IBM

Tivoli Application Dependency Discovery Manager V7.2.2

Communication configuration

© 2013 IBM Corporation
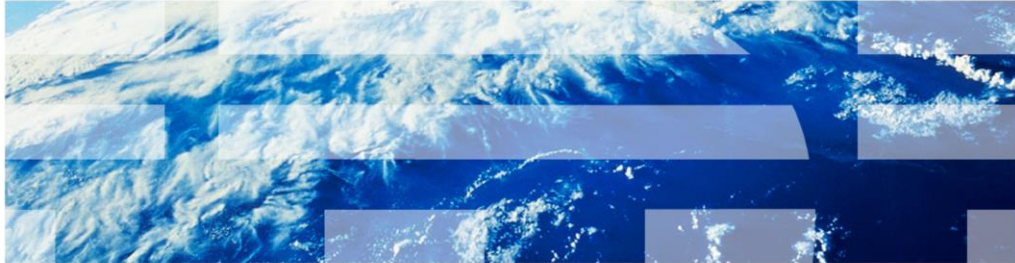
In this module, you learn about configuring the communication for Tivoli® Application Dependency Discovery Manager V7.2.2.

Assumptions and objectives

- Basic knowledge of Tivoli Application Dependency Discovery Manager V7.2.2 is required
- When you complete this module, you can successfully set up streaming mode, domain mode, and synchronization mode communication

Communication configuration

For this module, you must have a basic knowledge of Tivoli Application Dependency Discovery Manager V7.2.2.

When you complete this module, you can successfully set up streaming mode, domain mode, and synchronization mode communication.

Services that are registered in the RMI registries

Tivoli Application Dependency Discovery Manager uses three kinds of services, which are registered in these **RMI** registries:

- **Public service registry**: Includes services for public connectivity
- **Inter-server service registry**: Includes services for interconnectivity
- **Local service registry**: Includes services for local connectivity

Public connectivity covers network connectivity outside of the Tivoli Application Dependency Discovery Manager infrastructure. For example, a web browser might connect to Tivoli Application Dependency Discovery Manager storage servers for DataManagementPortal. The product console might connect to the Tivoli Application Dependency Discovery Manager discovery server. Or, API clients might connect to Tivoli Application Dependency Discovery Manager storage servers.

Inter-server connectivity covers network connectivity between elements of the Tivoli Application Dependency Discovery Manager core infrastructure. That is, the discovery servers and storage servers.

Local connectivity covers network connectivity between local services on one machine.

Configuring the main listen interface

Configure the main listen interface by changing the **com.ibm.cdb.global.hostname** property in the **collation.properties** file

Global service default interface settings

Name	collation.properties flag	Default interface
Global service host	com.ibm.cdb.global.hostname	0.0.0.0

You can configure the main listen interface by changing the **com.ibm.cdb.global.hostname** property in the **collation.properties** file.

Configuring listen interfaces for each registry

Service registry and services default interface settings

Name	collation.properties flag	Default interface
Public service host	com.ibm.cdb.public.hostname	Defined by **com.ibm.cdb.global.hostname**
Inter-server service host	com.ibm.cdb.interserver.hostname	Defined by **com.ibm.cdb.global.hostname**
Local service host	com.ibm.cdb.local.hostname	127.0.0.1

Communication configuration   © 2013 IBM Corporation

The listen interfaces depend on the type of communication. You can configure specific listen interfaces for each registry and the services in it by changing the corresponding property in the **collation.properties** file.

Configuring the port

Configure a specific listen port for each registry by changing the corresponding property in the **collation.properties** file

Service registry default port settings

Name	collation.properties flag	Protocol	Default port
Public service registry port	com.ibm.cdb.service.registry.public.port	tcp	9433
Inter-server service registry port	com.ibm.cdb.service.registry.interserver.port	tcp	4160
Local service registry port	com.ibm.cdb.service.registry.local.port	tcp	1099

Communication configuration   © 2013 IBM Corporation

You can configure the listen interface for specific services. You can configure separate TCP ports for each service during the installation phase or later by changing the corresponding properties in the collation.properties file, as shown in this table.

Configuring host services

- Default host values for services are in these properties:
  - Public service registry: **com.ibm.cdb.public.hostname**
  - Inter-server service registry: **com.ibm.cdb.interserver.hostname**
  - Local registry: **com.ibm.cdb.local.hostname**
- You can configure a specific listen interface for each service by changing the correct property with the suffix *host* in the **collation.properties** file

  Example for service TopologyManager:
  ```
  com.ibm.cdb.service.TopologyManager.host=192.168.1.5
  ```

The default values for the host services and a specific listen interface configuration are shown on the slide. To configure listening interfaces separately for services for each connectivity area, change the appropriate property in the collation.properties file.

Configuring port and SSL services

- Configure a specific listen port for each service by changing the correct property with the suffix *port* in **collation.properties** file

  Example for service TopologyManager:
  ```
  com.ibm.cdb.service.TopologyManager.port=9550
  ```

- Configure a specific listen interface or port for each SSL service by changing the correct property with suffix *secure* in **collation.properties** file

  Example for service SecureApiServer:
  ```
  com.ibm.cdb.service.SecureApiServer.secure.host=192.168.1.5
  com.ibm.cdb.service.SecureApiServer.secure.port=9531
  ```

Communication configuration   © 2013 IBM Corporation

You can configure a specific listen port for each service by changing the property with the suffix port in collation.properties file.

Configuring a listen interface for HTTP and HTTPS

Configure a listen interface for HTTP and HTTPS by changing this property in the **collation.properties** file:
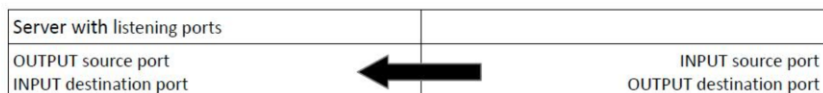
```
com.ibm.cdb.service.web.host
```

Communication configuration   © 2013 IBM Corporation

To configure a listen interface for a web portal, in other words HTTP and HTTPS, change the com.ibm.cdb.service.web.host property in the collation.properties file.

Note: The HTTP and HTTPS host is configured by changing this one property, in contrast to other services.

Firewall configuration

- Listening communication

Server with listening ports	
OUTPUT source port INPUT destination port	INPUT source port OUTPUT destination port

- Loopback communication

The firewall configuration is shown on the slide. The listening port must be open on the firewall as the source of the outgoing connections and as the destination of the incoming connections. It must also be open on the firewall as the destination of the outgoing connections and as the source of the incoming connections. In the diagram, the back arrow means that it must be open to all communication on this interface. If you change any of the default ports that are set in the collation.properties file, you must ensure that you open the appropriate ports.

Configuring a database connection

Configure a specific database connection by changing the **com.collation.db.port** and **com.collation.db.server** properties in the **collation.properties** file

Example:

```
com.collation.db.port=65432
com.collation.db.server=9.156.47.156
```

You can configure a specific database connection, as shown in the example.

Sensors connections

Port name	Port number
CiscoWorks	1741
DNS	53
LDAP	389
SSH	22
WBEM	5988
WMI	135

The ports shown on the slide are used by the PingSensor and PortSensor to make connections. These ports must be open for discovery to work.

Configuring anchors

- Configure a specific anchor connection type by changing the **com.collation.discover.anchor.connectType** property in the **collation.properties** file

```
com.collation.discover.anchor.connectType=ssh
or
com.collation.discover.anchor.connectType=direct
```

- Configure a specific anchor connection type for a particular address by changing the **com.collation.discover.anchor.connectType** property with suffix address in the **collation.properties** file

```
Example
com.collation.discover.anchor.connectType.1.2.3.4=direct
```

If you want to use anchors or gateways, you open ports for discovery communication. You can use two modes of connection from Tivoli Application Dependency Discovery Manager to the anchor or gateway: **ssh** or **direct.**

Port **8497** is defined as the default port for connection to an anchor. You can redefine this port in the client console for each anchor. In ssh mode, you open ports for the SSL communication and anchor connection ports on the loopback interface of the anchors for creating the SSH tunnels. In direct mode, you open ports for SSH communication and the listening port anchor connection ports on the anchors.

Domain mode

ClientConsole

Anchor

Gateway

Domain server(s)

WebPortal

Database

API client(s)
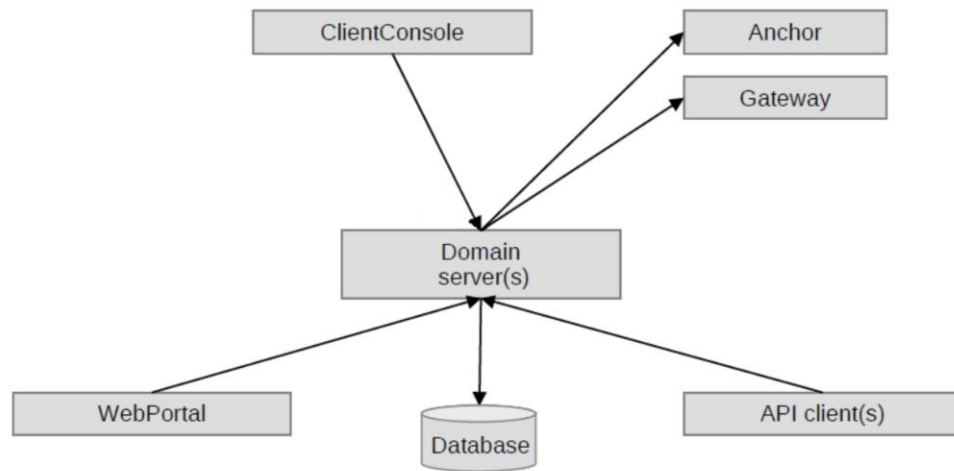
14   Communication configuration   © 2013 IBM Corporation

On this slide, you see an architectural example of domain-mode interaction.
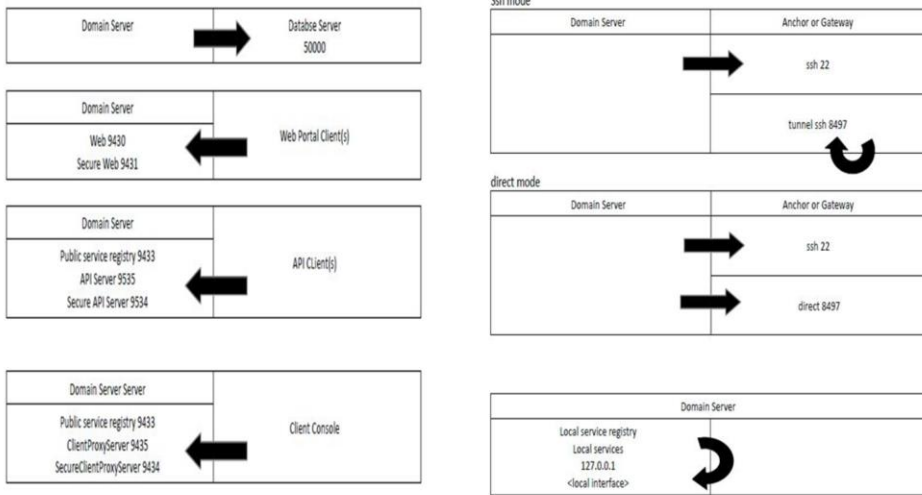
Services

Name	collation.properties flag	Protocol	Default port
Port for API Server	com.ibm.cdb.service.ApiServer.port	tcp	9530
Port for Secure API Server	com.ibm.cdb.service.SecureApiServer.secure.port	tcp	9531

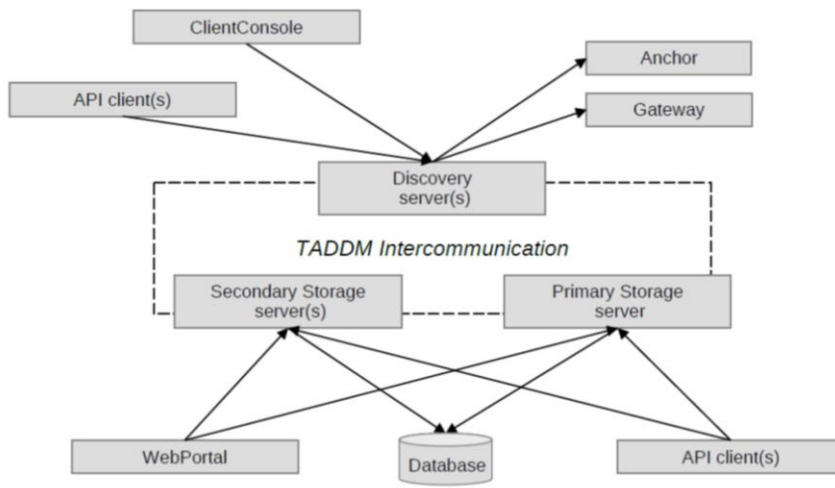| Name	collation.properties flag	Protocol	Default port
HTTP port to use without SSL	com.ibm.cdb.service.web.port	tcp	9430
HTTPS port to use with SSL	com.ibm.cdb.service.web.secure.port	tcp	9431
GUI-Server communication port	com.ibm.cdb.service.ClientProxyServer.port	tcp	9435
GUI-Server SSL communication port	com.ibm.cdb.service.SecureClientProxyServer.secure.port	tcp	9434

In the tables on the slide, you can see the ports that you must configure for a domain mode. The ports are default ports and you can change them as needed. The API default port settings are listed in the upper table. The GUI default port settings are listed in the lower table.

On this slide, you see the communication configuration for domain mode setup.

In this example, you see the architecture of streaming mode.

Services

Name	collation.properties flag	Protocol	Default port
Port for API Server	com.ibm.cdb.service.ApiServer.port	tcp	9530
Port for Secure API Server	com.ibm.cdb.service.SecureApiServer.secure.port	tcp	9531

Name	collation.properties flag	Protocol	Default port
HTTP port to use without SSL	com.ibm.cdb.service.web.port	tcp	9430
HTTPS port to use with SSL	com.ibm.cdb.service.web.secure.port	tcp	9431
GUI-Server communication port	com.ibm.cdb.service.ClientProxyServer.port	tcp	9435
GUI-Server SSL communication port	com.ibm.cdb.service.SecureClientProxyServer.secure.port	tcp	9434

The public services for the primary storage server, secondary storage servers, and discovery servers are shown on the slide. The API default port settings are listed in the upper table and the GUI default port settings are listed in the lower table.

Inter services

Name	collation.properties flag	Protocol	Default port
TopologyManager port	com.ibm.cdb.service.TopologyManager.port	tcp	9550
SecurityManager port	com.ibm.cdb.service.SecurityManager.port	tcp	9540
RegistriesURLProvider port	com.ibm.cdb.service.RegistriesURLProvider.port	tcp	9560

| Name	collation.properties flag	Protocol	Default port
TopologyManager port	com.ibm.cdb.service.TopologyManager.port	tcp	9550
RegistriesURLProvider port	com.ibm.cdb.service.RegistriesURLProvider.port	tcp	9560

In the upper table, you see the primary storage server default port settings. In the lower table, you see the secondary storage servers default port settings. Local services are not explicit ports. To communicate, you must open a connection on loopback and on the local interface of your computer.

Primary storage server communication configuration
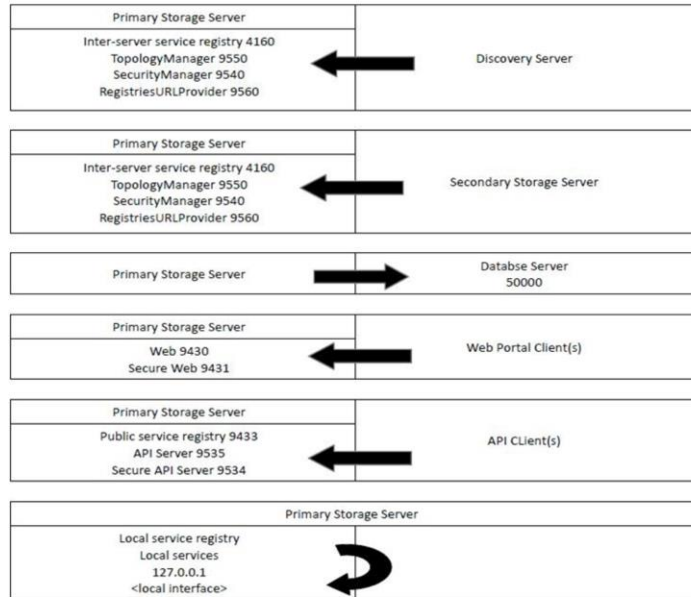
This flow chart shows the configuration for primary storage server communication.
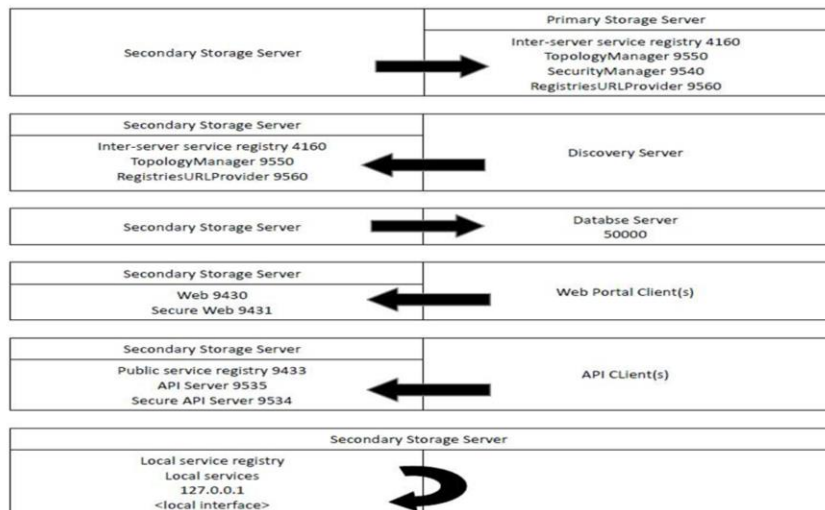
Discovery server communication configuration
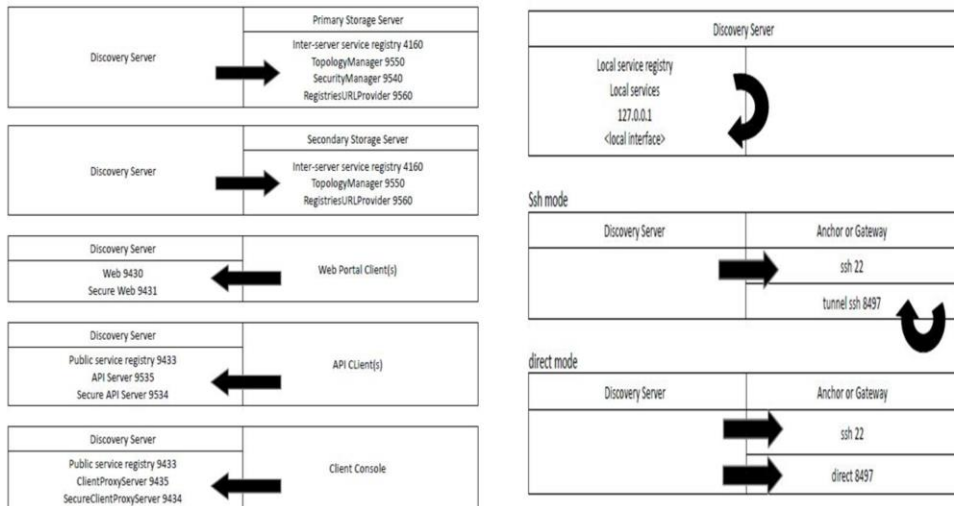
This flow chart shows the configuration of the discovery server communication flow and default ports.

Secondary storage server communication configuration

Secondary Storage Server	Primary Storage Server
	Inter-server service registry 4160
	TopologyManager 9550
	SecurityManager 9540
	RegistriesURLProvider 9560

Secondary Storage Server	
Inter-server service registry 4160	Discovery Server
TopologyManager 9550	
RegistriesURLProvider 9560	

Secondary Storage Server	Databse Server
	50000

Secondary Storage Server	
Web 9430	Web Portal Client(s)
Secure Web 9431	

Secondary Storage Server	
Public service registry 9433	API CLient(s)
API Server 9535	
Secure API Server 9534	

Secondary Storage Server
Local service registry
Local services
127.0.0.1
<local interface>

This flow chart shows the secondary storage server communication configuration flow and default ports.
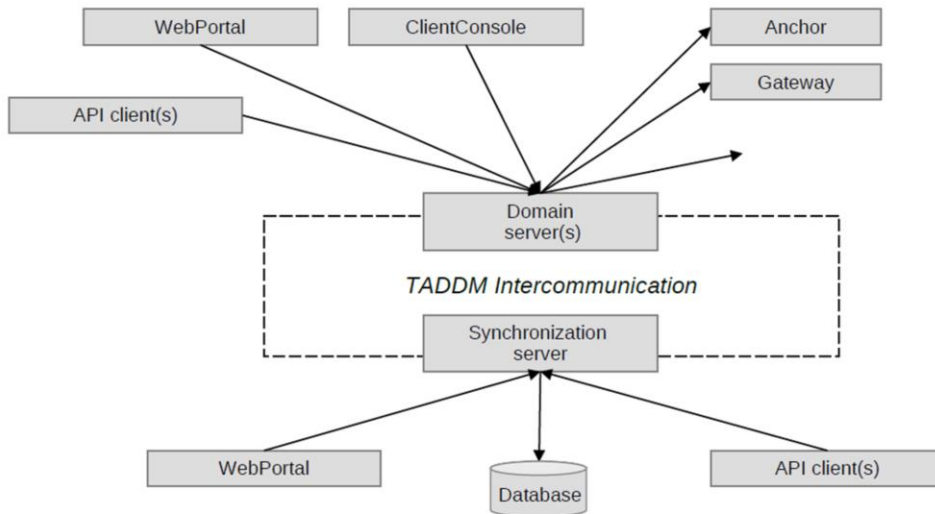
This diagram shows a default architectural example of synchronization interaction.

Public services

Name	collation.properties flag	Protocol	Default port
Port for API Server	com.ibm.cdb.service.ApiServer.port	tcp	9530
Port for Secure API Server	com.ibm.cdb.service.SecureApiServer.secure.port	tcp	9531

Name	collation.properties flag	Protocol	Default port
HTTP port to use without SSL	com.ibm.cdb.service.web.port	tcp	9430
HTTPS port to use with SSL	com.ibm.cdb.service.web.secure.port	tcp	9431

Communication configuration   © 2013 IBM Corporation

In the upper table, the Domain Servers API default port settings are listed. In the lower table, you can see the Domain Servers GUI default port settings.

Inter services

Name	collation.properties flag	Protocol	Default port
TopologyManager	com.ibm.cdb.service.TopologyManager.port	tcp	9550
SecurityManager	com.ibm.cdb.service.SecurityManager.port	tcp	9540
RegistriesURLProvider port	com.ibm.cdb.service.RegistriesURLProvider.port	tcp	**9560**

Name	collation.properties flag	Protocol	Default port
RegistriesURLProvider port	com.ibm.cdb.service.RegistriesURLProvider.port	tcp	**9560**
EnterpriseSecurityManager	com.ibm.cdb.service.EnterpriseSecurityManager.port	tcp	9570

25　　　　　Communication configuration　　　　　© 2013 IBM Corporation

The upper table has a list of the Domain Servers inter services default port settings. The lower table has the Synchronization Server inter services default port settings.
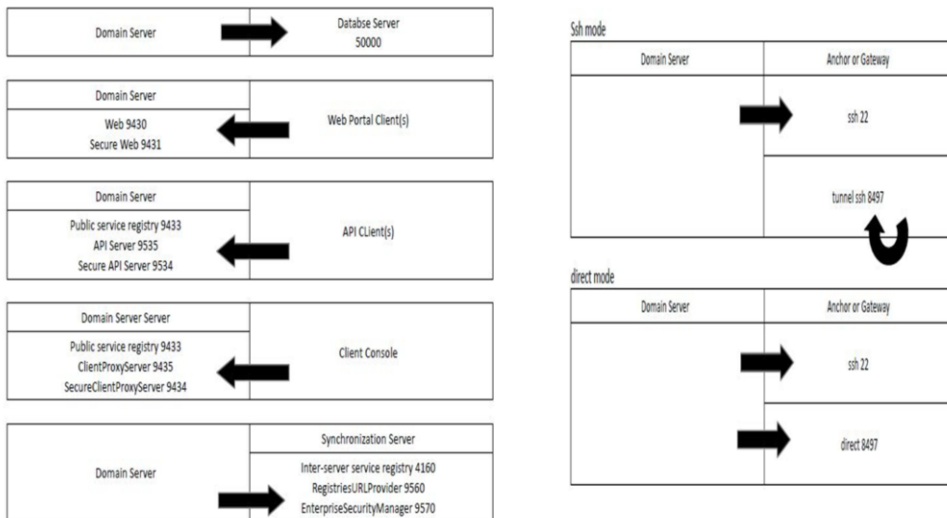
Domain server communication

This flow chart depicts the domain server communication flow.

Synchronization server communication

Synchronization Server	→	Databse Server 50000

Synchronization Server		
Web 9430 Secure Web 9431	←	Web Portal Client(s)

Synchronization Server		
Public service registry 9433 API Server 9535 Secure API Server 9534	←	API CLient(s)

Synchronization Server		
Inter-server service registry 4160 RegistriesURLProvider 9560 EnterpriseSecurityManager 9570	←	Domain Server
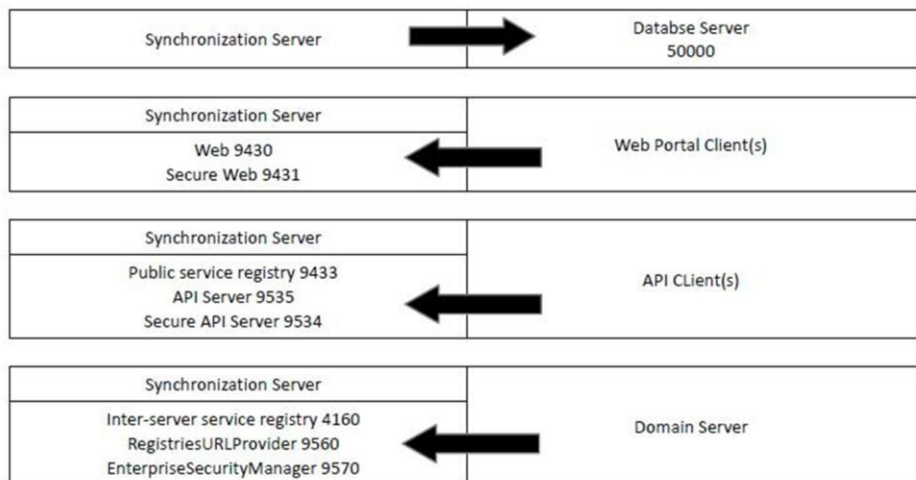
This flow chart shows the synchronization server communication.

Summary

Now that you completed this module, you can successfully set up streaming mode, domain mode, and synchronization mode communication

Communication configuration   © 2013 IBM Corporation

Now, you can configure a port and communication setup for a domain mode, streaming mode, and synchronization mode environment to start discovery with basic port and ping sensors.

Trademarks, disclaimer, and copyright information