

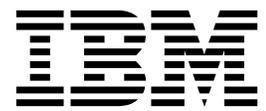
Monitoring Agent for Hadoop
Version 7.10

Installation and Configuration Guide

IBM

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Note

Before using this information and the product it supports, read the information in "Notices" on page 23.

This edition applies to version 7.10 of Monitoring Agent for Hadoop (product number 5725-U05) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. Overview of the agent

The Monitoring Agent for Hadoop (product code H8) provides you with the capability to monitor Hadoop.

IBM® Tivoli® Monitoring is the base software for the Hadoop agent.

IBM Tivoli Monitoring

IBM Tivoli Monitoring provides a way to monitor the availability and performance of all the systems in your enterprise from one or several designated workstations. It also provides useful historical data that you can use to track trends and to troubleshoot system problems.

You can use IBM Tivoli Monitoring to achieve the following tasks:

- Monitor for alerts on the systems that you are managing by using predefined situations or custom situations.
- Establish your own performance thresholds.
- Trace the causes leading to an alert.
- Gather comprehensive data about system conditions.
- Use policies to take actions, schedule work, and automate manual tasks.

The Tivoli Enterprise Portal is the interface for IBM Tivoli Monitoring products. You can use the consolidated view of your environment as seen in the Tivoli Enterprise Portal to monitor and resolve performance issues throughout the enterprise.

See the IBM Tivoli Monitoring publications listed in “Prerequisite publications” in the Documentation library topic for complete information about IBM Tivoli Monitoring and the Tivoli Enterprise Portal.

Functions of the monitoring agent

Monitoring Hadoop Services

Hadoop services such as ZooKeeper, yarn, hive, Sqoop, AmbariMetrics are monitored through monitoring different Hadoop services function. Hadoop services have different server and client components with various states.

Monitoring Hadoop Daemons such as DataNode, NameNode, JVM

Hadoop cluster has one Namenode and many Datanodes. Each Datanodes and Namenode has various parameters that are monitored through this function.

Auto Discovery of DataNodes and Node Managers

Hadoop Agent provides functions to discover all the DataNodes and Node Managers present in Hadoop cluster.

Monitoring High Availability Daemons such as Standby NameNode and Standby Resource Manager

Triggering events as per requirement.

Components of the IBM Tivoli Monitoring environment

After you install and set up the Hadoop, you have an environment that contains the client, server, and monitoring agent implementation for Tivoli Monitoring.

This Tivoli Monitoring environment contains the following components:

Tivoli Enterprise Portal client

The portal has a user interface based on Java™ for viewing and monitoring your enterprise.

Tivoli Enterprise Portal Server

The portal server is placed between the client and the Tivoli Enterprise Monitoring Server and enables retrieval, manipulation, and analysis of data from the monitoring agents. The Tivoli Enterprise Portal Server is the central repository for all user data.

Tivoli Enterprise Monitoring Server

The monitoring server acts as a collection and control point for alerts received from the monitoring agents, and collects their performance and availability data. The Tivoli Enterprise Monitoring Server is also a repository for historical data.

Tivoli Enterprise Monitoring Agent, Hadoop

This monitoring agent collects data and distributes the data to the Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, Tivoli Enterprise Portal, Tivoli Data Warehouse, and Tivoli Integrated Portal.

This agent can run on a separate system from the system where the Hadoop daemons are running.

IBM Tivoli Netcool/OMNIBus

Tivoli Netcool/OMNIBus is an optional component and the recommended event management component. The Netcool/OMNIBus software is a service level management (SLM) system that delivers real-time, centralized monitoring of complex networks and IT domain events. Event information is tracked in a high-performance, in-memory database and presented to specific users through individually configurable filters and views. The software includes automation functions that you can use to perform intelligent processing on managed events. You can use this software to forward events for Tivoli Monitoring situations to Tivoli Netcool/OMNIBus.

IBM Tivoli Enterprise Console

The Tivoli Enterprise Console® is an optional component that acts as a central collection point for events from various sources, including events from other Tivoli software applications, Tivoli partner applications, custom applications, network management platforms, and relational database systems. You can view these events through the Tivoli Enterprise Portal (by using the event viewer), and you can forward events from Tivoli Monitoring situations to the Tivoli Enterprise Console component. If you do not already use Tivoli Enterprise Console and need an event management component, you can choose to use IBM Tivoli Netcool/OMNIBus.

Agent Management Services

You can use IBM Tivoli Monitoring Agent Management Services to manage the Hadoop.

Agent Management Services is available for the following IBM Tivoli Monitoring OS agents: Windows, Linux, and UNIX. The services are designed to keep the Hadoop available, and to provide information about the status of the product to the Tivoli Enterprise Portal. IBM Tivoli Monitoring V6.2.2, Fix Pack 2 or later provides support for Agent Management Services. For more information about Agent Management Services, see “Agent Management Services” in the *IBM Tivoli Monitoring Administrator's Guide*.

User interface options

Installation of the base IBM Tivoli Monitoring software and other integrated applications provides various interfaces that you can use to work with your resources and data.

The following interfaces are available:

Tivoli Enterprise Portal user interface

You can run the Tivoli Enterprise Portal as a desktop application or a browser application. The client interface is a graphical user interface (GUI) based on Java on a Windows or Linux

workstation. The browser application is automatically installed with the Tivoli Enterprise Portal Server. The desktop application is installed by using the Tivoli Monitoring installation media or with a Java Web Start application. To start the Tivoli Enterprise Portal browser client in your Internet browser, enter the URL for a specific Tivoli Enterprise Portal browser client installed on your web server.

Command-line interface

You can use Tivoli Monitoring commands to manage the Tivoli Monitoring components and their configuration. You can also run commands at the Tivoli Enterprise Console event server or the Tivoli Netcool/OMNIbus ObjectServer to configure event synchronization for enterprise situations.

Manage Tivoli Enterprise Monitoring Services window

You can use the window for the Manage Tivoli Enterprise Monitoring Services utility to configure the agent and start Tivoli services not designated to start automatically.

IBM Tivoli Netcool/OMNIbus event list

You can use the Netcool/OMNIbus event list to monitor and manage events. An event is created when the Netcool/OMNIbus ObjectServer receives an event, alert, message, or data item. Each event is made up of columns (or fields) of information that are displayed in a row in the ObjectServer alerts.status table. The Tivoli Netcool/OMNIbus web GUI is also a web-based application that processes network events from one or more data sources and presents the event data in various graphical formats.

IBM Tivoli Enterprise Console

You can use the Tivoli Enterprise Console to help ensure the optimal availability of an IT service for an organization. The Tivoli Enterprise Console is an event management application that integrates system, network, database, and application management. If you do not already use Tivoli Enterprise Console and need an event management component, you can choose to use Tivoli Netcool/OMNIbus.

IBM SmartCloud® Application Performance Management UI

This user interface provides easy to understand and customize dashboards for IBM SmartCloud Application Performance Management, Tivoli Monitoring, and IBM Tivoli Composite Application Manager products. The UI includes predefined templates for simple J2EE, complex J2EE, and SAP applications, based on industry best practices. You can use these templates to quickly and easily build your own dashboards to monitor the resources of your IT environments. The UI contains integrated views to monitor the Tivoli Monitoring situation-based events and transactions of your applications.

Data sources

Monitoring agents collect data from specific data sources.

The Hadoop collects data from the following sources:

Custom Data Source

The agent uses Hypertext Transfer Protocol (HTTP) to gather the metrics.

Chapter 2. Installing and configuring the agent

Agent installation and configuration requires the use of the *IBM Tivoli Monitoring Installation and Setup Guide* and agent-specific installation and configuration information.

To install and configure the Hadoop, use the *Installing monitoring agents* procedures in the *IBM Tivoli Monitoring Installation and Setup Guide* along with the agent-specific installation and configuration information.

If you are installing silently by using a response file, see “Performing a silent installation of IBM Tivoli Monitoring” in the *IBM Tivoli Monitoring Installation and Setup Guide*.

With the self-describing agent capability, new or updated IBM Tivoli Monitoring agents using IBM Tivoli Monitoring V6.2.3 or later can become operational after installation without having to perform additional product support installation steps. To take advantage of this capability, see “Enabling self-describing agent capability at the hub monitoring server” in the *IBM Tivoli Monitoring Installation and Setup Guide*. Also, see “Self-describing monitoring agents” in the *IBM Tivoli Monitoring Administrator’s Guide*.

Requirements

Before installing and configuring the agent, make sure your environment meets the requirements for the Monitoring Agent for Hadoop.

For information about requirements, see the Prerequisites topic for the agent in the .

For the most up-to-date information about system requirements, see the Software product compatibility reports (<http://publib.boulder.ibm.com/infocenter/prodguid/v1r0/clarity/index.html>). Search for the ITCAM for Applications product.

Prerequisites checking

The Prerequisite Scanner utility verifies whether all prerequisites that are required for the agent installation are met. The Prerequisite Scanner creates a log file that contains a report of all prerequisites checks when the Prerequisite Scanner was run.

For the Hadoop, the Prerequisite Scanner verifies the following requirements:

- Operating systems

For detailed, up-to-date information about installation prerequisites, see the Software product compatibility reports (<http://publib.boulder.ibm.com/infocenter/prodguid/v1r0/clarity/index.html>).

For links to information about installation prerequisites, see the Prerequisites topic for the agent in the IBM Tivoli Composite Application Manager for Applications Information Center (<http://publib.boulder.ibm.com/infocenter/tivihelp/...>).

You can run the Prerequisite Scanner in stand-alone mode or remotely. For more information about the Prerequisite Scanner, see “Prerequisite Checking for IBM Tivoli Monitoring agents” in the *IBM Tivoli Monitoring Installation and Setup Guide*.

Installing language packs

The steps for installing language packs depend on which operating system and mode of installation you are using.

To install a language pack for the agent support files on the Tivoli Enterprise Monitoring Server, the Tivoli Enterprise Monitoring Agent, and the Tivoli Enterprise Portal Server, make sure that you installed the product in the English language. Then, use the steps for installing on Windows systems, installing on UNIX or Linux systems, or installing silently.

Installing language packs on Windows systems

You can install the language packs on a Windows system.

Before you begin

First, make sure that you installed the product in the English language.

Procedure

1. On the language pack CD, double-click the `lpinstaller.bat` file to start the installation program.
2. Select the language of the installer and click **OK**.
3. In the Introduction panel, click **Next**.
4. Click **Add/Update** and click **Next**.
5. Select the folder where the National Language Support package (NLSPackage) files are located. Typically, the NLSPackage files are located in the `nlspackage` folder where the installer executable file is located.
6. Select the language support for the agent of your choice and click **Next**. To make multiple selections, press **Ctrl** and select the language that you want.
7. Select the languages that you want to install and click **Next**.
8. Examine the installation summary page and click **Next** to begin installation.
9. After installation completes, click **Finish** to exit the installer.
10. Restart the Tivoli Enterprise Portal, Tivoli Enterprise Portal Server, and Eclipse Help Server if any of these components are installed.

Installing language packs on UNIX or Linux systems

You can install the language packs on a UNIX or Linux system.

Before you begin

First, make sure that you installed the product in the English language.

Procedure

1. Enter the `mkdir` command to create a temporary directory on the computer, for example, `mkdir dir_name`. Make sure that the full path of the directory does not contain any spaces.
2. Mount the language pack CD to the temporary directory that you created.
3. Enter the following command to start the installation program:

```
cd dir_name lpinstaller.sh -c install_dir
```

Where: *install_dir* is where you installed IBM Tivoli Monitoring. Typically, the directory name is `/opt/IBM/ITM` for UNIX and Linux systems.

4. Select the language of the installer and click **OK**.
5. In the Introduction panel, click **Next**.

6. Click **Add/Update** and click **Next**.
7. Select the folder where the National Language Support package (NLSPackage) files are located. Typically, the NLSPackage files are located in the `nlspackage` folder where the installer executable file is located.
8. Select the language support for the agent of your choice and click **Next**. To make multiple selections, press **Ctrl** and select the language that you want.
9. Select the languages that you want to install and click **Next**.
10. Examine the installation summary page and click **Next** to begin installation.
11. After installation completes, click **Finish** to exit the installer.
12. Restart the Tivoli Enterprise Portal, Tivoli Enterprise Portal Server, and Eclipse Help Server if any of these components are installed.

Installing language packs on Windows, UNIX, or Linux systems silently

You can use the silent-mode installation method to install the language packs. In silent mode, the installation process obtains the installation settings from a predefined response file. It does not prompt you for any information.

Before you begin

First, make sure that you installed the product in the English language.

Procedure

1. Copy and paste the `ITM_Agent_LP_silent.rsp` response file template as shown in “Response file example.”
2. Change the following parameter settings:

NLS_PACKAGE_FOLDER

Folder where the National Language Support package (NLSPackage) files are located. Typically, the NLSPackage files are located in the `nlspackage` folder, for example:
`NLS_PACKAGE_FOLDER = //tmp//LP//nlspackage.`

PROD_SELECTION_PKG

Name of the language pack to install. Several product components can be included in one language package. You might want to install only some of the available components in a language pack.

BASE_AGENT_FOUND_PKG_LIST

Agent for which you are installing language support. This value is usually the same as `PROD_SELECTION_PKG`.

LANG_SELECTION_LIST

Language you want to install.

3. Enter the command to install the language pack with a response file (silent installation):

- For Windows systems:
`lpinstaller.bat -f path_to_response_file`
- For UNIX or Linux systems:
`lpinstaller.sh -c candle_home -f path_to_response_file`

where `candle_home` is the IBM Tivoli Monitoring base directory.

Response file example

```
# IBM Tivoli Monitoring Agent Language Pack Silent Installation Operation
#
#This is a sample response file for silent installation mode for the IBM Tivoli
#Monitoring Common Language Pack Installer.
```

```

#.
#This file uses the IBM Tivoli Monitoring Common Agent Language Pack with the
#install package as an example.
#Note:
#This response file is for the INSTALLATION of language packs only.
#This file does not support UNINSTALLATION of language packs in silent mode.
#-----
#-----
#To successfully complete a silent installation of the the example of Common Agent
#localization pack, complete the following steps:
#
#1.Copy ITM_Agent_LP_silent.rsp to the directory where lpinstaller.bat or
#lpinstaller.sh is located (IBM Tivoli Monitoring Agent Language Pack build
#location).
#
#2.Modify the response file so that it is customized correctly and completely for
#your site.
# Complete all of the following steps in the response file.
#
#3.After customizing the response file, invoke the silent installation using the
#following command:
#For Windows:
# lpinstaller.bat -f <path_to_response_file>
#For UNIX and Linux:
# lpinstaller.sh -c <candle_home> -f <path_to_response_file>
#Note:<candle_home> is the IBM Tivoli Monitoring base directory.
#-----
#-----
#Force silent install mode.
#-----
INSTALLER_UI=silent
#-----
#Run add and update actions.
#-----
CHOSEN_INSTALL_SET=ADDUPD_SET
#-----
#NLS Package Folder, where the NLS Packages exist.
#For Windows:
# Use the backslash-backslash(\\) as a file separator (for example,
#C:\\zosgmv\\LCD7-3583-01\\nlspackage).
#For UNIX and Linux:
# Use the slash-slash (//) as a file separator (for example,
#//installtivoli//lpsilenttest//nlspackage).
#-----
#NLS_PACKAGE_FOLDER=C:\\zosgmv\\LCD7-3583-01\\nlspackage
NLS_PACKAGE_FOLDER=//tmp//LP//nlspackage
#-----
#List the packages to process; both variables are required.
#Each variable requires that full paths are specified.
#Separate multiple entries with a semicolon (;).
#For Windows:
# Use the backslash-backslash(\\) as a file separator.
#For Unix and Linux:
# Use the slash-slash (//) as a file separator.
#-----
#PROD_SELECTION_PKG=C:\\zosgmv\\LCD7-3583-01\\nlspackage\\KIP_NLS.nlspkg
#BASE_AGENT_FOUND_PKG_LIST=C:\\zosgmv\\LCD7-3583-01\\nlspackage\\KIP_NLS.nlspkg
PROD_SELECTION_PKG=//tmp//LP//nlspackage//kex_nls.nlspkg;//tmp//LP//nlspackage//
koq_nls.nlspkg
BASE_AGENT_FOUND_PKG_LIST=//tmp//LP//nlspackage//kex_nls.nlspkg;//
tmp//LP//nlspackage//koq_nls.nlspkg
#-----
#List the languages to process.
#Separate multiple entries with semicolons.
#-----
LANG_SELECTION_LIST=pt_BR;fr;de;it;ja;ko;zh_CN;es;zh_TW

```

Installing and configuring: agent-specific

In addition to the installation and configuration information in the IBM Tivoli Monitoring Installation and Setup Guide , use this agent-specific installation and configuration information to install the Hadoop.

Ensure that the following hosts can be resolved from the computer where the Hadoop agent is installed:

- All the Hadoop hosts that you want to configure, such as, NameNode, ResourceManager, and so on.
- Hadoop hosts with only the NodeManager role

For example, you can complete these steps to resolve hosts:

- Add the IP address, host name, and fully qualified domain name of all the Hadoop hosts to the hosts file that is available at the following path:
 - For Windows, C:\Windows\System32\drivers\etc\hosts
 - For Linux\AIX®, /etc/hosts
- Add the computer where the Hadoop agent is installed in the same domain as that of Hadoop hosts.

Configuring the agent on Windows systems

You can configure the agent on Windows systems by using the IBM Performance Management window.

Procedure

1. Click **Start > All Programs > IBM Tivoli Monitoring > Manage Tivoli Monitoring Services**.
2. In the IBM Tivoli Monitoring window, right-click **Monitoring Agent for Hadoop**.
3. Click **Configure Advanced**.

Attention: If **Configure Advanced** is disabled, click **Reconfigure**.
The Configure Monitoring Agent for Hadoop window opens.

4. Specify values for the parameters of Tivoli Enterprise Monitoring Server complete these steps and click **OK**.
 - a. **IP Address**
 - b. **Host name**

Note: Here, protocol for Tivoli Enterprise Monitoring Server connection and corresponding port number for Tivoli Enterprise Monitoring Server communication can be changed based on how Tivoli Enterprise Monitoring Server is configured. By default, protocol type is IP: PIPE and corresponding **Port number** is 1918.

5. To specify values for the parameters of the Hadoop cluster, complete these steps:
 - a. In the **NameNode Hostname** field, enter the host name of the node where the daemon process for NameNode runs.
 - b. In the **NameNode Port** field, enter the port number that is associated with the daemon process for NameNode. The default port number is 50070.
 - c. In the **ResourceManager Hostname** field, enter the host name of the node where the daemon process for ResourceManager runs.
 - d. In the **ResourceManager Port** field, enter the port number that is associated with the daemon process for ResourceManager. The default port number is 8088.
 - e. In the **JobHistoryServer Hostname** field, enter the host name of the node where the daemon process for JobHistoryServer runs.
 - f. Optional: In the **JobHistoryServer Port** field, enter the port number that is associated with the daemon process for JobHistoryServer. The default port number is 19888.
 - g. Optional: In the **Additional NameNode Hostname** field, enter the host name where the daemon process for a Standby NameNode or a Secondary NameNode runs.

- h. Optional: In the **Additional NameNode Port** field, enter the port number that is associated with the daemon process for a Standby NameNode or a Secondary NameNode.

Remember: If the additional NameNode is a Standby NameNode, the default port number that is associated with the Standby NameNode daemon process is 50070. If the additional NameNode is a Secondary NameNode, the default port number that is associated with the Secondary NameNode daemon process is 50090.

- i. To add Standby ResourceManagers in the Hadoop cluster, click **Yes** under **Standby ResourceManager (s) in Hadoop Cluster**. You're prompted to add the details of Standby ResourceManagers later.
 - j. To monitor Hadoop services in the Hadoop cluster that is managed by Apache Ambari, click **Yes** under **Monitoring of Hadoop services for Ambari based Hadoop installations**, and then click **Next**.
6. To specify the details of the Ambari server for monitoring Hadoop services, complete the following steps:
 - a. In the **Ambari server Hostname** field, enter the host name where the Ambari server runs.
 - b. In the **Ambari server Port** field, enter the port number that is associated with the Ambari server. The default port number is 8080.
 - c. In the **Username of Ambari user** field, enter the name of the Ambari user.
 - d. In the **Password of Ambari user** field, enter the password of the Ambari user.
 - e. Click **Next**.
 7. To specify values for the Java parameters, complete these steps:
 - a. From the **Java trace level** list, select a value for the trace level that is used by Java providers.
 - b. Optional: In the **JVM arguments** field, specify a list of arguments for the Java virtual machine. The list of arguments must be compatible with the version of Java that is installed along with the agent.
 - c. Click **Next**.
 8. To add Standby ResourceManagers, complete the following steps:
 - a. Click **New**.
 - b. In the **Standby ResourceManager Hostname** field, enter the host name of the node where the daemon process for Standby ResourceManager runs.
 - c. In the **Standby ResourceManager Port** field, enter the port number that is associated with the daemon process for Standby ResourceManager. The default port number is 8088.
 - d. Repeat steps a, b, and c to add more Standby ResourceManagers. If you want to remove any of the Standby ResourceManagers, click **Delete** corresponding to the Standby ResourceManager that you want to remove.
 - e. Click **Next**.
 9. In the **Class path for external jars** field, specify the class path for JAR files. This class path is added to the class path that is generated by the agent. You can keep this field blank.
 10. Click **OK**. The specified configuration settings are saved.
 11. Right-click **Monitoring Agent for Hadoop** and click **Start**.

Configuring the agent on Linux and AIX systems

You run the configuration script and respond to prompts to configure the agent on Linux and AIX systems.

Procedure

1. On the command line, run the following command:

```
install_dir/bin/itmcmd config -A h8
```

Where:

install_dir is the installation directory of Hadoop agent.

The agent is installed at the following default installation directory:

/opt/IBM/ITM

2. When you are prompted, type 1 to continue with the configuration steps and press Enter.
Edit 'Monitoring Agent for Hadoop' setting? [1= yes, 2= No]
3. When you're prompted to enter the details of the Hadoop cluster, specify an appropriate value for each of the following parameters, and press Enter.
 - a. For the **NameNode Hostname** parameter, specify the host name of the node where the daemon process for NameNode runs, and press Enter.
Attention: If you press Enter without specifying a host name, you're prompted to enter the host name.
 - b. For the **NameNode Port** parameter, specify the port number that is associated with the daemon process for NameNode, and press Enter. The default port number is 50070.
 - c. For the **ResourceManager Hostname** parameter, specify the host name of the node where the daemon process for ResourceManager runs, and press Enter.
Attention: If you press Enter without specifying a host name, you're prompted to enter the host name.
 - d. For the **ResourceManager Port** parameter, enter the port number that is associated with the daemon process for ResourceManager. The default port number is 8088.
4. Optional: When you're prompted to add the details of the following parameters of the Hadoop cluster, accept the default value or specify an appropriate value for the following parameters, and press Enter:
 - a. For the **JobHistoryServer Hostname** parameter, enter the host name of the node where the daemon process for JobHistoryServer runs.
 - b. For the **JobHistoryServer Port** parameter, enter the port number that is associated with the daemon process for JobHistoryServer. The default port number is 19888.
 - c. For the **Additional NameNode Hostname** parameter, enter the host name of the node where the daemon process for a Secondary or a Standby NameNode runs.
 - d. For the **Additional NameNode Port** parameter, enter the port number that is associated with the daemon process for a Secondary or a Standby NameNode. The default port number for a Secondary NameNode is 50090. For a Standby NameNode, the default port number is 50070.
5. When the command line displays the following message, enter 1 to add details of Standby ResourceMangers for high-availability cluster, and press Enter.
Standby ResourceManager(s) in Hadoop Cluster [1=Yes, 2=No] (default is: 2):
6. When the command line displays the following message, specify 1 and press Enter to monitor Hadoop services in the Hadoop cluster that is managed by Ambari:
Monitoring of Hadoop services for Ambari based Hadoop installations [1=Yes, 2=No] (default is: 2):
Otherwise, retain the default value of 2 and press Enter. If you enable the monitoring of Hadoop services, specify a value for each of the following parameters of Ambari server, and press Enter:
 - a. For the **Ambari server Hostname** parameter, enter the host name where the Ambari server runs.
 - b. For the **Ambari server Port** parameter, enter the port number that is associated with the Ambari server. The default port number is 8080.
 - c. For the **Username of Ambari user** parameter, enter the name of the Ambari user.
 - d. For the **Password of Ambari user** parameter, enter the password of the Ambari user.
7. When you are prompted with the following message, select the appropriate Java trace level and press Enter:
This parameter allows you to specify the trace level used by the Java providers Java trace level [1=Off, 2=Error, 3=Warning, 4=Information, 5=Minimum Debug, 6=Medium Debug, 7=Maximum Debug, 8=All] (default is: 2)

8. When the command line displays the following message, specify the arguments for the Java virtual machine, and press Enter. The list of arguments must be compatible with the version of Java that is installed along with the agent.
This parameter allows you to specify an optional list of arguments to the java virtual machine JVM arguments (default is:)
9. When the command line displays the following message, enter 1 to add the following details of Standby ResourceManagers, and press Enter:
Edit 'Hadoop High Availability(HA) Cluster with Standby ResourceManagers' settings, [1=Add, 2=Edit, 3=Del, 4=Next, 5=Exit] (default is: 5): 1
 - a. For the **Standby ResourceManager Hostname** parameter, enter the host name of the node where the daemon process for Standby ResourceManger runs.
 - b. For **Standby ResourceManager Port**, enter the port number that is associated with the daemon process for Standby ResourceManager. The default port number is 8088.
 - c. When you're prompted, enter 1 to add more Standby ResourceManagers, and repeat steps a and b, or enter 5 to go to the next step.
 - To edit the configuration settings of a specific Standby ResourceManager, type 4 and press Enter until you see the host name of the required Standby ResourceManager.
 - To remove a Standby ResourceManager, type 3 and press Enter after you see the host name of the Standby ResourceManger that you want to remove.
10. When you're prompted, enter the class path for the JAR files that the Java API data provider requires, and press Enter. The specified configuration values are saved, and a confirmation message is displayed.
11. Do the next steps to connect Agent to Tivoli Enterprise Monitoring Server in similar way as it's done for Linux/AIX agent connection to Tivoli Enterprise Monitoring Server. Here, you can select default value or required value in each step. For reference, see the example shown below:
Will this agent connect to a TEMS? [1=YES, 2=NO] (Default is: 1):

Network Protocol [ip, sna, ip.pipe, ip.spipe, ip6, ip6.pipe or ip6.spipe] (Default is: ip.pipe):

Now choose the next protocol from one of these:
1. ip
2. sna
3. ip.spipe
4. ip6
5. ip6.pipe
6. ip6.spipe
7. 0 for none
Network Protocol 2 (Default is: 0):
TEMS Host Name for IPv4 (Default is: itmfvsb17): 10.77.97.79
IP.PIPE Port Number (Default is: 1918):
Enter name of KDC_PARTITION (Default is: null):

Configure connection for a secondary TEMS? [1=YES, 2=NO] (Default is: 2):
Enter Optional Primary Network Name or 0 for "none" (Default is: 0):
Disable HTTP? [1=YES, 2=NO] (Default is: 2):
Agent configuration completed...
12. Run the following command to start the agent:
install_dir/bin/itmcmd agent start h8

Configuring the agent by using the silent response file

About this task

You can use the silent response file to configure the Monitoring Agent for Hadoop on Linux, AIX, and Windows systems.

Procedure

1. Open the silent response file is available at the path:
 - For Linux\AIX, `installer_dir\silent_config.txt`
 - For Windows, `installer_dir\WINDOWS\silent_config.txt`

Note: Where `installer_dir` is the folder where `installer` is copied and extracted.

2. In the response file, complete the following steps:
 - a. Enter values for the following parameters of NameNode (NN), ResourceManager (RM), and Job History Server (JHS):
 - `HADOOP_NN_HOSTNAME`
 - `HADOOP_NN_PORT`
 - `HADOOP_RM_HOSTNAME`
 - `HADOOP_RM_PORT`
 - `HADOOP_JHS_HOSTNAME` (optional)
 - `HADOOP_JHS_PORT` (optional)
 - b. Optional: For the `HADOOP_ADDITIONAL_NN_HOSTNAME` parameter, specify the host name of the Standby or Secondary NameNode.
 - c. Optional: For the `HADOOP_ADDITIONAL_NN_PORT` parameter, specify the port number of the Standby or Secondary NameNode.

Remember: If the additional NameNode is a Standby NameNode, the default port number that is associated with the Standby NameNode daemon process is 50070. If the additional NameNode is a Secondary NameNode, the default port number that is associated with the Secondary NameNode daemon process is 50090.

- d. Optional: For the `Hadoop_SRM` parameter, specify Yes to add Standby ResourceManagers for a high-availability cluster, and go to Step f.
 - e. Optional: To monitor Hadoop services in the Hadoop cluster that is managed by Ambari, enter values for each of the following parameters, and press Enter:
 - `AMBARI_SERVER_HOSTNAME`
 - `AMBARI_SERVER_PORT`
 - `USERNAME_OF_AMBARI_USER`
 - `PASSWORD_OF_AMBARI_USER`
 - f. For the `JAVA_TRACE_LEVEL` parameter, specify the appropriate trace level.
 - g. Optional: For the `JAVA_JVM_ARGS` parameter, specify arguments for the Java virtual machine.
 - h. Optional: Add the host name and the port number of a Standby ResourceManager in the following format: `HADOOP_SRM_PORT.hadoop_srm_config_sec_1=8088` Where, `hadoop_srm_config_sec_1` is the host name of the node where the daemon process for Standby ResourceManager runs, and 8088 is the default port number. To add more Standby ResourceManagers, add the host name and port number of other Standby ResourceManagers on new lines in the same format.
3. Save the response file, and run the following command:
 - For Linux\AIX, `install_dir/bin/itmcmd config -A -p <silent_response_file> h8`

Note: Give an absolute path for the `silent_response_file`.

- For Windows, make the changes specified in Step 2 in the `silent.txt` file. And while installing the agent using silent file, you will be able to configure the agent. No separate configuration option is there for Hadoop agent.
4. Start the agent using the command:
 - For Linux\AIX, Run the following command: `install_dir/bin/itmcmd agent start h8`
 - For Windows, Right-click **Monitoring Agent for Hadoop** and then click **Start**.

Configuration values

For both local and remote configuration, you provide the configuration values for the agent to operate.

When you are configuring an agent, a panel is displayed so you can enter each value. When a default value exists, this value is pre-entered into the field. If a field represents a password, two entry fields are displayed. You must enter the same value in each field. The values that you type are not displayed to help maintain the security of these values.

The configuration for this agent is organized into the following groups:

Hadoop Cluster (HADOOP_CLUSTER_TYPE_SEC)

Details of the Hadoop Cluster

The configuration elements defined in this group are always present in the agent's configuration.

This group defines information that applies to the entire agent.

Additional NameNode Hostname (HADOOP_ADDITIONAL_NN_HOSTNAME)

Hostname of the machine where Hadoop daemon process for Additional NameNode (Secondary/Standby) is running.

The type is string.

This value is optional.

Default value: None

Additional NameNode Port (HADOOP_ADDITIONAL_NN_PORT)

Port number associated with the Additional NameNode daemon process. If additional NameNode is Secondary then generally the default value of this port number for SecondaryNameNode daemon process is 50090. Otherwise, if additional NameNode is Standby then generally the default value of this port number for Standby NameNode daemon process is 50070.

The type is numeric.

This value is optional.

Default value: None

Monitoring of Hadoop services for Ambari based Hadoop installations (HADOOP_AMBARI)

Monitoring for Hadoop services is supported for Ambari based Hadoop installations.

The type is radio.

This value is optional.

Default value: No

Note: If the cluster is Ambari based then select Yes otherwise No.

JobHistoryServer Hostname (HADOOP_JHS_HOSTNAME)

Hostname of the machine where Hadoop daemon process for JobHistoryServer is running.

The type is string.

This value is optional.

Default value: None

JobHistoryServer Port (HADOOP_JHS_PORT)

Port number associated with the JobHistoryServer daemon process. Generally the default value of this port number for JobHistoryServer daemon process is 19888.

The type is numeric.

This value is optional.

Default value: 19888

NameNode Hostname (HADOOP_NN_HOSTNAME)

Hostname of the machine where Hadoop daemon process for NameNode is running.

The type is string.

This value is required.

Default value: None

NameNode Port (HADOOP_NN_PORT)

Port number associated with the NameNode daemon process. Generally the default value of this port number for NameNode daemon process is 50070.

The type is numeric.

This value is required.

Default value: 50070

ResourceManager Hostname (HADOOP_RM_HOSTNAME)

Hostname of the machine where Hadoop daemon process for ResourceManager is running.

The type is string.

This value is required.

Default value: None

ResourceManager Port (HADOOP_RM_PORT)

Port number associated with the ResourceManager daemon process. Generally the default value of this port number for ResourceManager daemon process is 8088.

The type is numeric.

This value is required.

Default value: 8088

Standby ResourceManager(s) in Hadoop Cluster (HADOOP_SRM)

Standby ResourceManager(s) in case of High Availability Cluster.

The type is radio.

This value is optional.

Default value: No

Note: If the cluster is having Standby Resource Manger then select Yes otherwise No.

Ambari Server (AMBARI_SERVER)

Details of Ambari Server

The configuration elements defined in this group appear only if the corresponding value is selected in a previous group.

This group defines information that applies to the entire agent.

Ambari server Hostname (AMBARI_SERVER_HOSTNAME)

Hostname of the machine where daemon process for Ambari server is running.

The type is string.

This value is required.

Default value: None

Ambari server Port (AMBARI_SERVER_PORT)

Port number associated with the Ambari server. Generally the default value of this port number for Ambari server daemon process is 8080.

The type is numeric.

This value is required.

Default value: 8080

Password of Ambari user (PASSWORD_OF_AMBARI_USER)

Password of Ambari user.

The type is password.

This value is required.

Default value: None

Username of Ambari user (USERNAME_OF_AMBARI_USER)

Username of Ambari user.

The type is string.

This value is required.

Default value: None

Java (KQZ_JAVA)

Java parameters

The configuration elements defined in this group are always present in the agent's configuration.

This group defines information that applies to the entire agent.

JVM arguments (JAVA_JVM_ARGS)

This parameter allows you to specify an optional list of arguments to the java virtual machine

The type is string.

This value is optional.

Default value: None

Java trace level (JAVA_TRACE_LEVEL)

This parameter allows you to specify the trace level used by the Java providers

The type is one of the following values: "Off", "Error", "Warning", "Information", "Minimum Debug", "Medium Debug", "Maximum Debug", "All".

This value is required.

Default value: ERROR

Hadoop High Availability (HA) Cluster with Standby ResourceManagers (HADOOP_SRM_CONFIG_SEC)

Details of the Standby ResourceManagers

The configuration elements defined in this group appear only if the corresponding value is selected in a previous group.

Use the information in this group to create additional subnodes.

Standby ResourceManager Hostname (Standby ResourceManager Hostname)

Hostname of the machine where Hadoop daemon process for Standby ResourceManager is running.

The type is string.

This value is required.

Default value: None

Standby ResourceManager Port (HADOOP_SRM_PORT)

Port number associated with the Standby ResourceManager daemon process. Generally the default value of this port number for Standby ResourceManager daemon process is 8088.

The type is numeric.

This value is required.

Default value: 8088

Note: You can add as many StandbyResourceManager if your cluster has many StandbyResourceManager.

Remote installation and configuration

You can install the monitoring agent remotely from the Tivoli Enterprise Portal or from the command line.

When you install the agent remotely, you must provide the configuration values for the agent to operate. See “Configuration values” on page 13.

To install from the portal, see the *IBM Tivoli Monitoring Installation and Setup Guide*.

To remotely install or configure an agent through the Tivoli Enterprise Portal, application support for that agent must be installed (Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal). Also, the agent bundle must be installed in the Remote Deploy Depot.

For information about displaying the configuration options that are available to use with the **configureSystem** command, see “tacmd describeSystemType” in the *IBM Tivoli Monitoring Command Reference*.

If you are using the command line, the following commands are examples of remote installation and configuration for Windows operating systems:

Remote installation

```
tacmd addSystem -t H8 -n Primary:sample.node.name:NT
-p AMBARI_SERVER.AMBARI_SERVER_HOSTNAME=value
AMBARI_SERVER.AMBARI_SERVER_PORT=value
AMBARI_SERVER.PASSWORD_OF_AMBARI_USER=value
AMBARI_SERVER.USERNAME_OF_AMBARI_USER=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_ADDITIONAL_NN_HOSTNAME=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_ADDITIONAL_NN_PORT=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_AMBARI=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_JHS_HOSTNAME=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_JHS_PORT=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_NN_HOSTNAME=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_NN_PORT=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_RM_HOSTNAME=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_RM_PORT=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_SRM=value
HADOOP_SRM_CONFIG_SEC:<StandbyResourceManager_Hostname>.HADOOP_SRM_PORT=value
KQZ_JAVA.JAVA_JVM_ARGS=value
KQZ_JAVA.JAVA_TRACE_LEVEL=value
```

Remote configuration

The following example illustrates configuration by using all configuration variables. Typically, you specify only the variables and values that you want to change.

```
tacmd configureSystem -m hostname:H8
-p AMBARI_SERVER.AMBARI_SERVER_HOSTNAME=value
AMBARI_SERVER.AMBARI_SERVER_PORT=value
AMBARI_SERVER.PASSWORD_OF_AMBARI_USER=value
AMBARI_SERVER.USERNAME_OF_AMBARI_USER=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_ADDITIONAL_NN_HOSTNAME=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_ADDITIONAL_NN_PORT=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_AMBARI=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_JHS_HOSTNAME=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_JHS_PORT=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_NN_HOSTNAME=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_NN_PORT=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_RM_HOSTNAME=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_RM_PORT=value
HADOOP_CLUSTER_TYPE_SEC.HADOOP_SRM=value
HADOOP_SRM_CONFIG_SEC:<StandbyResourceManager_Hostname>.HADOOP_SRM_PORT=value
KQZ_JAVA.JAVA_JVM_ARGS=value
KQZ_JAVA.JAVA_TRACE_LEVEL=value
```

Note: This command can be used for reconfiguration of the agent remotely through CLI.

Appendix. Documentation library

A variety of documentation is available for insert the short product name from the list.

IBM Knowledge Center contains topics of information for the product and links to relevant PDFs. In IBM Knowledge Center, you can create a custom PDF that contains only the topics in which you are interested. See the directions for Creating your own set of topics (http://www.ibm.com/support/knowledgecenter/doc/kc_help.html#create).

The following topics for this product are in IBM Knowledge Center (<http://www.ibm.com/support/knowledgecenter>):

- Quick Start Guide
- Product overview
- Planning for installation
- Downloading
- Installing and configuring for each component
- Using and reference for the dashboards, reporting, and capacity planning components
- Link to a Troubleshooting Guide for each component and support information
- Link to a Reference for each agent

Prerequisite documentation

To use the information about the components effectively, you must have some prerequisite knowledge.

The following information for Tivoli Monitoring is available in the IBM Knowledge Center (<http://www.ibm.com/support/knowledgecenter>) to gain prerequisite knowledge:

- *IBM Tivoli Monitoring Administrator's Guide*
- *IBM Tivoli Monitoring Installation and Setup Guide*
- *IBM Tivoli Monitoring High Availability Guide for Distributed Systems*
- IBM Tivoli Monitoring: Installation and Configuration Guides for the following agents: Operating System agents and Warehouse agents
- IBM Tivoli Monitoring: User's Guides for the following agents: Agentless OS monitors, Log File agent, System p agents, Systems Director base agent
- *IBM Tivoli Monitoring Agent Builder User's Guide*
- *IBM Tivoli Monitoring Command Reference*
- *IBM Tivoli Monitoring: Messages*
- *IBM Tivoli Monitoring Troubleshooting Guide*
- IBM Tivoli Monitoring: References for the following agents: Operating System agents and Warehouse agents
- IBM Tivoli Monitoring: Troubleshooting Guides for the following agents: Operating System agents and Warehouse agents
- *Tivoli Enterprise Portal User's Guide*

Related documentation

The documentation for related products provides useful information.

See the following products in IBM Knowledge Center (<http://www.ibm.com/support/knowledgecenter/>):

- Tivoli Monitoring
- Tivoli Application Dependency Discovery Manager
- Tivoli Business Service Manager
- Tivoli Common Reporting
- Tivoli Enterprise Console
- Tivoli Netcool/OMNIBus

Terminology that is relevant to IBM products is consolidated in one convenient locations at the IBM Terminology website (<http://www.ibm.com/software/globalization/terminology>).

Tivoli Monitoring Community on Service Management Connect

Service Management Connect (SMC) is a repository of technical information that is organized by communities.

Access Service Management Connect at <https://www.ibm.com/developerworks/servicemanagement>.

For information about Tivoli products, see the Application Performance Management community (<http://www.ibm.com/developerworks/servicemanagement/apm/index.html>).

Connect, learn, and share with Service Management professionals. Get access to developers and product support technical experts who provide their perspectives and expertise. You can use SMC for these purposes:

- Become involved with transparent development, an ongoing, open engagement between other users and IBM developers of Tivoli products. You can access early designs, sprint demonstrations, product roadmaps, and prerelease code.
- Connect one-on-one with the experts to collaborate and network about Tivoli and the Application Performance Management community.
- Read blogs to benefit from the expertise and experience of others.
- Use wikis and forums to collaborate with the broader user community.

Other sources of documentation

You can obtain additional technical documentation about monitoring products from other sources.

See the following sources of technical documentation about monitoring products:

- IBM Integrated Service Management Library (<http://www.ibm.com/software/brandcatalog/ismlibrary/>) is an online catalog that contains integration documentation as well as other downloadable product extensions.
- IBM Redbook publications (<http://www.redbooks.ibm.com/>) include Redbooks® publications, Redpapers, and Redbooks technotes that provide information about products from platform and solution perspectives.
- Technotes (<http://www.ibm.com/support/entry/portal/software>), which are found through the IBM Software Support website, provide the latest information about known product limitations and workarounds.

Conventions used in the documentation

Several conventions are used in the documentation for special terms, actions, commands, and paths that are dependent on your operating system.

Typeface conventions

The following typeface conventions are used in the documentation:

Bold

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

Italic

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

Monospace

- Examples and code examples
- File names, directory names, path names, programming keywords, properties, and other elements that are difficult to distinguish from the surrounding text
- Message text and prompts
- Text that you must type
- Values for arguments or command options

Bold monospace

- Command names, and names of macros and utilities that you can type as commands
- Environment variable names in text
- Keywords
- Parameter names in text: API structure parameters, command parameters and arguments, and configuration parameters
- Process names
- Registry variable names in text
- Script names

Operating system-dependent variables and paths

The direction of the slash for directory paths might vary in the documentation. Regardless of what you see in the documentation, follow these guidelines:

- For UNIX or Linux, use a forward slash (/).
- For Windows, use a backslash (\).

The names of environment variables are not always the same in Windows and UNIX. For example, %TEMP% in Windows is equivalent to \$TMPDIR in UNIX or Linux.

For environment variables, follow these guidelines:

- For UNIX or Linux, use *\$variable*.
- For Windows, use *%variable%*.

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

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