Tivoli® Business Systems Manager

IBM

Version 3.1

CCMDB Reader for Tivoli Business Systems Manager (3.1.0.1-TIV-BSM-LA0098)

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Contents

Chapter 1. About 3.1.0.1-TIV-BSM-LA0098

This document provides information about 3.1.0.1-TIV-BSM-LA0098. This LA fix includes enhancements to the IBM Tivoli® Business Systems Manager 3.1 product, providing support for the IBM Tivoli CCMDB discovery library.

Become familiar with the information in this document before you install 3.1.0.1-TIV-BSM-LA0098.

Prerequisites

Apply the following Tivoli Business Systems Manager 3.1 fix pack before installing 3.1.0.1-TIV-BSM-LA0098

- 3.1.0-TIV-BSM-FP0001

Refer to the *IBM Tivoli Business Systems Manager Release Notes* Version 3 Release 1, for a description of the hardware and software requirements for IBM Tivoli Business Systems Manager 3.1.

Updating the XML toolkit is not supported on HP operating systems. Contact IBM Service for availability date.

IBM Tivoli CCMDB Reader for Tivoli Business Systems Manager 3.1

The IBM Tivoli CCMDB reader for Tivoli Business Systems Manager 3.1 supports a method for acquiring resource instance and relationship information by interacting with discovery library books that are stored in the IBM Tivoli Change and Configuration Management Database (CCMDB).

The Tivoli Business Systems Manager CCMDB reader also provides a recommended initial discovery process that is independent of the IBM Tivoli Enterprise Console® event flow. Additional relationships provided through the Tivoli Business Systems Manager CCMDB reader enhance the ability of Tivoli Business Systems Manager to dynamically build business system groups and improves visualization of those business systems groups.

3.1.0.1-TIV-BSM-LA0100

If you are using the IBM WebSphere Application Server (Version 5.0.2 or 5.1.1), or IBM WebSphere Application Server Client (Version 5.0.2 or 5.1.1) product, you might be interested in 3.1.0.1-TIV-BSM-LA0100 . This LA fix provides a discovery library adapter for the WebSphere Application Server and WebSphere Application Server client products.

3.1.0.1-TIV-BSM-LA0101

If you are using the Tivoli Monitoring for Transaction Performance product, you might be interested in 3.1.0.1-TIV-BSM-LA0101. This LA fix provides a discovery library adapter for the Tivoli Monitoring for Transaction Performance product.

Chapter 2. Extracting and Installing 3.1.0.1-TIV-BSM-LA0098

After extracting 3.1.0.1-TIV-BSM-LA0098, installation consists of three parts:

1. Updating the Tivoli Business Systems Manager services. This part of the installation requires running setup on each Tivoli Business Systems Manager server that is running one or more of the following services:
   - Tivoli Business Systems Manager console server
   - Tivoli Business Systems Manager SQL Database
   - Common Listener
   - Distributed IBM Tivoli Enterprise Console Listener
   - Health monitor server
2. Updating the Tivoli Business Systems Manager client console
3. Updating the XML toolkit

Extracting the Package File

To extract the package file:

1. Copy the file **3.1.0.1-TIV-BSM-LA0098.tar** to your system.
2. Use the following command to unpack the file.

   ```
   tar -xvf 3.1.0.1-TIV-BSM-LA0098.tar
   ```
3. Unpacking the file creates the following directory and 4 subdirectories:
   - 3101TIVBSMLA0098
     - baseServices
     - Console
     - XMLToolkit
     - Docs
4. Change to the 3101TIVBSMLA0098 directory.

Updating the Services

Updating the Tivoli Business Systems Manager services. This part of the installation requires running setup on each Tivoli Business Systems Manager server that is running one or more of the following services:

- Tivoli Business Systems Manager console server
- Tivoli Business Systems Manager SQL Database
- Common Listener
- Distributed IBM Tivoli Enterprise Console Listener
- Health monitor server

1. Change to the baseServices directory.
2. Type *setup* at the command prompt.
3. When prompted to select a language, select English and click **OK**.
4. Click **Next** on the Welcome screen.
5. If you accept the terms of the license, click the **I accept** radio button, and then click **Next**.

6. Click **Next** after reading the list of services that will be stopped during installation. (If any of the services do not automatically stop, you will be prompted to stop them manually.)

7. Click **Yes** if asked to if you want the existing database to be updated, and then click **Next**.

8. Click **Next** after reading the list of features that will be updated.

9. Click **Finish**.

Note: If the database update fails or if you chose not to update the existing database as part of the installation, do the following steps to update the database:

1. Change to the <tbsm-install-dir>\sql directory.
2. Stop Tivoli Business Systems Manager services.
3. Type sh ApplyUpgrade.ksh 3.1.0.1-TIV-BSM-LA0098.upg
4. Restart services..

Updating the Tivoli Business Systems Manager Client Console

The console server must be updated successfully before updating the Tivoli Business Systems Manager client console. Consoles should be updated as soon as possible after the console server is updated. The console server is updated when the Services are updated.

To update the console:

1. Stop the console.

2. Change to the console directory.

3. Copy files from this limited availability fix to the <tbsm> directory with the following command:

```
xcopy /s/e/r/v/y/f <LA>\console <tbsm>
```

Where <LA> refers to the directory where this limited availability fix resides after you extracted it from the tar file, and <tbsm> is the client console installation directory.

4. Restart the console.

Updating the XML Toolkit

To update the Tivoli Business Systems Manager XML Toolkit:

1. Change to the XMLToolkit directory.

2. Change to the directory that has the appropriate operating system.

   Note: Updating the XML toolkit is not supported on HP operating systems. Contact IBM Service for availability date.

3. Type *setup* at the command prompt.

4. When prompted to select a language, select English and click **OK**.

5. Click **Next** on the Welcome screen.

6. If you accept the terms of the license, click the appropriate button to accept the terms, and then click **Next**.

7. Type the location of the CCMDB library books. (Example: d:/temp/books). Use forward slashes (**/**), Unix—style slashes as shown in the example. Click **Next**.

8. Confirm the directory is the appropriate directory and click **Next**.

Properties of the Tivoli Business Systems Manager CCMDB reader

The Tivoli Business Systems Manager CCMDB reader manages the discovery library file system. The reader is a service that is part of the XMLtoolkit. Properties associated with this service are contained in the **xmltoolkitsvc.properties** file, which is located in the bin directory of the XMLToolkit installation directory. The **xmltoolkitsvc.properties** file contains the following properties:

DL_FileSystem

> The directory that is used by the Tivoli Business Systems Manager CCMDB reader. The discovery library books are located in this directory. The directory name should be fully-qualified and use forward slashes (/). A default directory is not specified.

DL_Interest

> The list of the types of authors that the service should read. This includes the book names, but not the dates. All books with this prefix are read. This is a comma separated list when multiple authors should be read. If all books should be read, specify an asterisk (*). The default value is an asterisk.
>
> **Note:** You can use wildcards in author names. For example, a WebSphere book could be specified as follows:
>
> ```
> WebSphereV5.jdoe2.raleigh.ibm.com.2005-06-22T11.37.00Z.xml
> ```
>
> The author in this example is **WebSphereV5.jdoe2.raleigh.ibm.com**. If there are multiple WebSphere adapters, instead of specifying each one, you can specify **WebSphereV5*** .

DL_Ignore

> The list of authors that should be ignored. This includes the book names, but not the date. All books with this prefix are ignored. Specify NULL if no books should be ignored. The default value is NULL.
>
> **Note:** This property is mutually exclusive of DL_Interest.You can use wildcards in author names. For example, a WebSphere book could be specified as follows:
>
> ```
> WebSphereV5.jdoe2.raleigh.ibm.com.2005-06-22T11.37.00Z.xml
> ```
>
> The author in this example is **WebSphereV5.jdoe2.raleigh.ibm.com**. If there are multiple WebSphere adapters, instead of specifying each one, you can specify **WebSphereV5***.

DL_PollIntervalSeconds

> The number of seconds the service sleeps before checking the discovery library file system for new discovery library books to read. The number is specified in seconds. The minimum value is five seconds. The default value is ten seconds.

DL_Port

> The TCP/IP port that is used to communicate with the common listener. Port 48325 is the default port.

Properties are loaded when the service is started. The service must be restarted before any changes to the properties take effect.

Chapter 3. Administration

This chapter describes administrator tasks for the Tivoli Business Systems Manager CCMDB reader.

Placement of Resources

The **CL_AutoPlacement** table controls the placement of book author resources into the appropriate enterprise. This table works the same as the **GEM_EEhostToEnterprise** table, except that the input into the **CL_AutoPlacement** table is the name of the book author. Information about the **GEM_EEhostToEnterprise** table is located in the *IBM Tivoli Business Systems Manager Administrator's Guide* .

Monitoring

This section describes how the Tivoli CCMDB reader for Tivoli Business Systems Manager provides monitoring information to the health monitor.

Health Monitor Panel

The health monitor panel receives information about the CCMDB reader from the CL_HealthMonitor table. See Table 1 for an example of this information.

Table 1. CL_HealthMonitor table information

Type	Queued Records	Received Records	Pending Transactions	Processing Status	Heap	Time
CCMDB Reader						X
Author Instance						Y

The format of the author instance is dependent upon what is supplied by the author adapter.

To customize this panel, see the **dist_hms_config.sh** command in the *IBM Tivoli Business Systems Manager Command Reference*.

Automated Business Systems (ABS) Enhancements

This section describes enhancements to Automated Business Systems (ABS). These enhancements include the following functions.

- The ABS component can build Business System views based on relationships that exist between physical objects.
- Modifications to the ABS configuration file that provides a set of *view criteria* that enhances the existing ABS functionality to dynamically add and remove resources from the ABS views based on their link relationships. This new functionality is provided by the new BuildBusinessSystem method. The ABS view process job must be enabled for the views to be processed.
- Enabling the capability of dynamically naming business system folders by using the BusinessSystemFolder flag in the Path section.

Updates to the Automated Business Systems Configuration File

Information about the Automated Business Systems (ABS) configuration file is located in the first chapter of the *IBM Tivoli Business Systems Manager Version 3.1, Administrator's Guide*. Information in some of the sections of the Automated Business Systems configuration file has been modified and some sections are new. The following tables describe the contents of the columns for each modified and new section of the ABS configuration file.

Table 2. Configuration File Section: FunctionGroup

Name	Description	Examples
BusinessSystemFolder	Indicates whether this Business System is created as a Business System Folder or not. Any non-null value indicates that it is to be created as a Business System Folder. If this flag is set, then the CriteriaToPath reference is used to name this Business System folder. When specified, the 'Name' column must be null, and any levels greater than the level specified cannot have non null 'Name' columns (in other words, mixing of static and dynamic levels is not allowed).	1

Table 3. Configuration File Section: FunctionGroup

Name	Description	Examples
FunctionGroup	A string value used to identify the group of named functions. Functions in the same group have the same FunctionGroup column value.	Thresholds1 OS Thresholds
FunctionName	The name of the function to be run. This name must match one of the new function sections, and indicates which function type is to be issued. These are the valid values: • AutoCopyEVService • DefineAndUsePBTs • DefineServicesAndLinkToEvUsers • SetSendStateChangeEvent • SetThresholds • SetWeights • BuildBusinessSystem • DeleteBusinessSystem	BuildBusinessSystem
Instance	A string that matches a specific Instance column of the specified FunctionName. It allows multiple instances of multiple sets of parameters to be specified and run.	1 OS Parms

Table 4. Configuration File Section: BuildBusinessSystem

Name	Description	Examples
Instance	A string value used to identify this particular instance of parameters. Must be unique to the section.	IncludeAllNewLinks

Table 4. Configuration File Section: BuildBusinessSystem (continued)

Name	Description	Examples
SeedResources	Specifies the set of seed resources from which to build the view. If the value 'ALL' is specified, then all resources are used; otherwise, the value refers to an instance in the SeedResources section. When 'ALL' is specified, resources that have been added by the BuildBusinessSystem view processing will not be used as SeedResources.	ALL StartList1
LinkTypes	Specifies the set of Class-to-linktype-to-Class tuples to be applied to the view building. The value refers to an instance in the LinkTypes section.	AllNewLinks
EndLevel	An integer value representing the number of child generations from the SeedResources level (level 1) to build the view from. A value of 0 indicates no level limitation. A value of 1 indicates include only the SeedResources. A value of 2 means include the SeedResources resources and any of their children that pass the view criteria.	0
Exclusions	A list of resources to be excluded from the final view list. Also, when these resources are encountered during view generation, their children will NOT be processed. A NULL value indicates no exclusions; otherwise, this value refers to an instance in the Exclusions section.	ExcludeList1
LeafNodes	A list of resources that are to be treated as leaf nodes during view building. A NULL value indicates no artificial leaf nodes; otherwise, this value refers to an instance in the LeafNodes section.	LeafNodeList1
PassThroughNodes	A list of resources that will be processed but not displayed during view children. When a PassThroughNode is encountered during the view generation process, its children will be processed normally, but the PassThroughNode itself will not be added to the view. A NULL value indicates no PassThroughNodes; otherwise this value refers to an instance in the PassThroughNodes section.	PassThroughList1
CustomProc	The execution string for a custom view generation stored procedure, beginning with the stored procedure name and including any stored procedure variables. This procedure will replace the default BuildBusinessSystem view generation procedure. Intended for IBM use only.	alobCustomBuildProcedure @stringVar1 = 'TestValue' @intVar1 = 2

Table 5. Configuration File Section: SeedResources

Name	Description	Examples
Instance	A string value used to identify this particular instance of parameters. May be duplicated to include multiple starting resource seeds.	TargetResources1
Criteria	The identity of the criteria described in the CriteriaToPattern section. This value is an integer. This Criteria must have satisfied the creation of the Business System folder to which this resource will be linked.	1001

Table 5. Configuration File Section: SeedResources (continued)

Name	Description	Examples
Pattern	This integer represents the pattern as seen in CriteriaToPattern for this Criteria. The reference is used to identify the seed resource(s) for building the relationship view.	1

Table 6. Configuration File Section: LinkTypes

Name	Description	Examples
Instance	A string value used to identify this particular instance of parameters. May be duplicated to include multiple link types.	AllNewLinks
OriginClasses	Identifies the origin class(es) for this Class-to-linktype-to-Class tuple. If the value is 'ALL' than any class will serve as the origin class for the link type, else the reference is to an instance in the ClassList section. The origin class is the currently processed class during the view processing. If SourceClasses is specified, then the OriginClasses serves as the destination classes when paired with the SourceClasses and LinkType, and if DestinationClasses is specified, then the OriginClasses serves as the source classes when paired with the DestinationClasses and LinkType. This allows specification of a unidirectional or bi-directional link (if only one of SourceClasses or DestinationClasses is specified, the link tuple is unidirectional, if both are specified, then the link tuple is bi-directional).	All OriginList1
SourceClasses	Identifies the sources class(es) for this Class-to-linktype-to-Class tuple. If the value is 'ALL', any class will serve as the source class for the link type. Otherwise, the reference is to an instance in the ClassList section. May be 'null'.	All SourceList1
LinkType	Four character link type specification.	
DestinationClasses	Identifies the destination class(es) for this Class-to-linktype-to-Class tuple. If the value is 'ALL', any class will serve as the destination class for the link type. Otherwise, the reference is to an instance in the ClassList section. May be 'null'.	All DestinationList1

Table 7. Configuration File Section: ClassList

Name	Description	Examples
Instance	A string value used to identify this particular instance of parameters. May be duplicated to include multiple classes.	SourceClassList1 DestinationClassList2
Class	Class specification	OS

Table 8. Configuration File Section: Exclusions

Name	Description	Examples
Instance	A string value used to identify this particular instance of parameters. May be duplicated to include multiple exclusion resources.	ExclusionList1
Class	The Class ID of the resource to be excluded. This is required.	NODE

Table 8. Configuration File Section: Exclusions (continued)

Name	Description	Examples
ObjectID	The Object identifier of the resource to be excluded. Either ObjectID or InstanceID must be specified. ObjectID overrides InstanceID.	22
InstanceID	The Instance identifier of the resource to be excluded. Either ObjectID or InstanceID must be specified. ObjectID overrides InstanceID.	Some/Random/Instance

Table 9. Configuration File Section: LeafNodes

Name	Description	Examples
Instance	A string value used to identify this particular instance of parameters. May be duplicated to include multiple leaf nodes.	LeafNodes1
Class	The Class ID of the leaf node resource. This is required.	NODE
ObjectID	The Object identifier of the leaf node resource. Either ObjectID or InstanceID must be specified. ObjectID overrides InstanceID.	22
InstanceID	The Instance identifier of the leaf node resource. Either ObjectID or InstanceID must be specified. ObjectID overrides InstanceID.	Some/Random/Instance

Table 10. Configuration File Section: PassThroughNodes

Name	Description	Examples
Instance	A string value used to identify this particular instance of parameters. May be duplicated to include multiple pass through nodes.	PassThroughNodes1
Class	The Class ID of the pass through resource. This is required.	NODE
ObjectID	The Object identifier of the pass through node resource. Either ObjectID or InstanceID must be specified. ObjectID overrides InstanceID.	22
InstanceID	The Instance identifier of the pass through node resource. Either ObjectID or InstanceID must be specified. ObjectID overrides InstanceID.	Some/Random/Instance

Example Automated Business Systems (ABS) Configuration File

Following is a sample ABS configuration file. This sample is not for copying and pasting because an ABS configuration file requires tabs.

```
ABS Sample Configuration file
#

Header
Version
1.3

Pattern
Pattern Class  Attribute  When Operator Operand1 Operand2
1   OS     name    Current LIKE        %          %
2   LPAR    name    Current =          LPAR1      %

CriteriaToPattern
Criteria Pattern PatternRelated
```

```
1001    1       1
1002    2       2

CriteriaToPath
Criteria Path    Level Pattern      Variable    Value       FunctionGroup
1001     SAMP1   2     1             name        <1:name>
1002     SAMP2   2     2             name        <2:name>

Path
Path  Level Name    Description                FunctionGroup BusinessSystemFolder
SAMP1 1     Sample1 All links and all classes
SAMP1 2                                        NewViewMethod 1
SAMP1 3
SAMP2 1     Sample2 Specific Start,Link,and Class  NewViewMethod2
SAMP2 2

FunctionGroup
FunctionGroup    FunctionName         Instance
NewViewMethod    BuildBusinessSystem  AllNewLinks
NewViewMethod2   BuildBusinessSystem  Specific1

BuildBusinessSystem
Instance    SeedResources  LinkTypes     EndLevel Exclusions  LeafNodes
PassThroughNodes CustomProc
AllNewLinks ALL            AllNewLinksClasses 5
Specific1   StartList1     LinkList1              5 ExList1 LeafNodeList1 PassThrough1

SeedResources
Instance    Criteria   Pattern
StartList1  1002       2

LinkTypes
Instance              OriginClasses SourceClasses  LinkType  DestinationClasses
AllNewLinksClasse     ALL           ALL            GENL      ALL
AllNewLinksClasses    Origin1List   ALL            USES      ALL
LinkList1             Origin2List   Source1List    MGEB      Target1List

ClassList
Instance     Class
Origin1List  WNOS
Origin1List  G03D
Origin2List  WNOS
Source1List  G03D
Target1List  G04I


Exclusions
Instance   Class ObjectID   InstanceID
ExList1    OS    33
ExList1    OS               Some/Random/InstanceID

LeafNodes
Instance       Class ObjectID InstanceID
LeafNodeList1  NODE           Some/Random/InstanceID1
LeafNodeList1  OS    32
```

See the *IBM Tivoli Business Systems Manager Administrator's Guide* for more information about the Automated Business Systems configuration file.

Using XML to Create New Business System Views

XML can be used to invoke the BuildBusinessSystem method (as opposed to using the ABS configuration file) to create a BuildBusinessSystem ABS view. The following XML tags are unique to the BuildBusinessSystem method.

<BuildBusinessSystem>
> Method name tag

<BuildView>
> Parameter grouping tag corresponding to the BuildBusinessSystem section of the ABS config file

> **<EndLevel>**
>> Parameter tag corresponding to the EndLevel column of the BuildBusinessSystem section

> **<SeedResources>**
>> Parameter tag corresponding to the SeedResources column of the BuildBusinessSystem section

> **<CustomProc>**
>> Parameter tag corresponding to the CustomProc column of the BuildBusinessSystem section

<SeedResources>
> Parameter grouping tag of the type InstancesType, corresponding to the SeedResources section of the ABS config file

<LinkTypes>
> Parameter grouping tag corresponding to the LinkTypes section of the ABS config file

> **<origin_sInstance>**
>> Parameter tag corresponding to OriginClasses column of the LinkTypes section

> **<src_sInstance>**
>> Parameter tag corresponding to SourceClasses column of the LinkTypes section

> **<LinkType>**
>> Parameter tag corresponding to LinkType column of the LinkTypes section

> **<dest_sInstance>**
>> Parameter tag corresponding to DestinationClasses column of the LinkTypes section

<ClassList>
> Parameter grouping tag corresponding to the ClassList section of the ABS config file

> **<class>**
>> Parameter tag corresponding to Class column of the ClassList section

> **<sInstance>**
>> Parameter tag corresponding Instance column of the ClassList section

<LeafNodes>
> Parameter grouping tag of the type InstancesType, corresponding to the LeafNodes section of the ABS config file

<Exclusions>
> Parameter grouping tag of the type InstancesType, corresponding to the SeedResources section of the ABS

<PassThroughNodes>
> Parameter grouping tag of the type InstancesType, corresponding to the
> SeedResources section of the ABS config file

Following is a sample of invoking the BuildBusinessSystem method using XML.
BuildBusinessSystem **method:**

```
<:?xml version="1.0" encoding="UTF-8"?>:
<:tbsm:xmltoolkit xmlns:tbsm="http://www.ibm.com/tbsmxmltoolkit" xmlns:xsi="http://www.w3.org/
2001/XMLSchema-instance"  xsi:schemaLocation="http://www.ibm.com/tbsmxmltoolkit
file:C:/tbsm31/xml/lob.xsd">:
<:tbsm:methodExecution>:
<:methodgroupdefinitions>:
<:methodgroup>:
 <:instances>:
  <:inst>:
   <:class>:LOB<:/class>:
   <:instid>:LOBC/Sample1<:/instid>:
  <:/inst>:
 <:/instances>:
 <:methods>:
  <:BuildBusinessSystem>:
   <:BuildView>:
    <:EndLevel>:0<:/EndLevel>:
    <:CustomProc>:Custom proc<:/CustomProc>:
   <:/BuildView>:

   <:SeedResources>:
    <:inst>:
     <:class>:WNOS<:/class>:
     <:oid>:1<:/oid>:
    <:/inst>:
   <:/SeedResources>:
   <:SeedResources>:
    <:inst>:
     <:class>:WNOS<:/class>:
     <:oid>:2<:/oid>:
    <:/inst>:
   <:/SeedResources>:
   <:SeedResources>:
    <:inst>:
     <:class>:WNOS<:/class>:
     <:oid>:3<:/oid>:
    <:/inst>:
   <:/SeedResources>:
   <:SeedResources>:
    <:inst>:
     <:class>:WNOS<:/class>:
     <:oid>:4<:/oid>:
    <:/inst>:
   <:/SeedResources>:
   <:SeedResources>:
    <:inst>:
     <:class>:WNOS<:/class>:
     <:oid>:5<:/oid>:
    <:/inst>:
   <:/SeedResources>:

   <:LinkTypes>:
    <:dest_sInstance>:EdsList<:/dest_sInstance>:
    <:link_type>:GEPC<:/link_type>:
    <:origin_sInstance>:EdsList<:/origin_sInstance>:
   <:/LinkTypes>:

   <:ClassList>:
    <:class>:CPTC<:/class>:
    <:sInstance>:EdsList<:/sInstance>:
```

```
<:/ClassList>:
<:ClassList>:
 <:class>:SOSC<:/class>:
 <:sInstance>:EdsList<:/sInstance>:
<:/ClassList>:
<:ClassList>:
 <:class>:WNOS<:/class>:
 <:sInstance>:EdsList<:/sInstance>:
<:/ClassList>:

<:LeafNodes>:
 <:inst>:
  <:class>:CPTC<:/class>:
  <:instid>:cdm:Manufacturer=IBM+cdm:Model=eserver
xSeries 232 -[866822X]-+cmd:SerialNumber=78ZXZ35<:/instid>:
 <:/inst>:
<:/LeafNodes>:
<:LeafNodes>:
 <:inst>:
  <:class>:CPTC<:/class>:
  <:oid>:22<:/oid>:
 <:/inst>:
<:/LeafNodes>:
<:LeafNodes>:
 <:inst>:
  <:class>:CPTC<:/class>:
  <:oid>:28<:/oid>:
 <:/inst>:
<:/LeafNodes>:
<:LeafNodes>:
 <:inst>:
  <:class>:CPTC<:/class>:
  <:instid>:cdm:Manufacturer=IBM+cdm:Model=eserver xSeries 232
-[866822X]-+cmd:SerialNumber=78ZXZ53<:/instid>:
 <:/inst>:
<:/LeafNodes>:
<:LeafNodes>:
 <:inst>:
  <:class>:CPTC<:/class>:
  <:oid>:5<:/oid>:
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<:/LeafNodes>:
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 <:inst>:
  <:class>:CPTC<:/class>:
  <:oid>:6<:/oid>:
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<:/LeafNodes>:
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  <:class>:CPTC<:/class>:
  <:oid>:9<:/oid>:
 <:/inst>:
<:/LeafNodes>:
<:LeafNodes>:
```

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    <:oid>:12<:/oid>:
   <:/inst>:
  <:/LeafNodes>:
  <:LeafNodes>:
   <:inst>:
    <:class>:CPTC<:/class>:
    <:oid>:13<:/oid>:
   <:/inst>:
  <:/LeafNodes>:

  <:PassThroughNodes>:
   <:inst>:
    <:class>:CPTC<:/class>:
    <:oid>:13<:/oid>:
   <:/inst>:
  <:/PassThroughNodes>:
  <:PassThroughNodes>:
   <:inst>:
    <:class>:CPTC<:/class>:
    <:instid>:cdm:Manufacturer=IBM+cdm:Model=eserver xSeries 232
-[866822X]-+cmd:SerialNumber=78ZXZ53<:/instid>:
   <:/inst>:
  <:/PassThroughNodes>:


 <:/BuildBusinessSystem>:
 <:/methods>:
<:/methodgroup>:

<:methodgroup>:
 <:instances>:
  <:inst>:
   <:class>:LOB<:/class>:
   <:instid>:LOBC/Sample2<:/instid>:
  <:/inst>:
 <:/instances>:
 <:methods>:
  <:BuildBusinessSystem>:
   <:BuildView>:
    <:EndLevel>:1<:/EndLevel>:
    <:SeedResources>:ALL<:/SeedResources>:
   <:/BuildView>:

   <:!-- Linktypes -->:
   <:LinkTypes>:
    <:dest_sInstance>:Target1List<:/dest_sInstance>:
    <:link_type>:MGEB<:/link_type>:
    <:origin_sInstance>:Source1List<:/origin_sInstance>:
   <:/LinkTypes>:
   <:LinkTypes>:
    <:link_type>:GEPC<:/link_type>:
    <:origin_sInstance>:Target1List<:/origin_sInstance>:
    <:src_sInstance>:Source1List<:/src_sInstance>:
   <:/LinkTypes>:

   <:!-- ClassList -->:
   <:ClassList>:
    <:class>:CPTC<:/class>:
    <:sInstance>:Source1List<:/sInstance>:
   <:/ClassList>:
   <:ClassList>:
    <:class>:WNOS<:/class>:
    <:sInstance>:Target1List<:/sInstance>:
   <:/ClassList>:
```

```
<:!-- LeaftNodes -->:
<:LeafNodes>:
 <:inst>:
  <:class>:WNOS<:/class>:
  <:instid>:PrimaryFQHostname=migrator9.tivlab.raleigh.ibm.com<:/instid>:
 <:/inst>:
<:/LeafNodes>:
<:LeafNodes>:
 <:inst>:
  <:class>:WNOS<:/class>:
  <:oid>:5<:/oid>:
 <:/inst>:
<:/LeafNodes>:

<:!-- Exclusions -->:
<:Exclusions>:
 <:inst>:
  <:class>:CPTC<:/class>:
  <:oid>:16<:/oid>:
 <:/inst>:
<:/Exclusions>:
<:Exclusions>:
 <:inst>:
  <:class>:CPTC<:/class>:
  <:oid>:11<:/oid>:
 <:/inst>:
<:/Exclusions>:
<:Exclusions>:
 <:inst>:
  <:class>:CPTC<:/class>:
  <:instid>:cdm:Manufacturer=IBM+cdm:Model=eserver xSeries 232
-[866822X] -+cmd:SerialNumber=78ZXV41<:/instid>:
 <:/inst>:
<:/Exclusions>:

 <:/BuildBusinessSystem>:
<:/methods>:
<:/methodgroup>:

<:/methodgroupdefinitions>:
<:/tbsm:methodExecution>:

<:/tbsm:xmltoolkit>:
```

Using XML to Delete New Business System Views

XML can be used to invoke the DeleteBusinessSystem method to delete an existing BuildBusinessSystem view.

The following XML tag is unique to the DeleteBusinessSystem method:

<DeleteBusinessSystem>
        Method name tag

Following is a sample of invoking the *DeleteBusinessSystem* method using XML.
```
<:?xml version="1.0" encoding="UTF-8"?>:
<:tbsm:xmltoolkit xmlns:tbsm="http://www.ibm.com/tbsmxmltoolkit"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance"  xsi:schemaLocation="http://www.ibm.com/tbsmxmltoolkit
file:C:/tbsm31/xml/lob.xsd">:

<:tbsm:methodExecution>:
<:methodgroupdefinitions>:

 <:methodgroup>:
  <:instances>:
```

```
    <:inst>:
     <:class>:LOB<:/class>:
     <:instid>:LOBC/Sample1<:/instid>:
    <:/inst>:
   <:/instances>:
   <:methods>:
    <:DeleteBusinessSystem>:<:/DeleteBusinessSystem>:
   <:/methods>:
  <:/methodgroup>:

<:/methodgroupdefinitions>:
<:/tbsm:methodExecution>:

<:/tbsm:xmltoolkit>:
```

Dependency View

The IBM Tivoli CCMDB Reader for Tivoli Business Systems Manager provides a view that shows dependency relationships for any managed resource in the Tivoli Business Systems Manager database. The view shows dependencies out to a default number of hops from the starting resource. The view supports the **More Detail** function, which adds additional hops to the view at the request of the user. This view behaves similarly to the current general topology view, except dependency relationships are shown instead of containment relationships.

The dependency view is launched from the context menu of a resource in any Tivoli Business Systems Manager view, including another topology view. If no dependency relationship exists for the starting resource, the view returns only the starting resource. For a Tivoli Business Systems Manager business system resource (a business system linked to a physical resource), the view uses the linked physical resource as the starting resource for the view.

Business System Dependency View

The CCMDB Reader for Tivoli Business Systems Manager provides a business system dependency view that shows dependency relationships among peer business systems. The view is modeled after the current Business System topology view, but the view also shows *aggregate* relationships. Aggregate relationships are relationships that exist between the descendants of two business systems.

You can open this view from the context menu of a business system resource in any Tivoli Business Systems Manager view, including another topology view. The view contains at least the immediate child business systems as nodes, even if no dependency relationships exist. If the starting business system has no child resources, the topology view displays a message indicating the view is empty and closes the view. If the starting resource is a business system resource, a dependency view (as described in "Dependency View") will be shown instead of a business system dependency view.

For each immediate child business system, a link is drawn between it and any sibling business system to which it has a direct link, or to which any of its descendants has a link to any of the sibling business systems or any of its descendants.

Mapping Events to the CCMDB Reader for Tivoli Business Systems Manager

In Tivoli Business Systems Manager, status is driven by events (exceptions and messages) that are associated with resources, and the propagation of the status that results from those events throughout business systems. Because neither event nor status information flows with the resource and relationship information contained within the CCMDB reader books, events that are forwarded through IBM Tivoli Enterprise Console must be associated with CCMDB reader book resources to begin the propagation and status process.

This section explains how to map Tivoli Enterprise Console events to CCMDB reader book resources.

Tivoli Business Systems Manager / Tivoli Enterprise Console Interface

The following diagram depicts event flow from Tivoli Enterprise Console to Tivoli Business Systems Manager. Numbers in the diagram represent the sequence of event flow for the mapping of events to discovery library resources.
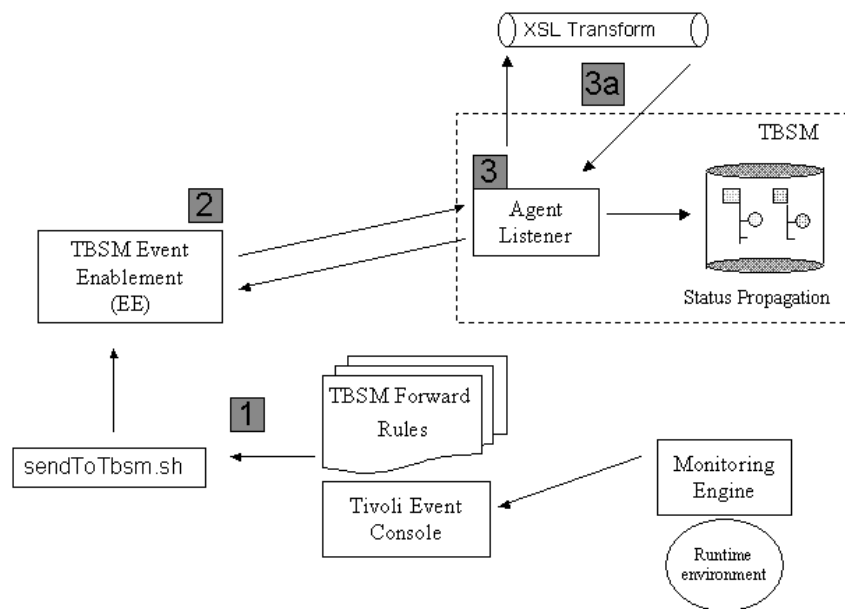
Step 1. Tivoli Enterprise Console events are prepared to be forwarded to Tivoli Business Systems Manager through a Tivoli Enterprise Console rule and, optionally an event processing script such as the Tivoli Business Systems Manager sample script, *sentToTbsm.sh*. The rule and or the script standardize the contents of the event to appropriately identify the resource class and resource instance.

Step 2. After standardizing the event, the event is passed onto the Tivoli Business Systems Manager Event Enablement component which is then responsible for guaranteeing its delivery to the Tivoli Business Systems Manager server systems.

Step 3. The Tivoli Business Systems Manager Agent Listener receives the standardized events from one or more Event Enablement components and begins

the process of creating the resource if it does not already exist within the Tivoli Business Systems Manager database, and assigning the event to the resource for status and propagation services. However, at this point, the event does not highlight the identifiers that would allow it to be associated with a resource that was discovered through the discovery llibrary book. This step must be enhanced to allow logic to be included that understands how to identify and format the key parts of the event that will enable it to be mapped to the correct resource. This new step is called the *event transformation process*.

Step 3a. The event transformation process is very similar in nature to the process that takes place in Step 1, except that its goal is to identify the resource discovered through the discovery library book rather than to provide the resource creation and event information that is common in Step 1. By centralizing the process of the event transformation to the Tivoli Business Systems Manager Agent Listener component, Tivoli Business Systems Manager has avoided distributing the unnecessary complexity out to the Tivoli Enterprise Console systems.

The Event Transform Process. The goal of the new event transform process is to add information into the event flow that identifies a target discovery library resource. Although the event likely carries the information used to identify the resource, it is not in a well known slot (Tivoli Enterprise Console uses the term *slot* to represent the identifying keyword in its keyword/value structure) that Tivoli Business Systems Manager could act upon. Therefore event transformation rules must be put in place to extract and manipulate the information within an event and provide it to the Tivoli Business Systems Manager event mapping process.

Tivoli Business Systems Manager uses the Extensible Stylesheet Language (XSL) as the transform language because XSL is a standard that provides powerful XML document manipulation capabilities and an ability to extend its features beyond initial limitations that might arise. (XSL references, tutorials, and samples can be found throughout the Web by using a favorite search engine and the search words 'xsl reference tutorial sample.')

Input to the transform. The XSL transform receives the incoming event in the XML format (shown in the example that follows). Both the original Tivoli Enterprise Console event and the Tivoli Business Systems Manager standardized event information is made available to the transform through the *<tbsmt:tec>* and *<tbsmt:tbsmc>* elements.

The *<tbsmt:tec>* tag encloses the slot=value pairs found in the original Tivoli Enterprise Console event. Each element is a slot name, and the value enclosed within the element is the slot value. The *<tbsm:tbsm>* element encloses keyword=value pairs for each of the ihstttec input arguments, as well as other information that is collected by the Tivoli Business Systems Manager event enablement component. The element name equates to a flag on the ihstttec command, and the value is the flag's value. The following XML document is an example; the actual contents of the event XML document varies with each type of Tivoli Enterprise Console event class and each invocation of the ihstttec command.

```
<tbsmt:tbsmt>
<tbsmt:event>
<tbsmt:tbsm>
<class>value</class>
<InstanceID>value</InstanceID>
<name>value</name>
<PreviousDisplayName>value</PreviousDisplayName>
<probetype>value</probetype>
<probeid>value</probeid>
```

```
<probename>value</probename>
<probeargs>value</probeargs>
<severity>value</severity>
<tbsmslot1>value</tbsmslot1>
<tbsmslot2>value</tbsmslot2>
<msg>value</msg>
<EEhost>value</EEhost>
<ostype>value</ostype>
<TCPHost>value</TCPHost>
<TCPHost_211>value</TCPHost_211>
<EPTTMR>value</EPTTMR>
<hostname>value</hostname>
<Data1>value</Data1>
<Data2>value</Data2>
<Data3>value</Data3>
<Data4>value</Data4>
<time>value</time>
<eventhandle>value</eventhandle>
<serverhandle>value</serverhandle>
<datereception>value</datereception>
<tecclass>value</tecclass>
<status>value</status>
<admin>value</admin>
<isstatus>value</isstatus>
<msgtype>value</msgtype>
<HeartbeatInterval>value</HeartbeatInterval>
<desc>value</desc>
<placement>value</placement>
<append211>value</append211>
</tbsmt:tbsm>
<tbsmt:tec>
<EVENT_CLASS>nameofTECClass</ EVENT_CLASS > <SlotName>vaue</SlotName>
<SlotName>value</SlotName>
.
. (other tec event slot pairs)
.
<SlotName>value</SlotName>
</tbsmt:tec>
</tbsmt:event>
</tbsmt:tbsmt>
```

Output of the transform. The purpose of the XSL transform is to determine if and how the input event maps to a Tivoli Business Systems Manager discovered library resource; it must then communicate the additional event information by outputting the original XML event and include new element tags as part of the <tbsmt:tbsm> element. The new tags are:

- <cdmclass> : Lists the Tivoli Business Systems Manager resource class, or classes, of the target resource instance. The value of this element is of the form *cid* or *cname* when mapping the event to a single class or *;cid;cid;cid;* when Tivoli Business Systems Manager should look at multiple classes to find a matching resource. cid and cname are names that Tivoli Business Systems Manager uses to identify resource classes.

- <alias>: Contains a set of elements that provide identifiers that are used to find the instance of the resource class specified within the <cdmclass>. The contents of the <alias> tag are a set of elements (up to 5 elements) of the form <keyword>value</keyword> where keyword is the string token that identifies the scope of values that the new value will be matched against.

For example, if a transform added the following elements to an event:

```
<cdmclass>WNOS</cdmclass>
<CL_InstID>PrimaryFQHostname=websystem.company.com</CL_InstID>
```

Tivoli Business Systems Manager would associate this event with the Tivoli Business Systems Manager discovery library Windows operating system class resource whose CL_InstID identifier, the main identifier, matches the value PrimaryFQHostname=websystem.company.com.

The following XML is sample output from an event transform. The text marked in bold is text that was added by the transform to associate the event to the discovery library resource.

```
<tbsmt:tbsmt>
<tbsmt:event>
<tbsmt:tbsm>
<class>value</class>
<InstanceID>value</InstanceID>
<name>value</name>
<PreviousDisplayName>value</PreviousDisplayName>
<probetype>value</probetype>
<probeid>value</probeid>
<probename>value</probename>
<probeargs>value</probeargs>
<severity>value</severity>
<tbsmslot1>value</tbsmslot1>
<tbsmslot2>value</tbsmslot2>
<msg>value</msg>
<EEhost>value</EEhost>
<ostype>value</ostype>
<TCPHost>value</TCPHost>
<TCPHost_211>value</TCPHost_211>
<EPTTMR>value</EPTTMR>
<hostname>value</hostname>
<Data1>value</Data1>
<Data2>value</Data2>
<Data3>value</Data3>
<Data4>value</Data4>
<time>value</time>
<eventhandle>value</eventhandle>
<serverhandle>value</serverhandle>
<datereception>value</datereception>
<tecclass>value</tecclass>
<status>value</status>
<admin>value</admin>
<isstatus>value</isstatus>
<msgtype>value</msgtype>
<HeartbeatInterval>value</HeartbeatInterval>
<desc>value</desc>
<placement>value</placement>
<append211>value</append211>
<cdmclass>cid</cdmclass> or  <cdmclass>;cid;cid;cid;</cdmclass>
<alias>
 <keyword>value</keyword>
 <keyword>value</keyword>
 <keyword>value</keyword>
 <keyword>value</keyword>
 <keyword>value</keyword>
</alias>
</tbsmt:tbsm>
<tbsmt:tec>
<tbsmt:tec>
<EVENT_CLASS>nameofTECClass</ EVENT_CLASS > <SlotName>vaue</SlotName>
<SlotName>value</SlotName>
.
. (other tec event slot pairs)
.
<SlotName>value</SlotName>
```

```
</tbsmt:tec>
</tbsmt:tec>
</tbsmt:event>
</tbsmt:tbsmt>
```

A Sample Transform. Included in the
<tbsm_installdir>/AgentListener/sample/xml directory is a sample XSL transform
that is meant to help with understanding the transformation process as well as
provide a base to build the event transforms upon. It is named
TBSMDLMapping.xsl and uses an xml file, TBSMDLClassMap.xml, to capture
information that is used in the transformation process. Included in the transform
itself is extensive explanation within the XSL comment tags - <!- - help information
- - > that will help building the appropriate transform for any set of events.

The next section discusses in detail how to appropriately set the class and resource
identifiers.

Tivoli Business Systems Manager Discovery Library Classes and Identifiers

Previous sections discussed the mechanics of how the Agent Listener process is
extended to add information into an event to allow it to be correlated with a
resource instance that was discovered through a discovery library book. This
section provides the information that will allow the author of the transform to
identify what information needs to be added to the event to actually make the
event correlate with the right resource.

Resource Identifiers. Discovery Library resource instances are identified in Tivoli
Business Systems Manager as a set of keyword/value pairs that are can be
represented in an XML format:

```
<keyword>identifier string value</keyword>
```

where *keyword* provides a descriptive word that categorizes the identifier string so
that identifier strings do not accidentally match across their intended scope. The
keyword **CL_InstID** is the primary identifier keyword that is used to uniquely
identify the resource instance within its class. Other keywords, and their values,
may or may not uniquely identify the resource across all resource instances under
all circumstances. One other keyword deserves special attention. It is named
MSS_SourceId. It categorizes the identifier string value as a unique identifier used
by the discovery library book author. This identifier could come in handy if the
discovery library book author also emits events that need to be correlated to the
resource instance.

Accessing Resource Identifiers within Tivoli Business Systems Manager. The
following query, executed against the Tivoli Business Systems Manager database
after a discovery library book has been loaded, outputs a list of discovery library
resources and the instance identifier strings that are used for each one. This is the
best way for determining the desired output of the event transform.

Table 11. SQL query used to list resources, classes, and identifiers

```
USE Object      --- specifies the database the query should run against
GO


--- This first query joins to the ObjPathCache to return the name and paths of the resource
---   However, because of the join and the possibility of a multiple paths for a given
---   resource the second query is provided to just list the identifiers and resource name
--- without the paths
SELECT TOP 3000 c.cid as cid, c.oid as id, '<cdmclass>'+o.cname+'|'+o.cid+'</cdmclass>' as tbsm_cdmclass
      ,'<'+c.keyword+'>' + c.value + '</'+c.keyword+'>' as Identifier
      , obj.resource as Name, obj.resourcepath as Path
   FROM      CL_IDCache as c
     JOIN obj_class as o ON c.cid=o.cid
     JOIN ObjPathCache as obj ON c.cid=obj.cid and c.oid=obj.id
     WHERE c.cid in (SELECT cid FROM isa_chain WHERE base_cid='CDMC')
ORDER BY c.cid, c.oid


--- Leave out paths of resources that will significantly cut down the number of
--- duplicates
SELECT DISTINCT TOP 3000   c.cid as cid, c.oid as id, '<cdmclass>'+o.cname+'|'+o.cid+'</cdmclass>' as tbsm_cdmclass
      ,'<'+c.keyword+'>' + c.value + '</'+c.keyword+'>' as Identifier
      , obj.resource as Name
   FROM      CL_IDCache as c
     JOIN obj_class as o ON c.cid=o.cid
     JOIN ObjPathCache as obj ON c.cid=obj.cid and c.oid=obj.id
     WHERE c.cid in (SELECT cid FROM isa_chain WHERE base_cid='CDMC')
ORDER BY c.cid, c.oid
```

These queries contain a TOP expression that limits the number of rows that will be returned. The output of these queries provides the following information:

cid   The internal 4 character class identifier used in Tivoli Business Systems Manager

id   Tivoli Business Systems Manager identifier, along with the cid, that uniquely identifies a resource instance in Tivoli Business Systems Manager.

tbsm_cdmclass
The Tivoli Business Systems Manager class name associated with this resource

Identifier
The resource identifiers associated with the resource instance

Name   The name of the resource within Tivoli Business Systems Manager

Path   The resource path name of the resource. The path can be used to find the resource in the Tivoli Business Systems Manager 'All Resources' view.

The following table provides a summary of the types of discovery library book classes, the classes that are created in Tivoli Business Systems Manager, and the function for creating the main (CL_InstID) identifier for the class. Italicized items shown in the **Identifiers** column are replaced with the actual value of that particular resource attribute from the discovery library book.

Note: Because of formatting constraints, information in some of the columns in the table is displayed on more than one line of text. Information in the columns should be one line of text, with no spaces.

Discovery Library Common Data Model (CDM) Class	Tivoli Business Systems Manager Class	Identifiers
cdm:ComputerSystem	Computer1	<CL_InstID>cdm:Manufacturer=*CS.Manufacturer*+cdm:Model=*CS.Model*+cmd:SerialNumber =CS.*SerialNumber*</CL_InstID><CL_InstID>cdm:PrimaryMACAddress= *CS.PrimaryMACAddress*</CL_InstID>

Discovery Library Common Data Model (CDM) Class	Tivoli Business Systems Manager Class	Identifiers
cdm:OperatingSystem	OperatingSystem1, WinOperatingSystem, UnixOperatingSystem	<CL_InstID>PrimaryFQHostname=*OS.PrimaryFQHostname*</CL_InstID>
cdm:Web.ApacheServer	ApacheServer	<CL_InstID>*FullyQualifiedHostname:PrimaryPort*<CL_InstID>
cdm:Web.WebServer	WebServer	<CL_InstID>*FullyQualifiedHostname:PrimaryPort*<CL_InstID>
cdm:FileSystemService	FSSSrv	<CL_InstID>*ServiceName@FullyQualifiedHostname@PrimaryPort*<CL_InstID>
cdm:DNS	DNSSrv	<CL_InstID>*ServiceName@FullyQualifiedHostname@PrimaryPort*<CL_InstID>
cdm:LDAP	LDAPSrv	<CL_InstID>*ServiceName@FullyQualifiedHostname@PrimaryPort*<CL_InstID>
cdm:SMTPService	SMTPSrv	<CL_InstID>*ServiceName@FullyQualifiedHostname@PrimaryPort*<CL_InstID>
cdm:ActiveDirectory	ACTDSrv	<CL_InstID>*ServiceName@FullyQualifiedHostname@PrimaryPort*<CL_InstID>
cdm:Service	Service	<CL_InstID>*ServiceName@FullyQualifiedHostname@PrimaryPort*<CL_InstID>
cdm:Web.WebSphereDeploymentManager	DeployMgr	<CL_InstID> cdm:Web.WebSphereDeploymentManager +*CellName*+*NodeName*<CL_InstID>
cdm:Web.WebSphereNodeAgent	NodeAgent	<CL_InstID> cdm:Web.WebSphereNodeAgent +*CellName*+*NodeName*<CL_InstID>
cdm:Web.WebSphereApplicationServer	WASServer	<CL_InstID>*CellName*+*NodeName*+*Servername*<CL_InstID>
cdm:Web.WebSphereCluster	WSCluster	<CL_InstID>*ClusterName@ DomainName*</CL_InstID><CL_InstID>*ClusterName*</CL_InstID>
cdm:Web.WebSphereCell	WSCell	<CL_InstID>cdm:Web.WebSphereCell+*WC.CellName*</CL_InstID>
cdm:Web.WebLogicServer	WebLogicServer	<CL_InstID>*FullyQualifiedHostname:PrimaryPort*</CL_InstID> <CL_InstID>cdm:*Executablename@FullyQualifiedHostname*</CL_InstID>
cdm:Web.JBossCluster	JBossCluster	<CL_InstID>cdm:*ClusterName*+cdm:*ClusterAddress*</CL_InstID> <CL_InstID>cdm:*ReplicationGroupName*+cdm:*ClusterAddress*</CL_InstID> <CL_InstID>cdm:*ClusterNames*</CL_InstID><CL_InstID>cdm:*ClusterAddress*</CL_InstID> <CL_InstID>cdm:*ReplicationGroupName*</CL_InstID>
cdm:Web.WebLogicCluster	WebLogicCluster	<CL_InstID>cdm:*ClusterName*+cdm:*ClusterAddress*</CL_InstID> <CL_InstID>cdm:*ReplicationGroupName*+cdm:*ClusterAddress*</CL_InstID> <CL_InstID>cdm:*ClusterNames*</CL_InstID> <CL_InstID>cdm:*ClusterAddress*</CL_InstID> <CL_InstID>cdm:*ReplicationGroupName*</CL_InstID>
cdm:SoftwareComponent	SoftwareSystem	<CL_InstID>cdm:SoftwareComponent+cdm:ExecutableName=*cdm:ExecutableName:cdm:ExecutionContext= cdm:ExecutionContext:OperatingSystemIdentifier*</CL_InstID> <CL_InstID>*cdm:SoftwareComponent*+cdm:ExecutableName= *cdm:ExecutableName:OperatingSystemIdentifier*</CL_InstID>
cdm:GenericApplication	SoftwareSystem	<CL_InstID>cdm:GenericApplication+cdm:ApplicationName= *cdm:ApplicationName:OperatingSystemIdentifier*</CL_InstID>
cdm:RoutingService	Router	<CL_InstID>*ServiceName*+*FullyQualifiedHostname*</CL_InstID> <CL_InstID>cdm:*RoutingService*+*FullyQualifiedHostname*</CL_InstID>
cdm:SwitchingService	Switch	<CL_InstID>*ServiceName*+*FullyQualifiedHostname*</CL_InstID> <CL_InstID>cdm:*SwitchingService*+*FullyQualifiedHostname*</CL_InstID>
cdm:FirewallService	Firewall	<CL_InstID>*ServiceName*+*FullyQualifiedHostname*</CL_InstID> <CL_InstID>cdm:FirewallService+*FullyQualifiedHostname*</CL_InstID>
cdm:BridgingService	Bridge	<CL_InstID>*ServiceName*+*FullyQualifiedHostname*</CL_InstID> <CL_InstID>cdm:BridgingService+*FullyQualifiedHostname*</CL_InstID>
cdm:VLANBridge	VLANBridge	<CL_InstID>*ServiceName*+*FullyQualifiedHostname*</CL_InstID> <CL_InstID>cdm:VLANBridge+*FullyQualifiedHostname*</CL_InstID>
cdm:LoadBalancingService	LoadBalancer	<CL_InstID>*ServiceName*+*FullyQualifiedHostname*</CL_InstID> <CL_InstID>cdm:LoadBalancingService+*FullyQualifiedHostname*</CL_InstID>
cdm:VirtualIPService	VirtualIP	<CL_InstID>*ServiceName*+*FullyQualifiedHostname*</CL_InstID> <CL_InstID>cdm:VirtualIPService+*FullyQualifiedHostname*</CL_InstID>
cdm:LAN	LAN	<CL_InstID>cdm:AddressSpace=*cdm:AddressSpace*</CL_InstID>
cdm:VLAN	VLAN	<CL_InstID>cdm:VLANNumeric=*cdm:VLANNumeric*</CL_InstID>
cdm:Subnetwork	Subnet	<CL_InstID>cdm:IPv4Address=*cdm:IPv4Address*</CL_InstID>
cdm:ReplicationGroup	SoftwareCluster	<CL_InstID>*cdm:ReplicationGroupName*</CL_InstID>
cdm:Database.OracleCluster	OracleCluster	<CL_InstID>*cdm:ClusterName*</CL_InstID>
cdm:Database.OracleInstance	OracleInstance	<CL_InstID>*cdm:Executablename@FullyQualifiedHostname*</CL_InstID>
cdm:Database.DB2Instance	DB2Instance	<CL_InstID>cdm:DB2InstanceName+FullyQualifiedHostname</CL_InstID>
cdm:Database.DB2AdminServer	DB2AdminSrv	DB2AdminServer@*FullyQualifiedHostname:cdm.PrimaryPort*
cdm:HPUX	UnixOperatingSystem	<CL_InstID>PrimaryFQHostname=*OS.PrimaryFQHostname*</CL_InstID>
cdm:Linux	UnixOperatingSystem	<CL_InstID>PrimaryFQHostname=*OS.PrimaryFQHostname*</CL_InstID>
cdm:Solaris	UnixOperatingSystem	<CL_InstID>PrimaryFQHostname=*OS.PrimaryFQHostname*</CL_InstID>
cdm:Unix	UnixOperatingSystem	<CL_InstID>PrimaryFQHostname=*OS.PrimaryFQHostname*</CL_InstID>
cdm:Windows	WinOperatingSystem	<CL_InstID>PrimaryFQHostname=*OS.PrimaryFQHostname*</CL_InstID>
cdm:Web.IISServer	WebServer	<CL_InstID>*FullyQualifiedHostname:PrimaryPort*<CL_InstID>
cdm:Web.J2EEApplication	J2EEApplication	<CL_InstID>cdm:*ApplicationName*+J2EEServerCL_InstID</CL_InstID>
cdm:Web.WebSphereJ2EEApplication	J2EEApplication	<CL_InstID>cdm:*ApplicationName*+J2EEServerCL_InstID</CL_InstID>
Web.IBMHTTPServer	IBMHTTPSrv	<CL_InstID>*FullyQualifiedHostname:PrimaryPor*t</CL_InstID>

Discovery Library Common Data Model (CDM) Class	Tivoli Business Systems Manager Class	Identifiers
cdm:Web.IPlanetServer	IPlanetServer	<CL_InstID>*FullyQualifiedHostname:PrimaryPort*</CL_InstID> <CL_InstID>*cdm:Executablename@FullyQualifiedHostname*</CL_InstID>
cdm:Web.J2EEServer	J2EEServer	<CL_InstID>*FullyQualifiedHostname:PrimaryPort*</CL_InstID> <CL_InstID>*cdm:Executablename@FullyQualifiedHostname*</CL_InstID>

Testing the Event Transform

The Java runtime environment and XSL engine that ships with Tivoli Business Systems Manager can be used to test your event transform before placing it into the Agent Listener processing path. The following command provides a test harness for executing the event transform.

tbsminstalldir\w32-ix86\jre\bin\java org.apache.xalan.xslt.Process -DIAG -FLAVOR s2s -IN eventfilename.type -XSL TBSMDLMapping.xsl -OUT transformed.eventfilename.type

where

tbsminstalldir
Base directory where Tivoli Business Systems Manager is installed

eventfilename.type
Name of the file that contains the XML event to be transformed

TBSMDLMapping.xsl
Name of the file that contains the transform schema

To use the command:

1. Create a folder on the same Tivoli Business Systems Manager machine that the Tivoli Business Systems Manager Agent Listener is installed on.
2. Create a file that contains one or more events to be transformed. Place the file in the folder.
3. Create the XSL transform to be tested and place it and any dependent files in the folder (if you are testing the Tivoli Business Systems Manager sample transform, place TBSMDLMapping.xsl and TBSMtoDLClassMap.xml files in the folder)
4. Go to a command window with the folder as the current directory and issue the command above being sure to first replace the italicized parts.

Although this is one way to test the new event transform, there are a number of development environments, including IBM's Rational Application Developer, that ease the writing and testing of transforms.

Defining the Event Transform to the Agent Listener

The Tivoli Business Systems Manager Agent Listener does not invoke the event transform process until the following steps are taken:

1. Name the new event transform TBSMDLMapping.xsl
2. Place the new transforms and supporting files into the tbsminstalldir/AgentListener/xml directory.
3. Open a shell command line to the tbsminstalldir/AgentListener directory.
4. Execute the alpropevmap.ksh command to adds a property to the AgentListener.properties file by the name of EventMappingXmlSchemaLocation.
5. Open the ASIAgentListener.properties file and ensure that the EventMappingXmlSchemaLocation property is set to the

tbsminstalldir/AgentListener/xml directory and that it is not commented out (remove the '#' if it is the first character on the line with this property).

6. Stop and start the Agent Listener service. Because the Agent Listener loads the transform at start up, it must be recycled whenever the transform is changed.

If the Agent Listener service has problems with the transform, information is logged in its log files. These log files are located in tbsminstalldir/logs and have the file names traceGTM_AL.log and msgGTM_AL.log.

Chapter 4. Commands

This chapter describes the new and updated commands that support the IBM Tivoli CCMDB reader for Tivoli Business Systems Manager.

cdmgenprod

Purpose

Enables the definition of software subsystems.

Syntax

```
►►──cdmgenprod─────────────────┬──-E──────────────────────────────── -c tbsmClass────────────────►
                  └─-S server─┘  └─-U user -P password─┘

►─── -x xmlTag── -v xmlTagValue──────────────────────────────────────────────────────────────►◄
                                └─-i icon─┘
```

Parameters

-S *server*
> Specifies the SQL Server host name.

-U *userid*
> Specifies the SQL Server userid.

-P *password*
> Specifies the SQL password.

-E trusted

-c *tbsmClass*
> Specifies the name of the software subsystem class. This will be the cname of the newly created Tivoli Business Systems Manager class.

-x *xmlTag*
> Specifies the XML tag that is checked.

-v *xmlTagValue*
> The value of the xml tag specified by the **–x** flag. If the incoming XML has the tag specified by **–x**, and the value specified by **–v**, then the class specified by **–c** will be used.

-i *icon*
> Specifies the icon associated with the new class. If the **–i** flag is not specified, then a default icon is associated with the class. An icon can be later associated using the **loadgemicons** script.

Examples

Creates a software element extension with a class name of VendingApplication. Resources with the XML tag type and value vendor will be mapped to the VendingApplication class:

```
cdmgenprod –E –c VendingApplication –x type –v vendor
```
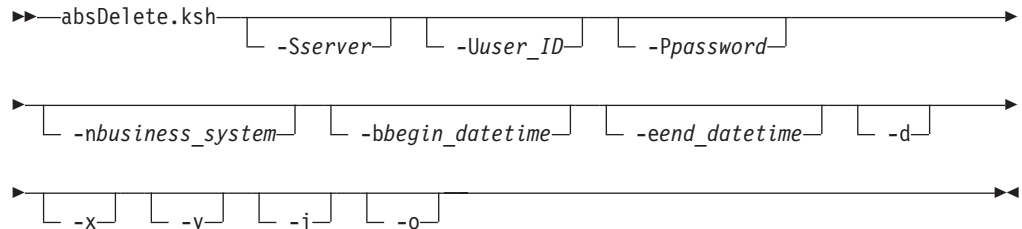
absDelete.ksh

Purpose

Deletes or displays business systems created by automated business system processing.

Syntax

```
►►──absDelete.ksh──────────────────────────────────────────────────────────►
                    └─-Sserver─┘  └─-Uuser_ID─┘  └─-Ppassword─┘

►──────────────────────────────────────────────────────────────────────────►
   └─-nbusiness_system─┘  └─-bbegin_datetime─┘  └─-eend_datetime─┘  └─-d─┘

►──────────────────────────────────────────────────────────────────────────►◄
   └─-x─┘  └─-v─┘  └─-i─┘  └─-o─┘
```

Parameters

-S*server*
Specifies the server name where the database resides. The default value is *db_server*.

-U*user_ID*
Specifies the database user name. The default value is *db_user*.

-P*password*
Specifies the password for the database user. The default value is *db_password*.

-n*business_system*
Specifies the business system path as used in absConfig.ksh to use in limiting the deletion. If this parameter is not used, all business systems created by automatic business system processing are selected for deletion.

-b*begin_datetime*
Indicates that all business systems created equal to or after the specified time (in the format YYYY-MM-DD hh:mm:ss.ms) are to be selected. If this parameter is not used, the default value is the earliest known date in the internal creation log.

-e*end_datetime*
Indicates that all business systems created equal to or before the specified time (specified as YYYY-MM-DD hh:mm:ss) are to be selected. If this parameter is not used, the default value is the most recent date in the internal creation log.

-d Specifies that the selected business systems are to be displayed

-x Specifies that the selected business systems are to be deleted. If this parameter is not used, the selected business systems are displayed.

-v Specifies verbose output.

-i Instance ID of the Line of Business for which to delete the parameter information. Must match the *instID* keyword value in the CL_IDCache table, minus the *LOBC/*. The ability to delete all views is not supported.

-o Object identifier of the Line of Business for which to delete the parameter information.

Usage

This command must be run in a Korn shell from the database server.

Examples

This example displays all the TEST_OS business system views created between 10:00 PM on November 28, 2003 and 10:00 PM on November 29, 2003.

```
absDelete.ksh -nTEST_OS -b'2003-11-28 22:00:00' -e'2003-11-29 22:00:00' -d
```

This example deletes all the TEST_OS business system views created between 10:00 PM on November 28, 2003 and 10:00 PM on November 29, 2003:

```
absDelete.ksh -nTEST_OS -b'2003-11-28 22:00:00' -e'2003-11-29 22:00:00' -x
```

This example deletes the parameter information for the Line of Business with an object identifier of 43:

```
absDelete.ksh -o43
```

This example deletes the parameter information for the Line of Business with an Instance ID of LOBC/Sample1:
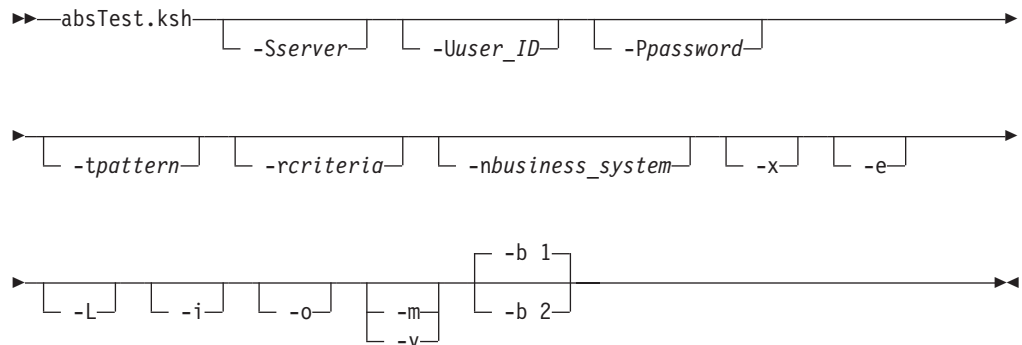
```
absDelete.ksh -i Sample1
```

absTest.ksh

Purpose

Tests automated business system pattern, criteria, and path combinations using information that already exists in the database

Syntax

```
►►──absTest.ksh──────────────────────────────────────────────────────►
              └─-Sserver─┘   └─-Uuser_ID─┘   └─-Ppassword─┘

►──────────────────────────────────────────────────────────────────►
   └─-tpattern─┘  └─-rcriteria─┘  └─-nbusiness_system─┘  └─-x─┘  └─-e─┘

                                          ┌─-b 1─┐
►────────────────────────────────────────────────────────────►◄
   └─-L─┘  └─-i─┘  └─-o─┘  ┌─-m─┐  └─-b 2─┘
                          └─-v─┘
```

Parameters

-S_server_
Specifies the server name where the database resides. The default value is _db_server_.

-U_user_ID_
Specifies the database user name. The default value is _db_user_.

-P_password_
Specifies the password for the database user. The default value is _db_password_.

-t_pattern_
Specifies the pattern to use in the discovery process. If this parameter is not specified, the script uses the patterns that are specified by the **-r** and **-n** parameters.

-r_criteria_
Specifies the criteria to use in the discovery process. If this parameter is not specified, the script uses the criteria that are implied by the **-t** and **-n** parameters. The criteria parameter is also used to limit the number of business systems that could be created. If a pattern matches several criteria, but the criteria parameter is specified, only the business systems for that criteria are placed on the queue.

-n_business_system_
Specifies the business system path, as used in the automated business system configuration file, that is to be used in the discovery process. If this parameter is not specified, the script uses the paths implied by the **-t** and **-r** parameters. The business system argument is also used to limit the number of business systems that could be created. If a criteria matches several business system paths, but the business system path argument is present, only the business systems for that business system path are placed on the queue.

-x   Indicates that a discovery based on data in the database and using the **-t**, **-r**, and **-n** parameters is to be run.

-e Indicates that the ABS creation queue is to be populated with data from **-x** discovery processing; that is, business systems that were discovered using the **-x** parameter are to be placed on the queue for actual creation in the product.

-L Displays the ABS BusinessSystem view parameter information.

-i Instance ID of the Line of Business for which to display the parameter information. Must match the *instID* keyword value in the CL_IDCache table, minus the *LOBC/*. If **ALL** is specified, all parameter sets will be displayed.

-o Object identifier of the Line of Business for which to display the parameter information.

-m Specifies to provide method level information, such as the FunctionGroup name, each method name in the FunctionGroup, and each instance identifier for the method instances. This option allows you to test your method definitions before applying them.

-v Specifies verbose output. When the **-v** option is specified with the **-w** option, the business systems that might be created are displayed and any FunctionGroup that might get issued are displayed.

-b Displays the resources to be included in the Automated Business Systems View. A value of 1 indicates to display only the object class and count. A value of 2 indicates to display the Instance ID's of all resources.

Usage

This command must be run in a Korn shell from the database server.

Perform a test discovery by using one of each of the **-t**, **-r**, and **-n** parameters along with the **-x** parameter. If one or more of the **-t**, **-r**, and **-n** parameters is not specified, then performance is greatly impacted. The command then returns a maximum number of business system views that could be discovered, and store the detailed information in a manual queue. If the resulting number is reasonable, then submit this grouping for processing by the automated business system creation process by calling the **absTest.ksh** command with the **-e** parameter. This removes all the items from the manual queue and place them on the automatic creation queue. Each call to the **absTest.ksh** command with the **-x** parameter removes the results of the last call to the **absTest.ksh** command with the **-x** parameter.

Examples

This example manually runs the discovery process using matches for pattern 1. It places on the manual creation queue any business systems for the OS_O path that meet the requirements for criteria 1000:

```
absTest.ksh -t1 -r1000 nOS_O -x
```

This example enqueues to the automatic business system creation queue any items placed on the manual queue by the last successful run of the **absTest.ksh -x** command:

```
absTest.ksh -e
```

This example manually runs the discovery process using matches for pattern 1. It places on the manual creation queue business systems for the OS_O path that meet the requirements for criteria 1000 and then enqueues these items to the automatic business system creation queue for creation.

```
absTest.ksh -t1 -r1000 -nOS_O -x -e
```

This example displays all parameter set information.

```
absTest.ksh -L -iALL
```

This example displays the parameter information for the Line of Business with an object identifier of 43.

```
absTest.ksh -L -o43
```

This example displays the parameter information for the Line of Business with an Instance ID of LOBC/Sample1.

```
absTest.ksh -L -iSample1
```

AddAppLauncherMenuItem.sh

Purpose

Creates a menu item entry for the corresponding Application Launcher entry. This is used by the Tivoli Business Systems Manager console for launching applications. Refer to the *IBM Tivoli Business Systems Manager Administrator's Guide* for information about configuring launch entries within the console.

Syntax

```
►►—sh AddAppLauncherMenuItem.sh─────────────────────┬─ -E ─────────────────────────►
                               └─ -S server ─┘      └─ -U user -P password ─┘

►──┬─ -f input_file ───────────────────────────────────────────────────────────────►
   └──┬──────────────┬─ -n name -c cid -l label─ -r control_id──┬─────────────────────�
      └─ -t ─┬─APP─┬─┘                                          └─ -m menu_item_name ─┘
             └─URL─┘

►──┬──────────────┬──┬────┬──────────────────────────────────────────────────────────►◄
   └─ -L language ─┘  └─ -a ─┘
```

Parameters

Database connection options:

-S *server*
> Specifies the name of the database server.

-U *user*
> Specifies the user name for the database login.

-P *password*
> Specifies the password for the database login.

-E   Specifies the trusted connection.

-L *language*
> Specifies the language of the connection.

-a   Installs menu items for all installed languages.

Input file:

f *input_file*
> Specifies an input file containing new entries.

Application Launcher parameters:

-t APP Creates an APP Launch menu item (default).

-n *name*
> Specifies the RDM name in the RDM_LAUNCHER table.
>
> Do not use the **AddAppLauncherMenuItem.sh** command to define non-application launch menu items. The command checks for the existence of a RDM_LAUNCHER table entry with the same RDM_NAME value as that specified by the **-n** parameter for this menu item. If a matching entry is not found, the menu item entry is not created.

URL parameters:

-t URL
> Creates a URL Launch menu item (default).

-n *name*
> Per CID, the unique menu item name to be used to internally reference the menu item.

Menu item parameters:

-c *cid*   Specifies the class ID of the object.

-l *label* Specifies the label for the menu item.

-r *control_id*
> Specifies the control ID for the menu item.

-m *menu_item_name*
> Specifies the name of the menu item. This is an optional parameter.
>
> Use the **–m** parameter if you want to point multiple menu items to the same Launch entry. This differentiates the primary key. The default value of the name column is Launch.

For more information, refer to the *IBM Tivoli Business Systems Manager Installation and Configuration Guide*.

Usage

This command must be run in a Korn shell from the database server.

This command supports an input file (**-f** parameter) or command line parameters. The entries shipped with Tivoli Business Systems Manager are created using the input file LaunchMenuItem.txt that is on the database server in the *TivoliManager*/Data directory, where *TivoliManager* is the directory where Tivoli Business Systems Manager is installed.

The command creates the MenuItem table entries as cascaded menu items under a parent menu item labeled Launch. If it does not already exist, the parent item is created.

The command sets the visibility of the menu item to VisibleSelf and VisibleLink.

Examples

To add a menu item to launch the Notepad application from the console, use the following syntax:

```
sh AddAppLauncherMenuItem -n NOTEPAD -c MNO2 -l "Notepad" -r "NOTEPAD"
```

The **-r** parameter specifies the value of the RDM_NAME column. If you previously specified a substitution parameter in the **addapplauncherentry** command (for example **-a**"%name%.txt"), use the following syntax:

```
sh AddAppLauncherMenuItem -n NOTEPAD -c MNO2 -l "Notepad" -r "NOTEPAD, name=%name%"
```

To add a URL launch menu item, use the following syntax:

```
sh AddAppLauncherMenuItem.sh -E -n ClaritySWDetails -c SOSC -t URL -l "Application Details"
-r "%this.GetMSS%/popReq/clarityDetails.do?guid=%this.GetMSS @AttrName=''ObjSourceId'
'%&username=admin&password=admin&topic=general"
```

tbsmrdr_start.sh

Purpose

Starts the UNIX daemon for the CCMDB Reader for Tivoli Business Systems Manager.

Syntax

```
►►──tbsmrdr_start.sh──────────────────────────────────────────►◄
```

Usage

Must be root user to run this command.

tbsmrdr_stop.sh

Purpose

Stops the UNIX daemon for the CCMDB Reader for Tivoli Business Systems Manager.

Syntax

```
►►──tbsmrdr_stop.sh───────────────────────────────────────────────────►◄
```

Usage

Must be root user to run this command.

Chapter 5. Messages

This chapter describes the new messages that are related to the Tivoli Business Systems Manager CCMDB reader.

GTMAB1060E   Required table *table_name* **not defined.**

Explanation: The required SQL temporary table was not defined. Issued by the **alobBuildRelationshipView** stored procedure.

Message Variables: *table_name* - The name of the required temporary table

instance_id - The complete path name of the Business System. This corresponds to the **resourcepath** column of **ObjPathCache** for the corresponding Business System.

System action: The **alobBuildRelationshipView** procedure fails.

User response: Internal logic error.

Administrator Response: Report this message to IBM service.

GTMAB1061E   CustomProc named *proc_name* **for BuildBusinessSystem** *build_business_system_instance* **does not exist.**

Explanation: The specified stored procedure name (via the CustomProc column of the BuildBusinessSystem section of the Automated Business Systems configuration file does not exist in the database.

Message Variables: *proc_name* - The name of the specified stored procedure

build_business_system_instance - The Instance column identifier in the BuildBusinessSystem section where the error occurred

System action: The loading of the Automated Business Systems configuration file fails.

User response: Correct the CurrentProc column or supply the specified stored procedure.

Administrator Response: Correct the CurrentProc column or supply the specified stored procedure.

GTMAB1062E   Invalid *column_name* **column** *column_value* **specified for Instance** *instance_value* **in the BuildBusinessSystem section.**

Explanation: A value in the specified column in the BuildBusinessSystem section of the ABS configuration file is not valid.

Message Variables: *column_name* - The name of the column

column_value - The invalid column

instance_value - The BuildBusinessSystem Instance where the error occurred

System action: Loading of the ABS configuration file fails.

User response: Correct the column value, and resubmit the absconfig.ksh command.

Administrator Response: Correct the column value, and resubmit the absconfig.ksh command.

GTMAB1063E   Criteria *criteria_value* **Pattern** *pattern_value* **combination for SeedResources** *seed_resources_instance*, **BuildBusinessSystem** *buildbusinesssystem_instance*, **FunctionGroup** *functiongroup_instance* **is not valid.**

Explanation: The required SQL temporary table was not defined. Issued by the **alobBuildRelationshipView** stored procedure.

Message Variables: *criteria_value* - The Criteria in error

pattern_value - The Pattern in error

seed_resources_instance - SeedResources instance that contains the Criteria and Pattern combination that is not valid

buildbusinesssystem_instance - BuildBusinessSystem instance that contains the SeedResources instance that is not valid

functiongroup_instance - FunctionGroup instance that contains the invalid BuildBusinessSystem instance

System action: The Loading of the ABS configuration file fails.

User response: Correct the invalid Criteria and Pattern and resubmit the absconfig command. Keep in mind that the Criteria and Pattern, when matched by ABS, will invoke the specified FunctionGroup.Internal logic error.

Administrator Response: Correct the invalid Criteria and Pattern and resubmit the absconfig command. Keep in mind that the Criteria and Pattern, when matched by ABS, will invoke the specified FunctionGroup.Internal logic error.

GTMCI0208E Could not locate TBSM installation directory on this host.

Explanation: The script attempts to locate the TBSM installation directory using the registry, but the information could not be found.

System action: The **cdmgenprod** command fails.

User response: Internal logic error.

Administrator Response: Report this message to IBM service.

GTMCI0209E %1 class already exists.

Explanation: The class (%1) specified by the –c flag already exists. Duplicate classes cannot be created.

System action: The **cdmgenprod** command fails.

User response: Specify a class that does not already exist.

Administrator Response: None

GTMCL5255I Processing file <inputFile>.

Explanation: Informational message indicating the names of files and input data used when transforming data from a non-TBSM XML format into TBSM's XML format.

System action: None

User response: None

Administrator Response: None

GTMCL5256I Shutdown requested.

Explanation: Shutdown of the service has been requested.

System action: None

User response: None

Administrator Response: None

GTMCL5257I Shutdown complete.

Explanation: Shutdown of the service has completed.

System action: None

User response: None

Administrator Response: None

GTMCL5258I Starting transform: *inputFile.*

Explanation: Informational message indicating a file transform is starting. The name of the input XML file, the transform schema, and the output file name is provided. Also, any optional inputs to the transform are given.

Message Variables: *inputFile* - The name of the XML file that is being transformed.

System action: None

User response: None

Administrator Response: None

GTMCL5259I Transform complete: *inputFile.*

Explanation: Informational message indicating a file transform has finished. The name of the input XML file is provided.

Message Variables: *inputFile* - The name of the XML file that has been transformed.

System action: None

User response: None

Administrator Response: None

GTMCL5260E The DL_FileSystem specified in xmltoolkitsvc.properties, *inputFile***, is not a directory. Validate the value specified for this property.**

Message Variables: *inputFile* - The invalid value.

System action: None

User response: None

Administrator Response: Check the **xmltoolkitsvc.properties** file to ensure that the directory specified on the DL_FileSystem is correct.

Chapter 6. Troubleshooting Problems with the Discovery Library Reader

This chapter describes how to troubleshoot problems with the Tivoli Business Systems Manager CCMDB reader.

Troubleshooting Problems with the Transform

Problems with the Tivoli Business Systems Manager CCMDB reader transform can be caused by one or more of the following:

- The book being read contains incorrect XML syntax and/or did not implement the common data model correctly.
- The XSLT transform that converts the common data model XML to Tivoli Business Systems Manager XML is incorrect.
- The transform that generates the naming strings was unable to extract the required information.

When transform problems occur, the first place to look is the Tivoli Business Systems Manager Discovery Reader message file. If an exception was thrown, then the message associated with the exception will be written to the message log. For additional information, set the message level to medium or high.

If the reason for the transform failure is not evident, call IBM service.

Troubleshooting Service Processing Problems

The Tivoli Business Systems Manager Tivoli Business Systems Manager CCMDB reader writes message and trace information to the logs directory. The logs directory is in the same directory that contains the bin directory. This is typically the **<tbsm_install_dir>/XMLToolKit/logs** directory.

The message log is named **msgGTM_XT.log**, and the trace log is named **traceGTM_XT.log**. The XT portion of the log file name might be followed by a number. Files containing a number are older portions of the log that have been rolled over.

The amount of data written to the trace and message logs is controlled by properties in the **enqueuecl.properties** file. The specific properties are:

- **adapter.trace.level = low**: low, medium, and high are valid settings
- **transport.trace.level = low**: controls information associated with the MQe

Support information

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

- "Searching knowledge bases"
- "Obtaining fixes"
- "Contacting IBM Software Support" on page 46

Searching knowledge bases

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

Search the information center on your local system or network

IBM provides extensive documentation that can be installed on your local computer or on an intranet server.

An index is provided for searching the Tivoli Business Systems Manager library. If you have Adobe Acrobat on your system, you can use the Search command to locate specific text in the library. For more information about using the index to search the library, see the online help for Acrobat.

Search the Internet

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

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

Obtaining fixes

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

1. Go to the IBM Software Support Web site (http://www.ibm.com/software/support).
2. Under **Products A - Z**, click **I**. When the list of products is displayed, click **IBM Tivoli Business Systems Manger for z/OS**®. This opens the product-specific support site.

3. Under **Search our support knowledge base for IBM Tivoli Business Systems Manger for z/OS**, type your text in the search field and click the **Submit** button. You can limit your search by selecting **Solve a problem**, **Download**, or **Learn**, or any combination. For tips on refining your search, click **Search assistance**.

4. When you find the list of fixes, fix packs, or other service updates that you are looking for, click the name of a fix to read the description and optionally download the fix.

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

1. From the support page for any IBM product, click **My support** in the upper-right corner of the page.

2. If you have already registered, skip to the next step. If you have not registered, click register in the upper-right corner of the support page to establish your user ID and password.

3. Sign in to **My support**.

4. On the My support page, click **Edit profiles** in the left navigation pane, and scroll to **Select Mail Preferences**. Select a product family and check the appropriate boxes for the type of information you want.

5. Click **Submit**.

6. For e-mail notification for other products, repeat Steps 4 and 5.

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

Contacting IBM Software Support

IBM Software Support provides assistance with product defects.

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

- For IBM distributed software products (including, but not limited to, Tivoli, Lotus®, and Rational® products, as well as DB2® and WebSphere® products that run on Windows® or UNIX® operating systems), enroll in Passport Advantage® in one of the following ways:
  - **Online**: Go to the Passport Advantage Web page (http://www.lotus.com/services/passport.nsf/WebDocs/Passport_Advantage_Home) and click **How to Enroll**
  - **By phone**: For the phone number to call in your country, go to the IBM Software Support Web site (http://techsupport.services.ibm.com/guides/contacts.html) and click the name of your geographic region.

- For IBM eServer™ software products (including, but not limited to, DB2 and WebSphere products that run in zSeries®, pSeries®, and iSeries™ environments), you can purchase a software maintenance agreement by working directly with an IBM sales representative or an IBM Business Partner. For more information about support for eServer software products, go to the IBM Technical Support Advantage Web page (http://www.ibm.com/servers/eserver/techsupport.html).

If you are not sure what type of software maintenance contract you need, call 1-800-IBMSERV (1-800-426-7378) in the United States or, from other countries, go to

the contacts page of the IBM Software Support Handbook on the Web
(http://techsupport.services.ibm.com/guides/contacts.html) and click the name of
your geographic region for phone numbers of people who provide support for
your location.

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

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

Determine the business impact of the problem

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

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

Describe the problem and gather background information

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

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

Submit the problem to IBM Software Support

You can submit the problem in one of two ways:

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

If the problem you submit is for a software defect or for missing or inaccurate
documentation, IBM Software Support creates an Authorized Program Analysis

Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Software Support provides a workaround for you to implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the IBM product support Web pages daily, so that other users who experience the same problem can benefit from the same resolutions.

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

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