



Cisco Tidal Enterprise Scheduler MPE/iX Agent Guide

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Preface

This guide describes the installation, configuration, and usage of the MPE/iX Agent with Cisco Tidal Enterprise Scheduler (TES).

Audience

This guide is for administrators who install and configure the MPE/iX Agent for use with TES, and who troubleshoot TES installation and requirements issues.

Related Documentation

See the *Cisco Tidal Enterprise Scheduler Documentation Overview* for your release on cisco.com at:

<http://www.cisco.com/c/en/us/support/cloud-systems-management/tidal-enterprise-scheduler/products-documentation-roadmaps-list.html>

...for a list of all TES guides.



Note

We sometimes update the documentation after original publication. Therefore, you should also review the documentation on Cisco.com for any updates.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see What's New in Cisco Product Documentation at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>.

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Document Change History

The table below provides the revision history for the Cisco Tidal Enterprise Scheduler MPE/iX Agent Guide.

Version Number	Issue Date	Reason for Change
6.1.0	October 2012	<ul style="list-style-type: none">• New Cisco version.
6.2.1	June 2014	<ul style="list-style-type: none">• Available in online Help only.
6.2.1 SP2	June 2015	<ul style="list-style-type: none">• Configuration provided in the <i>TES Installation Guide</i>; usage provided in online Help only.
6.2.1 SP3	May 2016	<ul style="list-style-type: none">• Consolidated all MPE/iX Agent documentation into one document.



Introducing the MPE/iX Agent

This chapter provides an overview of the MPE/iX Agent and its requirements:

- [Overview](#)
- [Master/Agent Architecture](#)
- [MPE/iX Agent Services](#)

Overview

This overview describes the overall master/agent architecture and the components which make up the Tidal Enterprise TES (Scheduler) agent for MPE/iX.

Master/Agent Architecture

The master/agent architecture caters to companies who need to provide centralized support and administration for workloads that span over multiple machines, and often multiple locations. The TES master/agent architecture consists of one (or more) machines that contain a master schedule, and one or more agent machines that execute workloads on behalf of the master schedule.

The master schedule comprises the scheduling criteria associated with jobs, shell scripts, programs and commands (workloads). The master schedule determines on which machines workloads will run. When you employ agent machines, the location of the machines to execute the workload can remain independent of the machine containing the master schedule. The only prerequisite for the master/agent relationship is that the machine acting as the master must be on the same TCP/IP network as the machines serving as agents.

Benefits of the Master/Agent Architecture

The master/agent architecture of TES provides several benefits for customers who need to centrally manage their day to day job scheduling operations:

- You only need to maintain a single master schedule. This reduces the effort of individual(s) performing the job scheduling role.
- You can offload workloads to multiple machines. This increases the efficiency of your company's computing power.

- You can view and control all job scheduling operational activity from the TES Job Activity Console. This condenses the production schedule into a dynamic image that you can manage from a single location, regardless of the number, type, or location of the machines executing the workload.

Currently, the types of TES agents include MPE/iX, OpenVMS, Unix, Windows, and z/OS.

One of the primary benefits of agent software is that workloads managed by the TES master schedule will not be interrupted or aborted on the agent if the master schedule or the network shared between the master schedule and the agent becomes unavailable.

MPE/iX Agent Services

The TES agent provides the following services to a TES master:

- Launches MPE jobs (JCL), MPE commands, command files and programs
- Launches POSIX shell scripts, commands and programs
- Runs programs and command files
- Tracks current status of jobs
- Monitors MPE and HFS file dependencies
- Handles job output

This agent is implemented using Tidal's Java agent technology and uses the MPE/iX POSIX libraries. The agent is stored along with configuration, logging, and interprocess communication files in the hierarchical file system (HFS) directories in the installation account.

The MPE/iX agent uses TCP/IP sockets to communicate with the TES master.



Installing the MPE/iX Agent

Overview

This chapter discusses hardware and software requirements for the MPE/iX Agent and describes its installation:

- [Overview](#)
- [Installation Requirements](#)
- [Installing the MPE/iX Agent](#)
- [Uninstalling the MPE/iX Agent](#)

Installation Requirements

The following is a list of hardware and software requirements for using the TES agent:

	Requirement
Hardware	HP3000 Precision Architecture (900 series)
	Approximately 10K sectors of available disk space
	Network connectivity between the TES agent and master machines
Software	TES v. 6.0.0 and later
	MPE/iX Release 6.5, 7.0, 7.5 (with the latest Power Patches)
	Java Virtual Machine(JVM) 1.3.1
	TCP/IP network protocol
	The master must be able to ping the TES agent and the TES agent must be able to ping the master system. Use NMMGR to check that the IP address for your master is in the NS directory

Installing the MPE/iX Agent

To install the MPE/iX agent:

- Step 1** From cisco.com, download the installation file, *mpeagt.tar* to PUB.SYS.

Step 2 Log on to MPE/iX as MANAGER.SYS entering your passwords as requested.

```
MPE/iX:HELLO MANAGER.SYS
ENTER ACCOUNT (SYS) PASSWORD:
*****
ENTER USER (MANAGER) PASSWORD:
*****
HP3000 Release: C.65.00 User Version: C.65.00 TUE, JAN 3, 2006, 3:01 PM
MPE/iX HP31900 C.25.06 Copyright Hewlett-Packard 1987. All rights reserved.
```

Step 3 Extract the installation files by typing:

```
:TAR,HPBIN.SYS "xovf ./mpeagt.tar"
```

There are two installation files:

- *TDLINST*—the ASCII installation script
- *.ndlagent.tar*—the binary archive of installation support files (HFS file)

Step 4 Run the *TDLINST* script. The following text is displayed.

```
MPDEV01:/SYS/PUB> TDLINST
Preparing to install...
```

```
*****
*                      TIDAL Agent for MPE/iX                      *
*                      Installation                                *
*****
```

This script will install the TIDAL Agent for MPE/iX.
You will be asked for the following information:

- o Installation Account (and Password)
- o MPE User (and Password) to Own Agent Files/Processes
- o Timezone value (e.g, PST8PDT)
- o Port for Master connections

Installation will restore the agent files from the tar archive, set up the account environment, and modify the TDLSTART job that runs the agent services in the background.

Do you want to proceed [Y]?

Step 5 Either type **Y** or press **Enter** to proceed.

Step 6 Specify an user account for the installation. This user account can be an existing account or a new account can be created. The default account name is TIDAL. Press **Enter** to accept the default.

```
Enter MPE/iX Account Name [TIDAL]: TIDAL
```

Step 7 Type the account password. If this is a new account, use the new account password.

```
Enter TIDAL Password []: *****
```

Step 8 Specify a user in the installation account to own the installed files. The default is **MGR**. Press **ENTER** to accept the default.

```
Enter MPE user to own agent files/processes [MGR]:
```

Step 9 Type the password for the new or existing user account specified earlier.

```
Enter MGR Password []:
```

Step 10 Type the timezone for this machine. Press **ENTER** to accept the default.

Enter Timezone [PST8PDT]:

- Step 11** If this is a new account, specify a volume set. Press **ENTER** to accept the default of **MPEXL_SYSTEM_VOLUME_SET**.

Enter Volume Set for New Account [MPEXL_SYSTEM_VOLUME_SET]:

The installation will automatically proceed until completion:

```
CWD is "/TIDAL/PUB".
TAR.HPBIN.SYS: blocksize = 20
x ./CHECKJCW, 73 bytes, 1 type block
x ./TDLCFG, 85 bytes, 1 tape block
x ./TDLEXIT, 70 bytes, 1 tape block
x ./TDLSTART, 339 bytes, 1 tape block
x ./TDLSTAT, 83 bytes, 1 tape block
x ./TDLSTOP, 81 bytes, 1 tape block
x ./install.sh, 13622 bytes, 27 tape blocks
x ./install.tar, 2493440 bytes, 4870 tape blocks
Setting ownership...
Editing command files...
Running TIDAL Agent for MPE/iX POSIX shell installation...

CWD is "/TIDAL/PUB/agent"

=====
TIDAL Agent For MPE/iX, Version 2.2
=====
+-----+
| @@@@ @@@@ @@@@ @@@@ @@ | -> Warning <-
| @@  @@  @@  @@  @@  @@  @@ |
| @@  @@  @@  @@  @@  @@  @@ | Make sure you have
| @@  @@  @@  @@  @@@@@ @@ | a current backup
| @@  @@  @@  @@  @@  @@  @@ | before installing
| @@  @@@@@ @@@@@ @@  @@  @@@@@ | any new products or
|                               | upgrades!
| @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ |
| @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ |
+-----+

tar: blocksize = 20
x bin/_tagent.ini, 194 bytes, 1 tape block
x bin/oem.cfg, 785 bytes, 2 tape blocks
x bin/tagent, 14768 bytes, 29 tape blocks
x bin/MPEIX/tagent, 289536 bytes, 566 tape blocks
x lib/TAgent.jar, 1374629 bytes, 2685 tape blocks
x lib/job, 3628 bytes, 8 tape blocks
x lib/ocsexit, 3685 bytes, 8 tape blocks
x lib/setexit, 3637 bytes, 8 tape blocks
x lib/MPEIX/job, 135936 bytes, 266 tape blocks
x lib/MPEIX/mpelnk, 282112 bytes, 551 tape blocks
x lib/MPEIX/setexit, 122624 bytes, 240 tape blocks
x lib/MPEIX/tjb, 237312 bytes, 464 tape blocks
=====
Installed
=====
Creating links to privileged mode programs...
CWD is "/TIDAL/PUB".
Please wait...
```

- Step 12** Once the installation process completes, an **Agent Configuration Menu** screen is displayed. You must configure at least one agent instance at this time. Additional agent instances can be added at a later time.

```

=====
Agent Configuration Menu
=====
1. Add Instance
2. Edit Instance
3. Delete Instance
4. Java Runtime Directory
q. Quit Install

Enter choice {q}: 1

```

Step 13 To add an agent instance, type **1** from the menu.

Step 14 Type a name, port number and directory path to the Java binaries for this agent instance when prompted. The following example uses **Agent1** for the name of the agent.

```

Please enter the Agent Name: {}: Agent1
Please enter the Agent Port: {5912}
Please enter the Java binaries directory path:[Please press enter for default] {}:
/usr/local/java/latest/bin
=====
Agent Name:Agent1
Agent Port:5912
Java Path: /usr/local/java/latest/bin
=====
Are these Selections OK. y/n/q {y}:
Press enter to continue...

```

**Note**

The parameters entered here can be modified later as needed. For information about modifying agent parameters, refer to “Configuring the tagent.ini file”.

Step 15 Type **q** to quit the installation.

```

END OF PROGRAM
Resetting ownership of configured agent instances...
CWD is "/TIDAL/PUB/agent".
CWD is "/SYS/PUB".

Installation is Complete!!!

To start the agent, enter TDLSTART.PUB.TIDAL agent-name at the MPE/iX prompt.

```

Step 16 Start the MPE/iX Agent, replacing the bracketed text with the name of your agent.

```

MPDEV01:/SYS/PUB> TDLSTART.PUB.TIDAL <name of agent>

```

**Note**

It is a recommended practice to add the agent startup command to your system startup script (SYSSTART) so that the agent is always started whenever the system is restarted.

Uninstalling the MPE/iX Agent

To remove the TES agent installation:

Step 1 Log on as **MANAGER.SYS**.

Step 2 Type:

```
TDLSTOP.PUB.TIDAL <name of agent>
```

Step 3 Type:

```
PURGEACCT TIDAL
```

MPE/iX displays a confirmation message before deleting the account:

```
Account TIDAL to be purged? (YES/NO):
```

Step 4 Type **Y** and press **ENTER** to delete the agent.



Configuring the MPE/iX Agent

Overview

Once installed, the agent configuration can be modified as needed. This chapter describes configuration procedures for the MPE/iX Agent.

- [Configuring Agent Parameters](#)
- [Defining a Connection](#)
- [Connection Status of the MPE/iX Agent](#)

Configuring Agent Parameters

Agent settings are managed in the *tagent.ini* file located within the bin directory of the agent directory. If the default location was used during the agent installation, the agent files are located at `/TIDAL/PUB/agent/bin/tagent.ini`.

Configuring the tagent.ini file

Edit the configuration file to modify any of the MPE/iX agent default configuration values. To edit this file in the Hierarchical File System (HFS), you can invoke the POSIX shell and run the *vi* editor, as shown in the example below:

```
MPE XL: HELLO MGR.TIDAL
:SH.HPBIN.SYS -L or :RUN SH.HPBIN.SYS;INFO="-L"
$vi agent/bin/tagent.ini
```

These settings are normally left at the default values and do not appear in the file unless a setting is modified from the default. If the settings are modified, each setting must be on its own line.

The configuration settings under the **[config]** heading of the *tagent.ini* file apply globally to all agent instances. Under the **[config]** heading, are subsections for each agent instance under that agent's name. Each agent's section duplicates the configuration settings under the **[config]** heading; however, the settings under the individual agent's name always override the global settings under the **[config]** section.



Note

The MPE/iX agent must be restarted before any modifications to its parameters take effect.

An example of an *tagent.ini* file is shown below:

```
$ cat /TAGEDNT/PUB/agent/bin/tagent.ini
# =====
# Agent Configuration Information
# =====
[config]
agents=agent1,agent2
minmem=20
mpe.pollint=10
java=/usr/local/java/latest/bin
[agent1]
port=5912
mpe.jobcard=!JOB MGR.TIDAL;OUTCLASS=,1
mpe.outputpri=9
[agent2]
port=5913
logdays=10
mpe.pollint=20
```

The following common agent parameters can be modified:

Parameter	Default Value	Descripton
minmem	16	Specifies the minimum amount of heap in MB to be allotted to the Java agent process.
maxmem	48	Specifies the maximum amount of heap in MB to be allotted to the Java agent process.
fp	N/A	Specifies a particular environment file to be used by an agent instance. To associate an environment file to an agent, enter the pathname of the environment file using the following format, fp=/folder/file. Each agent instance can be assigned its own environment file and its associated environment variables with their various values. Each variable specified in the environment file should follow a variable=value format as in the following examples: TZ=CST TEST=1 PATH=/usr/sbin
jvmpara	N/A	Use this parameter to specify any additional Java parameters.
stdout	n	Specifies that a log of the startup process is recorded.
debug	n	Enables debugging.
logdays	7	Specifies the maximum number of days to store log files.


The following parameters are used exclusively with MPE/iX agents.

Parameter	Default Value	Descripton
mpe.pollint	10	Specifies the number of seconds between each job status check. As long as a job is waiting or running, the JMAT is polled at the designated interval for current job status. For systems not heavily loaded, a value of 5 will improve job status response time
mpe.spoolwait	0	Specifies the number of seconds after a job completes before the spooled output is read. (Provides time for third-party spooling and pre-processing tools to close the output before the agent reads it.)
mpe.outputpri	-1	Designates an output priority for the spool list after the agent reads it. Spooled output should not print immediately if the agent is to capture it. Use this option to increase the output priority after the agent reads it so the spool file can print.
mpe.usestreamer	0	Designates whether the Express for MPE Streamer utility should be used to stream jobs. A value of 1 means the Express for MPE Streamer utility will be used.
mpe.jobpreptimeout	60	(Amisys) Specifies the number of seconds to wait for the job number of jobs prepared by other jobs or scripts. These type of jobs are indicated by a # prefix in the job definition.(planned for future release)
mpe.jobprekill	0	(Amisys) Designates whether the script or job that is preparing the actual job should be terminated if it reaches the value specified in mpe.jobpreptimeout parameter. (planned for future release)
mpe.jobcard	N/A	Wraps single MPE commands into JCL.
mpe.nojit	y	Specifies that the Java Just-in-Time compiler should not be used with the JVM. Do not change this value unless instructed by technical support.
mpe.rs	y	Specifies that reduced signals are handled by the JVM. Do not change this value unless instructed by technical support.
mpe.jcwcheck	N/A	Specifies a user-defined command (UDC) or MPE command file to be inserted just prior to !EOJ. This inserted file can set exit codes via user-defined logic. For information about setting exit codes, see "Setting Exit Codes".

Defining a Connection

Before the newly installed MPE/iX agent and the master can communicate, you must define a connection between them. The connection is created from the **Connections** pane of the Tidal Web client.

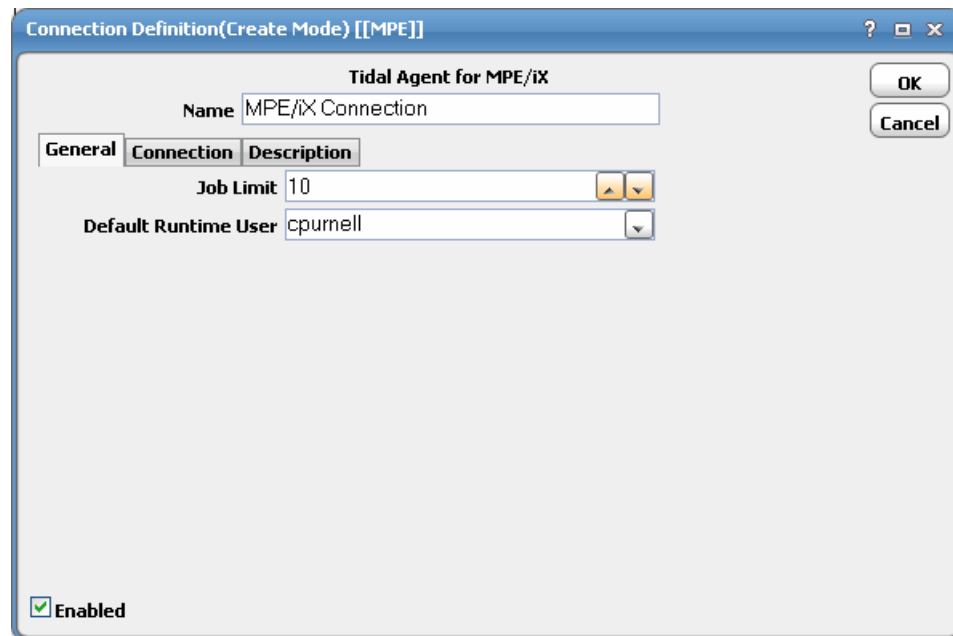
To define a connection for the Tidal Agent for MPE/iX:

Step 1 In the **Navigator** pane in Enterprise Scheduler, select **Administration>Connections** to display the **Connections** pane or click the **Connections**  button on the Enterprise Scheduler toolbar.

Step 2 Click the **Add** button and select **TIDAL Agent for MPE/iX** from the list of connection types.

-or-

Right-click anywhere in the **Connections** pane and select **Add Connection>TIDAL Agent for MPE/iX** from the context menu to display the **Connection Definition** dialog for the MPE/iX agent.



Step 3 In the **Name** field, enter a name for the MPE agent.

Step 4 Select the **Enabled** option to make the agent connection active once it is defined.

You activate and deactivate an agent by enabling or disabling the agent's connection. Jobs cannot run on agents that are not enabled. If you disable the agent connection, jobs already running on the agent will complete but the completion status and other job information cannot be relayed to the master until the connection is enabled again.

Step 5 On the **General** tab, you configure the basic properties of the MPE connection.

- a. In the **Job Limit** field, select the number of jobs that can run on the agent simultaneously.
- b. In the **Default Runtime User** field, select a runtime user from the list to be the default user if a runtime user is not selected in the job definition.

Step 6 Click the **Connection** tab.

Connection Definition(Create Mode) [[MPE]]

Tidal Agent for MPE/iX

Name MPE/iX Connection

General Connection Description

Machine Name ATLAS

Master-to-Agent Port 5912

OK Cancel

☒ Enabled

- Step 7** Enter information about connecting to the machine where the agent was installed.
- In the **Machine Name** field, type the name (or the IP address) of the machine where the MPE/iX agent was installed.
 - In the **Master-to-Agent Port** field, type the port number that the master will use to communicate to the agent. This is the port that the master uses to communicate with the listener on the agent machine. The default port for an agent is 5912 but if other agents are installed on the same machine, this port may be different. Be sure to use the same port number specified when installing the agent.



Note Be sure to not enter port numbers being used by other software programs. Check with your network administrator to ensure that the port numbers do not conflict with other programs.

- Step 8** Click the **Description** tab and enter a description or note about the connection being created. This step is optional.
- Step 9** Click **OK** to close the **Connection** dialog. The **Connections** pane now shows the MPE/iX agent connection along with any other defined connections.

Connection Status of the MPE/iX Agent

The status of the connection to the Tidal Agent for MPE/iX can be checked in the **Connections** pane of the Tidal Web client. The new connection displays a **MPE/iX** value in the **Platform** column. The color of the round icon to the left of the name of the MPE/iX agent indicates the health status of the connection

Color	Definition
Green	The Enterprise Scheduler master has a healthy connection to the MPE/iX agent.
Red	The Enterprise Scheduler master cannot communicate with the MPE/iX agent.
Gray	The connection to the MPE/iX agent has been disabled.

**Note**

Connections that are unavailable also display in the Unavailable Connections pane of the Master Status window of the Tidal Web client.



Managing the MPE/iX Agent

This chapter describes the commands used to manage the MPE/iX Agent.

MPE/iX Commands

Only a few basic commands are necessary to manage the Agent for MPE/iX.

TDLSTART

This command creates and streams the JCL that runs the agent as a background job. Specify the agent with this command.

Command format:

```
TDLSTART <name of agent instance>
```

TDLSTOP

This command sends a message to the agent to shutdown. Specify the agent with this command.

Command format:

```
TDLSTOP <name of agent instance>
```

TDLSTAT

This command displays the current status of the agent. Specify the agent with this command.

Command format:

```
TDLSTAT <name of agent instance>
```

TDLCFG

This command displays the agent configuration utility used for adding and editing agent instances. The port numbers and java paths can be edited with the agent configuration utility. Other agent parameters can be configured from the *tagent.ini* file as described in “*Configuring the tagent.ini file*”.

Command format:

TDLCFG

CHECKJCW

This command is a sample of JCW check logic that can be dynamically inserted prior to !EOJ when the **mpe.jcwcheck** configuration option in the *tagent.ini* file is used. More information about the CHECKJCW command is available in “*Setting Exit Codes*”.

TDLEXIT

This command is used in JCL (or command files to set exit codes for jobs that the agent returns to the master. This command is useful if conditional JCL job logic is used to set different exit codes based on different results. Specify the exit code with this command. For more information on setting exit codes, refer to “*Setting Exit Codes*”.

Command format:

TDLEXIT <exit code>



Scheduling Considerations for the MPE/iX Agent

Overview

This chapter discusses issues that are specific to using the MPE/iX agent:

- [Using the POSIX Shell](#)
- [Defining MPE/iX Jobs](#)
- [POSIX Shell Scripts](#)
- [Security for MPE Jobs](#)
- [Runtime Arguments](#)

Using the POSIX Shell

On occasion, you might find it necessary to work with the TES agent in the POSIX shell. For example, you might want to edit the configuration file, review log files, run diagnostic utilities, etc.

To invoke the POSIX shell:

Step 1 Issue the following command at the TES prompt:

```
:SH.HPBIN.SYS -L or :RUN SH.HPBIN.SYS;INFO="-L"
```

Step 2 To make it easier to work with the agent environment, you should change to the agent directory.

```
cd /TIDAL/PUB/agent
```



Note

In the POSIX shell, use CTRL + Y to interrupt a program rather than CTRL + CY or Break. CTRL + C has no effect and Break will suspend your shell process and return you to the MPE prompt until you type RESUME.

Defining MPE/iX Jobs

MPE/iX jobs are defined like other jobs in TES.

To define an MPE/iX job:

- Step 1** In the **Jobs** pane, right-click and select the **Add>Add MPE/iX Job** option to display the **MPE/iX Job Definition** dialog.

- Step 2** In the **Job Name** field, type in a job name.
- Step 3** In the **Command** field, type in the name of the JCL file, script or command that the job will run.
- Any **MPE JCL**, **UDC**, **MPE** commands, command files and programs entered in this text field must follow the MPE syntax of *name.group.account*.
 - Any POSIX scripts and programs entered here must follow the HFS syntax of */path/filename*.
- Step 4** In the **Command Parameters** field,
- For JCL, enter any parameter substitution pairs in the *name=value* format separating each pair with a comma. For more information, refer to “*Substituting Parameters in MPE/iX Jobs*”.
 - For non-JCL, enter any command-line parameters that you want to pass to the script or program.
- Step 5** Click the **Run** tab.
- Step 6** In the **Agent/Adapter** list, select an MPE/iX agent to run the job.
- Step 7** In the **Runtime User** list, select a runtime user under whose authorization the job will run.
Be sure to select the runtime user corresponding to the !JOB card of the MPE job or the job will not launch.
- Step 8** Click **OK**.
Information about other tabs of the job definition is available in the *TES User Guide*.

Substituting Parameters in MPE/iX Jobs

JCL parameters in MPE/iX jobs running in Enterprise Scheduler can be modified by specifying *name=value* pairs in the **Command Parameters** field. The MPE/iX agent will create a copy of the job specified in the **Command** field with the replaced parameters.

List the parameters in a **name=value** format. If there are multiple parameters, separate them with commas. The agent will scan the job for the listed parameters and replace the old values with the new values. An example of listing multiple parameters is shown below.

System and user variables (including appropriately formatted calculated date variables) that are defined in Enterprise Scheduler can be inserted into the text fields using the **Variables** button at the bottom of the **MPE/iX** tab.

MPE/iX Job Definition

Job Name: MPE/iX Job

Job Class:

Parent Group:

Owner: Schedulers

Buttons: OK, Cancel

Tabs: MPE/iX, Schedule, Run, Dependencies, Resources, Job Events, Options, Run Book, Notes, Images

Command: CURJOB01.JOB.PAYROLL

Command Parameters:

```
?[SETTPAID]=1,
?[SETTYEAR]=<ProdDate.YYY>,
?[CURJBEGD]=<CURJBEGD.115.YMDD>
```

Environment:

Env File:

Working Dir:

Capture Alternate Output File (created by command or script):

Buttons: Variables

Enabled: ☒

Use HFS syntax when specifying file dependencies. Remember to use uppercase when referring to MPE filenames using this syntax.

File Dependency Definition(Create Mode)

File Name: /FINANCE/DATA/FINDATA

Agent Name: MPE/iX Agent (MPE/iX)

Inherit Agent From Job: ☐

Dependency Type:

- ☒ Exists
- ☐ Does Not Exist
- ☐ Has Changed In: 00:00:00 (days:hours:minutes)
- ☐ Stable For: 00:00:00 (days:hours:minutes)
- ☐ Size >=: (Bytes)
- ☐ Size <=: (Bytes)

Buttons: Variables, OK, Cancel

POSIX Shell Scripts

The first line of all POSIX shell scripts should be `#!/bin/sh`. For example,

```
#!/bin/sh
/fin/bin/fl01p
```

Security for MPE Jobs

The MPE job logon USER.ACCT must match the job rule's runtime user. If not, the job will fail with **Could not execute Job file** and the job status will be **Error Occurred**.

To allow users to schedule jobs on the TES agent, you must define the user to the TES master (using **Admin>Runtime Users...** from the Tidal Web client).

MPE Job Number

The **jobmon** command and the TES **Job Activity** pane will display MPE job numbers in the **External ID (PID)** column. For command files, programs and shell scripts, the process ID is shown in this column.

Stream vs. Streamer

If STREAMER is available from either the OCS/EXPRESS or OCS/PRIVATE products, it can be used to launch jobs with parameter substitution. Otherwise, **MPE :STREAM (STREAMJOB)** is used. Passwords are not required, as security is enforced through the TES master.

To use a third-party package to stream jobs:

-
- Step 1** Set the `mpe.usestreamer` parameter to **1** in the `tagent.ini` file
 - Step 2** Create a UDC called STREAMER to call it.

For example,

```
STREAMER JOB=" "
STREAMX "!JOB"
```

The MPE/iX agent will then use that method to stream jobs.

MPE Job Limit

If TES attempts to launch a job and the current MPE job limit prevents the job from immediately running, the **Job Activity** pane will show a status of **Launched**. The status will change to **Active** when the job has an EXEC state.

Runtime Arguments

You can pass runtime arguments (parameters) to POSIX shell scripts, **UDC**, **MPE** command files and programs.

For MPE programs, the arguments are passed via the INFO string. Runtime arguments for MPE jobs are used for parameter substitution as described earlier.



Determining Job Status for the MPE/iX Agent

Overview

The Enterprise Scheduler agent returns job exit code information to the Enterprise Scheduler master so that it can determine the job termination status.

Usually a job exit code of zero indicates **normal** job completion and a non-zero value indicates **abnormal** job termination. The Enterprise Scheduler master uses the job status to trigger alerts and control job dependencies; that is, to allow or prevent subsequent jobs from running.

This chapter covers:

- [Tracking Jobs by Exit Code](#)
- [Setting Exit Codes](#)
- [Setting Job Status with OCS/EXPRESS and Third-party UDCs](#)
- [Load Balancing](#)

Tracking Jobs by Exit Code

The value the TES agent returns to the master depends on the tracking method defined for the rule. If the tracking method is by exit code, then the value also depends on the type of job: MPE job, POSIX shell script, MPE command file or NMPRG program (MPE or POSIX shell).

- For a shell script
The TES agent uses the exit code of the script. Be sure that your scripts and/or programs set the exit code appropriately.
- For JCL, by default
If the job makes it to !EOJ then it will have an exit code of 0 (normal). If the job terminates prior to completion (aborted by operator/user or flushed due to a fatal error), it will have an exit value of one (abnormal). Refer to “Setting Exit Codes” for information about changing this default.
- For an MPE command file
The TES agent uses the value of the CIERROR variable as the exit code.
- For MPE and POSIX programs (NMPRG)
The TES agent first looks at the program's exit code, and uses it if it is not zero; if the exit code is zero, then the TES agent returns the JCW value, instead.

Setting Exit Codes

You can control the exit code of MPE jobs by using the optional **TDLEXIT** command that the TES agent provides.

TDLEXIT.PUB.TIDAL is a command file that lets you specify the final exit status of a job. The **TDLEXIT** command should be the last executed statement in the batch job file. It accepts an exit value as an argument and posts that exit status to the TES agent as the exit code to use when the job completes.

TDLEXIT has the following syntax:

```
TDLEXIT status
```

where **status** is the exit status value to be used as the job's exit status. Remember that zero is **normal** and non-zero is **abnormal** (unless specified differently in the job rule).

The following example sets the exit status to a JCW set by the application.

```
!JOB FIN01,MGR.FINANCE
!RUN FIN01.PROG.FINANCE
!TDLEXIT !FINJCW
!EOJ
```

If you do not use **TDLEXIT** and the job runs to completion, the agent assumes an exit status of zero (**NORMAL**).



Note

It is recommended that you copy **TDLEXIT** to **PUB.SYS** or create a system-wide UDC so that JCL can locate the file.

If you do not want to modify your JCL to add **TDLEXIT**, the agent can dynamically insert a UDC or command file that does your own customized JCW checking. This is done by setting the **mpe.jcwcheck** parameter described in “Configuring the tagent.ini file”.

In the *tagent.ini* file, specify the **mpe.jcwcheck** parameter as *mpe.jcwcheck=<checkjcw>* where *<checkjcw>* is a placeholder for a system UDC or command file that you have set up as needed. The following example is provided as a guideline for the user.

```
CHECKJCW
IF (JCW > FATAL) and (CIERROR <= 0)
    TDLWCIT.PUB.TIDAL !JCW
ELSE
    IF (JCW >= FATAL)
        TDLEXIT.PUB.TIDAL !JCW
    ELSE
        TDLEXIT.PUB.TIDAL !CIERROR
    ENDIF
ENDIF
```

You can find the text of this example in the **CHECKJCW** file in the **PUB** group of the agent installation account.

Setting Job Status with OCS/EXPRESS and Third-party UDCs

If you are using the OCS/EXPRESS product and have already included **OCSNORMAL** and **OCSABNORM** in your JCL to set job status, you can modify your **OCS/EXPRESS UDCs** to include the **TDLEXIT** command.

As a result, you can continue to use your existing JCL without modification. Below is an example of how to modify your OCS/EXPRESS UDCs:

```
OCSNORMAL
CONTINUE
RUN  JOBSTEP.COMP.EXPRESS;LIB=G;INFO="NORMAL"
TDLEXIT 0
* * * *
OCSABNORM
CONTINUE
RUN  JOBSTEP.COMP.EXPRESS;LIB=G;INFO="ABNORM"
TDLEXIT 1
* * * *
```

Third-party UDCs can be modified in a similar manner.

Load Balancing

Load balancing is not currently available when using MPE/iX agent lists.

