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# Tivoli Application Dependency Discovery Manager Version 7 Release 2.1 IP Dependencies

Eduardo Tanaka  
Tivoli Application Dependency Discovery Manager Solutions Team

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## **1. Introduction**

This paper is the first one in a series about TADDM dependencies. The focus on this specific document will be in one type of dependency collected by TADDM: the IP Dependency.

The IP Dependency is one of the most generic type of dependency and it is basically an TCP/IP connection. Usually, components in an enterprise application that are running in various machines will be communicating to each other and in many of that there will be TCP/IP connections. When this happens, TADDM will be able not only to get the details on the machines and components running on them but also the TCP/IP connection, if present.

Other types of dependencies will be covered in future documents.

This paper will start giving some information about dependencies in TADDM in general, it will show how TADDM collects those dependencies and then how those dependencies can be viewed or used to solve business problems.

## **2. Dependencies in General**

There are three types of dependencies in TADDM:

- Transactional- this is the dependency between two components (like WEB servers, application servers, databases, etc) that are connected through for example a TCP connection. The two component could be or not part of an enterprise application. It could also be the connection of a J2EE component and the database server for example.
- Containment- this is the relationship between a machine and the software that is running on that machine or components that belong to an application for example.
- Service- this is the relationship between application components and infrastructure services like DNS, LDAP and NFS for example.

### 3. Collecting Dependencies

TADDM collect dependency information in three ways:

- TCP connections- TADDM will look for current TCP connections in a particular machine and store that information.
- Configuration- TADDM will look into configuration of some programs like configuration files for WEB servers for example and store that information.
- DLA books- those books can contain relationship information besides the component details and when the book is uploaded to TADDM, that data is stored.

#### 3.1. **Dependency Collection Process**

TCP connections and Configuration information is collected by TADDM in the following steps:

- During the discovery process, sensors will login to the various machines and collect TCP or configuration information.
- In a process called Topology Build, agents will analyze that information and created the dependencies in the RELATION table in the TADDM database. This process in previous versions of TADDM used to run just after the discovery process finished but in 7.2.1 it runs independently of it and in a periodic basis. There are some other agents in this process that perform tasks other than identifying dependencies. Tasks like component consolidation, topology construction, change history calculation, etc also happens during Topology Build.

#### 3.2. **IP Dependency**

To collect information during discover, TADDM runs commands in the target system (Unix/Linux) or collect data through WMI (Windows).

A command that is relevant for collection dependency information is **Isotf**. For example:

*Isotf -nP -i -C*

Because of this, TADDM will only be able to collect the information from the TCP connections that are active (“ESTABLISHED” status) at the time that the sensor issues the Isotf command on the machine. If TCP connections are dropped by the application before the

sensor reaches a specific machine, the dependency will not be collected by TADDM. The recommendation is that the discovery be run in a time where the enterprise application is active to reduce the probability of a connection to be down.

The recommendation here is that the discovery is run during a very active time for the target components.

The topology builder agent responsible to add this information to the database is the ConnectionDependencyAgent2.

## 4. Viewing Dependencies

There are many ways to view the dependency information collected by TADDM.

### 4.1. TADDM API's

You can use any of the programmable APIs available in TADDM. This is useful when you will use the dependency information in some other user created application for example. Details on this can be found in the TADDM SDK Developer's Guide, in the TADDM API Overview section.

According to that section, there are four ways to interact with TADDM using APIs:

- Java API
- Rest API
- SOAP API
- Command Line API

For example, if you would like to retrieve all of the relationships that TADDM found in a XML format, you can run the following CLI (Unix/Linux example):

```
cd $COLLATION_HOME/sdk/bin
```

```
./api.sh -u administrator -p collation find Relationship > Relationship.xml
```

assuming that the user/password for TADDM is administrator/collation.

### 4.2. GUI

If you would like to know the dependencies that a specific computer system has on other systems, you can find that computer system in the Inventory Summary (either in the Analytics drawer or in Discovered Components panel). You can select the computer system and click Details (in the Analytics) or Action-> Show Details (in the Discovered Components). Illustration 1 shows the Network connections while Illustration 2 shows the dependencies in their respective tabs.

Network Connections show a list of pairs of computer systems connected by an IP connection while the Dependencies show the same connection between the servers themselves (computer programs listening to a port).

The screenshot displays the Tivoli Application Dependency Discovery Manager (TADDM) web interface. The left sidebar shows the navigation menu with 'Analytics' selected, containing 'Inventory Summary', 'Application Summary', and 'Services Summary'. The main content area is divided into two panes. The top pane, 'Inventory Summary', shows a table of components. The bottom pane, 'Details', shows the 'Network Connections' for the selected component.

**Inventory Summary Table:**

Display Name	Parent	Last Updated
9.42.29.217	WindowsComputerSystem	Feb 2, 2012 4:18:09 PM
cvtitam02.tivlab.raleigh.ibm.com	WindowsComputerSystem	Feb 6, 2012 10:52:26 PM
slapcx38.tivlab.raleigh.ibm.com	WindowsComputerSystem	Feb 2, 2012 7:29:33 PM
slapcx6406.tivlab.raleigh.ibm.com	WindowsComputerSystem	Feb 13, 2012 11:39:44 PM
slapcx02.tivlab.raleigh.ibm.com	WindowsComputerSystem	Feb 6, 2012 10:52:26 PM

**Details - Network Connections Table:**

From Computer System	To Computer System	Flows	Packets	Octets	First Seen	Last Seen
cvtitam02.tivlab.raleigh.ibm.com	slapcx6406.tivlab.raleigh.ibm.com	-	-	-	-	-
slapcx6406.tivlab.raleigh.ibm.com	slapcx33.tivlab.raleigh.ibm.com	-	-	-	-	-

The bottom status bar shows the username 'administrator' and the server 'slapcx54.tivlab.raleigh.ibm.com'.

In the illustration below, the current computer system (slapcx6406) is connected to the program in slapcx33 using port 5901.



The screenshot displays the Tivoli Application Dependency Discovery Manager (TADM) web interface. The left sidebar shows the navigation menu with sections for Discovery, Topology, Analytics, and Administration. The main content area is divided into two panes. The top pane, 'Inventory Summary', shows a table of components. The bottom pane, 'Details', provides a deep dive into a specific component, 'slapcx6406.tivlab.raleigh.ibm.com', showing its various attributes and dependencies.

**Inventory Summary Table:**

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9.42.29.217	WindowsComputerSystem	Feb 2, 2012 4:18:09 PM
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slapcx38.tivlab.raleigh.ibm.com	WindowsComputerSystem	Feb 2, 2012 7:29:33 PM
slapcx6406.tivlab.raleigh.ibm.com	WindowsComputerSystem	Feb 13, 2012 11:39:44 PM
slapcx6406.tivlab.raleigh.ibm.com	WindowsComputerSystem	Feb 6, 2012 10:52:26 PM

**Details View: slapcx6406.tivlab.raleigh.ibm.com**

**Dependencies Table:**

Dependency Type	Participation	Other object Name	Created By	Contents	Type
Ip	Dependent	slapcx33.tivlab.raleigh.ibm.com:5901	Discovered	slapcx33.tivlab.raleigh.ibm.com:5901	Model Object

**Contained Software Servers Table:**

Contents	Type
slapcx6406.tivlab.raleigh.ibm.com:5800	App Server
slapcx6406.tivlab.raleigh.ibm.com:445	Windows File Service

At the bottom of the interface, the status bar shows 'Username: administrator' and 'Server: slapcx54.tivlab.raleigh.ibm.com'.

Another way to see the dependencies is to select a CI and run Action-> Show Dependencies. It is also possible to add dependencies manually through this method as well.

Another way to add dependencies is through Jython scripts. This will be addressed by a future document.

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