, start the WebSphere Portal Server.

3. Change to the IBM Tivoli CCMDB directory within the fix pack directory and launch the IBM Tivoli CCMDB installation wizard for your operating system:

```
Windows: setupwin32.exe
Linux: setupLinux.bin
AIX: setupaix
```

4. The installation wizard detects the previous release and prompts you to upgrade. Follow the panels to enter the required information and start the installation. You must enter user ids and passwords for the CMDB database (if it is a DB2 database), the process database, WebSphere Application Server, and WebSphere Portal Server.

5. Upon completion of the installation, the wizard displays a success or failed status.

> **Note:** The Fix Pack installation log files are located in: <CCMDB_install_dir>/ CCMDB_1112_install.log and <CCMDB_install_dir>/logs/fixpackAll.log.

After completing the upgrade, verify that the correct shared libraries are associated with each application, and that all the human tasks and business process associated with each application are running. Follow these steps to verify the shared libraries:

1. Log on to the WebSphere Administration console as wasadmin.
2. Click on the name of each application listed in step 3 and click **Additional properties > Libraries**.
3. Check whether the appropriate libraries are listed as associated:

Table 1. Applications and associated shared libraries

Application	Required libraries
CTGPMCMChangeHistoryCIApp	CTGFoundationCommonLib, CTGPMCfgMgmtLib, CdbApiClientLibrary
CTGCMChMTasksModuleApp	CTGWE_DYNFLOW, CdbApiClientLibrary
CTGWETasksModuleApp	CTGWE_CHGMGMT, CTGWE_DYNFLOW, CdbApiClientALibrary

4. If any library in this table is not listed, click **Add** and choose each missing library from the list to add it.
5. If you added any shared libraries to any application, click **OK** and then click **Save** when you are finished.

Follow these steps to verify that all human tasks and business processes are started:

1. Log on to the WebSphere Administration console as wasadmin.
2. Click **Applications > Enterprise Applications**.
3. Click each of the following applications and repeat steps 4 through 11to stop all BPEL and human tasks associated with the applications:
   - CTGCMChMTasksModuleApp
   - CTGWETasksModule
   - CTGPMCMChangeHistoryCIApp
4. Click on the CTG application link.
5. Go to **Related Items > EJB Modules** and click on each jar file link.
6. Click **Business processes**.

7. Select and start any task entries that are in the Stopped state.
8. Click **Save**.
9. Click **Human tasks**.
10. Select and start any task entries that are in the Stopped state.
11. Click **Save**.

Roll back for the Process Management and Integration Platform feature Fix Pack 002

Roll back for the Process Management and Integration Platform feature Fix Pack 002 is not supported.

Chapter 5. Limitations, known problems and workarounds

The following sections contain information about the limitations and problems that apply to this fix pack.

Limitations

This section describes limitations in this fix pack. Where applicable and known, workarounds are identified.

Daylight saving time adjustment

Limitation: Beginning in 2007, the new DST start and end dates for the US are:

- Start date: Second Sunday of March (11 March 2007)
- End date: First Sunday of November (4 November 2007)

Systems that rely on date or time processing functions could make incorrect calculations. Calendar, scheduling, or synchronizing problems could occur where systems use date or time stamps, or if date or time stamps are processed or manipulated in any way. If your system makes date or time calculations, you can experience calculation errors.

Workaround: You can apply an update to the existing JREs to adjust the time for daylight saving time.

The existing JREs that are shipped with the Configuration Discovery and Tracking feature will not show the correct time for several weeks in the spring and fall, unless an update is applied to them. The IBM JREs need to have the IBM Java Time Zone Update utility (JTZU) tool applied to them. To apply the IBM Java Time Zone Update utility (JTZU) tool complete the following steps:

1. Stop the Configuration Discovery and Tracking server.
2. Go to the following Web site: http://www-128.ibm.com/developerworks/java/jdk/dst/index.html.
3. Select the appropriate platform where your Configuration Discovery and Tracking server is installed.
4. Download the JTZU tool according to the instructions on the Web site.

   Examples of directories where your JRE may be installed are listed here:
   - For Linux operating systems: dist/external/jdk-1.5.0-Linux-i686
   - For AIX operating systems: dist/external/jdk-1.5.0-AIX-powerpc
   - For Solaris operating systems: dist/external/jdk-1.5.0-SunOS-sparc
   - For customers who have a new installation of the Configuration Discovery and Tracking server on a Windows operating system: dist\external\jdk-1.5.0-Windows-i386
5. Restart the Configuration Discovery and Tracking server.

Support for the self monitoring tool

Limitation: The self monitoring tool is not supported by Fix Pack 002.

Workaround: To check on the status of support for the self monitoring tool, contact support.

Known problems and workarounds

The following sections identify problems that might occur during the use of this fix pack. Where available, workaround solutions are provided for the problems.

Anchors do not start

Problem: The anchor does not start if the sshd daemons are not configured to allow port forwarding. Anchors rely on local port forwarding to be enabled in the remote anchor server.

Workaround: The configuration file for the sshd daemon should be located in either the /etc/ssh or /usr/local/etc/ssh directory. Open the sshd_config file and ensure the **AllowTcpForwarding** option is set to *yes*. The default is *yes*, but there is a chance that when an IBM server is installed, the option is changed to *no*.

If you use SSH2, SSH2 adds four **TcpForwarding** options. These options restrict forwarding for groups and users. These options must be enabled or absent.

Explicit relationship information on discovered resources is not provided

Problem: If the **com.collation/topomgr.generateExplicitRelationship** parameter in the collation.properties file is set to *false* (which is the default), explicit relationship information on resources discovered by Configuration Discovery and Tracking is not gathered. If you change the parameter to *true* and Configuration Discovery and Tracking receives a query for explicit relationship information, only information about resources that are discovered after the parameter was set to *true* is provided. However, explicit relationship information cannot be provided on resources discovered while the flag was set to *false*.

Workaround: If the **com.collation/topomgr.generateExplicitRelationship** parameter was set to *false* when you started discovering resources, and you change the flag to *true*, you must run the explicitrel.sh script. This script gathers explicit relationship information on resources that were discovered when the flag was set to *false*. Therefore, when Configuration Discovery and Tracking receives a query for explicit relationship information, all information will be provided regardless of the setting of **com.collation/topomgr.generateExplicitRelationship** parameter when the resources were discovered.

Multiple copies of same computer system are displayed

Problem: On the Product Console, multiple copies of the same computer system are displayed when both of the following actions occur:
- You run the Tivoli Monitoring 6.1 Fix Pack 003 and later DLA and use the bulk load program to load the IDML book to Configuration Discovery and Tracking.
- You perform a sensor discovery of systems where Tivoli Monitoring agents or servers reside.

If you query the computer systems using the API, multiple copies of the same computer system are also displayed.

Workaround: Use the reconciliation tool (the ldfxidml.sh script) instead of the bulk load program (the loadidml.sh script) to load Discovery Library books into the Configuration Management Database. The readme files for the reconciliation tool (*$COLLATION_HOME*/etc/ldfxidml.readme) and bulk load program (*$COLLATION_HOME*/etc/loadidml.readme) provide more information.

Page layout size of 'letter' not supported in Japan

Problem: On the Product Console, the default page layout size for printed or exported details is set to *letter*. In Japan, *letter* size is not supported; rather, the default page layout size must be changed to *A4* size.

Workaround: You can change the default page layout size from *letter* to *A4* by editing the *value* parameter in the `<property name="printPageLayoutSize" value="letter">` property statement. Administrators can change the *value* parameter in the template.jnlp file. Product Console users can change the value parameter in the confignia.jnlp file.

The following scenarios describe the procedures for changing the page layout size:

Scenario 1: All Product Console users need a page layout size of *A4*.
- To change the default page layout size to *A4* for all Product Console users, your administrator must complete the following steps:
    1. On the Configuration Discovery and Tracking server, navigate to /opt/IBM/cmdb/dist/deploy-tomcat/install/template.jnlp.
    2. In the template.jnlp file, change:
       ```
       <property name="printPageLayoutSize" value="letter" />
       ```

       to:
       ```
       <property name="printPageLayoutSize" value="A4" />
       ```
    3. Stop and restart the Product Console.

Note: In this case, you do not need to modify the value of the page layout size.

Scenario 2: Most Product Console users need a page layout size of *A4*, but some Product Console users need a page layout size of *letter*.
1. To change the default page layout size to *A4* for all Product Console users, your administrator must complete the following steps:
    a. On the Configuration Discovery and Tracking server, navigate to /opt/IBM/cmdb/dist/deploy-tomcat/install/template.jnlp.
    b. In the template.jnlp file, change:
       ```
       <property name="printPageLayoutSize" value="letter" />
       ```

       to:
       ```
       <property name="printPageLayoutSize" value="A4" />
       ```
    c. Stop and restart the Product Console.
2. If you need a page layout size of *letter*, complete the following steps:
    a. Save the confignia.jnlp file locally.
    b. In the confignia.jnlp file, change:
       ```
       <property name="printPageLayoutSize" value="A4" />
       ```

       to:

```
<property name="printPageLayoutSize" value="letter" />
```

c. Run the confignia.jnlp file, as follows:
- If the confignia.jnlp file is associated with Java Web Start, double-click the confignia.jnlp file.
- If the confignia.jnlp file is not associated with Java Web Start, enter the appropriate command according to the operating system you are using:
  – For Windows:

    JAVA_HOME\bin\javaws.exe SAVED_DIRECTORY\confignia.jnlp
  – For UNIX:

    JAVA_HOME/bin/javaws SAVED_DIRECTORY/confignia.jnlp
    where:
    - JAVA_HOME is the install directory of Java.
    - SAVED_DIRECTORY is the saved directory of confignia.jnlp.

Scenario 3: Most Product Console users need a page layout size of *letter*, but some Product Console users need a page layout size of *A4*.
- If you need a page layout size of *A4*, complete the following steps:
  1. Save the confignia.jnlp file locally.
  2. In the confignia.jnlp file, change:
     ```
     <property name="printPageLayoutSize" value="letter" />
     ```

     to:
     ```
     <property name="printPageLayoutSize" value="A4" />
     ```
  3. Run the confignia.jnlp file, as follows:
     – If the confignia.jnlp file is associated with Java Web Start, double-click the confignia.jnlp file.
     – If the confignia.jnlp file is not associated with Java Web Start, enter the appropriate command according to the operating system you are using:
       - For Windows:

         JAVA_HOME\bin\javaws.exe SAVED_DIRECTORY\confignia.jnlp
       - For UNIX:

         JAVA_HOME/bin/javaws SAVED_DIRECTORY/confignia.jnlp
         where:
         - JAVA_HOME is the install directory of Java.
         - SAVED_DIRECTORY is the saved directory of confignia.jnlp.

Note: In this case, the confignia.jnlp file does not need to be changed in the server (by the administrator), since the majority of Product Console users are using a default page layout size of *letter*.

Query of either the Hardware Management Console (HMC), IVM, or Virtual I/O Server (VIOS) objects in the Domain Manager does not work

Problem: When you attempt to query either the Hardware Management Console (HMC), Integrated Virtualization Manager (IVM), or Virtual I/O Server (VIOS) objects in the Domain Manager, the query fails.

Workaround: When querying for HMC, VIOS or IVM from the Domain Manager, you have to query for ComputerSystem Objects providing the proper object type. The following query is an example of how to use the Domain Manager to query for HMC Systems whose displayName contains 'ibm':

```
localhost.ComputerSystem.type equals 'HMC' && localhost.ComputerSystem.displayName
contains 'ibm'
```

A systemP topograph icon is not created when you discover a systemP machine

Problem: If you discover a systemP machine and then look at the topology graph, the systemP icon is not displayed. Once you discover a non-systemP machine, and then view the topology graph, the systemP machine that you discovered earlier displays.

Workaround: Discover a non-systemP machine in order to get a systemP machine icon to display in the topology graph.

Using IDD StackScan sensor with SELinux does not work

Problem: On systems that have Security-enhanced Linux (SELinux), the IDD StackScan sensor runs, but the operating system of the each discovered target is not stored.

This problem occurs if the security level on the Configuration Discovery and Tracking server is high.

Workaround: To determine whether your system has SELinux, and at which level it is set, complete the following steps:

1. On a Linux command line on the system running the Configuration Discovery and Tracking server, log on as *root*.
2. Type *getenforce* and press Enter.

If the *getenforce* command returns a value of *permissive* or *disabled*, the StackScan sensor will run properly.

If the *getenforce* command returns a value of *enforcing*, you must change the security level in one of the following ways:

- Temporarily change the security level to *permissive* in order to decrease the security level.
- Permanently change the security level to one of the following values:
  - *Disable*, in order to disable SELinux.
  - *Permissive*, in order to decrease the security level.

To temporarily lower the security level, complete the following steps:

1. On a Linux command line, type `setenforce 0` and press Enter to set SELinux to *permissive*.

2. Run another discovery using the StackScan sensor.

3. After the discovery has completed, you can enable SELinux by typing `setenforce 1` and pressing Enter to set SELinux to *enforcing*.

To permanently change the security level to *disable* or *permissive*, edit the /etc/sysconfig/selinux file and reboot the machine.

Chapter 6. New features provided with Fix Pack 002 for the Configuration Discovery and Tracking feature

This section identifies and explains the new functionality that is available for the Configuration Discovery and Tracking feature in Fix Pack 002.

Configuring Configuration Discovery and Tracking

You do not have to complete any specific configuration tasks before using Configuration Discovery and Tracking. This section provides instructions for optional configuration tasks that can be useful in your environment.

Saving Domain Manager reports

If you want to save Configuration Discovery and Tracking server and Enterprise Configuration Discovery and Tracking server Domain Manager reports in the PDF, CSV, or XML formats, update the **com.collation.domain.pdfreport.enabled** parameter.

To update the **com.collation.domain.pdfreport.enabled** parameter, complete the following steps:

1. Open the collation.properties file (/opt/IBM/cmdb/dist/etc/collation.properties) in a text editor.
2. Change the **com.collation.domain.pdfreport.enabled** parameter from *false* to *true*.
3. Save and close the collation.properties file.
4. Restart Configuration Discovery and Tracking.

Bidirectional support is not provided for saving Domain Manager reports in the PDF, CSV, or XML formats. In addition, the instructions provided in this section have been tested with the English locale; the instructions may not work with non-English locales.

Using sensors

The information in this section does not apply to the IDD StackScan sensor. The StackScan sensor uses credential-less discovery and is described in the next section.

Sensors work by emulating a user running locally to gather (discover) information. Like an agent, the sensor is local to the monitored host, but only for a brief period of time. Because the sensor is local to the monitored host for a limited amount of time, the sensor is able to gather discovery-related information without incurring the typical agent costs of installation and maintenance.

The sensor uses secure network connections, encrypted access credentials, and host-native utilities. In this way, a sensor is safe to use and provides the same data acquisition that a user (or an agent) could acquire by residing locally on a resource. The sensor asks, figuratively, the host and the applications how they are configured and who they are talking to. The sensor differs from the agent as the agent takes the role of an outsider and tries to infer data from what is observed. With a sensor, there is no need to install anything permanently on each host that requires ongoing maintenance.

The sensor functions in the following way:

- A secure connection is made to the host about how to be discovered using a secure protocol, for example, SSH.
- SSH uses credentials that enable read-only access to system information (without root access), but does not necessitate access to application data or customer information.
- Once the SSH session is created, the sensor invokes native operating system utilities that return all the running processes on this host, their environments, and arguments. The sensor also captures all of the open ports and the processes that are communicating on the ports.
- Using these native utilities, the sensor is able to create an inventory of the host. The inventory includes the following details about the host: configuration, software and patches installed, applications it is hosting, and running processes.
- Differently configured sensors, using appropriate credentials, can log onto whatever application are found on this host, for example, Oracle or WebSphere. This application-specific sensor, after logging into the application, can ask the application how it is configured. This information is important for gathering an accurate configuration. For example, Oracle can use the concept of a running configuration (using `spfile`) that differs significantly from the configuration described in a configuration file.
- Once the host and application topology and configuration details are acquired, they are sent back to a central management server and the SSH session is ended.
- After the session is ended, the connection is stopped with nothing left on the discovered host to be maintained.

Because this same sensor-driven process is simultaneously occurring on other hosts, the process at the other end of each port is captured. Using correlation back at the central server, a topology can be created that accurately portrays the dependencies between applications.

The data captured by the sensor is reformatted according to schema in the CIM model (Common Data Model) and stored in a configuration management database.

Using the IDD StackScan sensor

The IDD StackScan sensor provides credential-less discovery using stack classification for a less intrusive mapping of the installed operating system and open ports on a computer system. The StackScan sensor can collect the type of operating system, the active IP interface, and the open ports.

Use discovery profiles to enable (and disable) the StackScan sensor. Discovery profiles are part of Fix Pack 002. Information about discovery profiles is provided in the Using discovery profiles section.

The StackScan sensor labels each discovered computer system with a confidence level for the operating system. If the operating system confidence level is higher than a threshold, the computer system is displayed under the appropriate operating system category. If the operating system confidence level is below the threshold, the operating system is modeled as a general computer system. The threshold is configured between zero and 100. The sensor configuration attribute is **confidenceThreshold**.

To enable and disable the StackScan sensor, and to set the **confidenceThreshold** attribute, use a discovery profile.

For supported Windows operating systems, the StackScan sensor needs raw socket support enabled on the operating system (for example, the Windows 2003 server) where the Configuration Discovery and Tracking server is running. If the operating system does not provide raw socket support, the StackScan sensor cannot work; data collection does not occur.

Configuring sudo access control

The StackScan sensor requires sudo access control to collect discovery information. For Windows operating systems, sudo access control is not needed.

To configure sudo access, complete the following steps for the Configuration Discovery and Tracking server and anchor hosts:

1. From a command prompt window, use the su command to switch to root authority on the local host.
2. Type the visudo command.
3. Type the following line in the /usr/local/etc/sudoers or /etc/sudoers file:

   `<TADDM_USER>ALL=(ALL) NOPASSWD:ALL`

   <TADDM_USER> is the non-root user ID that is used by the Configuration Discovery and Tracking server.

Installing Nmap

If you use the StackScan sensor, the use of Nmap is optional. If you want to increase the accuracy of your results, use Nmap.

Nmap is an open source network exploration tool and security scanner. When using the StackScan sensor, you should install Nmap as a part of the Configuration Discovery and Tracking installation process.

Nmap must be installed on the same operating system where your Configuration Discovery and Tracking server is installed. If you use an anchor server, Nmap needs to be installed on the anchor server too.

For the AIX and Windows platforms, you need to download the latest version of Nmap from the following Web site: www.insecure.org

The supported Linux operating systems includes a version of Nmap. This can be an older version. Download the newest version from www.insecure.org.

For Solaris, you need to download and install a corresponding version of openssl before you install Nmap. Complete the following steps to install the correct openssl and Nmap software:

1. Go to www.sunfreeware.com.
2. Install the corresponding version of openssl and the appropriate Nmap software:
   - For Nmap 3.93, first install the libssl.so.0.9.7 library on the Configuration Discovery and Tracking server.
   - Nmap 4.20 displayed inconsistent results in testing due to an Nmap bug. (If a version of Nmap newer than 4.20 is available, try installing that version and running the Nmap command below. It will generate an error if it requires a new version of the libssl library.)
3. Use the following command to validate the command before proceeding with any tasks:

   `nmap -v -sS -O`

The output should not contain errors.

Use the instructions to install Nmap from a source RPM instead of compiling Nmap from the source code.

If you do decide to install Nmap by compiling the source code, specify /usr/bin as the default directory. For example, to specify /usr/bin as the default directory, you could use the following option for the command:

```
./configure –prefix=/usr/bin
```

Note: Before installing Nmap for any platform, you may want to go to the Configuration Discovery and Tracking support Web site for any late, breaking news about your specific platform and Nmap versions. http://www-306.ibm.com/software/sysmgmt/products/support/ IBMTivoliApplicationDependencyDiscoveryManager.html

Sensors

The following table lists the sensors that are delivered with Configuration Discovery and Tracking:

Table 2. Sensors provided by Configuration Discovery and Tracking

Sensor	Gather configuration information from
ActiveDirectory	Windows Active Directory
AixComputerSystem	AIX® computer systems
AlteonPort	Alteon network equipment (port information)
AlteonSnmp	Alteon network equipment (SNMP information)
AlteonVlan	Alteon network equipment (vlaninformation)
Anchor	Anchor hosts
ApacheServer	Apache Web Servers, for example, IBM HTTP Server
BigIPPort	BigIP network equipment (port information)
BigIPSnmp	BigIP network equipment (SNMP information)
BigIPVlan	BigIP network information (vlaninformation)
BridgeSnmp	Generic network bridge - basic SNMP information
BridgeSnmp2	Generic network bridge - detailed SNMP information
Cdp	Cisco Discovery Protocol sensor
Checkpoint	CheckPoint firewalls
CheckpointSnmp	CheckPoint Firewalls (SNMP information)
CiscoPort	Cisco network equipment (port information)
CiscoTelnet	Cisco network equipment (using the TelNet protocol)
CiscoVlan	Cisco network equipment (vlan information)
CiscoWorksFile	CiscoWorks File sensor

Table 2. Sensors provided by Configuration Discovery and Tracking (continued)

Sensor	Gather configuration information from
CiscoWorksFileUDS	CiscoWorks File Universal Data Service sensor
CiscoWorksUDS	CiscoWorks Universal Data Service sensor
Citrix	Citrix Presentation Server for Windows
CustomAppServer	Servers identified by a Custom Server template defined in the Configuration Discovery and Tracking database
CustomComputerSystem	Computers identified by a Computer System template defined in the Configuration Discovery and Tracking database
Db2	IBM DB2 UDB
Dns	Domain Name Servers
EntityMIB	Basic SNMP information from any device
ExtremeVlan	Extreme network equipment (vlan information)
GenericComputerSystem	Any computer in the infrastructure
GenericServer	Any server in the infrastructure (defined by having an active listening port)
HostResources	Hardware resources in a computer
HpUxComputerSystem	Computers running an HPUX operating system
IDD StackScan	Credential-less discovery using stack classification for a less intrusive mapping of the installed operating system and open ports on a computer system.
IIsWebService	Microsoft Internet Information Server
IpDevice	Any IP device in the infrastructure
IpInterface	Any IP interface defined in the infrastructure
IPlanetServer	SUN IPlanet Java Servers
IpRange	Any IP device within the scope
IPSOComputerSystem	SOC IP discovery
JBoss	JBoss Application Servers
LanManagerSnmp	Lan Manager SNMP discovery
Ldap	LDAP-based directory servers, for example, IBM Directory Server
LinuxComputerSystem	Any computer running a Linux distribution
LotusDominoDetail	Lotus® Domino® Server (detailed information)
LotusDominoDomain	Lotus Domino Server (domain information)
LotusDominoInitial	Lotus Domino Server (basic information)
MQServer	IBM WebSphere MQ
NetscreenSnmp	Netscreen firewall SNMP sensor
NFSServer	Network File Server servers

Table 2. Sensors provided by Configuration Discovery and Tracking (continued)

Sensor	Gather configuration information from
NokiaSnmp	Nokia network equipment (SNMP information)
OpenVmsComputerSystem	Computers running an OpenVMS operating system
Oracle	Oracle database servers
OracleApp	Oracle Application Servers
Ping	IP Interface (status information)
Pix	Cisco PIX Firewall sensor
PortScan	Open ports on any IP device
Session	Listening-port session information
SMBServer	Server Message Block File servers, for example, Windows file servers and Linux Samba servers
SMIS	Storage Management Initiative Specification
SnmpMib2	Detailed SNMP information
SqlServer	Generic relational database servers
StackScan	Credential-less discovery using stack classification
Storage	Computers (gathers information related to the storage subsystem)
SunSparcComputerSystem	Sun SPARC Computer Systems
Sybase	Sybase database servers
SybaseIQ	Sybase databases
Weblogic	BEA Weblogic Application Servers
WebSphere	IBM WebSphere Application Servers
WebSphereCell	IBM WebSphere Application Servers (cell information)
WindowsComputerSystem	Computers running a Windows operating system

Operating system sensors

The following table lists the operating system sensors and the versions of the operating systems that they support:

Table 3. Operating system sensors

Operating system sensors	Versions supported
Solaris	2.6, 2.7, 2.8, 2.9, 2.10
Linux	Red Hat Linux versions 3.x and 4.x; SUSE Linux versions 9.x
AIX	5.x
HP UX	11.0, 11i
Windows	2000, 2003
OpenVMS	7.x

Table 3. Operating system sensors (continued)

Operating system sensors	Versions supported
* System p™	HMC 5.2.x, IVM 1.2.x
** VMware ESX	2.5x, 3.0

* In order to discover the System p (and its logical partitions) you must provide the IP address of the management console that is managing the System p. The System p sensor supports two management consoles: the Hardware Management Console (HMC) and the Integrated Virtualization Manager (IVM). Using SSH, the System p sensor establishes a session with the management console. The session is established for a user. This user must be created on the respective management console. For an IVM management console, a user with the **View Only** role is needed. For an HMC management console, a user based on the **hmcoperator** role is needed. For example, create a new role called *taddmViewOnly* based on **hmcoperator**. In addition, the following command line tasks must be assigned to the new role:

Managed System
  lshwres and lssyscfg

Logical Partition
  lshwres, lssyscfg, and viosvrcmd

HMC Configuration
  lshmc

** In order to get more configuration information about the guest operating system, the *getguestinfo ip* value must be set to the IP address for the guest operating system, or the IP address is included in the scope of the resources to discover. Otherwise, the host name for the guest operating system is not known and is displayed as *unknown* in the GUI and XML output.

Application sensors for Web servers

The following table lists the most common application sensors for Web servers used by the Configuration Discovery and Tracking discovery process:

Table 4. Application sensors for Web servers

Sensor and version	HP UX 11.0, 11i	AIX 5.x	Red Hat AS 3.0, 4.0	Solaris 2.6-2.10	Win 2K/2003	Open VMS
Apache 1.x	X	X	X	X	X	
Apache 2.x	X	X	X	X	X	
iPlanet 4.x	X	X	X	X		
iPlanet / Sun One (iPlanet) 6.x	X	X	X	X		
IIS 5.x	N/A	N/A	N/A	N/A	X	N/A
IIS 6.x	N/A	N/A	N/A	N/A	X	N/A

Application sensors for application servers

The following table lists the most common application sensors for application servers used by the Configuration Discovery and Tracking discovery process:

Table 5. Application sensors for application servers

Sensor and version	HP UX 11.0, 11i	AIX 5.x	Red Hat AS 3.0, 4.0	Solaris 2.6-2.10	Win 2K/2003	Open VMS
WebSphere 5.x		X	X	X	X	
WebSphere 6.x		X	X	X	X	
WebSphere 6.x SOA						
WebSphere WSDM support						
WebLogic 5.x	X	X	X	X		
WebLogic 6.x	X	X	X	X		
WebLogic 7.x	X	X	X	X		
WebLogic 8.x (8.1.5 and 8.1.6 are not supported)	X	X	X	X	X	
JBoss 4.x			X	X	X	
Lotus Domino 6.0		X			X	
Lotus Domino 6.5		X			X	
Oracle 10.x			X	X	X	

Application sensors for databases

The following table lists the most common application sensors for databases used by the Configuration Discovery and Tracking discovery process:

Table 6. Application sensors for databases

Sensor and version	HP UX 11.0, 11i	AIX 5.x	Red Hat AS 3.0, 4.0	Solaris 2.6-2.10	Win 2K/2003	Open VMS
Oracle 8.x	X	X	X	X	X	
Oracle 9.x	X	X	X	X	X	X
Oracle 10g/i	X	X	X	X	X	X
DB2 7.x		X	X	X	X	
DB2 8.x		X	X	X	X	
MS SQL 2000					X	
Sybase ASE 12.x				X		

Table 6. Application sensors for databases (continued)

Sensor and version	HP UX 11.0, 11i	AIX 5.x	Red Hat AS 3.0, 4.0	Solaris 2.6-2.10	Win 2K/2003	Open VMS
Sybase IQ 12.x				X		

Application sensors for packaged applications

The following table lists the most common application sensors for packaged applications used by the Configuration Discovery and Tracking discovery process:

Table 7. Application sensors for packaged applications

Sensor and version	HP UX 11.0, 11i	AIX 5.x	Red Hat AS 3.0, 4.0	Solaris 2.6-2.10	Win 2K/2003	Open VMS
SAP (SLD) 6.40	X	X	X	X	X	
SAP (SLD) 7.x	X	X	X	X	X	
SAP (CCMS) 4.6C	X	X	X	X	X	
SAP (CCMS) 4.6D	X	X	X	X	X	
SAP (CCMS) 6.x	X	X	X	X	X	

Application sensors for messaging applications

The following table lists the most common application sensors for messaging applications used by the Configuration Discovery and Tracking discovery process:

Table 8. Application sensors for messaging applications

Sensor and version	HP UX 11.0, 11i	AIX 5.x	Red Hat AS 3.0, 4.0	Solaris 2.6-2.10	Win 2K/2003	Open VMS
WebSphere MQ 5.3	X	X*	X	X**	X***	
WebSphere MQ 6.0	X	X*	X	X**	X***	

* Only AIX 5.3.

** Only Solaris 2.8 and 2.9.

*** In addition, Windows XP Professional.

Introducing the z/OS Discovery Library Adapter

The z/OS® Discovery Library Adapter (DLA) discovers mainframe resources and relationships, including the following items:
- z/OS configuration details (for example, PARMLIB members)

- zSeries® machine details (for example, serial number, processing capacity, and LPAR information)
- Address space details (for example, JobName, PGM, allocations, and related storage volumes)
- DB2 subsystems (for example, DataSharingGroup, databasees, and tablespaces)
- IMS™ subsystems (for example, transactions, programs, and databases)
- MQ subsystems (for example, sender channels and receiver channels)
- CICS® regions (for example, system initialization table settings, transactions, programs, and files)
- WebSphere Application Servers (for example, node, cell, and configuration files)

The z/OS DLA stores this resource and relationship information in an XML file. After discovery, the z/OS DLA sends the XML files, using FTP, to the Discovery Library File Store. You can use the bulk load program to load the XML files into IBM Tivoli CCMDB.

Downloading the z/OS DLA

You can download the z/OS DLA from the IBM Tivoli Open Process Automation Library Web site.

To download the z/OS DLA, complete the following steps:
1. Go to the IBM Tivoli CCMDB section of the IBM Tivoli Open Process Automation Library Web site: http://catalog.lotus.com/wps/portal/tccmd.
2. Enter the following search criteria: *Discovery Library Adapter for z/OS*.
3. Click **Discovery Library Adapter for z/OS**.
4. Follow the instructions on the Web site to download the z/OS DLA.
5. After downloading the z/OS DLA, read the z/OS DLA documentation for installation instructions.

Importing the z/OS Discovery Library books to Configuration Discovery and Tracking

The output file for the z/OS DLA is, by default, in the Discovery Library file format. For example, ZOSDISC100.pthomo1.au.ibm.com.2006-01-22T23.35.06Z.xml.

You need to transfer the XML file to the Discovery Library File Store and load the file in the Configuration Discovery and Tracking feature with the Discovery Library bulk load program. See the "Discovery Library bulk loader" section for more information.

Using information from the z/OS DLA with Configuration Discovery and Tracking

You can view all of the related information from the z/OS DLA with the Product Console.

To view information from the z/OS DLA with the Product Console, complete the following steps:
1. Go to the sidebar and find the Discovered Components section.
2. From the list, select **Physical Infrastructure**.
3. In the tree, select **Systems Tier** → **Sysplexes**. Find the z/OS resource you want to work with.

4. In the Details panel you can view information about and work with the z/OS resource.

Discovery Library bulk loader

The bulk load program (the loadidml.sh script) loads Discovery Library books into the Configuration Management Database.

The loadidml.sh script reads the books, imports the data into the Configuration Management Database, and logs the results in the results directory for the bulk load program. In addition, the bulk load program logs error messages in the *$COLLATION_HOME*/log/bulkloader.log file.

To ensure data consistency, only one bulk load program can run at a time. The bulk load program is designed to be run at the Configuration Discovery and Tracking server. To ensure proper authorizations, the bulk load program must be run by the same user ID that runs the Configuration Discovery and Tracking server processes.

All the directories that you use to store log and result files need to exist prior to running the loadidml.sh script. These directories may be customized through manipulation of the configuration settings defined in the *$COLLATION_HOME*/etc/bulkloader.properties file.

To configure and run the bulk load program, complete the following steps:

1. Check the *$COLLATION_HOME*/etc/bulkload.properties file for accuracy. You should not need to change anything in the file if you want to accept the defaults.

   com.ibm.cdb.bulk.workdir=bulk
   > This is the directory the bulk load program uses to copy files before loading them. The default directory is relative to the top-level directory of the directory referenced by the *$COLLATION_HOME* variable. This variable is usually /opt/IBM/cmdb/dist.

   com.ibm.cdb.bulk.workdir.cleanup=false
   > Specifies whether the working directory should be cleaned up after the load completes.

   com.ibm.cdb.bulk.processedfiles.cleanup=30
   > Number of days to keep files in the processed files list.

   com.ibm.cdb.bulk.retrycount=5
   > Number of times to retry loading a file if a discovery is currently in progress.

   com.ibm.cdb.bulk.retrydelay=600
   > Number of seconds in between retries while a discovery is in progress.

   com.ibm.cdb.bulk.resultsdir=bulk/results
   > Directory to write the results files created during the load of a file. The default directory is relative to the top-level directory referenced by the *$COLLATION_HOME* variable. This variable is usually /opt/IBM/cmdb/dist.

   com.ibm.cdb.bulk.stats.enabled=false
   > Whether statistics gathering of the bulk load program are performed. Turning on statistics decreases performance and increases log and result file sizes.

Do not change any other settings in the properties file not specifically mentioned here. Other settings may be ignored.

2. Verify that the working directory and the results directory mentioned in the bulkload.properties file are valid.

   The working and results directory must exist before running the bulk load program or the bulk load program does not run. The bulk load program does not automatically create these directories.

   The directories should be created using the same user that starts and stops the Configuration Discovery and Tracking server. If the bulk load program does not have permissions to read and write from the working and results directories, the bulk load program cannot run.

   If you want to use different directories, you have to create these directories manually and update the properties file.

3. Run the bulk load program. Log in as the user used to start and stop the Configuration Discovery and Tracking server. You can use the following commands:

```
su - taddm
export $COLLATION_HOME=/opt/IBM/cmdb/dist
cd dist/bin
./loadidml.sh -f <path_to_idml_file> -h <hostname> -u <userid> -p
<passwd> -o -b <bidirectional format on or auto>
```

   where

   -f <path_to_idml_file>
   > This flag is required. The flag points to a fully-qualified path to the input file or a directory that contains input XML files. The directory where the input file is placed must not be the same as the working directory of the bulk load program. If a shared directory is used to stage input file, or, if files are copied to a local directory, the directory where input files are staged cannot be the same as the working, results, or log directory of the bulk load program.

   -h <hostname>
   > This flag specifies the hostname of the Configuration Discovery and Tracking server.

   -u <userid>
   > This flag specifies the userid to be used to authenticate with the Configuration Discovery and Tracking server.

   -p <password>
   > This flag specifies the password used to authenticate with the Configuration Discovery and Tracking server.

   -o
   > This flag instructs the bulk load program to override the processed files file and load the IdML files.

   -b
   > This flag specifies if bidirectional support is enabled, disabled, or automatically configured. Choices for the bidirectional flag are *on* and *auto*. When the bidirectional flag is *on*, you can configure the bidirectional parameters for each Management Software System using the predefined bidirectional profiles. When the bidirectional flag is *auto*, the bidirectional transformation is enabled and the bidirectional format is detected automatically.
   >
   > If you are using SSH, you should not choose *on* for the bidirectional flag. When you choose *on* for the bidirectional flag and use SSH, the bulk load bidirectional configuration window is not displayed. Without

completing the fields in the bulk load bidirectional configuration window, you cannot configure the bidirectional parameters.

The -u and -p parameters are optional. A userid and password should only be supplied if the userid has the correct permissions (full update and read privileges) and is defined in the Configuration Discovery and Tracking server as a valid user. The -h parameter should only be used in case you experience problems resolving the IP name of the Configuration Discovery and Tracking server.

If the bulk load program does not run, read the messages on the Product Console and the messages in the bulkload.properties file. The log file is located in the *$COLLATION_HOME/*log directory.

4. After the bulk load program runs, check the results file for problems during the bulk load program. The results file is located in the resultsdir directory configured in the bulkload.properties file. Use the following command to navigate to the directory with the bulkload.properties file:

   `cd $COLLATION_HOME/bulk/results`

   Look for a file with a .results extension and named the same as the IdML. If, for example, the name of the imported IdML file is `test.xml`, the name of the results file is test.results. Important entries in this file are marked with SUCCESS and FAILURE tags. Percentage successful messages are also recorded if statistics are enabled. FAILURE tags are for individual objects and do not necessarily indicate a failure of the entire file.

5. To process the same book again after the first initial load, either use the -o flag, or remove the specific entry from the processedfiles.list file. The processedfiles.list file is located in the working directory specified in the bulkload.properties file.

6. If the bulk load program indicates another bulk load program is running and you know this is not the case, go to the working directory and delete the .bllock file and run the bulk load program again. The .bllock file is a hidden file because it starts with a period. Deleting this file should only be done if you are sure that another bulk load program is not already running.

   You can also delete this file if you pressed `<control-c>` when running the loadidml.sh script.

   You should also read the information in the bulkload.log file. The log file can contain details about messages that are displayed.

7. (Optional) To refresh the reports displayed in the Product Console, for example, the Inventory Summary report, with the data you added using the bulk load program, go to the dist/bin directory and run the following command:

   `cdm.sh`

   If you are using an Enterprise Configuration Discovery and Tracking server, go to the dist/bin directory and run the following command:

   `ecmdb.sh`

The following list describes the return codes for the bulk load program.

At a command line, you see the following return codes and their messages.

0   The program ran all the way through. This does not mean that everything was loaded. Check the results file for that information.

1   Some error occurred but it is unknown. Check the bulkload.log file in the log directory to see if there is more information.

2	A basic environment property needed to run the bulk load program is not set.
3	A command line parameter was supplied that is not valid. It is either the parameter itself or the data supplied with the parameter that is not correct. Correct the command and try again.
4	The user ID or password was not correct and the bulk load program could not log in. This happens when an incorrect -u -p parameter was supplied to the bulk load program.
5	The xml file being processed contained errors but the bulk load program continued to process the file.
6	The xml file being processed contained errors and caused the bulk load program to stop the processing of the file.
7	The xml parser failed to parse the xml file and the bulk load program processing stopped.
8	The API server returned an error but the bulk load program was able to recover and continue.
9	The API server returned an error and the bulk load program stopped processing.
10	Only one copy of the bulk load program can run at a time. A copy was already running so this copy can not run.
11	A discovery is processing and the bulk load program is locked out and can not run. Based on what is configured in the properties file, the bulk load program tries to run again, but if this error is returned, it has exhausted the retry attempts.
12	A discovery is processing and the bulk load program is locked out and can not run. Based on what is configured in the properties file, the bulk load program tries to run again, but if this error is returned, it has exhausted the retry attempts.
13	There is an property specified in the input file for the bulk load program that is not valid.
14	The file was already processed as recorded in the processedfiles.list file in the working directory of the bulk load program. Either use the -o override parameter to force processing of the file or edit the processedfile.list and remove the entry for this file from the list.
15	The API server was not started and the bulk load program could not connect.

Topology updates for collections and business services

The Product Console contains a graphical user interface that is used to provide details on discovered components (such as collections and business services) and topologies (such as business applications, application infrastructure, and physical infrastructure).

This section describes enhancements that provide a more detailed view of collections and business services.

Exploring collections

You can display detailed information on the relationship topology and physical topology of a collection.

This section provides description of the new Collections menu items and instructions on how to display topology information for collections. The following information can be displayed:

- Relationship topology of a collection, which includes the following subcategories:
  - Expansion of child collections
  - Logical topology of collections
- Physical topology of a collection

The following tables lists the new Collections pop-up menu items in the Discovered Components section:

Table 9. Collections pop-up menu items in the Discovered Components section

Menu item	Description
Show Relationship Topology	Displayed detailed information about relationships between the components in the collection.
Show Physical Topology	Displays the topology of hardware used by the collection.

When you display the collection relationship topology only the parent collection is expanded. However, a collection might contain a child collection as one of its components. Therefore, if a parent collection has a child collection as one of its components, that child collection is not expanded automatically in the graph. You can use the graph that is displayed in the main window to view the following information:

- Relationship topology of the child collection
- Expansion of a child collection
- Logical relationships between components of the parent collection

When you display the physical topology of a collection, only components that cannot have their own physical topology are expanded automatically. Components such as business services, business applications, and collections can have their own physical topology and therefore are not expanded automatically. You can use the graph that is displayed in the main window to display the physical topology for these types of components.

The following tables lists the new Collections pop-up menu items in the main window:

Table 10. Collections pop-up menu items in the main window

Menu item	Description
Expand	Expands the child collection and shows explicit relationships between the components.
Show Logical Relationships	Displays the logical relationships between the components in the collection.
Show Relationship Topology	Displayed detailed information about relationships between the components in the collection.
Show Physical Topology	Displays the topology of hardware used by the collection.

Overview of the relationship topology of a collection

You can display a graph of the relationship topology of any collection.

After you display the graph of the topology, you can expand child components. You can also display logical relationships between components of the parent collection and child collections.

Viewing the relationship topology of a collection

To view the relationship topology of a collection, complete the following steps:

1. In the Product Console, click **Collections** in the **Discovered Components** list. A list of the members of each collection is displayed.
2. Right-click on either a collection or a component a collection for which you want to show topology. A pop-up menu is displayed.
3. From the pop-up menu, click **Show Relationship Topology**. A collection relationship topology graph is displayed in the main window.
4. If the collection displayed in the main window contains a child collection, right-click on the child collection and click **Show Relationship Topology**. A collection relationship topology graph for the child collection is displayed in the main window.

Introducing the expansion of a collection

When you expand the view of a collection, you can also see the explicit relationships between members of the collection.

The explicit relationships are relationships that are created between components of the collection (such as RunsOn and Federates) and they are shown in the graph by a solid black lines between the components.

Viewing the expansion of a collection

To expand the view of a child collection within a parent collection, complete the following steps:

1. In the Product Console, click **Collections** in the **Discovered Components** list at the bottom left side of the window. A list of the collections and their corresponding components is displayed.
2. Right-click on the collection that you want to expand. A pop-up menu is displayed.
3. From the pop-up menu, click **Show Relationship Topology**. A collection relationship topology graph is displayed in the main window.
4. Right-click on the child collection. A pop-up menu is displayed.
5. From the pop-up menu, click **Expand**. A collection relationship topology graph of the child collection is displayed in the main window. The graph also contains the explicit relationships between components of the collection, as shown by a solid black line between components.

Introducing logical relationships in a collection

You can use the relationship topology graph displayed in the main window to show logical relationship between two or more selected components in a collection.

If one of the selected components is a child collection that has not been expanded, that collection is be expanded when the logical relationships are displayed. In addition to the logical relationships between components, the explicit relationships between components are also shown.

Viewing the logical relationships in a collection

To view logical relationships in a collection, complete the following steps:

1. In the Product Console, click **Collections** in the **Discovered Components** list at the bottom left side of the window. A list of the members of each collection is displayed.
2. Right-click on the collection for which you want to display the logical relationships. A pop-up menu is displayed.
3. From the pop-up menu, click **Show Relationship Topology**. A collection relationship topology graph is displayed in the main window.
4. Select two or more components for which you want to view the logical relationships and right-click. A pop-up menu is displayed.
5. From the pop-up menu, click **Show Logical Relationships**. Dotted red lines are drawn between the components that have logical relationships.

Overview of the physical topology of a collection

The physical topology of a collection shows the topology of the hardware used by the collection.

When you display the physical topology of a collection, components within that collection that have their own physical topology (business application, business service, or collection) are not be expanded in the topology graph. For example, if your collection contains a business application, that business application is displayed as one component. You can expand that business application within the topology graph that is displayed in the main window.

Viewing the physical topology of a collection

To view physical topology of a collection, complete the following steps:

1. In the Product Console, click **Collections** in the **Discovered Components** list at the bottom left side of the window. A list of all the collections is displayed.
2. Right-click on the collection that you want to display the topology. A pop-up menu is displayed.
3. From the pop-up menu, click **Show Physical Topology**. A physical topology graph is displayed in the main window.
4. If the collection displayed physical topology graph contains a component that is a business application, business service, or child collection, right-click on the desired component and click **Show Physical Topology**. A physical topology graph for the selected component is displayed in the main window.

Exploring business services

You can display detailed information on the physical topology of a business service.

The Business Services pop-up menu contains one entry: Show Physical Topology. Click **Show Physical Topology** to display the topology of hardware that is used by the business server.

When you display the physical topology of a business service, only components that cannot have their own physical topology are expanded automatically. Components such as business services, business applications, and collections can have their own physical topology and therefore are not expanded automatically. You can use the graph that is displayed in the main window to display the physical topology for these types of components.

Overview of the physical topology of a business service

The physical topology of a collection shows the topology of the hardware used by the business service.

When you display the physical topology of a business service, components within that business service that have their own physical topology (business application, business service, or collection) are not be expanded in the topology graph. For example, if your business service contains a business application, that business application is shown as one component. From the topology graph, you can expand that business application individually.

Viewing the physical topology of a business service

To view physical topology of a business service, complete the following steps:

1. In the Product Console, click **Business Services** in the **Discovered Components** list. A business service overview is displayed.
2. Right-click on the business service for which you want to display the topology. A pop-up menu is displayed.
3. From the pop-up menu, click **Show Physical Topology**. A physical topology graph of the business service is displayed in the main window.
4. If the business service displayed in the physical topology graph contains a component that is a business application, business service, or child collection, right-click on the desired component and click **Show Physical Topology**. A physical topology graph for the selected component is displayed.

Using discovery profiles

Discovery profiles give you greater flexibility as you discover your IT environment.

Configuration Discovery and Tracking discovers and collects configuration information for the entire application infrastructure, identifying deployed software components, physical servers, network devices, virtual LAN, and host data used in a runtime environment. You can have more control over what you can discover using the different discovery profiles.

For example, there is a need to control the depth and the breadth of discoveries by configuring individual sensors, managing multiple configurations of the same sensor, picking the appropriate configuration based on a set of criteria, and managing sets of configuration of different sensors to be applied on a single run.

Creating discovery profiles

To create discovery profiles, complete the following steps. When creating discovery profiles, default profiles, default sensors, and default sensor configurations are not editable.

1. In the **Discovery** drawer of the Product Console, click **Discovery Profiles**.
2. In the Discovery Profiles window, click **New**.
3. Type the profile name. The profile name must be unique.
4. (Optional) Type a description for the new profile. The description is displayed on the user interface with the Sensor Configuration and Platform Properties pages.
5. When you create a new profile, you can use an existing profile as a basis. From the **Clone existing profile** list, select an existing profile or select *None*.

   There are three levels of discovery profiles to choose from:

Level 1 Discovery
This profile can be used to perform credential-less discovery. It can be used to discover active computer systems in the runtime environment.

Level 2 Discovery
This profile can be used to discover detailed information about the active computer systems in the runtime environment.

Level 3 Discovery
This profile can be used to discover the entire application infrastructure, deployed software components, physical servers, network devices, virtual LAN, and host data used in a runtime environment.

6. Click **OK**. The discovery profile is created and listed with the other existing profiles. The profiles are listed beside the Sensor Configuration and Platform Properties pages. If you cannot see the profiles, look for a splitter bar beside Sensor Configuration page. Move the splitter bar to see the list of profiles. When you select a profile, the details for the profile are displayed on the Sensor Configuration and Platform Properties pages.

7. On the Sensor Configuration page, select a sensor and you can create, enable, and configure sensors. When you configure a sensor, double-click the value that you want to edit.

   You can add scope restrictions to a sensor. A scope restriction means that when a discovery is performed using a profile, the sensor runs only on the scope configured with this scope restriction. For example, if you want the *WebSphereSensor* for the *ProfileTest* profile to run on the *WebSphereDiscovery* scope set, create a new sensor configuration based on the WebSphere sensor and configure a scope restriction of *WebSphereDiscovery*. When you run the discovery using the *ProfileTest* profile, select the appropriate scope sets (including *WebSphereDiscovery*) and the WebSphere sensors runs only on the WebSphere discovery scope set.

8. On the Platform Properties page, you can add, edit, or delete properties for a platform.

9. Click **Save**.

Changing discovery profiles

To change discovery profiles, complete the following steps:

1. In the **Discovery** drawer of the Product Console, click **Discovery Profiles**.

2. In the Discovery Profiles window, select the profile you want to change. The profiles are listed beside the Sensor Configuration and Platform Properties pages. If you cannot see the profiles, look for a splitter bar beside Sensor Configuration page. Move the splitter bar to see the list of profiles. When you select a profile, the details for the profile are displayed on the Sensor Configuration and Platform Properties pages.

3. On the Sensor Configuration page, select a sensor and you can create, enable, configure, and delete sensors. When you configure a sensor, double-click the value that you want to edit. When you delete sensors, the software does not allow you to delete default sensors.

4. On the Platform Properties page, you can add, edit, or delete properties for a platform.

5. Click **Save**.

Deleting discovery profiles

To delete a discovery profile, complete the following steps:

1. In the **Discovery** drawer of the Product Console, click **Discovery Profiles**.

2. In the Discovery Profiles window, select the profile that you want to delete. You cannot delete a default profile. The profiles are listed beside the Sensor Configuration and Platform Properties pages. If you cannot see the profiles, look for a splitter bar beside Sensor Configuration page. Move the splitter bar to see the list of profiles.

3. Click **Delete**. A confirmation message is displayed.

Scheduling discovery profiles

To create a schedule for a discovery profile, complete the following steps:

1. In the **Discovery** drawer of the Product Console, click **Schedule**.

2. In the Schedule window, click **Add**.

3. On the Details page, complete the following steps:

    a. Type a name.

    b. Select a start date and time.

    c. Select the option for repeating the discovery.

4. On the Scope page, complete the following steps:

    a. Select a scope.

    b. For the scope, set the options.

    c. Select a profile.

5. Click **OK**.

Running a discovery using profiles

To run a discovery using a profile, complete the following steps:

1. In the **Discovery** drawer of the Product Console, click **Overview**.

2. In the Overview window, click **Run Discovery**.

3. Select the scope elements and components.

4. Select a profile.

5. Click **OK**.

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