Tivoli

Tivoli Workload Scheduler

User's Guide

Version 7.0

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Tivoli Workload Scheduler User’s Guide (March 2000)

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Preface

The Tivoli Workload Scheduler User's Guide provides information on how to install, configure, and use the Tivoli Workload Scheduler (TWS).

Who Should Read This Guide

This manual is provided primarily for administrators and job schedulers. TWS users are divided into these categories:

- Administrator - designs the TWS network, and administers security for the network.
- Installer - installs the products necessary to use TWS, including Tivoli Framework, Job Scheduling Console, and any extended agent software.
- Job Scheduler - creates the job streams, jobs, and dependency objects used to automate job scheduling.

Related Documents

- *Tivoli Workload Scheduler Planning and Installation Guide* provides information about planning and installing TWS to your network.
- *Tivoli Workload Scheduler Reference Guide* provides information about the command line interface for TWS.

What This Guide Contains

The Tivoli Workload Scheduler User's Guide contains the following sections:

- Chapter 1, "Introduction"

  Provides an overview of TWS.
- Chapter 2, "New Features in TWS 7.0"

  Provides information about new features in this version of TWS.
- Chapter 3, "Global and Local Options"

Provides information about how to configure the TWS options files.

- Chapter 4, “TWS Security”

  Provides information about configuring security.

- Chapter 5, “The Production Cycle”

  Provides information about the production cycle.

- Chapter 6, “Report Commands”

  Provides information on generating TWS reports.

- Chapter 7, “TWS Database Tasks”

  Provides information about working with objects in the database.

- Chapter 8, “TWS Plan Tasks”

  Provides information about working with objects in the plan.

- Appendix A, “Status Description and Mapping”

  Provides information about the status of jobs and job streams in TWS.

- A Glossary provides information about the terminology used in TWS.

Conventions Used in This Guide

The guide uses several typeface conventions for special terms and actions. These conventions have the following meaning:

Bold Commands, keywords, file names, authorization roles, URLs, or other information that you must use literally appear in **bold**. Names of windows, dialogs, and other controls also appear in **bold**.

Italics Variables and values that you must provide appear in *italics*. Words and phrases that are emphasized also appear in *italics*.

`Monospace` Code examples, output, and system messages appear in a `monospace`font.

Platform-specific Information

The following table identifies the supported platform versions known at the time of publication. For more detailed and up-to-date information, please see the release notes.

Platform	TWS Engine	TWS Connector	JS Console
AIX 4.2	X	X	X
AIX 4.3	X	X	X
HP-UX 10.2	X	X	X
HP-UX 11.0	X	X	X
Solaris 2.6	X	X	X
Solaris 2.7	X	X	X
Windows NT 4.0 w/ SP 4 or higher	X	X	X
Windows 2000			X
Digital UNIX 4.0	X		
Intel ABI compliant	X		
MIPS ABI compliant	X		

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Introduction

Tivoli Workload Scheduler (TWS) is a fully automated batch job scheduling system that improves job throughput and greatly reduces operations costs. This chapter introduces you to TWS and its interfaces and programs. Initial TWS set up and the Job Scheduling Console are also discussed.

General Description

TWS helps you plan and organize every phase of batch job execution. During the processing day, TWS' production control programs manage the production environment and automate most operator activities. It prepares your jobs for execution, resolves inter-dependencies, and launches and tracks each job. Because your jobs begin as soon as their dependencies are satisfied, idle time is minimized and throughput improves significantly. Jobs never run out of sequence, and, if a job fails, TWS handles the recovery process with little or no operator intervention.

Job Scheduling Console

The Job Scheduling Console is a java-based multi-platform interface for configuring, viewing, and modifying all aspects of job scheduling at your site. From the Job Scheduling Console you can do the following:

- Create database objects, such as, workstations, workstation classes, jobs, job streams, calendars, parameters, resources, prompts, domains, and users. These are the building blocks used to create and organize your job scheduling.

- Schedule your jobs and job streams to create a plan for job execution, using the many different TWS job dependency types.
- Monitor the execution of all your jobs and job streams.
- Modify the execution of your jobs and job streams, by adding, modifying, or deleting jobs or job streams in the plan.

Database and Plan

There are two basic aspects to job scheduling in TWS: the database and the plan.

Database
The database contains all the definitions you have created for scheduling objects, for example, jobs, job streams, resources, workstations, etc. It also holds statistics of job and job stream execution, as well as information on the user ID who created an object and when an object was last modified.

Plan The plan contains all job scheduling activity planned for a period of one day. In TWS the plan is created every 24 hours and consists of all the jobs, job streams, and dependency objects that are scheduled to execute for that day. All job streams for which you have created a run cycle are automatically scheduled and included in the plan. As the day goes by, the jobs and job stream that do not execute successfully can be rolled over into the next day's plan.

Job Streams and Calendars

Central to TWS's ability to manage batch job execution are the job streams you create using the Job Scheduling Console. Each job stream is scheduled to run on a specific set of dates and times, and consists of a list of jobs that execute as a unit (such as the weekly backup application), along with times, priorities, and other dependencies that determine the exact order of execution.

Job Streams are dated using actual dates, days of the week, or calendars. A calendar is a set of specific dates. You can create as many calendars as required to meet your scheduling needs. For example, you can define a calendar named **PAYDAYS** containing a list of pay dates, a calendar named **MONTHEND** containing a list of each last business day of the month for the current year, and a calendar named **HOLIDAYS** containing a list of your company's holidays. At the start of each processing day, TWS automatically selects all the job streams that run on that day, and carries forward uncompleted job streams from the previous day.

Workstations

A workstation is usually an individual computer on which jobs and job streams are executed. A workstation definition is required for every computer that executes jobs in the TWS network.

Primarily workstation definitions refer to physical workstations. However, in the case of extended agents and network agents, the workstations are logical definitions that must be hosted by a physical TWS workstation.

There are several types of workstations in a TWS Network:

Job Scheduling Console Client

Any workstation running the Job Scheduling Console GUI can manage the TWS plan and database objects. The Job Scheduling Console works like a remote console, and can be installed on a machine that does not have the TWS engine installed.

Master Domain Manager

The domain manager in the topmost domain of a TWS network. It contains the centralized database files used to document scheduling objects. It creates the production plan at the start of each day, and performs all logging and reporting for the network.

Domain Manager

The management hub in a domain. All communications to and from the agents in a domain are routed through the domain manager.

Backup Domain Manager

A fault-tolerant agent capable of assuming the responsibilities of its domain manager.

Fault-tolerant Agent
A workstation capable of resolving local dependencies and launching its jobs in the absence of a domain manager.

Standard Agent
A workstation that launches jobs only under the direction of its domain manager.

Extended Agent
A logical workstation definition that enables you to launch and control jobs on other systems and applications, such as Baan, Peoplesoft, Oracle Applications, SAP, and MVS JES2 and JES3.

Network Agent
A logical workstation definition for creating dependencies between jobs and job streams in separate TWS networks.

For more detailed information on workstations, refer to the *Tivoli Workload Scheduler Planning and Installation Guide*.

Times and Priorities

Time constraints can be specified for both jobs and job streams. You can specify the time that execution will begin, or the time after which execution will not be attempted. By specifying both, you can define a window within which a job or job stream will execute. For jobs, you can also specify a repetition rate; for example, you can have TWS launch the same job every 30 minutes between the hours of 8:30 a.m. and 1:30 p.m.

TWS has its own queuing system with 102 priority levels. Assigning priorities to your jobs and job streams gives you added control over their precedence and order of execution.

Job Fence and Job Limits

TWS’s job fence provides a type of master control over job execution. It can be set on each workstation to a priority level that a job’s priority must exceed before it will be allowed to execute. Setting the fence to 40, for example, will prevent jobs with priorities of 40 or less from being launched.

Job limits provide a means of allocating a specific number of job slots into which TWS is allowed to launch jobs. A job limit can be set for each job stream, and for each workstation on which TWS is running. Setting the workstation job limit to 25, for example, permits TWS to have no more than 25 jobs executing concurrently.

Dependencies

Dependencies are prerequisites that must be satisfied before execution of a job or job stream can proceed. They can be specified for both job streams and jobs to ensure the correct order of execution. The five types of dependencies are:

- Follows Dependency: You can specify that a job or job stream must not begin execution until other jobs and job streams have completed successfully.
- Resource Dependency: You can specify that a job or job stream needs one or more system resources before it can begin execution.
- File Dependency: You can specify that a job or job stream needs to have access to one or more files before it can begin execution.
- Prompt Dependency: You can specify that a job or job stream needs to wait for an affirmative response to a prompt before it can begin execution.
- Time restrictions: You can specify a window of time that a job or job stream is allowed to begin execution using the start time (AT keyword) and the deadline time (UNTIL keyword).

In a network, dependencies can cross workstation and domain boundaries. For example, you can make JOB1, which runs on workstation FINANCE1 in domain REGION1, dependent on the successful completion of JOB2, which runs on workstation FINANCE2 in domain REGION2.

Job Confirmation

There are instances when the completion status of a job cannot be determined until you have performed some task. You may want to check the results printed in a report, for example. In this case, you can flag the job as requiring confirmation, and TWS will wait for your response before it marks the job as successful or abended (returns an exit code other then zero).

Resources

TWS resources can be used to represent physical or logical resources on your system. Each consists of a name and a number of available units. If you have three tape units, for example, you can define a resource named **TAPES** with three available units. A job that acquires two units of the **TAPES** resource would then prevent other jobs requiring more than the one remaining unit from being launched.

Parameters

Parameters can be used as substitutes for repetitive values used when defining jobs and job streams. Using parameters for user logon and script file names in job definitions, and file and prompt dependencies permits the use of variables that can be maintained centrally in the database on the master. These parameters are evaluated at the start of the production day, when submitted into the plan, or when using the **rerun;from** option.

TWS parameters can also be used as scripting aids, permitting you to insert runtime values into your job scripts at the time of execution. The **parms** program enables you the ability to query, update and create parameters on the local workstation in real time. This can be useful for implementing job step recovery or restart values.

Job Recovery

When you schedule a job, you can specify the type of recovery you wish to have TWS perform if the job abends (returns an exit code other then zero). The recovery options are:

- Continue with the next job.
- Stop and do not permit the next job to execute.
- Rerun the abended job.

In addition, you can specify other actions to be taken in the form of recovery jobs and recovery prompts. For example, if a job abends, you can have TWS automatically run a recovery job, issue a recovery prompt that requires an affirmative response, and then rerun the abended job.

TWS Options Files

There are two options files, **globalopts** and **localopts**, that enable you to specify how TWS executes on each system and on the entire network. In a TWS network, the global options apply to all workstations in the network and local options apply independently to each workstation.

Security

Every TWS program and command checks the user’s capabilities against the definitions contained in a Security file. The security structure is comprehensive, permitting the system administrator to control access to every TWS object (schedule, job, resource, etc.), and to specify exactly what types of access will be permitted (add, modify, use, etc.). TWS network communication includes IP address validation to prevent access by foreign hosts.

Replicating Job Streams on Multiple Workstations

TWS makes duplicating a job stream across multiple workstations easy. Any number of workstations can be placed in a workstation class. A workstation class is a group of workstations. Any number of workstations can be placed in a class.

Job streams and jobs can be assigned to execute on a workstation class, making replication across many workstations easy. When you run a job or job stream on a workstation class it is executed on each workstation within the workstation class. You must make sure your jobs are capable of running on every workstation in the class, as the workstations in a workstation class can have different operating systems.

If a job stream is defined on a workstation class then each job added to the job stream must be defined either on a single workstation or on the exact same workstation class that the job stream was defined on.

Managing the Plan

The Job Scheduling Console is used to manage the production plan. Among other things, you can:

- Start and stop the TWS control processes.
- Display the status of job streams and jobs.
- Alter priorities and dependencies.
- Alter the job fence and job limits.
- Rerun jobs.
- Cancel jobs and job streams.
- Submit new jobs and job streams.
- Recall and reply to prompts.
- Link and unlink workstations in a network.

Networking

With TWS you can manage batch jobs across a network of linked computers (workstations). By distributing the workload throughout a network, you can take full advantage of widely separated resources, and still maintain complete visibility of production activity. Computers communicate using TCP/IP links. All production set up tasks are performed on the master domain manager, and a copy of the production plan is then distributed to the other workstations. TWS's control processes on each workstation work independently to launch and track their own jobs, communicating with their domain managers to resolve inter-workstation dependencies.

A TWS network is composed of one or more domains, each consisting of a domain manager and agent workstations. In the domain hierarchy, the master domain manager is the domain manager of the topmost domain. There are three types of agents:

- Standard Agent
- Fault-tolerant Agent (FTA)
- Extended Agent

Standard and FTA workstations can be UNIX, Windows NT, or MPE (HP3000) computers. An Extended Agent is usually a logical workstation that corresponds to an application (such as Peoplesoft, Oracle Applications, or Baan) or an operating system (such as MVS). The extended agent workstation definition must be hosted by a TWS Master, Domain Manager, or FTA.

Command Line Interfaces

A combination of graphical and command line interface programs are provided to run TWS. This guide emphasizes the Job Scheduling Console. The command line interface (CLI), is used for certain advanced features. Some of the capabilities of the CLI are not available in the Job Scheduling Console.

The Job Scheduling Console and CLI are independent and can be run simultaneously to manipulate TWS data. For more information about the command line interface, refer to the *Tivoli Workload Scheduler Reference Manual*.

Command Overview

There are many commands for working with and configuring TWS. Refer to the *Tivoli Workload Scheduler Reference Guide* for more information on TWS commands.

CLI Interfaces

The following programs can be used to work with both the database and the plan in TWS:

composer
A legacy CLI program used to view and modify the database.

conman
A legacy CLI program used to monitor and modify the plan.

Security

User privileges and security are defined and maintained with the following commands:

dumpsec
Create an editable copy of TWS's Security file.

makesec
Compile and install TWS's Security file.

Pre and Post Production Processing

The following commands are used to set up TWS's processing day. To automate the process, the commands are normally placed in a job stream that runs at the start of each day.

compiler
Compile the Production Control file.

logman
Log job statistics.

schedulr
Select job streams for execution.

stageman
Carry forward uncompleted job streams, and install the Production Control file.

wmaeutil
Used to stop the TWS connectors.

Reporting

Comprehensive reports are printed from TWS's CLI. Report commands are often included as part of the daily turnover process.

rep1 - rep8
Print definitions of scheduling objects in TWS's database.

reptr Print pre and post production reports.

xref Print a report showing cross-references between scheduling objects.

Utilities

A set of utility commands provides a wide range of capabilities:

at | mat
UNIX only. Submit ad hoc jobs to be executed at a specific time in TWS.

batch |mbatch
UNIX only. Submit ad hoc jobs to be executed as soon as possible in TWS.

datecalc
Calculate date expressions.

dbexpand
TWS version 6.x and above only. Expand the databases to accommodate long object names.

delete Remove job standard list files.

jobinfo
Return information about a job.

jobstdl
Return path names of job standard list files.

maestro
Return the home directory of the maestro user.

makecal
Create custom calendars.

morestdl
Display job standard list files.

rebuild
Clean and rebuild TWS's master files.

release
Release scheduling resources.

rmstdlist
Remove job standard list files by age.

showexec
Display information about executing jobs.

StartUp
Start TWS's network process Netman.

Production Processes

The following are TWS's production processes:

batchman
The Production Control process. Working from the production plan (Symphony file), it executes job streams, resolves dependencies, and directs **jobman** to launch jobs.

jobman
The Job Management process launches and tracks jobs under the direction of **batchman**.

jobmon
The Job Monitor process monitors job execution on Windows NT computers only.

The following are TWS's network processes:

netman
The Network Management process establishes network connections between remote **mailman** processes and local **writer** processes.

mailman
The Mail Management process sends and receives inter-workstation messages.

writer The Network Writer process passes incoming messages to the local **mailman**.

The following are TWS's connector processes. These are used to communicate with the TWS engine.

maestro_engine
The process that connects the Job Scheduling Console to the TWS engine and provides access to information about the backend database and plan.

maestro_plan

The process that connects the Job Scheduling Console to the TWS production plan (Symphony file).

maestro_database

The process that connects the Job Scheduling Console to the TWS database files.

2

New Features in TWS 7.0

This chapter is an introduction to some of the new features and changes to this version of the TWS. This chapter contains information on the following:

- Terminology changes
- The Job Scheduling Console, a new graphical user interface for TWS
- Time zones
- Auditing

Terminology Changes

The terminology used in the Job Scheduling Console differs from that used in the command line and earlier versions of TWS. The following table lists the old terms and their Job Scheduling Console equivalents. Refer to the Glossary for more definitions.

Command Line	Job Scheduling Console	Definition
Schedule	Job Stream	A unit of work consisting of a set of jobs and their dependencies.
	Job Stream Instance	The occurrence of a job stream in the plan.

Command Line	Job Scheduling Console	Definition
Job	Job	An executable file, task or command, and its attributes. It is scheduled to run as part of a job stream.
	Job Instance	The occurrence of a job in the plan.
Cpu	Workstation	A logical processor, typically a computer, that runs jobs. Types of workstations include Domain Managers, Backup Domain Managers, Fault-Tolerant Agents, Standard Agents, and Extended Agents.
Mozart Database Files	Database	A collection of scheduling objects including jobs, job streams, workstations, workstation classes, prompts, parameters, users, domains, calendars, and resources. These files were modified by gcomposer.
Symphony File	Plan	The scheduled activity for a period, typically 24-hours. The plan is continuously updated to show the current status of all TWS activities. This file was modified by gconman.
AT Time	Start Time	The earliest time a job or job stream will begin.
UNTIL Time	Deadline Time	The latest time a job or job stream will begin execution.
ON and EXCEPT Dates	Run Cycles	The dates on which a job stream runs or is excluded from running.

Job Scheduling Console

The Job Scheduling Console is the new graphical user interface for TWS. It provides the following features:

- The Job Scheduling Console is a multi-platform java-based application and is integrated with the Tivoli Framework.

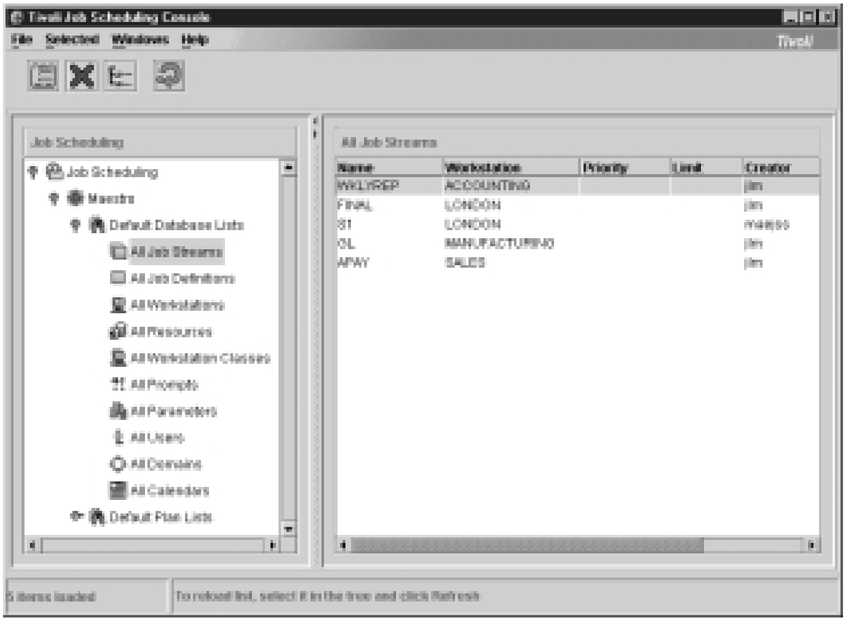
- The Job Scheduling Console can be used to manage both TWS and Operations Planning and Control (OPC) networks simultaneously and on the same interface. OPC is a Tivoli batch job scheduler for the OS-390 operating system.
- The Job Scheduling Console is available in multiple languages, and supports worldwide time zones and localization.

Overview of the New Job Scheduling Console

From the Job Scheduling Console you are able to access scheduling functions for TWS and OPC from a common interface.

The left side of the console displays the job scheduling tree. In this view are the servers (TWS or OPC), and under these servers are groups of default lists for the database and the plan.

There are two sets of default lists, Default Database Lists and Default Plan Lists.



Name	Workstation	Priority	Limit	Creator
WKLYREP	ACCOUNTING			jim
FINAL	LONDON			jim
S1	LONDON			maestro
GL	MANUFACTURING			jim
APAY	SALES			jim

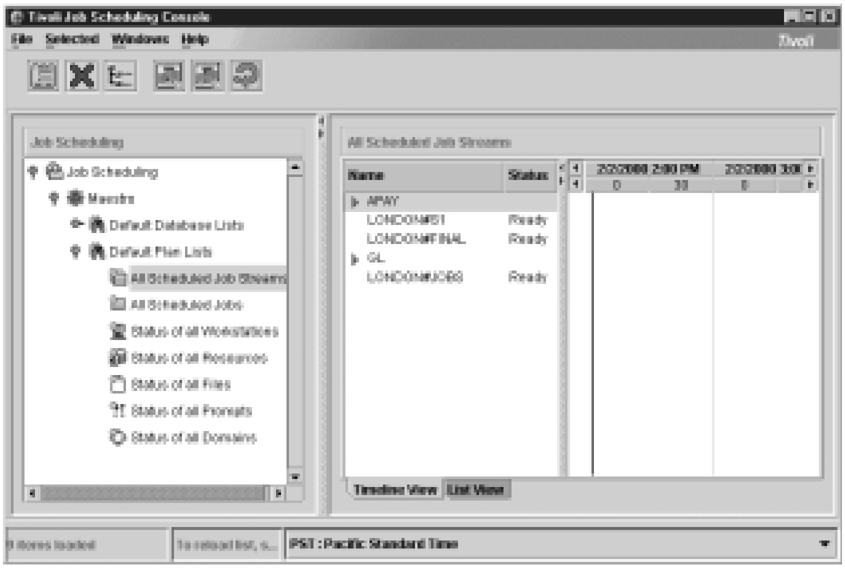
5 items loaded

To reload list, select it in the tree and click Refresh

Figure 1. Default Database Lists

From the left panel you select a list icon and click the Load List button (a green arrow) to display the list. The right side of the window displays the results of a list. You can also select to detach the list into a separate window, using the Detach list command available in the pop up menu of commands on a list icon. When you first start TWS there are a number of default lists for you to use. You can modify these lists or create your own groups and lists.

From the Job Scheduling Console you can view both the configuration of objects in the database, and the status of objects in the plan.



- Job Scheduling
  - Maestro
    - Default Database Lists
    - Default Plan Lists
      - All Scheduled Job Streams
      - All Scheduled Jobs
      - Status of all Workstations
      - Status of all Resources
      - Status of all Files
      - Status of all Prompts
      - Status of all Domains

Name	Status
APWY	
LONDON#S1	Ready
LONDON#FINAL	Ready
GL	
LONDON#JOBS	Ready

2/2/2000 2:00 PM 2/2/2000 3:0
0 30 0

8 items loaded | To reload list, s... | PST : Pacific Standard Time

Figure 2. Default Plan Lists

Database and Plan

There are two types of lists:

Database lists

A database list displays objects that have been defined in the TWS database. These can be jobs, job streams, workstations, workstation classes, parameters, prompts, resources, domains, and users. These correspond in legacy Maestro to objects in the mozart database files that are modified using the **composer**.

Plan lists

A plan list displays objects that have been scheduled and are included in today's plan file. These correspond in legacy Maestro to objects in the Symphony file that are modified using **conman**.

Usage Notes

Below are some tips in using the new Job Scheduling Console:

- There are three types of properties windows:
  - Properties of a database object. These screens edit an object in the database, and affect all future uses of this object in the plan, starting with the next production day.
  - Properties of a plan object. These screens edit an object in the plan, and affect only today's production plan. Changes to an object in the plan are not saved in the database, and do not affect future runs of an object.
  - Properties of a list. These screens do not edit objects, they edit a list of what objects are displayed. The properties chosen in a list window are similar to a filter on the showschedules or showjobs command in legacy Maestro.
- The order of columns in a display list can be modified. You can rearrange the columns to your personal preference by clicking and dragging the column heads. This new column order is only maintained for your current login.
- Open a list in a separate window by highlighting the list in the tree view, and selecting the **Detach View** command from the pop-up menu. This enables you to open multiple lists simultaneously. For example, you can view both job instances and job stream instances. You can have up to seven detached windows at a time.
- Set the global refresh rate for your lists. This enables you to view plan lists and get updated information at a rate that you

specify. You can set a long refresh rate to save processing time or a short refresh rate to always view updated information. **Note:** If you work with many detached views at the same time, avoid refreshing lists frequently in order to keep your system from slowing down.

- You can create and save customized lists for both the plan and the database. Define lists using wildcards and retrieve a specific subset of objects in the database or the plan. For example, to define a list that displays job streams called **SAP1**, and **SAP2**, enter **SAP*** in the list properties window. This enables you to quickly view only the database or plan objects that are important to you.
- On text entry fields, a blue dot next to a field means that this is a required field, or there has been an input error and the current input is not valid.
- Use the **Create Another** command to create a copy of any database object. This command creates a clone of the database object, opens the properties editor, and changes the name to **Copyof***object*. You can then modify the name and save the object.
- Note that the character restrictions listed in this manual are for double byte character languages. In some languages, the encoding of special characters will lead to more than 2 bytes and create a restriction on the maximum character length for any given field. So normally an 8 character field will allow 8 characters, however, if you use special characters or some national characters that take up more bytes, the character restrictions for that field may be as much as half of normal.
- The caret character (^) is reserved for any field that can have a parameter.

Viewing TWS Properties

You can view the properties of your installation of TWS by highlighting the TWS controller in the tree view, and selecting the **Properties** command from the pop up menu. This displays the Properties - Scheduler window. From the Scheduler Information tab of this window you can view such information as:

- whether time zones are enabled
- the database mode, expanded or non-expanded
- the workstation you are currently connected to
- Batchman status
- the connectors version level
- the auditing level for the database and the plan

Job Scheduling Console Connectors

Connectors only become active after the Job Scheduling Console is started. There are connectors for the TWS engine, database, and plan. After 30 minutes of inactivity the connectors will stop. They will automatically restart when commands in GUI are entered. For example, if you are doing work only on the database you will not see the plan connector process start up unless you do some plan queries or commands on plan.

You can check if the connectors are running for Windows NT by opening task manager and looking for the following processes:

- maestro_engine
- maestro_plan
- maestro_database

You can check if the connectors are running for UNIX by executing the following command at shell prompt:

```
ps -ef | grep "maestro_"
```

The process names listed above are displayed if they are active.

Time Zones

TWS now supports time zones. Enabling time zones provides you with the ability to manage your workload on a global level. Time-zone implementation also allows for easy scheduling across multiple time zone and for jobs that need to run in the ″dead zone.″ The dead zone is the gap between the TWS start of day time on the master and the time on the FTA in another time zone. For example, if an eastern master with a TWS start of day of 6 AM initializes a western agent with a 3-hour time-zone difference, the dead zone for this FTA is between the hours of 3 AM and 6 AM. Previously, special handling was required to run jobs in this time period. Now when specifying a time zone with the start time on a job or jobstream, TWS runs them as expected. For example, consider the following two job streams for a PST FTA with an EST master:

```
Schedule PST_SCHEDULE1          Schedule PST_SCHEDULE2
On SU, weekdays except FR       on weekdays
CARRYFORWARD                    AT 0330 TZ PST
AT 0330                         :
:                               joba
job1                            jobb
job2                            END
END
```

Jobstream PST_SCHEDULE1 is not time-zone enabled. To get this job stream to run every weekday morning, you must schedule it to run Sunday through Thursday, and you must specify ″carryforward.″ Without carryforward, the jobs would never run, since the FTA would be initialized at 0300 every morning (assuming an EST master with a TWS start of day of 0600). Jobstream PST_SCHEDULE2 is time-zone enabled. When the EST master initializes the PST FTA at 0300, it starts the jobstream the same day at 0330.

Time-zone enabling also has an effect on eastern FTAs when scheduling from western masters. For example, consider the following two jobstreams for an EST FTA and a PST master with an 0600 start of day.

```
Schedule EST_SCHEDULE1          Schedule EST_SCHEDULE2
On SU, weekdays except FR       On SU, weekdays except FR
AT 0800 + 1 DAY                 AT 0800 TZ EST
CARRYFORWARD                    :
:                               joba
job1                            jobb
job2                            END
END
```

Jobstream EST_SCHEDULE1 is not time-zone enabled. For this jobstream to run every weekday morning, you must schedule it to run Sunday through Thursday. Specify carryforward and +1DAY for the AT time. Carryforward is needed for the +1DAY specification. Without the +1DAY specification, the job stream would launch immediately after initialization from the western master at 0900. Jobstream EST_SCHEDULE2 is time-zone enabled. When the eastern FTA is initialized at 0900, it runs the jobstream at 0800 the next day.

Once enabled, time zones can be specified in the JS Console or composer for start and deadline times within jobs and jobstreams. For conman, the following commands now accept time-zone parameters where AT or UNTIL times are used:

- submit job
- submit docommand
- submit file
- submit schedule
- addep schedule
- addep job
- addep schedule
- addep job
- ″rurun job; from″ option

Enabling the Time Zone Feature

The time-zone feature is enabled by an entry in the **globalopts** file and by specifying a time zone in the master's workstation definition, as follows:

```
timezone enable = yes|no
```

Time zones are disabled by default on installation or update of the product. If the **timezone enable** entry is missing from the **globalopts** file, time zones are disabled.

Auditing

An auditing option has been implemented to track changes to the database and the plan:

- For the database, all user modifications are logged. However, the delta of the modifications, or before image and after image, will not be logged. If an object is opened and saved, the action will be logged even if no modification has been done.
- For the plan, all user modifications to the plan are logged. Actions are logged whether they are successful or not.

The auditing logs are created in the following directories:

```
TWShome/audit/plan
TWShome/audit/database
```

Audit files are logged to a flat text file on individual machines in the TWS network. This minimizes the risk of audit failure due to network issues and enables a straightforward approach to writing the log. The log formats are the same for both plan and database in a general sense. The logs consist of a header portion which is the same for all records, an action ID, and a section of data which will vary according to the action type. All data is kept in clear text and formatted to be readable and editable from a text editor such as vi or notepad.

Note: For modify commands, two entries are made in the log for resources, calendars, parameters and prompts. The modify command is displayed in the log as the delete and add commands.

Enabling the Audit Feature

The auditing option is enabled by two entries in the **globalopts** file:

```
plan audit level = 0|1
database audit level = 0|1
```

A value of **1** enables auditing and a value of **0** disables auditing. TWS currently defaults to **0**, or auditing disabled. If these options are not present in the **globalopts** file, auditing is disabled. Auditing is disabled by default on installation of the product.

To initiate database auditing, you must shut down TWS completely and use the wmaeutil command to stop the connector instance[1]. When you restart TWS and the connector instance, the database audit log is initiated. Plan auditing takes effect when Jnextday is run.

Auditing Log Format

The audit log formats are basically the same for the plan and database. The log consists of a header portion, an action ID, and data sections that vary with the action type. The data is in clear text format and each data item is separated by a vertical bar (|).

The log file entries will be in the following format:

```
Log Type|GMT Date|GMT Time|Local Date|Local
Time|Object Type|Action Type|Workstation
Name|User ID|Framework User|Object Name|Action
Data fields
```

The log files contain the following information:

Log Type

This field displays an eight character value indicating the source of the log record. The following log types are supported:

[1] If connector instances are stopped, they restart when the GUI is launched.

HEADER
The log file header

CONMAN
conman command text

FILEAID
Command that opens a file

PLAN Plan action

STAGEMAN
stageman run

RELEASE
release command text

DATABASE
Database action

PARMS
Parameter command text

MAKESEC
makesec run

DBEXPAND
dbexpand run

GMT Date
This field displays the GMT date the action was performed. The format is *yyyymmdd* where *yyyy* is the year, *mm* is the month, and *dd* is the day.

GMT Time
This field displays the GMT time the action was performed. The format is *hhmmss* where *hh* is the hour, *mm* is the minutes, and *ss* is the seconds.

Local Date
This field displays the local date the action was performed. The local date is defined by the time zone option of the workstation. The format is *yyyymmdd* where *yyyy* is the year, *mm* is the month, and *dd* is the day.

Local Time

This field displays the local time the action was performed. The local time is defined by the time zone option of the workstation. The format is *hhmmss* where *hh* is the hour, *mm* is the minutes, and *ss* is the seconds.

Object Type

This field displays the type of the object that was affected by an action. The object type is one of the following:

DATABASE

Database definition

DBWKSTN

Database workstation definition

DBWKCLS

Database workstation class definition

DBDOMAIN

Database domain definition

DBUSER

Database user definition

DBJBSTRM

Database job stream definition

DBJOB

Database job definition

DBCAL

Database calendar definition

DBPROMPT

Database prompt definition

DBPARM

Database parameter definition

DBRES

Database resource definition

DBSEC

Database security

PLAN Plan

PLWKSTN
Plan workstation

PLDOMAIN
Plan domain

PLJBSTRM
Plan job stream

PLJOB
Plan job

PLPROMPT
Plan prompt

PLRES
Plan resource

PLFILE
Plan file

Action Type
This field displays what action was taken against the object. The appropriate values for this field are dependent on the action being taken.

For the database, the Action Type can be ADD, DELETE, MODIFY, EXPAND, or INSTALL. TWS will record ADD, DELETE and MODIFY actions for workstation, workstation classes, domains, users, jobs, job streams, calendars, prompts, resources and parameters in the database. The Action Type field also records the installation of a new security file. When **makesec** is run TWS will record it as INSTALL action for a Security definition object. When **dbexpand** is run it will be recorded as a EXPAND action for DATABASE object. LIST and DISPLAY actions for objects are not logged. For **fileaid** TWS will only log the commands that result in the opening of a file. For parameters, the command line with arguments is logged.

Workstation Name
This field displays the TWS workstation from which the user is performing the action.

User ID
This field displays the logon user who performed the particular action. On Win32 platforms it will be the fully qualified domain name *domain\user*.

Framework User
This field displays the Tivoli Framework recognized user ID. This is the login ID of the Job Scheduling Console user.

Object Name
This field displays the fully qualified name of the object. The format of this field will depend on the object type as shown here:

DATABASE
N/A

DBWKSTN
workstation

DBWKCLS
workstation_class

DBDOMAIN
domain

DBUSER
[*workstation#*]*user*

DBJBSTRM
workstation#jobstream

DBJOB
workstation#job

DBCAL
calendar

DBPROMPT
prompt

DBPARM
workstation#parameter

DBRES
workstation#resource

DBSEC
N/A

PLAN N/A

PLWKSTN
workstation

PLDOMAIN
domain

PLJBSTRM
workstation#jobstream_instance

PLJOB
workstation#jobstream_instance.job

PLPROMPT
[*workstation#*]*prompt*

PLRES
workstation#*resource*

PLFILE
workstation#*path*(*qualifier*)

Action Dependent Data
This field displays the action-specific data fields. The format of this data is dependent on the Action Type field.

Audit Log Header

Each log file will start with a header record that contains information about when the log was created and whether it is a plan or database log.

The contents of the header file entry is as follows:

Log Type
HEADER

GMT Date
The GMT date that the log file was created.

GMT Time
The GMT time that the log file was created.

Local Date
The local date that the log file was created.

Local Time
The local time that the log file was created.

Workstation Name
The TWS workstation name for which this file was created. Each workstation in the TWS network creates its own log.

User ID
The TWS user ID that created the log file.

Object Type
This field reads DATABASE for a database log file and PLAN for a plan log file.

Object Name
N/A

Action Type
N/A

Action Dependent Data
This field displays the version of the file.

Sample Audit Log Entries

Below are some sample log file entries:

```
HEADER  |19991202|201200|19991202|131200|DATABASE|        |GANGES
|RIVERS\pyasa                 |||1.0

DATABASE|19991202|224504|19991202|154504|DBWKSTN |ADD
|GANGES |RIVERS\pyasa         ||JAMUNA|

DATABASE|19991203|001400|19991202|171400|DBJOB   |MODIFY  |SINDHU
|RIVERS\tairak                ||NARMADA#dubo|
```

3

Global and Local Options

This chapter describes Global and Local options of TWS. The options define how TWS executes on your system.

Changes to the **globalopts** file take effect when Jnextday is run or a new plan is created. Changes to the **localoptions** take effect when the entire TWS production process tree is refreshed.

Global Options

The Global Options are defined on the master domain manager and apply to all workstations in the TWS network.

Setting the Global Options

Global Options are entered in the **globalopts** file with a text editor. You can make changes at any time, but they do not take effect until TWS is stopped and restarted. The syntax is described in the following table. Entries are not case-sensitive.

Global Option Syntax	Default Value
# *comment*	
automatically grant logon as batch = yes|no	**no**
batchman schedule = yes|no	**no**
carry job states = ([*state*[,...]]**)**	null
carryforward = yes|no|all	**yes**
company = *companyname*	null

Global Option Syntax	Default Value
database audit level = 0|1	**0**
expanded version = yes|no	null
history =*days*	**10**
ignore calendars = yes|no	**no**
master =*wkstation*	Set initially by **customize** on UNIX and **Setup** on Windows NT
plan audit level = 0|1	**0**
retain rerun job name = yes|no	**no**
start =*starttime*	**0600**
timezone enable = yes|no	**no**

# *comment*
: Treat everything from the pound sign to the end of the line as a comment.

automatically grant logon as batch job
: This is for Windows NT jobs only. If set to **yes**, the logon users for Windows NT jobs are automatically granted the right to **Logon as batch job**. If set to **no**, or omitted, the right must be granted manually to each user or group. Note that the right cannot be granted automatically for users running jobs on a Backup Domain Controller (BDC), so you must grant those rights manually.

batchman schedule
: This is a production option that affects the operation of Batchman, which is the production control process of TWS. The setting determines the priority assigned to the job streams created for unscheduled jobs. Enter **yes** to have a priority of **10** assigned to these job streams. Enter **no** to have a priority of **0** assigned to these job streams.

carry job states
: This is a pre-production option that affects the operation of the **stageman** command. Its setting determines the jobs, by state, to be included in job streams that are carried forward.

You must enclose the job states in parentheses, double quotation marks, or single quotation marks. The commas can be replaced by spaces. The valid internal job states are as follows:

abend **abenp** **add** **done** **exec** **fail**
hold **intro** **pend** **ready** **rjob** **sched**
skel **succ** **succp** **susp** **wait** **waitd**

Some examples of the option are as follows:

```
carry job states=(abend,exec,hold,intro)
carry job states="abend exec hold intro"
carry job states='abend exec hold intro'
```

An empty list is entered as follows:

```
carry job states=()
```

See “Understanding the Carry Forward Options” on page 38 for more information.

carryforward

This is a pre-production option that affects the operation of the **stageman** command. Its setting determines whether or not job streams that did not complete are carried forward from the old to the new production plan (Symphony). Enter **yes** to have uncompleted job streams carried forward only if the **Carry Forward** option is enabled in the job stream definition. Enter **all** to have all uncompleted job streams carried forward, regardless of the **Carry Forward** option. Enter **no** to completely disable the carry forward function. The **stageman -carryforward** command line option is assigned the same values and serves the same function as the **carryforward** Global Option. If it is used, it overrides the Global Option. See “Understanding the Carry Forward Options” on page 38 for more information.

company

This is your company’s name, up to 40 characters. If the name contains spaces, enclose the entire name in quotation marks (″).

database audit level

Select whether to enable or disable database auditing. Valid values are **0** to disable database auditing, and **1** to activate database auditing. Auditing information is logged to a flat file in the *TWShome***/audit/database** directory. Each TWS workstation maintains its own log. For the database, only actions are logged in the auditing file, not the delta of the action. For more information on this feature, refer to "Auditing" on page 24.

expanded version

This option is set during installation by customize on UNIX, and Setup on Windows NT. If set to **yes**, expanded databases are used. If set to **no**, expanded databases are not used. Expanded databases permit the use of long object names. For example, expanded job names can contain up to sixteen characters. The option is also set to yes when you run the **dbexpand** utility to convert from non-expanded to expanded databases. If the option does not exist, as in the case of a TWS version earlier than 6.0, it is interpreted as **no**.

history

Enter the number of days for which you want to save job statistics. Statistics are discarded on a first-in, first-out basis. This has no effect on job standard list files, which must be removed with the **rmstdlist** command. See the *Tivoli Workload Scheduler Reference Manual* for information about the **rmstdlist** command.

ignore calendars

This is a pre-production option that affects the operation of the **compiler** command (see page "The compiler Command" on page 81). Its setting determines whether or not user calendars are copied into the new Production Control file. Enter **yes** to prevent user calendars from being copied into the new production plan (Symphony file). This conserves space in the file, but permits the use of calendar names in date expressions. Enter **no** to have user calendars copied into the new production plan. See "The compiler Command" on page 81 for more information.

master

The name of the master domain manager. This is set when you install TWS with **customize** (UNIX) or **Setup** (Windows NT).

plan audit level

Select whether to enable or disable plan auditing. Valid values are **0** to disable plan auditing, and **1** to activate plan auditing. Auditing information is logged to a flat file in the *TWShome***/audit/plan** directory. Each TWS workstation maintains its own log. For the plan, only actions are logged in the auditing file, not the success or failure of any action. For more information on this feature, refer to “Auditing” on page 24.

retain rerun job name

This is a production option that affects the operation of Batchman, which is the production control process of TWS. Its setting determines whether or not jobs that are rerun with the Conman **rerun** command will retain their original job names. Enter **yes** to have rerun jobs retain their original job names. Enter **no** to permit the **rerun from** name to be assigned to rerun jobs.

start

Enter the start time of the TWS processing day in 24 hour format: *hhmm* (**0000-2359**). The default start time is 6:00 A.M., and the default launch time of the **final** job stream is 5:59 A.M. If you change this option, you must also change the launch time of the **final** job stream, which is usually set to one minute before the start time.

timezone enable

Select whether to enable or disable the time zone option. Valid values are **yes** to activate time zones in your network, and **no** to disable time zones in the network. Time zones are disabled by default on installation of TWS. If the **timezone enable** entry is missing from the **globalopts** file, time zones are disabled. For more information on this feature, refer to “Time Zones” on page 21.

Global Options File Example

A Global Options file template containing TWS’s default settings is located in *TWShome*/**config/globalopts**.

During the installation process, a working copy of the Global Options file is installed as *TWShome*/**mozart/globalopts**.

You can customize the working copy to your needs. The following is a sample of a Global Options file:

```
# Globalopts file on the master domain manager defines
# attributes of the TWS network.
#--------------------------------------------------------
company="Tivoli Systems"
master=main
start=0600
history=10
carryforward=yes
ignore calendarsno
batchman schedule=no
retain rerun job name=no
#
#--------------------------------------------------------
# End of globalopts.
```

Understanding the Carry Forward Options

Job streams are carried forward by the **stageman** command during end-of-day processing. The carry forward process is affected by the following:

- The **carryforward** keyword in your job streams. Refer to the *Tivoli Workload Scheduler Reference Guid*e for more information.
- The **carryforward** Global Option. See “carryforward” below “Setting the Global Options” on page 33.
- The **stageman -carryforward** command line option. See “The stageman Command” on page 83.
- The **carry job states** Global Option. See “carry job states” below“Setting the Global Options” on page 33.

The following table shows how the various carry forward options work together.

Global Options	Carry Forward Operation
carryforward=no	No job streams are carried forward.
carryforward=yes carry job states=(*states*)	Job streams are carried forward only if they have both jobs in the specified states and the **Carryforward** option enabled. Only the jobs in the specified states are carried forward with the job streams.
carryforward=yes carry job states=()	Job streams are carried forward only if they are both uncompleted and have the **Carryforward** option enabled. All jobs are carried forward with the job streams.
carryforward=all carry job states=(*states*)	Job streams are carried forward only if they have jobs in the specified states. Only jobs in the specified states are carried forward with the job streams.
carryforward=all carry job states=()	Job streams are carried forward only if they are uncompleted. All jobs are carried forward with the job streams.

Below is information on the behavior of the carry forward options:

- Any job stream not in SUCC status are considered uncompleted, and are carried forward.
- The **stageman -carryforward** command line option, if used, always overrides the **carryforward** Global Option. The default, if neither is specified, is **carryforward=yes**.
- The default entry is null for the **carry job states** Global Option. That is, if the list is empty or the option is absent, carry forward works as described for **carry job states=()**.
- Jobs and job streams that were cancelled are never carried forward.
- Jobs and job streams with expired **until** times are never carried forward.
- The decision to carry forward a repetitive job (defined by the **Every** option) is based on the state of its most recent run.

- If a job is running when the **Jnextday** job begins execution, and it is not specified to be carried forward, the job continues to run and is placed in the **userjobs** job stream for the new production day. Note that dependencies on such jobs are not carried forward, and any resources that are held by the job are released.

Setting Global Options for MPE Agents

In a TWS network with a UNIX or NT system configured as domain managers and HP3000 (MPE) systems configured as FTAs, you can specify a set of Global Options on the UNIX/NT master domain manager to control TWS's operation on the MPE FTAs.

These options take the place of parameters that would otherwise be set on the MPE systems using the Arranger program's CTP1 transaction. To incorporate these options, add them to your **globalopts** file using the syntax as described in the following table. The entries are not case-sensitive.

Global Option Syntax	Default Value
rules mode = yes|no	**no**
batchman schedule = yes|no	**no**
all userjobs in userjobs schedule = yes|no	**no**
set mpe job pri to zero = yes|no	**no**

rules mode

Replaces CTP1- parameter 4, which is **Complete Control Mode**. If you set this option to **yes**, you must also set **batchman schedule** to **yes**. The normal status of Batchman is **Lives** when active, **Down** when inactive. This is displayed in the Scheduler Properties window of the Job Scheduling Console, or by running the **conman status** command in the CLI. Enabling this option changes the Batchman active status to display **Rules**.

batchman schedule

Replaces CTP1- parameter 7, which is **Assign priority 10 to Batchman-created job streams**. Note that this option is also valid on UNIX and Windows NT. See "Global Options" on page 33.

all userjobs in userjobs schedule

Replaces CTP1- parameter 8, which is **Place all user jobs in USERJOBS job stream**. Set this option to **no** if **rules mode** is set to **yes**.

set mpe job pri to zero

Replaces CTP1- parameter 9, which is **Force MPE priority to 0 for all userjobs**. Set this option to **no** if the **all userjobs in userjobs schedule** option is set to **yes**.

Local Options

Local Options are defined on each workstation, and apply only to that workstation.

Setting Local Options

You enter Local Options in a file named **localopts** with a text editor. Changes can be made at any time but do not take effect until TWS is stopped and restarted. The syntax is described in the following table. Entries are not case-sensitive.

Local Option Syntax	Default Value
# *comment*	
bm check file = *seconds*	**120**
bm check status = *seconds*	**300**
bm check until = *seconds*	**300**
bm look = *seconds*	**30**
bm read = *seconds*	**15**
bm stats = on|off	**off**
bm verbose = on|off	**off**
jm job table size = *entries*	**160**
jm look = *seconds*	**300**
jm nice = *value*	**0**
jm no root = yes|no	**no**
jm read =*seconds*	**10**
merge stdlists = yes|no	**yes**

Local Option Syntax	Default Value
mm read =*seconds*	**15**
mm response = *seconds*	**600**
mm retry link =*seconds*	**600**
mm sound off = yes|no	**no**
mm unlink = *seconds*	**960**
nm ipvalidate = none|full	**none**
nm mortal = yes|no	**no**
nm port =*tcpaddr*	**31111**
nm read = *seconds*	**60**
nm retry =*seconds*	**800**
stdlist width = *columns*	**80**
syslog local = *facility*	**-1**
thiscpu = *wkstation*	**thiscpu**
wr read =*seconds*	**600**
wr unlink =*seconds*	**600**
mozart directory = *mozart_share*	None
unison network directory = *unison_share*	None
parameters directory =*parms_share*	None

# comment

Treats everything from the pound sign to the end of the line as a comment.

bm check file

Specify the minimum number of seconds Batchman will wait before checking for the existence of a file that is used as a dependency.

bm check status

Specify the number of seconds Batchman will wait between checking the status of an internetwork dependency.

bm check until

Specify the maximum number of seconds Batchman will wait before reporting the expiration of an Until time for job or job stream. Specifying a value below the default setting (300) may overload the system. If it is set below the value of Local Option **bm read**, the value of **bm read** is used in its place.

bm look

Specify the minimum number of seconds Batchman will wait before scanning and updating its production control file.

bm read

Specify the maximum number of seconds Batchman will wait for a message in its message file.

bm stats

Specify **on** to have Batchman send its startup and shutdown statistics to its standard list file. Specify **off** to prevent Batchman statistics from being sent to its standard list file.

bm verbose

Specify **on** to have Batchman send all job status messages to its standard list file. Specify **off** to prevent the extended set of job status messages from being sent to the standard list file.

jm job table size

Specify the size, in number of entries, of the job table used by Jobman.

jm look

Specify the minimum number of seconds Jobman will wait before looking for completed jobs and performing general job management tasks.

jm nice

For UNIX only, specify the **nice** value to be applied to jobs launched by Jobman.

jm no root

For UNIX only, specify **yes** to prevent Jobman from launching **root** jobs. Specify **no** to allow Jobman to launch **root** jobs.

jm read

Specify the maximum number of seconds Jobman will wait for a message in its message file.

merge stdlists

Specify **yes** to have all of the TWS control processes, except Netman, send their console messages to a single standard list file. The file is given the name **maestro**. Specify **no** to have the processes send messages to separate standard list files.

mm read

Specify the rate, in seconds, at which Mailman checks its mailbox for messages. The default is **15** seconds. Specifying a lower value will cause TWS to run faster but use more processor time.

mm response

Specify the maximum number of seconds Mailman will wait for a response before reporting that a workstation is not responding. The response time should not be less than **90** seconds.

mm retry link

Specify the maximum number of seconds Mailman will wait, after unlinking from a non-responding workstation, before it attempts to link to the workstation again.

mm sound off

Specifies how Mailman responds to a conman **tellop ?** command. Specify **yes** to have Mailman display information about every task it is performing. Specify **no** to have Mailman send only its own status.

mm unlink

Specify the maximum number of seconds Mailman will wait before unlinking from a workstation that is not responding. The wait time should not be less than the response time specified for the Local Option **nm response**.

nm ipvalidate

Specify **full** to enable IP address validation. If IP validation fails, the connection is not allowed. Specify **none** to allow connections when IP validation fails.

nm mortal

Specify **yes** to have Netman quit when all of its child processes have stopped. Specify **no** to have Netman keep running even after its child processes have stopped.

nm port

Specify the TCP port number that Netman responds to on the local computer. This must match the TCP Address in the computer's workstation definition.

nm read

Specify the maximum number of seconds Netman will wait for a connection request before checking its message queue for **stop** and **start** commands.

nm retry

Specify the maximum number of seconds Netman will wait before retrying a connection that failed.

stdlist width

Specify the maximum width of the TWS console messages. You can Specify a column number in the range **1** to **255** and lines are wrapped at or before the specified column, depending on the presence of imbedded carriage control characters. Specify a negative number or zero to ignore line width. On UNIX, you should ignore line width if you enable system logging with the **syslog local** option.

syslog local

Enables or disables TWS system logging for UNIX computers only. Specify **-1** to turn off system logging for TWS. Specify a number from **0** to **7** to turn on system logging and have TWS use the corresponding local facility (LOCAL0 through LOCAL7) for its messages. Specify any other number to turn on system logging and have TWS use the USER facility for its messages. For more information, see "TWS Console Messages and Prompts" on page 48.

thiscpu

Specify the TWS name of this workstation.

wr read

Specify the number of seconds the Writer process will wait for an incoming message before checking for a termination request from Netman.

wr unlink

Specify the number of seconds the Writer process will wait before exiting if no incoming messages are received. The lower limit is **120** and the default is **600**.

Local Options File Example

A template file containing TWS's default settings is located in *TWShome*/**config/localopts**.

During the installation process, a working copy of the Local Options file is installed as *TWShome*/**localopts** unless you have specified an non-default location for netman. Then there two copies of the **localopts** file, one in *TWShome* and one in *Netmanhome*. Any options pertaining to netman need to updated to the **localopts** file in *Netmanhome*.

You can customize the working copy to your needs. The following is a sample of a Local Options file:

```
# Localopts file defines attributes of this workstation.
#-----------------------------------------------------
thiscpu     =sys1
merge stdlists     =yes
stdlistwidth     =80
sysloglocal     =-1
#-----------------------------------------------------
# Attributes of this workstation for batchman process:
bm check file      =120
bm check until      =300
bm look      =30
bm read      =15
bm stats      =off
bm verbose      =off
#-----------------------------------------------------
# Attributes of this workstation for jobman process:
jm job table size     =160
jm look      =300
jm nice      =0
jm no root      =no
jm read      =10
#-----------------------------------------------------
# Attributes of this workstation for mailman process:
mm response     =600
mm retrylink     =600
mm sound off      =no
mm unlink      =960
#-----------------------------------------------------
# Attributes of this workstation for netman process:
nm mortal      =no
nm port      =31111
nm read      =60
nm retry      =800
#-----------------------------------------------------
# Attributes of this workstation for writer process:
wr read      =600
wr unlink      =720
#-----------------------------------------------------
# Optional attributes of this workstation for remote
# database files
# mozart directory = d:\tws\mozart
# parameters directory = d:\tws
# unison network directory =  d:\tws\..\unison\network
#
#------------------------------------------------------------
# End of localopts.
```

Setting Netman Local Options

If the home directory for Netman is not the same as the home directory for TWS, the following local options are moved to a separate **localopts** file in the Netman directory:

- nm ipvalidate
- nm mortal
- nm port
- nm read
- nm retry
- merge stdlists
- stdlist width
- syslog local

For more information about the Netman directory, refer the *Tivoli Workload Scheduler Planning and Installation Guide*.

Setting Options for Decentralized Administration on Windows NT

If you installed TWS using the procedure that permits decentralized administration of scheduling objects, you can define the shared directories on the master domain manager with the following options.

For information about installation prerequisites, the *Tivoli Workload Scheduler Planning and Installation Guide*.

mozart directory
Specify the name of the master domain manager’s shared **mozart** directory.

unison network directory
Specify the name of the master domain manager’s shared **unison** directory.

parameters directory
Specify the name of the master domain manager’s shared *TWShome* directory.

If an option is not set or does not exist, the TWS programs attempt to open the database files on the local computer.

TWS Console Messages and Prompts

The TWS control processes (Netman, Mailman, Batchman, Jobman, and Writer) write their status messages, referred to as console messages, to standard list files. These messages include the prompts used as job and job stream dependencies. On UNIX, the messages can also be directed to the **syslog** daemon (**syslogd**) and to a terminal running the TWS console manager. These features are described in the following sections.

Setting sysloglocal on UNIX

If you set **sysloglocal** in the Local Options file to a positive number, TWS’s control processes send their console and prompt messages to the **syslog** daemon. Setting it to **-1** turns this feature off. If you set it to a positive number to enable system logging, you must also set the Local Option **stdlistwidth** to **0**, or a negative number.

TWS's console messages correspond to the following **syslog** levels:

LOG_ERR
Error messages such as control process abends and file system errors.

LOG_WARNING
Warning messages such as link errors and stuck job streams.

LOG_NOTICE
Special messages such as prompts and tellops.

LOG_INFO
Informative messages such as job launches and job and job stream state changes.

Setting **sysloglocal** to a positive number defines the syslog facility used by TWS. For example, specifying **4** tells TWS to use the local facility LOCAL4. After doing this, you must make the appropriate entries in the **/etc/syslog.conf** file, and reconfigure the syslog daemon. To use LOCAL4 and have the TWS messages sent to the system console, enter the following line in **/etc/syslog.conf**:

```
local4    /dev/console
```

To have the TWS error messages sent to the **maestro** and **root** users, enter the following:

```
local4.err    maestro,root
```

Note that the selector and action fields must be separated by at least one tab. After modifying **/etc/syslog.conf**, you can reconfigure the **syslog** daemon by entering the following command:

```
kill -HUP `cat /etc/syslog.pid`
```

console Command

You can use the Console Manager's **console** command to set the TWS message level and to direct the messages to your terminal. The message level setting affects only Batchman and Mailman messages, which are the most numerous. It also sets the level of messages written to the standard list file or files and the **syslog** daemon. The following command, for example, sets the level of Batchman and Mailman messages to **2** and sends the messages to your computer:

```
console sess;level=2
```

Messages are sent to your computer until you either execute another **console** command, or exit Conman. To stop sending messages to your terminal, you can enter the following Conman command:

```
console sys
```

4

TWS Security

TWS programs and commands determine a user's capabilities by comparing the user's name with the user definitions in the Security file. This chapter explains how to write user definitions and manage the Security file.

The Security File

A template file named *TWShome*/**config/Security** is provided with the software. During installation, a copy of the template is installed as *TWShome*/**Security** and a compiled, operational copy is installed as *TWShome*/**../unison/Security**.

Creating the Security File

To create user definitions, edit the template file *TWShome*/**Security**. Do not modify the original template in *TWShome*/**config/Security**. Then, use the **makesec** command to compile and install a new operational Security file. After it is installed, you can make further modifications by creating an editable copy of the operational file with the **dumpsec** command. The **makesec** and **dumpsec** commands are described later in this chapter. Changes to the Security file take effect when TWS is stopped and restarted.

Managing Security in a Network

Each workstation in a TWS network (domain managers, fault-tolerant agents, and standard agents) has its own Security file. You can maintain a file on each workstation, or you can create a

Security file on the master domain manager and copy it to each domain manager, fault-tolerant agent, and standard agent.

Security File Syntax

The Security file contains one or more user definitions. Each user definition identifies a set of users, the objects they are permitted to access, and the types of actions they can perform.

User Definitions

A user definition defines a set of users, the objects they can access, and the actions they can perform.

Synopsis

[#*comment*]

user *def-name user-attributes*

begin [***** *comment*]

object-type [*object-attributes*] **access**[=*action*[**,**...]]

[*object-type* ...]

[**end**]

Variables

[# | *] *comment*

All text following a pound sign or an asterisk and at least one space is treated as a comment. Comments are not copied into the operational Security file installed by the **makesec** command.

def-name

Specifies the name of the user definition. The name can contain up to 36 alphanumeric characters and must start with a letter.

user-attributes

Specifies one or more attributes that identify the set of users to whom the definition applies. Specify user attributes as follows:

user-attribute[{+ | ˜}*user-attribute*[...]]

Use a plus sign (+) to add an attribute the user or users must have. Use a tilde (˜) to add an attribute the user or users must not have. A *user-attribute* is defined as:

cpu=*wkstation***|$framework|@ [,...]**

where:

wkstation

Specifies the workstation or workstation class on which the user is logged in. Wildcard characters are permitted. The following TWS variables can be used:

$master

The user is logged in on the TWS master domain manager.

$remotes

The user is logged in on any TWS standard agent.

$slaves

The user is logged in on any TWS fault-tolerant agent.

$thiscpu

The user is logged in on the TWS workstation on which the secured program is running.

For Job Scheduling Console users, use **$framework**.

$framework

Specifies the workstation from which the user is running the Job Scheduling Console.

@ Specifies that the user is accessing TWS with the Job Scheduling Console or is logged in on any TWS workstation.

group=*groupname***[,...]**
For UNIX users only. Do not use this argument for Job Scheduling Console users. Specifies the UNIX group in which the user is a member. Wildcard characters are permitted.

logon=*username***|***tme-admin***|@ [,...]**
where:

username
Specifies the name with which the user is logged in on a TWS workstation. Wildcard characters are permitted. The **cpu=** attribute must be set to a workstation name or **@**.

tme-admin
Specifies the name of the TME administrators group in which the user is a member. If the name contains spaces, it must be enclosed in double quotation marks. Wildcards are permitted. The **cpu=** attribute must be set to **$framework** or **@**.

@ Specifies that the user is logged in with any name or is a member of any TME administrators group.

object-type
Specifies the type of object the user is given permission to access. The object types are as follows:

calendar
User calendars.

cpu Workstations, domains, and workstation classes.

file TWS database files.

job Scheduled jobs.

parameter
User parameters.

prompt
Global prompts.

resource
Scheduling resources.

schedule
Job streams.

userobj
User objects.

You can include multiple object types in a user definition. Omitting an object type prevents access to all objects of that type.

object-attributes
Specifies one or more attributes that identify a set of objects of the specified type. If no attributes are specified, all objects of the specified type are accessible. Specify object attributes as follows:

object-attribute[{+ | ˜}*object-attribute*[...]]

Use a plus sign (+) to add an attribute objects must have. Use a tilde (˜) to add an attribute objects must not have. An *object-attribute* can be any of the following:

- For the object type **calendar**:

  name=*calendar-name***[,...]**
  Specifies one or more calendar names. Wildcard characters are permitted. Multiple names must be separated by commas. If omitted, all calendars qualify.

- For the object type **cpu** (workstation):

  cpu=*wkstation***[,...]**
  Specifies one or more workstation, domain, or workstation class names. Wildcard characters are permitted. Multiple names must be separated by commas. If omitted, all workstations qualify. The following TWS variables are permitted: **$master**,

$remotes, **$slaves**, and **$thiscpu**. See "Tivoli-Supplied Variables" on page 64 for more information.

- For the object type **file**:

  name=*filename***[,...]**
  Specifies the names of TWS database files. Wildcard characters are permitted. Multiple names must be separated by commas. If omitted, all files qualify. The file names are as follows:

  calendars
  Contains calendars.

  cpudata
  Contains workstation, workstation classes, and domains.

  jobs Contains jobs.

  mastsked
  Contains job streams.

  parameters
  Contains parameters.

  prodsked
  Contains the production schedule.

  prompts
  Contains prompts.

  resources
  Contains resources.

  security
  The Security file.

  Symphony
  Contains the production plan.

- For the object type **job**:

  cpu=*wkstation*
  Specifies the name of the workstation or workstation class on which the job runs. Wildcard characters are permitted. If omitted, all workstations qualify. The following TWS variables are permitted: **$master**, **$remotes**,

$slaves, and **$thiscpu**. See “Tivoli-Supplied Variables” on page 64 for more information.

jcl=″*path*″ **|** ″*cmd*″
Specifies the command or the path name of the job’s executable file. The command or path must be enclosed in quotation marks (″). Wildcard characters are permitted. If omitted, all job files and commands qualify.

logon=*username***[,...]**
Specifies the user names under which the jobs run. Wildcard characters are permitted. Multiple names must be separated by commas. If omitted, all user names qualify. The following TWS variables are permitted: **$jclowner**, **$owner**, and **$user**. See “Tivoli-Supplied Variables” on page 64 for more information.

name=[*jobstream***.]***job***[,...]**
Specifies the TWS job name. The job’s job stream name is optional. Wildcard characters are permitted. Multiple names must be separated by commas. If omitted, all job names qualify.

- For the object type **parameter**:

cpu=*wkstation*
Specifies the name of the workstation on which the parameters are defined. Wildcard characters are permitted. If omitted, all workstations qualify. The following TWS variables are permitted: **$master**, **$remotes**, **$slaves**, and **$thiscpu**. See “Tivoli-Supplied Variables” on page 64 for more information.

name=*parameter***[,...]**
Specifies one or more parameter names. Wildcard characters are permitted. Multiple names must be separated by commas. If omitted, all parameters qualify.

- For the object type **prompt**:

  name=*prompt***[,...]**
  Specifies one or more prompt names. Wildcard characters are permitted. Multiple names must be separated by commas. If omitted, all prompts qualify.

- For the object type **resource**:

  cpu=*wkstation***[,...]**
  Specifies the name of the workstation or workstation class on which the resources are defined. Wildcard characters are permitted. Multiple names must be separated by commas. If omitted, all workstations qualify. The following TWS variables are permitted: **$master**, **$remotes**, **$slaves**, and **$thiscpu**. See “Tivoli-Supplied Variables” on page 64 for more information.

  name=*resource***[,...]**
  Specifies one or more resource names. Wildcard characters are permitted. Multiple names must be separated by commas. If omitted, all resources qualify.

- For the object type **schedule** (job stream):

  cpu=*wkstation*
  Specifies the name of the workstation or workstation class on which the job streams run. Wildcard characters are permitted. If omitted, all workstations qualify. The following TWS variables are permitted: **$master**, **$remotes**, **$slaves**, and **$thiscpu**. See “Tivoli-Supplied Variables” on page 64 for more information.

  name=*jobstream***[,...]**
  Specifies one or more job stream names.

Wildcard characters are permitted. Multiple names must be separated by commas. If omitted, all job streams qualify.

- For the object type **userobj**:

  cpu=*wkstation*
  Specifies the name of the workstation on which the user is defined. Wildcard characters are permitted. If omitted, all workstations qualify. The following TWS variables are permitted: **$master**, **$remotes**, **$slaves**, and **$thiscpu**. See "Tivoli-Supplied Variables" on page 64 for more information.

  logon=*username***[,...]**
  Specifies one or more user names. Wildcard characters are permitted. Multiple names must be separated by commas. If omitted, all users qualify.

action Specifies the actions users can perform. Multiple actions must be separated by commas. If none are specified, no actions are permitted. Entering **access=@** gives users the ability to perform all actions.

- For the object type **calendar**:

  add Add and save new calendars in the database.

  delete Delete calendars from the database.

  display
  Display calendars in the database.

  modify
  Modify calendars in the database.

  use Use calendars to schedule job streams.

- For the object type **cpu**, which includes workstations, workstation classes, and domains:

  add Add and save new workstations, workstation classes, and domains in the database.

console
View and alter the TWS console.

delete Delete workstations, workstation classes, and domains from the database.

display
Display workstations, workstation classes, and domains in the database.

fence Alter workstation job fences in the production plan.

limit Alter workstation job limits in the production plan.

link Open workstation links.

modify
Modify and replace workstations, workstation classes, and domains in the database.

shutdown
Shutdown TWS processing. This action is only available in the command line.

start Start TWS processing.

stop Stop TWS processing.

unlink
Close workstation links.

To permit a user to switch the domain manager function to a workstation, the user must have both **start** and **stop** access to the workstation.

- For the object type **file**:

build Build TWS's database files. This action is only available in the command line.

delete Not yet implemented.

display
Access the Security file with the **dumpsec**

command. Also display the calendars, parameters, prompts, and resources master files. These actions are only valid in the command line.

modify
Access the Security file with the **makesec** command. Also modify the calendars, parameters, prompts, and resources master files. These actions are only available in the command line.

Note: The object type **file** is used to manage security on the CLI and is only valid for the CLI.

- For the object type **job**:

add Add and save new jobs in the database.

adddep
Add dependencies to jobs in the production plan.

altpri Alter the priority of jobs in the production plan.

cancel Cancel jobs in the production plan.

confirm
Confirm the completion of jobs in the production plan.

deldep
Delete dependencies from jobs in the production plan.

delete Delete jobs from the database.

display
Display jobs in the database.

kill Kill jobs in the production plan.

modify
Modify and replace jobs in the database.

release
Release jobs from their dependencies in the production plan.

reply Reply to job prompts in the production plan.

rerun Rerun jobs in the production plan.

submit
Submit jobs into the production plan.

use Add jobs to job streams in the database.

- For the object type **parameter**:

add Add and save new parameters in the database.

delete Delete parameters from the database.

display
Display parameters in the database.

modify
Modify and replace parameters in the database.

- For the object type **prompt**:

add Add and save new prompts in the database.

delete Delete prompts from the database.

display
Display prompts in the database.

modify
Modify and replace prompts in the database.

use Add prompts to job streams in the database and add prompts to jobs and job streams in the production plan.

- For the object type **resource**:

add Add and save new resources in the database.

delete Delete resources from the database.

display
Display resources in the database.

modify
Modify and replace resources in the database.

use Add resources to job streams in the database and add resources to jobs and job streams in the production plan.

- For the object type **schedule** (job stream):

  add Add and save new job streams in the database.

  adddep
  Add dependencies to job streams in the production plan.

  altpri Alter the priority of job streams in the production plan.

  cancel Cancel job streams in the production plan.

  deldep
  Delete dependencies from job streams in the production plan.

  delete Delete job streams from the database.

  display
  Display job streams in the database.

  limit Alter the job limit of job streams in the production plan.

  modify
  Modify and replace job streams in the database.

  release
  Release job streams from their dependencies in the production plan.

  reply Reply to job stream prompts in the production plan.

  submit
  Submit job streams into the production plan.

- For the object type **userobj**:

add Add new users in the database.

delete Delete users from the database.

display
Display users in the database.

modify
Modify and replace users in the database.

altpass
Alter user passwords in the database.

Order of User Qualification

In qualifying users to access TWS objects, a user’s actual attributes are compared to user definitions in the order the definitions are entered in the **Security** file. The first definition that matches the user determines the user’s capabilities. For this reason, it is important to order user definitions from most specific to least specific. See “Sample Security File” on page 66 for more information.

Order of Object Qualification

In a user definition, you can use multiple statements for a single object type to assign different access capabilities to different sets of objects. Because the first matching statement is used, the order of object statements is important. They must be ordered from most specific to least specific. For example:

```
#Incorrect:
job name=@ access=display
job name=ar@ access=@
```

```
#Correct:
job name=ar@ access=@
job name=@ access=display
```

See “Sample Security File” on page 66 for more information.

Tivoli-Supplied Variables

The Tivoli-supplied variables that can be used in object attributes are as follows:

$jclgroup
The group name of a job’s executable file.

$jclowner
The owner of a job's executable file.

$master
The TWS master domain manager.

$owner
The creator of a job stream and its jobs.

$remotes
All standard agent workstations.

$slaves
All fault-tolerant agent workstations.

$thiscpu
The TWS workstation on which the user is executing the TWS command or program.

$user The user executing the TWS command or program.

The variables **$jclgroup** and **$jclowner** are verifiable only if the user is running a TWS program on the workstation where the job's executable file resides. If the program is being run on a different workstation, the user is denied access.

Wildcard Characters

Where noted in the syntax descriptions, the following wildcard characters are permitted:

?	Replaces one alphabetic character.
%	Replaces one numeric character.
@	Replaces zero or more alphanumeric characters.

The Superuser on UNIX

If a Security file does not exist, no users other than **root** can access TWS objects, and the **root** user has unrestricted access to all objects and can execute all TWS programs and commands. To control **root**, create a Security file with a user definition for the **root** user. In the Security file for a network, you can make a distinction between local **root** users and the **root** user on the master domain manager. For example, you can restrict local users to performing operations affecting only their login workstations and permit the master **root** user to perform operations that affect any workstation in the network. See “Sample Security File” for more information.

Sample Security File

The following is a sample Security file. An explanation of the file follows the listing.

```
###########################################################
#     Sample Security File
###########################################################
# (1)  APPLIES TO MAESTRO OR ROOT USERS LOGGED IN ON THE
#      MASTER DOMAIN MANAGER OR FRAMEWORK.
user mastersm  cpu=$master,$framework + logon=maestro,root,
Root_london-region
begin
#  OBJECT     ATTRIBUTES       ACCESS CAPABILITIES
# ----------  ------------     ----------------------
job                            access=@
schedule                       access=@
resource                       access=@
prompt                         access=@
file                           access=@
calendar                       access=@
cpu                            access=@
parameter  name=@ ~ name=r@    access=@
userobj    cpu=@ + logon=@     access=@
end
###########################################################
# (2)  APPLIES TO MAESTRO OR ROOT USERS LOGGED IN ON ANY
#      WORKSTATION OTHER THAN THE MASTER DOMAIN MANAGER.
user sm  logon=maestro,root
begin
#  OBJECT     ATTRIBUTES       ACCESS CAPABILITIES
# ----------  ------------     ----------------------
job           cpu=$thiscpu     access=@
schedule      cpu=$thiscpu     access=@
resource      cpu=$thiscpu     access=@
prompt                         access=@
file                           access=@
calendar                       access=@
```

```
cpu           cpu=$thiscpu     access=@
parameter     cpu=$thiscpu
              ~ name=r@        access=@
end
###########################################################
# (3)  APPLIES TO USERS LOGGED INTO THE SYS GROUP ON THE
#      MASTER DOMAIN MANAGER OR FRAMEWORK.
user masterop  cpu=$master,$fw + group=sys
begin
#  OBJECT     ATTRIBUTES       ACCESS CAPABILITIES
# ----------  ------------     ----------------------
job           cpu=@
              + logon=$user    access=@
job           cpu=@
              + logon=root     access=adddep,altpri,cancel,
                                      confirm,deldep,release,
                                      reply,rerun,submit,use
job           cpu=@
              + logon=$user,$jclowner
              ~ logon=root     access=add,adddep,altpri,
                                      cancel,confirm,
                                      deldep,release,reply,
                                      rerun,submit,use
schedule      cpu=$thiscpu     access=@
schedule      cpu=@            access=adddep,altpri,cancel,
                                      deldep,limit,release,
                                      submit
resource                       access=add,display,
                                      resource,use
prompt                         access=add,display,reply,use
file                           access=build
calendar                       access=display,use
cpu           cpu=@            access=@
parameter     name=@ ~ name=r@ access=@
end
###########################################################
# (4)  APPLIES TO USERS LOGGED INTO THE SYS GROUP ON ANY
#      WORKSTATION OTHER THAN THE MASTER DOMAIN MANAGER
user op  group=sys
begin
#  OBJECT     ATTRIBUTES       ACCESS CAPABILITIES
# ----------  ------------     ----------------------
job           cpu=$thiscpu
              + logon=$user    access=@
job           cpu=$thiscpu
              + logon=root     access=adddep,altpri,cancel,
                                      confirm,deldep,release,
                                      reply,rerun,submit,use
job           cpu=$thiscpu
              ~ logon=root     access=adddep,altpri,cancel,
                                      confirm,deldep,release,
                                      reply,rerun,submit,use
schedule      cpu=$thiscpu     access=@
resource                       access=add,display,resource,use
prompt                         access=add,display,reply,use
file                           access=build
calendar                       access=use
cpu           cpu=$thiscpu     access=console,fence,limit,
                                      link,start,stop,unlink
parameter     name=@ ~ name=r@ access=@
end


###########################################################
# (5)  APPLIES TO USERS LOGGED INTO THE MIS GROUP ON
#      ANY WORKSTATION OR FRAMEWORK.
user misusers  group=mis
begin
#  OBJECT     ATTRIBUTES       ACCESS CAPABILITIES
# ----------  ------------     ----------------------
job           cpu=$thiscpu
              + logon=$user    access=@
job           cpu=$thiscpu
              + logon=$jclowner
              ~ logon=root     access=submit,use
schedule      cpu=$thiscpu     access=add,submit,
                                      modify,display
parameter     name=r@          access=@
parameter     name=@           access=display
end
###########################################################
# (6)  APPLIES TO ALL OTHER USERS LOGGED IN ON ANY
#      WORKSTATION.
user default  logon=@
begin
#  OBJECT     ATTRIBUTES       ACCESS CAPABILITIES
# ----------  ------------     ----------------------
job           cpu=$thiscpu
              + logon=$user    access=@
job           cpu=$thiscpu
              + logon=$jclowner
              ~ logon=root     access=submit,use
schedule      cpu=$thiscpu     access=add,submit,
                                      modify,display
parameter     name=u@          access=@
parameter     name=@ ~ name=r@ access=display
end
###########################################################
```

Explanation of the Sample Security File

Note that the order of definitions is from most to least specific. Because of the order, **maestro** and **root** users are matched first, followed by users in the **sys** group, and then users in the **mis** group. All other users are matched with the last definition, which is the least specific.

# (1) APPLIES TO MAESTRO OR ROOT USERS LOGGED IN ON THE MASTER DOMAIN MANAGER OR FRAMEWORK. user mastersm cpu=$master,$fw + logon=maestro,root,Root_london-region

This user definition applies to legacy GUI and CLI access for **maestro**and**root** users logged into a master domain manager. It also gives TWS GUI access to users listed in the **Root_london-region**TME administrators group. or a Framework computer. They are given unrestricted access to all objects, except parameters that have names beginning with **r**. Access to the **r** parameters is given only to users in the **mis** group.

# (2) APPLIES TO MAESTRO OR ROOT USERS LOGGED IN ON ANY WORKSTATION OTHER THAN THE MASTER DOMAIN MANAGER. user sm logon=maestro,root

This user definition applies to **maestro** and **root** users to whom definition 1 does not apply, which are those who are logged in on any workstation other than the master domain manager or a Framework computer. They are given unrestricted access to all objects on their login workstation. Note that prompts, files, and calendars are global in nature and are not associated with a workstation.

# (3) APPLIES TO USERS LOGGED INTO THE SYS GROUP ON THE MASTER DOMAIN MANAGER OR FRAMEWORK. user masterop cpu=$master,$fw + group=sys

This user definition applies to users logged into the **sys** group on the master domain manager or a Framework computer. They are given a unique set of access capabilities. Multiple object statements are used to give these users specific types of access to different sets of objects. For example, there are three job statements:

- The first job statement permits unrestricted access to jobs that run on any workstation (@) under the user's name (**$user**).
- The second job statement permits specific types of access to jobs that run on any workstation and that run as **root**.
- The third job statement permits specific types of access to jobs that run on any workstation. The jobs must run under the user's name (**$user**) or under the name of the owner of the job file (**$jclowner**). Jobs that run as root are excluded.

# (4) APPLIES TO USERS LOGGED INTO THE SYS GROUP ON ANY WORKSTATION OTHER THAN THE MASTER DOMAIN MANAGER. user op group=sys

This user definition applies to **sys** group users to whom definition 3 does not apply, which are those who are logged in on any workstation other than the master domain manager or a Framework computer. They are given a set of access capabilities similar to those in definition 3. The exception is that access is restricted to objects on the user's login workstation (**$thiscpu**).

# (5) APPLIES TO USERS LOGGED INTO THE MIS GROUP ON ANY WORKSTATION OR FRAMEWORK. user misusers group=mis

This user definition applies to users logged into the **mis** group on any workstation or a Framework computer. They are given a limited set of access capabilities. Resources, prompts, files, calendars, and workstations are omitted, which prevents access to these objects. These users are given unrestricted access to parameters with names that begin with **r**, but can only display other parameters.

# (6) APPLIES TO ALL OTHER USERS LOGGED IN ON ANY WORKSTATION.

user default logon=@

This user definition gives a set of default capabilities to users other than those covered by the preceding definitions. These users are given unrestricted access to parameters with names that begin with **u**, but can only display other parameters. No access is permitted to parameters with names that begin with **r**.

The dumpsec Command

Decompiles the Security file and sends the output to **stdout**.

The user must have **display** access to the Security file.

Synopsis

dumpsec -v | -u

dumpsec *security-file*

Description

If no arguments are specified, the operational Security file (**../unison/Security**) is dumped. To create an editable copy of a Security file, redirect the output of the command to another file, as shown in the examples.

Arguments

-v Displays command version information only.

-u Displays command usage information only.

security-file
Specifies the name of the Security file to dump.

Examples

The following example displays the command version:

```
dumpsec -v
```

The following example dumps the operational Security file to **stdout**:

```
dumpsec
```

The following example dumps the operational Security file to a file named **mysec**:

```
dumpsec > mysec
```

The following example dumps a Security file named **sectemp** to **stdout**:

```
dumpsec sectemp
```

The makesec Command

Compiles user definitions and installs the Security file. Changes to the Security file take effect when TWS is stopped and restarted. Affected are:

- conman
- gconman
- composer
- gcomposer
- TWS connectors

Simply exit the programs. The next time they are run, the new security definitions will be recognized. For TWS Connectors, you will need to stop them by running the **wmaeutil**

command. The connectors will automatically be restarted with a refresh of any query in the JS console.

The user must have **modify** access to the Security file.

Note: For Windows NT, the connector processes must be stopped (using the **wmaeutil** command) before the **makesec** command will work correctly.

Synopsis

makesec -v | -u

makesec [**-verify**] *in-file*

Description

The **makesec** command compiles the specified file and installs it as the operational Security file (**../unison/Security**). If the **-verify** argument is specified, the file is checked for correct syntax, but it is not compiled and installed.

Arguments

-v Displays command version information only.

-u Displays command usage information only.

-verify
Checks the syntax of the user definitions in *in-file* only. The file is not installed as the Security file. (Syntax checking is performed automatically when the Security file is installed.)

in-file Specifies the name of a file or set of files containing user definitions. A file name expansion pattern is permitted.

Examples

The following example displays the command version:

```
makesec -v
```

The following example creates an editable copy of the operational Security file in a file named **tempsec**; modifies the user definitions with a text editor; then compiles **tempsec** and replaces the operational Security file:

```
dumpsec > tempsec
edit tempsec
```

Here you make any required modifications to the tempsec file. When you are complete modifying the tempsec file execute the **makesec** command to load the security file into TWS:

```
makesec tempsec
```

The following example compiles user definitions from the file set **userdef*** and replaces the operational Security file:

```
makesec userdef*
```

5

The Production Cycle

TWS's processing day begins at the time defined by the Global Option **start**, which is set by default to 6:00 a.m. To turnover a new day, pre-production set up is performed for the upcoming day, and post-production logging and reporting is performed for the day just ended. The procedures and commands to perform these tasks are described in this chapter. For information about the start options, see "Global Options" on page 33.

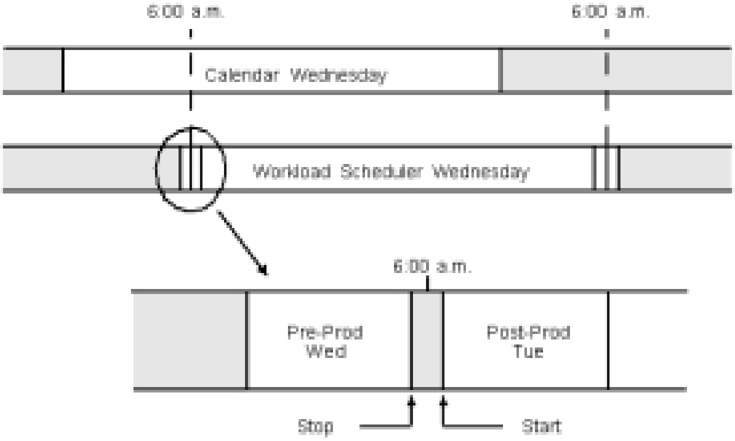


Figure 3. Processing day compared to calendar day

Automating the Production Cycle

Pre and post-production processing can be fully automated by adding the Tivoli-supplied **final** job stream, or a user-supplied equivalent, to the TWS database along with other job streams. A copy of the Tivoli-supplied job stream can be found in *TWShome*/**config/Sfinal**, and a copy of the job script can be found in *TWShome*/**Jnextday**. You may find it helpful to have printed copies to assist in understanding the turnover process.

The **final** job stream is placed in production everyday, and results in running a job named **Jnextday** prior to the start of a new day. The job performs the following tasks:

1. Execute the **schedulr** command to select job streams for the new day's production plan. See “The schedulr Command” on page 79 for more information.
2. Execute the **compiler** command to compile the production plan. See “The compiler Command” on page 81 for more information.
3. Execute the **reptr** command to print pre-production reports. See “The reptr Command” on page 104 for more information.
4. Stop TWS.
5. Execute the **stageman** command to carry forward uncompleted job streams, log the old production plan, and install the new plan. See “The stageman Command” on page 83 for more information.
6. Start TWS for the new day.
7. Execute the **reptr** command to print post-production reports for the previous day. See “The reptr Command” on page 104 for more information.
8. Execute the **logman** command to log job statistics for the previous day. See “The logman Command” on page 88 for more information.

In the TWS manual set, the terms **final** and **Jnextday** are used when referring to both the Tivoli-supplied versions, and any user-supplied equivalents.

Customizing the final Job Stream

Before using the **final** job stream, it can be modified to meet your needs, or you can create a different job stream to use in its place.

When creating your own job stream, model it after the one supplied by Tivoli. If you choose to do so, consider the following:

- If you choose to change the way **stageman** generates log file names, remember that **reptr** and **logman** must use the same names.
- If you would like to print the pre-production reports in advance of a new day, you can split the **Jnextday** job into two jobs. The first job will execute **schedulr**, **compiler** and **reptr**. The second job will stop TWS, execute **stageman**, start TWS, and execute **reptr** and **logman**. The first job can then be scheduled to run at any time prior to the end of day, while the second job is scheduled to run just prior to the end of day.

Adding the final Job Stream

If you performed the quick start procedure in the *Tivoli Workload Scheduler Installation Guide*, the **final** job stream is already added to the database. If not, follow these steps to add the **final** job stream, or a user-supplied equivalent.

1. Log in as the **maestro** user on the master domain manager.
2. At a command prompt, execute the following command on UNIX:

   ```
   composer "add Sfinal"
   ```

   or the following command on Windows NT:

   ```
   composer "add Sfinal"
   ```

   To add your own job stream, use its name in place of **Sfinal**.

Starting a Production Cycle

If it has not been started before follow these steps:

1. Log in as the **maestro** user on the master domain manager.

2. At a command prompt, execute the **Jnextday** job by entering the following command:

   ```
   Jnextday
   ```

   This will perform pre-production processing and start TWS's production processes.

Production Processing Commands

The pre and post-production processing commands executed by the **Jnextday** job are described on the pages that follow.

The schedulr Command

The **schedulr** command selects job streams for a specific date from the database file **mastsked**, and copies them to a new production schedule file named **prodsked**.

You must have **build** access to TWS's database files.

Synopsis

schedulr -v|-u

schedulr [**-date** *date*|**-autodate**] [**-scheds** {*in-file*|-}] [**-prodsked** {*out-file*|-}]

Arguments

-u Display the command version and exit.

-v Display command usage information and exit.

-date Select job streams for a specific date. The date is entered as *mm*/*dd*/[*yy*]*yy*.

-autodate
Select job streams for the current system date.

-scheds
In addition to those selected by **-date** or **-autodate**, if any, select the job streams named in *in-file*. The names must appear in the file as [*workstation#*]*jobstream*, with one name per line. If a dash is entered instead of a file name, **schedulr** prompts for job stream names at stdin.

-prodsked
Direct **schedulr** output to *out-file*. If a dash is entered instead of a file name, the output is directed to stdout. If the argument is omitted, the output is written to a file named **prodsked**.

Description

If **-autodate**, and **-date** are omitted, **schedulr** prompts for a date. If you respond to the prompt by pressing Return, job streams are selected only from the *in-file*.

Examples

Select job streams for today's date, plus the job streams named in the file **myskeds**:

```
schedulr -autodate -scheds myskeds
```

Select job streams for February 15, 1999, do not prompt for extra job stream names, and write the output to the file **myprodsked**:

```
schedulr -date 2/15/90 -prodsked myprodsked
```

Select job streams for February 15, 1999, and prompt for extra job streams:

```
schedulr -date 2/15/1999 -scheds -
```

Prompt for the production date, and extra job streams (note that "schedule" is the same as "job stream"):

```
schedulr
Enter schedule date: 4/14/99
Enter a list of extra schedules
Schedule name: site1#sked2
Schedule name: <Return>
<list of job streams selected>
End of Program
```

The compiler Command

The **compiler** command compiles the production schedule file, and creates an interim production plan file.

Synopsis

compiler -v|**-u**

compiler [**-date** *date*] [**-input** *in-file*] [**-output** *out-file*]

Arguments

-u Display the command version and exit.

-v Display command usage information and exit.

-date The production date to be recorded in the interim production plan file. The date is entered as *mm*/*dd*/[*yy*]*yy*.

-input The name of the file containing the production schedule. If this option is omitted, the default name is **prodsked**.

-output
Direct **compiler** output to *out-file*. If the argument is omitted, the output is written to a file named **Symnew**.

Description

If you omit the **-date** argument, **Symnew** is given the same date as that recorded in the production schedule file created by **schedulr**. If there is no date in production schedule file, the current system date is used. The date in **Symnew** is the date that TWS will begin executing the production plan. The ability to enter a different date can be used to set up processing for past or future dates.

Missing Object Messages

The following messages are produced by **compiler** to indicate missing scheduling objects. The messages are normally found in the standard list file for the **Jnextday** job.

```
job. 5 ... Undefined parameter in "schedule"; not replaced.
```

A parameter called for in a job stream does not exist in TWS's database. No substitution occurs and the parameter string itself is used.

```
102 ... Job name is not found in database. Added a dummy job in FAIL state.
```

A job named in a job stream does not exist in TWS's database. A dummy job of the same name is placed in the production schedule with a priority of zero and a state of FAIL.

```
103 ... Prompt name not found. Added prompt name in Symphony.
```

A prompt named in a job stream does not exist in TWS's database. A dummy prompt containing the following text is used instead: Prompt name was not found in database. This is dummy text. Do you want to continue (Y/N).

```
104 ... Resource name for cpu name not found in database. Added
resource name with 0 units.
```

A resource named in a job stream does not exist in TWS's database. A dummy resource with zero available units is used instead:

```
106 ... Cpu name does not exist in cpu database. Ignoring schedule name.
```

A job stream is defined to run on a cpu that does not exist. The job stream is ignored and not placed in the production schedule.

Examples

Compile **prodsked** into **Symnew**:

```
compiler
```

Compile **prodsked** into **Symnew**, and enter a production date of May 15, 1999:

```
compiler -date 5/15/99
```

Compile the file **mysked** into a file named **mysym**:

```
compiler -input mysked -output mysym
```

The stageman Command

The **stageman** command carries forward uncompleted job streams, logs the old production plan, and installs the new production plan. The new production plan file is named **Symphony**. A copy of **Symphony**, named **Sinfonia**, is also created. **Sinfonia** is sent to domain managers and agents as part of the initialization process for the new day.

You must have **build** access to the **Symphony** file.

Synopsis

stageman -v|-u

stageman[**-carryforward** {**yes**|**no**|**all**}] [**-log** *log-file*|**-nolog**] [*symnew*]

Arguments

-u Display the command version and exit.

-v Display command usage information and exit.

-carryforward
Define the type of carry forward as follows:

- **no** Do not carry forward any job streams.
- **yes** Carry forward only those uncompleted job streams that are Carry Forward enabled.
- **all** Ignore Carry Forward enabling in job streams, and carry forward all uncompleted job streams.

-log Log the old production plan, and give the log file this name. See “Log File Names” on page 84 for more information.

-nolog Do not log the old production plan.

symnew
The name of the interim production plan file created by **compiler**. If omitted, the file **Symnew** is used.

Description

If you omit **-carryforward**, the default for carry forward is determined by the **carryforward** global option. See “Understanding the Carry Forward Options” on page 38 for more information.

On UNIX only, **stageman** also determines which executable files can be deleted for jobs submitted with the TWS **at** and **batch** commands. These are jobs that were not carried forward. The files are actually deleted when TWS starts up for the new day.

If TWS processes are still running and accessing the **Symphony** file, **stageman** displays the message:

```
Unable to get exclusive access to Symphony.
Shutdown batchman and mailman.
```

To continue, stop TWS and rerun **stageman**. If **stageman** aborts for any reason, you must rerun both **compiler** and **stageman**.

Users accessing the plan through the CLI during the time **Symphony** is being switched are sent the message:

```
Current Symphony file is old. Switching to new Symphony.
Schedule mm/dd/yy (nnnn) on cpu, Symphony switched.
```

Some user commands executed during the switch may not execute properly because the target jobs or job streams were not carried forward.

Log File Names

Production plan log files are stored in the *TWShome*/**schedlog** directory. The default naming convention used by **stageman**, when the **-log** and **-nolog** arguments are omitted, is as follows:

```
TWShome/schedlog/Myyyymmddhhtt
```

where *yyyymmddhhtt* is the year, month, day, hour, and minute the log file was created.

The above naming convention is coded in the **Jnextday** script supplied by Tivoli. If you wish, you can change the naming convention when you automate the production cycle. For more information see “Automating the Production Cycle” on page 76.

Note: Be sure to monitor the disc space in the **schedlog** directory and remove older log files on a regular basis.

Job Streams Carried Forward

The carry forward option remains enabled on job streams that are carried forward, so they may be carried forward again. If an unsuccessful job stream is carried forward and it continues to terminate in a state other than SUCC, it may be carried forward indefinitely unless its Until time expires or it is cancelled.

For carry forward to work properly in a network, the master domain manager's production plan file, **Symphony**, must be updated with the latest job stream status from its agents and subordinate domain managers. This can be accomplished by entering the following at a command prompt on the master domain manager prior to executing **stageman**:

```
conman "link @"
```

Job Stream Names

Job streams that are carried forward are renamed as follows. If the global option **expanded version** is set to **no** the new name is:

CF*yjjjnn*

where *y* is the last digit of the year, *jjj* is the Julian date, and *nn* is a sequence number (00-99, AA-ZZ).

If the global option **expanded version** is set to **yes**the new name is:

CF*yjjjnnxxxxxxxxx*

where *y* is the last digit of the year, *jjj* is the Julian date, *nn* is a sequence number (00-99, AA-ZZ), and xxxxxxxxx is a random alpha string.

For information about the global option **expanded version**, see "Setting the Global Options" on page 33.

Carry Forward Prompts

To retain continuity when carrying job streams forward, **stageman** creates special prompts in the new production plan to account for disconnected Follows dependencies. These prompts are issued after the new processing day begins, when TWS checks to see if the job or job stream is ready to launch, and are replied to as standard prompts. The following is an example of a Carry Forward prompt:

```
INACT 12 (SYS1#CF9123AA) follows SYS1#SKED3 satisfied?
```

This prompt indicates that a job stream from the previous day was carried forward as CF9123AA, and that it follows a job stream named sked3 which was not carried forward. The state of the prompt– INACT in this case– defines the state of the corresponding Follows dependency. The possible states are:

INACT
The prompt has not been issued and the dependency is not satisfied.

ASKED
The prompt has been issued, and is awaiting a reply. The dependency is not satisfied.

NO Either a ″no″ reply was received, or it was determined before Carry Forward occurred that the followed job stream (sked3) had not completed successfully. The dependency is not satisfied.

YES Either a ″yes″ reply was received, or it was determined before Carry Forward occurred that the followed job stream (sked3) had completed successfully. The dependency is satisfied.

Examples

Carry forward all uncompleted job streams (regardless of the status of the Carry Forward option), log the old **Symphony** file, and create the new **Symphony** file:

```
DATE=`datecalc today pic YYYYMMDDHHTT`
stageman -carryforward all -log schedlog/M$DATE
```

Carry forward uncompleted job streams as defined by the **carryforward** Global Option, do not log the old **Symphony** file, and create a new production control file named **mysym**:

```
stageman -nolog mysym
```

The logman Command

The **logman** command log job statistics from a production plan log file.

Synopsis

logman -v|-u

logman [**-smooth** *percent*] [**-minmax** {**elapsed|cpu**}] *log-file*

Arguments

-u Display the command version and exit.

-v Display command usage information and exit.

-smooth
Use a weighting factor that favors the most recent job run when calculating the normal (average) run time for a job. This is expressed as a percentage. For example, **-smooth 40** will apply a weighting factor of 40% to the most recent job run, and 60% to the existing average. The default is zero.

-minmax
Define how the minimum and maximum job run times are logged and reported.

elapsed
Base the minimum and maximum run times on elapsed time.

cpu Base the minimum and maximum run times on cpu time.

log-file
The name of the production plan file or log file from which job statistics are extracted.

Description

Jobs that have already been logged, cannot be logged again. Attempting to do so generates a **0 jobs logged** error message.

Elapsed Time vs. CPU Time

Elapsed time, expressed in minutes, is greatly affected by system activity. It includes both the amount of time a job made use of the CPU and the intervals the job had to wait for other processes to release the CPU. In periods of high system activity, for example, a job may have a long elapsed time, and yet use no more CPU time than in periods of low system activity. On the other hand, CPU time, expressed in seconds, is a measure of the actual time a job made use of the CPU, and does not include the intervals when the job was waiting.

If you run **logman** with the **-minmax elapsed** argument, the maximum and minimum run times and dates are based solely on a job's elapsed time. The values are updated only if the latest job run has an elapsed time greater than the existing maximum, or less than the existing minimum. The CPU times, in this case, will not necessarily indicate their maximum and minimum extremes.

If you run **logman** with the **-minmax CPU** argument, the maximum and minimum run times and dates are based solely on a job's CPU time. The values are updated only if the latest job run has a CPU time greater than the existing maximum, or less than the existing minimum. The elapsed times, in this case, will not necessarily indicate their maximum and minimum extremes.

If you run **logman** without the **-minmax** argument, the elapsed time and CPU time values are updated independently to indicate their maximum and minimum extremes, but the run dates correspond only to the elapsed time values. No record is kept, in this case, of the run dates for maximum and minimum CPU times.

Examples

Log job statistics from the log file M199903170935:

```
logman schedlog/M199903170935
```

Log job statistics from the log file M$DATE based on elapsed time, giving the most recent job runs a weight of 40% when calculating normal (average) run times:

```
logman -smooth 40 -minmax elapsed schedlog/M$DATE
```

The **$DATE** variable contains the date and time stamp used by **stageman** to create the log file name. See “The stageman Command” on page 83 for more information.

The wmaeutil Command

Used to stop the connector server for the plan, database, and engine. The **makesec** command will not run successfully on Windows NT until the connectors are stopped.

Note: If you recreate a plan file manually (not using **Jnextday**), you must stop the connectors by running the **wmaeutil** command and then refresh the views in the Job Scheduling Console to view the new production day. Otherwise, the views in the Job Scheduling Console will remain on the prior production day.

Synopsis

wmaeutil*instance_name* **[-stop DB | PL | EG | *] [-version DB | PL | EG | *] [-dbinfo DB | PL | *] [-sethome] [-gethome] [ALL -stop]**

Arguments

instance_name
: The name of the TWS instance. This refers to the instance name you entered during installation of the TWS engine, and the installation of the connector.

-stop DB | PL | EG | *
: This option can be used to shut down specified connector server. The (*) asterisk can be used to shut down all three connector server.

-version DB | PL | EG | *
: This option is used to obtain the version number of the connector server for the plan, database, engine and installed on the system. The (*) asterisk can be used to obtain versions for all three connector server at once.

-dbinfo DB | PL | *
: This option is used to find out if the TWS database and plan to which this connector is linked is expanded or unexpanded. The (*) asterisk can be used to obtain versions for both database and plan.

-sethome

This option is used to set **MaestroHomeDir** attribute of the TWS objects (Engine, Database, and Plan) in Tivoli's object database. This attribute value links connectors for the specified object instance to the core TWS product. It takes fully qualified name of the TWS home directory as an arguments. Also the pathname string should be enclosed in quotes in order to prevent any shell interpretation.

-gethome

This option does not require any arguments and it prints the value of MaestroHomeDir attribute for the Engine, Database, and Plan object instances as set in the object database.

ALL -stop

This option stops the connector servers for all TWS connector instances connected to the current TWS installation, that is, it stops the connector servers for all instances whose MaestroHomeDir attribute matches the home directory of the TWS current installation.

Usage Notes

Set Environment Variables

Before wmaeutil can be run successfully, you must execute following file in order to set framework environment.

On Windows NT:

```
c: \> %SystemRoot%\system32\drivers\etc\Tivoli\setup_env.cmd
```

For UNIX:

```
$. /etc/Tivoli/setup_env.sh
```

You can update your UNIX profile to run this file, in order to avoid having to run the command manually.

Makesec Considerations

The **wmaeutil** command must be run before running the **makesec** command. The **makesec** command will not run successfully on

Windows NT until the connectors are stopped. You should also stop the connectors when using the **makesec** command on UNIX.

TWS Instance Name

If you are not sure of the instance name that was entered at installation time, perform the following steps:

1. Source the Tivoli environment variables:

   ```
   . /etc/Tivoli/setup_env.sh (for UNIX)
   C:\winnt\system32\drivers\etc\Tivoli\setup_env.cmd (for NT)
   ```

2. Run the **wlookup** command to get the TWS instance name:

   ```
   wlookup -ar MaestroEngine
   maestro2  1697429415.1.596#Maestro::Engine#
   ```

   where *maestro2* is the TWS instance name.

Examples

Stop the connectors for the database, plan, and engine for an instance called maestro:

```
wmaeutil maestro -stop *
```

Stop the connectors for the database for an instance called tws:

```
wmaeutil tws -stop DB
```

Stop the connector versions for the database, plan and engine for an instance called maestro2:

```
wmaeutil maestro2 -version *
```

Managing the Production Environment

This section provides information on changing the start of day for TWS and creating a plan to process future or past days processing.

Choosing the TWS Start of Day

There are three common choices for the start of the production day.

- early morning
- late afternoon
- midnight

These are a few of the scheduling implications:

Start and Deadline Times

Start times (at keyword) specified are always in relationship to the TWS production day start time. You may need to add “+ 1 day” to job streams whose jobs process across production days. Also be certain that the deadline (until keyword) time comes after the start time.

On keyword

Production and calendar days may not be the same. If your production day starts at 06:00 a.m. (the default setting), 05:59 a.m. will be the last minute of the production day. A Job Stream defined to run ON MONDAY at 05:30 will be selected on Monday and will run on the calendar day Tuesday at 5:30 a.m.

Carryforward keyword

Placing the start of day near midnight to correspond with the calendar day will tend to produce a large number of carried forward Job Streams. This may increase the complexity of managing the data center.

Changing the Start of Day

The start of day for TWS is when the **final** Job Stream is run and the TWS processes are stopped and restarted. To specify the start of day for TWS:

1. Modify the **start** option in the **globalopts** file. This is the start time of TWS's processing day in 24 hour format: *hhmm* (**0000-2359**). The default start time is 6:00 A.M.
2. Modify the start time (at keyword) of the **final** job stream to run one minute before the end of day.

Creating a Plan for Future or Past Dates

You can create a plan that executes processing normally scheduled for a future or past day of processing. This procedure effectively recreates any specified day of processing. You may need to use this procedure if you lost a day of processing due to an emergency.

1. Unlink and stop all workstations in your TWS network. This stops all processing in the network.
2. Run the **schedulr** command with the date option to create a prodsked file:

   ```
   schedulr -date ddmmyyyy
   ```

   With the date option you can specify to create a plan based on a future or past day of processing.
3. Run the **compiler** command to create a Symnew file:

   ```
   compiler (-date ddmmyyyy)
   ```

   You can use the date option with the compiler to specify today's date or the date of the day you are trying to recreate. This option may necessary if you have job streams that contain date sensitive input parameters. The **scheddate** parameter is keyed off the date specified with the **compiler** command.
4. Run console manager to stop TWS processes:

   ```
   conman stop @!@
   ```
5. Run stageman to create the new Symphony file:

   ```
   stageman
   ```

6. Run console manager to start TWS processes:

   ```
   conman start
   ```

6

Report Commands

Report Commands

TWS report commands are listed in the following table.

Command	Report
rep1	Report 01 - Job Details Listing
rep2	Report 02 - Prompt Listing
rep3	Report 03 - Calendar Listing
rep4a	Report 04A - Parameter Listing
rep4b	Report 04B - Resource Listing
rep7	Report 07 - Job History Listing
rep8	Report 08 - Job Histogram
rep11	Report 11 - Planned Production Schedule
reptr	Report 09A - Planned Production Summary Report 09B - Planned Production Detail Report 09D - Planned Production Detail (Long Names) Report 10A - Actual Production Summary Report 10B - Actual Production Detail
xref	Report 12 - Cross Reference Report

Command Output

The output of the report commands is controlled by the following variables:

MAESTROLP

Specifies the destination of the output of a command. The default is **stdout**. You can set it to any of the following:

filename

Write the output to a file.

> *filename*

UNIX only. Redirect output to a file, overwriting the contents of the file. If the file does not exist it is created.

>> *filename*

UNIX only. Redirect output to a file, appending to the end of file. If the file does not exist it is created.

| *command*

UNIX only. Pipe output to a system command or process. The system command is always executed.

|| *command*

UNIX only. Pipe output to a system command or process. The system command is not executed if there is no output.

MAESTROLPLINES

Specifies the number of lines per page. The default is 60.

MAESTROLPCOLUMNS

The number of characters per line. The default is 132.

MAESTRO_OUTPUT_STYLE

Specifies the output style for long object names. Set the variable to **LONG** to use full length (long) fields for object names.

If it is not set or it is set to anything other than **LONG**, and the global option **expanded version** is set to **yes**, long names are truncated to eight characters and a plus sign. For example: **A1234567+**. If **expanded version** is set to **no**, long names are truncated to eight characters.

The rep1 - rep4b Commands

These commands print the following reports:

Report 01 - Job Details Listing

Report 02 - Prompt Messages Listing

Report 03 - User Calendar Listing

Report 04A - User Parameters Listing

Report 04B - Maestro Resource Listing

Synopsis

rep[*x*][**-v**|**-u**]

Arguments

x A number corresponding to the report. The numbers are: **1**, **2**, **3**, **4a**, or **4b**.

-u Display the command version and exit.

-v Display command usage information and exit.

Examples

Print Report 03, User Calendar Listing:

```
rep3
```

Display usage information for the **rep2** command:

```
rep2 -u
```

On UNIX, print two copies of report 04A, User Parameters Listing, on printer **lp2**:

```
MAESTROLP="| lp -dlp2 -n2"
export MAESTROLP
rep4a
```

The rep7 Command

This command prints Report 07-Job History Listing.

Synopsis

rep7-v|-u

rep7[**-c** *wkstat*] [**-s** *jstream*] [**-j** *job*] [**-f** *date* **-t** *date*]

Arguments

-u Display the command version and exit.

-v Display command usage information and exit.

-c *wkstat*
Specifies the name of the workstation on which the jobs run. The default is all workstations.

-s *jstream*
Specifies the name of the job stream in which the jobs run. The default is all job streams.

-j *job* Specifies the name of the job. The default is all jobs.

-f *date* Specifies to print job history from this date forward. Enter the date as *yyyymmdd*. The default is the earliest available date.

-t *date* Specifies to print job history up to this date. Enter the date as *yyyymmdd*. The default is the most recent date.

Examples

Print all job history for workstation **ux3**:

```
rep7 -c ux3
```

Print all job history for all jobs in job stream **sked25**:

```
rep7 -s sked25
```

Print job history for all jobs in job stream **mysked** on workstation **x15** between **1/21/99** and **1/25/99**:

```
rep7 -c x15 -s mysked -f 19990121 -t 19990125
```

The rep8 Command

This command prints Report 08-Job Histogram.

Synopsis

rep8-v|-u

rep8[**-f** *date* **-b** *time* **-t** *date* **-e** *time*] [**-i** *file*] [**-p**]

rep8[**-b** *time* **-e** *time*] [**-i** *file*] [**-p**]

Arguments

-u Display the command version and exit.

-v Display command usage information and exit.

-f *date* Specifies to print job history from this date forward. Enter the date as *yyyymmdd*. The default is today's date.

-b *time*
Specifies to print job history from this time forward. Enter the time as *hhmm*. The default is the TWS start of day time.

-t *date* Specifies to print job history up to this date. Enter the date as *yyyymmdd*. The default is the most recent date.

-e *time*
Specifies to print job history up to this time. Enter the time as *hhmm*. The default is the TWS start of day time.

-i *file* Specifies the name of the log file from which job history is extracted. Note that log files are stored in the **schedlog** directory. The default is the current plan (Symphony file).

-p Specifies to insert a page break after each run date.

6. Report Commands

Examples

Print a job histogram which includes all information in the current plan (Symphony file):

```
rep8
```

Print a job histogram beginning at 6:00 a.m. on 1/22/99, and ending at 5:59 a.m. on 1/26/99. This assumes that the dates requested are included in the specified log file. If some dates in the range are missing, the report contains only those available in the log file. Print the report with page breaks after each date:

```
rep8 -p -f 19990122 -b 0600 -t 19990126 -e 0559 -i schedlog/M199801260601
```

Print a job histogram, from the current plan (Symphony file), beginning at 6:00 am, and ending at 10:00 pm:

```
rep8 -b 0600 -e 2200
```

The rep11 Command

This command prints Report 11-Planned Production Schedule.

Synopsis

rep11-v|-u

rep11[**-m***mm*[*yy*] [...]] [**-c** *wkstat* [...]] [**-o** *file*]

Arguments

-u Display the command version and exit.

-v Display command usage information and exit.

-m*mm***[***yy***]**

Specifies the months to be reported. Enter the month number as *mm*. The default is the current month.

You can also enter a year as *yy*. The default is the current year or next year if you specify a month earlier than the current month.

-c *wkstat*

Specifies workstations to be reported. The default is all workstations.

-o *file* Specifies the output file. The default is the file defined by the **MAESTROLP** variable. If **MAESTROLP** is not set, the default is **stdout**.

Examples

Report on June, July, and August of 1999 for workstations **main**, **site1** and **sagent1**:

```
rep11 -m 0699 0799 0899 -c main site1 sagent1
```

Report on June, July, and August of this year for all workstations, and direct output to the file **r11out**:

```
rep11 -m 06 07 08 -o r11out
```

Report on this month and year for workstation **site2**:

```
rep11 -c site2
```

The reptr Command

This command prints the following reports:

Report 09A - Planned Production Summary Report 09B - Planned Production Detail (unexpanded databases)

Report 09D - Planned Production Detail (expanded databases)

Report 10A - Actual Production Summary Report 10B - Actual Production Detail

Synopsis

reptr [**-v**|**-u**]

reptr-pre [-{**summary**| **detail**}] [*symfile*]

reptr-post [-{**summary** | **detail**}] [*logfile*]

Arguments

-u Display the command version and exit.

-v Display command usage information and exit.

-pre Specifies to print the pre-production reports (09A, 09B, 09D).

-post Specifies to print the post-production reports (10A, 10B).

-summary
Specifies to print the summary reports (09A, 10A). If **-summary** and **-detail** are omitted, both sets of reports are printed.

-detail Specifies to print the detail reports (09B, 09D, 10B). If **-summary** and **-detail** are omitted, both sets of reports are printed.

symfile
Specifies the name of the plan file from which reports will be printed. The default is **Symnew** in the current directory.

logfile Specifies the name of the log file from which the reports will be printed. Note that plan log files are stored in the **schedlog** directory. The default is the current plan (**Symphony** file).

If the command is run with no options, all **pre** and **post** reports are printed.

Examples

Print the pre-production detail report from the **Symnew** file:

```
reptr -pre -detail
```

Print the pre-production summary report from the file **mysym**:

```
reptr -pre -summary mysym
```

Print the post-production summary report from the log file **M199903170935**:

```
reptr -post -summary schedlog/M199903170935
```

Print all pre and post-production reports.

```
reptr
```

The pre-production reports are based on information read from the **Symnew** file. The post-production reports are based on information read from the **Symphony** file.

The xref Command

This command prints Report 12-Cross Reference Report.

Synopsis

xref [**-V**|**-U**]

xref [**-cpu***wkstat*][**-depends**|**-files**|**-jobs**|**-prompts**|**-resource**|**-schedules**|**-when** [...]]

Arguments

-U Display the command version and exit.

-V Display command usage information and exit.

-cpu *wkstat*
Specifies to print the report for the named workstation. The **@** wildcard is permitted, in which case, information from all qualified workstations is included. The default is all workstations.

-depends
Specifies to print a report showing the job streams and jobs that are successors of each job.

-files Specifies to print a report showing the job streams and jobs that are dependent on each file.

-jobs Specifies to print a report showing the job streams in which each job is run.

-prompts
Specifies to print a report showing the job streams and jobs that are dependent on each prompt.

-resource
Specifies to print a report showing the job streams and jobs that are dependent on each resource.

-schedules
Specifies to print a report showing the job streams and jobs that are successors of each job stream.

-when Specifies to print a report showing job stream Include and Exclude dates.

If the command is run with no options, all workstations and all options are selected.

Examples

Print a report for all workstations, showing all cross-reference information:

```
xref
```

Print a report for all workstations. Include cross-reference information about all successor dependencies:

```
xref -cpu @ -depends -schedules
```

7

TWS Database Tasks

Using Database Lists

Database lists are used to display objects in the TWS database. When you create a list, you give it a name and specify filtering criteria. When you run a list, it displays a filtered table of objects in the database. Each list you create is represented by an icon in the tree view of the Job Scheduling Console.

You can create lists in the TWS branch or you can create groups below the TWS branch to organize your lists. Tivoli supplies a basic set of lists in a group named **Default Database Lists**.

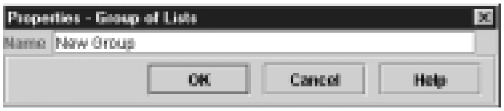
Creating a Group for Database Lists

To create a group for database lists, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Click the **Create a Group of Lists**button on the toolbar or right-click the TWS controller icon and select **Create Group...** from the pop-up menu.

   To create a group in an existing group, select the group and click the **Create a Group of Lists** button on the toolbar or right-click the existing group icon and select **Create Group...** from the pop-up menu.

   This displays the Properties - Group of Lists window.



Name New Group

Figure 4. Properties - Group of Lists window.

3. In the Properties - Group of List window, fill in the text box as follows:

   Name Specifies the name of the list group. The name can contain up to 40 characters, starting with a letter.

4. Click the **OK** button to close the window and save the new group. An icon is created for the new group in the tree view of the Job Scheduling Console.

   Click the **Cancel** button to close the window without saving the new group.

Creating a Database List of Workstations

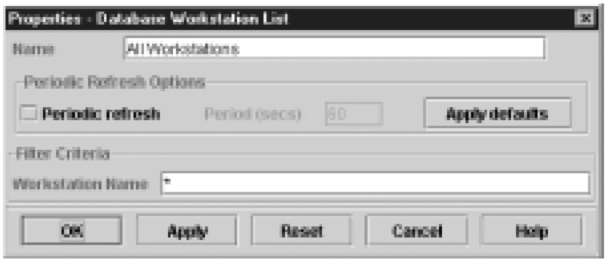
To create a list to display workstations in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.

2. To create the list in the TWS branch, select the TWS controller icon. To create the list in a group, expand the TWS branch and select the group icon. For information about creating groups, see “Creating a Group for Database Lists” on page 109.

3. Click the **List Workstations in Database**button on the toolbar. Alternatively, you can right-click the TWS controller icon or group icon and choose **Create Database List > Workstations** from the pop-up menu.

   This displays the Properties - Database Workstation List window.



Properties - Database Workstation List

Name: All Workstations

Periodic Refresh Options

□ Periodic refresh Period (secs): 60

Filter Criteria

Workstation Name: *

Figure 5. Properties - Database Workstation List window.

4. Type a name for the list in the **Name** text box.
5. To have the list results refreshed automatically, click the **Periodic Refresh** check box and enter a refresh interval in seconds in the **Period (secs)** text box.

   Click the **Apply defaults** button to enter the default periodic refresh settings.
6. To filter the list results, enter a workstation name in the **Workstation Name** text box. The workstation name can contain the following wildcard characters:

   ***** Specifies one or more characters.

   ? Specifies one character.

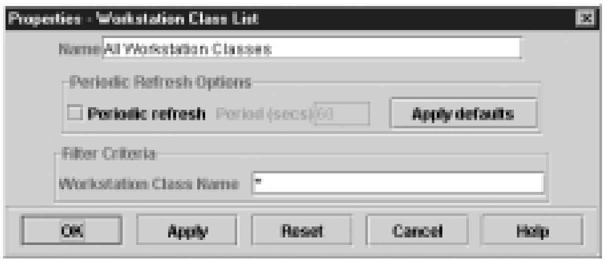
   Leaving a text box blank results in an unfiltered list.
7. When you have finished making your entries, do one of the following:
   - Click the **OK** button to save the list and close the window. A new icon is created for the list in the tree view of the Job Scheduling Console.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.
   - Click the **Cancel** button to close the window without running or saving the list.

Creating a Database List of Workstation Classes

To create a list to display workstation classes in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. To create the list in the TWS branch, select the TWS controller icon. To create the list in a group, expand the TWS branch and select the group icon. For information about creating groups, see "Creating a Group for Database Lists" on page 109.
3. Right-click the TWS controller icon or group icon and choose **Create Database List > Workstation Classes** from the pop-up menu.

   This displays the Properties - Workstation Class List window.



Properties - Workstation Class List

Name: All Workstation Classes

Periodic Refresh Options

□ Periodic refresh   Period (secs): 60

Filter Criteria

Workstation Class Name: *

Figure 6. Properties - Workstation Class List window.

4. Type a name for the list in the **Name** text box.
5. If you want the list results refreshed automatically, click the **Periodic Refresh** check box and enter a refresh interval in seconds in the **Period (secs)** text box.

   Click the **Apply defaults** button to enter the default refresh settings from the TWS properties.
6. To filter the list results, enter a workstation class name in the **Workstation Class Name** text box. The workstation class name can contain the following wildcard characters:

   ***** Specifies one or more characters.

   ? Specifies one character.

Leaving a text box blank results in an unfiltered list.

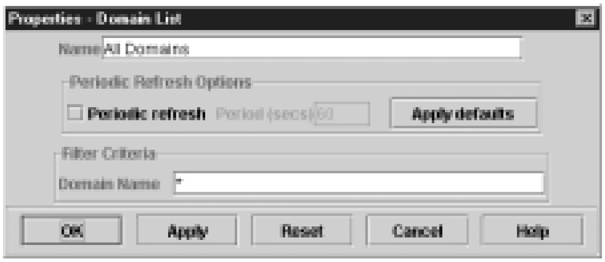
7. When you have finished making your entries, do one of the following:
   - Click the **OK** button to save the list and close the window. A new icon is created for the list in the tree view of the Job Scheduling Console.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.
   - Click the **Cancel** button to close the window without running or saving the list.

Creating a Database List of Domains

To create a list to display domains in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. To create the list in the TWS branch, select the TWS controller icon. To create the list in a group, expand the TWS branch and select the group icon. For information about creating groups, see “Creating a Group for Database Lists” on page 109.
3. Right-click the TWS controller icon or group icon and choose **Create Database List > Domains** from the pop-up menu.

   This displays the Properties - Domain List window.



Name All Domains

□ Periodic refresh Period (secs) 60

Domain Name *

Figure 7. Properties - Domain List window.

4. Type a name for the list in the **Name** text box.
5. If you want the list results refreshed automatically, click the **Periodic Refresh** check box and enter a refresh interval in seconds in the **Period (secs)** text box.

   Click the **Apply defaults** button to enter the default refresh settings from the TWS properties.
6. To filter the list results, enter a domain name in the **Domain Name** text box. The domain name can contain the following wildcard characters:

   ***** Specifies one or more characters.

   ? Specifies one character.

   Leaving a text box blank results in an unfiltered list.
7. When you have finished making your entries, do one of the following:
   - Click the **OK** button to save the list and close the window. A new icon is created for the list in the tree view of the Job Scheduling Console.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.
   - Click the **Cancel** button to close the window without running or saving the list.

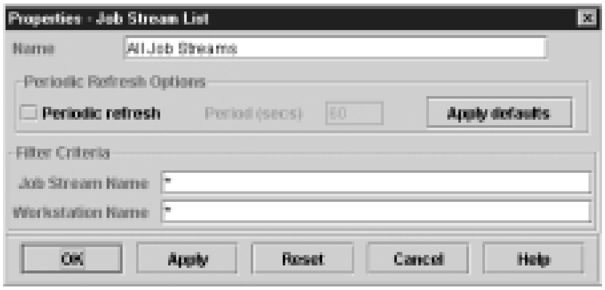
Creating a Database List of Job Streams

To create a list to display job streams in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. To create the list in the TWS branch, select the TWS controller icon. To create the list in a group, expand the TWS branch and select the group icon. For information about creating groups, see “Creating a Group for Database Lists” on page 109.

3. Click the **List Job Streams** icon on the toolbar. Alternatively, you can right-click the TWS controller icon or group icon and choose **Create Database List > Job Stream...** from the pop-up menu.

   This displays the Properties - Job Stream List window.



Name: All Job Streams

☐ Periodic refresh

Period (secs): 60

Job Stream Name: *

Workstation Name: *

Figure 8. Properties - Job Stream List window.

4. Type a name for the list in the **Name** text box.
5. If you want the list results refreshed automatically, click the **Periodic Refresh** check box and enter a refresh interval in seconds in the **Period (secs)** text box.

   Click the **Apply defaults** button to enter the default refresh settings from the TWS properties.
6. To filter the list results, enter a job stream name in the **Job Stream Name** text box and a workstation name in the **Workstation Name** text box. The job stream name and workstation name can contain the following wildcard characters:

   ***** Specifies one or more characters.

   ? Specifies one character.

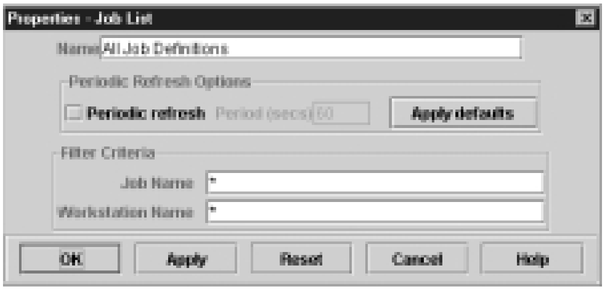
   Leaving a text box blank results in an unfiltered list.
7. When you have finished making your entries, do one of the following:
   - Click the **OK** button to save the list and close the window. A new icon is created for the list in the tree view of the Job Scheduling Console.

- Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.
- Click the **Cancel** button to close the window without running or saving the list.

Creating a Database List of Job Definitions

To create a list to display jobs in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. To create the list in the TWS branch, select the TWS controller icon. To create the list in a group, expand the TWS branch and select the group icon. For information about creating groups, see “Creating a Group for Database Lists” on page 109.
3. Click the **List Job Definitions** icon on the toolbar. Alternatively, you can right-click the TWS controller icon or group icon and choose **Create Database List > Job...** from the pop-up menu. This displays the Properties - Job List window.



Properties - Job List

Name: All Job Definitions

Periodic Refresh Options

□ Periodic refresh Period (secs) 60

Filter Criteria

Job Name: *

Workstation Name: *

Figure 9. Properties - Job List window.

4. Type a name for the list in the **Name** text box.
5. If you want the list results refreshed automatically, click the **Periodic Refresh** check box and enter a refresh interval in seconds in the **Period (secs)** text box.

   Click the **Apply defaults** button to enter the default refresh settings from the TWS properties.

6. To filter the list results, enter a job name in the **Job Name** text box and a workstation name in the **Workstation Name** text box. The job name and workstation name can contain the following wildcard characters:

   ***** Specifies one or more characters.

   ? Specifies one character.

   Leaving a text box blank results in an unfiltered list.

7. When you have finished making your entries, do one of the following:

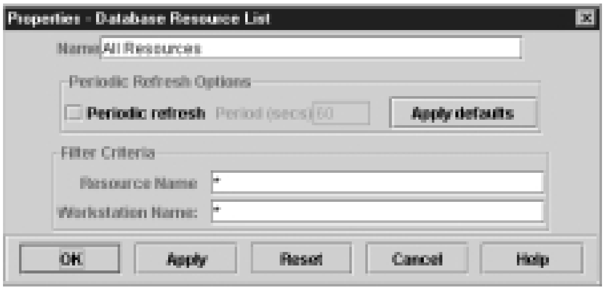
   - Click the **OK** button to save the list and close the window. A new icon is created for the list in the tree view of the Job Scheduling Console.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.
   - Click the **Cancel** button to close the window without running or saving the list.

Creating a Database List of Resources

To create a list to display resources in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. To create the list in the TWS branch, select the TWS controller icon. To create the list in a group, expand the TWS branch and select the group icon. For information about creating groups, see “Creating a Group for Database Lists” on page 109.
3. Click the **List Resources in Database** icon on the toolbar. Alternatively, you can right-click the TWS controller icon or group icon and choose **Create Database List > Resources** from the pop-up menu.

   This displays the Properties - Database Resource List window.



Name: All Resources

□ Periodic refresh Period (secs) 60

Resource Name: *

Workstation Name: *

Figure 10. Properties - Database Resource List window.

4. Type a name for the list in the **Name** text box.
5. If you want the list results refreshed automatically, click the **Periodic Refresh** check box and enter a refresh interval in seconds in the **Period (secs)** text box.

   Click the **Apply defaults** button to enter the default refresh settings from the TWS properties.
6. To filter the list results, enter a resource name in the **Resource Name** text box and a workstation name in the **Workstation Name** text box. The resource name and workstation name can contain the following wildcard characters:

   ***** Specifies one or more characters.

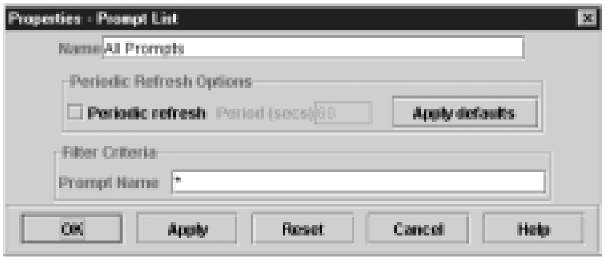
   ? Specifies one character.

   Leaving a text box blank results in an unfiltered list.
7. When you have finished making your entries, do one of the following:
   - Click the **OK** button to save the list and close the window. A new icon is created for the list in the tree view of the Job Scheduling Console.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.
   - Click the **Cancel** button to close the window without running or saving the list.

Creating a Database List of Prompts

To create a list to display prompts in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. To create the list in the TWS branch, select the TWS controller icon. To create the list in a group, expand the TWS branch and select the group icon. For information about creating groups, see “Creating a Group for Database Lists” on page 109.
3. Right-click the TWS controller icon or group icon and choose **Create Database List > Prompts** from the pop-up menu. This displays the Properties - Prompt List window.



Properties - Prompt List

Name: All Prompts

Periodic Refresh Options

□ Periodic refresh Period (secs) 60

Filter Criteria

Prompt Name: *

Figure 11. Properties - Prompt List window.

4. Type a name for the list in the **Name** text box.
5. If you want the list results refreshed automatically, click the **Periodic Refresh** check box and enter a refresh interval in seconds in the **Period (secs)** text box.

   Click the **Apply defaults** button to enter the default refresh settings from the TWS properties.
6. To filter the list results, enter a prompt name in the **Prompt Name** text box. The prompt name can contain the following wildcard characters:

   ***** Specifies one or more characters.

   ? Specifies one character.

Leaving a text box blank results in an unfiltered list.

7. When you have finished making your entries, do one of the following:

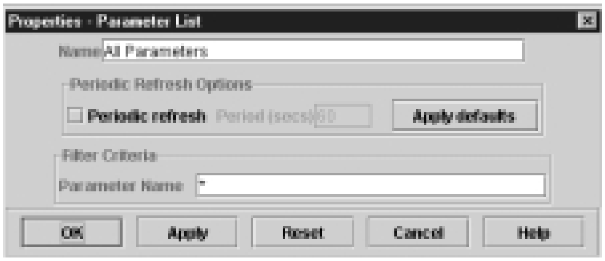
   - Click the **OK** button to save the list and close the window. A new icon is created for the list in the tree view of the Job Scheduling Console.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.
   - Click the **Cancel** button to close the window without running or saving the list.

Creating a Database List of Parameters

To create a list to display parameters in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. To create the list in the TWS branch, select the TWS controller icon. To create the list in a group, expand the TWS branch and select the group icon. For information about creating groups, see “Creating a Group for Database Lists” on page 109.
3. Right-click the TWS controller icon or group icon and choose **Create Database List > Parameters** from the pop-up menu.

   This displays the Properties - Parameter List window.



Name: All Parameters

☐ Periodic refresh Period (secs): 60

Parameter Name: *

Figure 12. Properties - Parameter List window.

4. Type a name for the list in the **Name** text box.
5. If you want the list results refreshed automatically, click the **Periodic Refresh** check box and enter a refresh interval in seconds in the **Period (secs)** text box.

   Click the **Apply defaults** button to enter the default refresh settings from the TWS properties.
6. To filter the list results, enter a parameter name in the **Parameter Name** text box. The parameter name can contain the following wildcard characters:

   ***** Specifies one or more characters.

   ? Specifies one character.

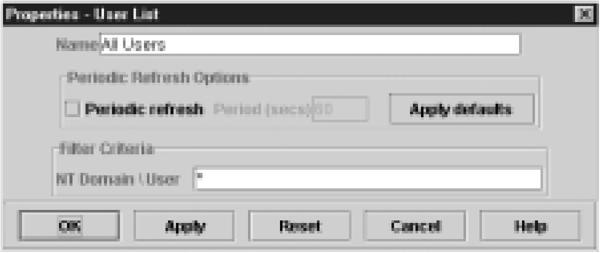
   Leaving a text box blank results in an unfiltered list.
7. When you have finished making your entries, do one of the following:
   - Click the **OK** button to save the list and close the window. A new icon is created for the list in the tree view of the Job Scheduling Console.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.
   - Click the **Cancel** button to close the window without running or saving the list.

Creating a Database List of Users

To create a list to display users in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. To create the list in the TWS branch, select the TWS controller icon. To create the list in a group, expand the TWS branch and select the group icon. For information about creating groups, see “Creating a Group for Database Lists” on page 109.
3. Right-click the TWS controller icon or group icon and choose **Create Database List** > **Users** from the pop-up menu.

This displays the Properties - User List window.



Properties - User List

Name: All Users

☐ Periodic refresh Period (secs): 60

NT Domain \ User: *

Figure 13. Properties - User List window.

4. Type a name for the list in the **Name** text box.
5. If you want the list results refreshed automatically, click the **Periodic Refresh** check box and enter a refresh interval in seconds in the **Period (secs)** text box.

   Click the **Apply defaults** button to enter the default refresh settings from the TWS properties.
6. To filter the list results, enter a user name in the **User Name** text box. The user name can contain the following wildcard characters:

   ***** Specifies one or more characters.

   ? Specifies one character.

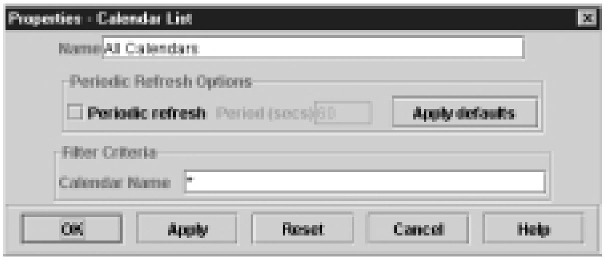
   Leaving a text box blank results in an unfiltered list.
7. When you have finished making your entries, do one of the following:
   - Click the **OK** button to save the list and close the window. A new icon is created for the list in the tree view of the Job Scheduling Console.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.
   - Click the **Cancel** button to close the window without running or saving the list.

Creating a Database List of Calendars

To create a list to display calendars in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. To create the list in the TWS branch, select the TWS controller icon. To create the list in a group, expand the TWS branch and select the group icon. For information about creating groups, see “Creating a Group for Database Lists” on page 109.
3. Right-click the TWS controller icon or group icon and choose **Create Database List > Calendars** from the pop-up menu.

   This displays the Properties - Calendar List window.



Name: All Calendars

□ Periodic refresh   Period (secs): 60

Calendar Name: *

Figure 14. Properties - Calendar List window.

4. Type a name for the list in the **Name** text box.
5. If you want the list results refreshed automatically, click the **Periodic Refresh** check box and enter a refresh interval in seconds in the **Period (secs)** text box.

   Click the **Apply defaults** button to enter the default refresh settings from the TWS properties.
6. To filter the list results, enter a calendar name in the **Calendar Name** text box. The calendar name can contain the following wildcard characters:

   ***** Specifies one or more characters.

   ? Specifies one character.

Leaving a text box blank results in an unfiltered list.

7. When you have finished making your entries, do one of the following:

   - Click the **OK** button to save the list and close the window. A new icon is created for the list in the tree view of the Job Scheduling Console.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.
   - Click the **Cancel** button to close the window without running or saving the list.

Modifying the Properties of a Database List

To modify the properties of a database list, do the following:

1. Select the list icon in the tree view of the Job Scheduling Console.
2. Right-click the list icon and select **Properties** from the pop-up menu.This displays the properties window for the list.
3. Make your modification in the properties window.
4. When you have finished making your entries, do one of the following:

   - Click the **OK** button to save the changes and to close the window.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.
   - Click the **Cancel** button to close the window without running or saving the changes.

Deleting a Database List

To delete a database list, do the following:

1. Select the list icon in the tree view of the Job Scheduling Console.

2. Click the **Delete** icon in the toolbar or right-click the list icon and select **Delete** from the pop-up menu.
3. When asked to confirm the operation, click the **Yes** button to delete the list or click the **Cancel** button to cancel the delete operation.

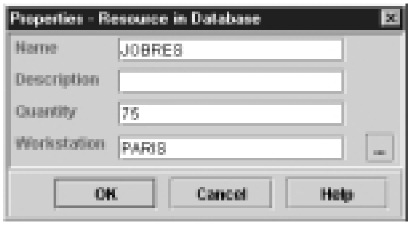
Detaching a Database List Display

Detaching a list frees the right-panel of the Job Scheduling Console to display other objects. You can detach multiple lists to view several objects simultaneously. To detach a database list display, do the following:

1. Select the list icon in the tree view of the Job Scheduling Console.
2. Right-click the list icon and select **Detach View** from the pop-up menu. This displays the separate window for the list display.
3. To re-attach a list display, either close the detached window or right-click the list icon in the tree view and select **Attach View** from the pop-up menu.

Finding Objects in the Database

Search tools are provided in the Job Scheduling Console to help you find objects in the database. The availability of a search tool is indicated by an ellipsis located next to the text box where you enter an object name. In the following example of the Properties - Resource in Database window, the **Workstation** text box provides a search tool.



Name: JOBRES

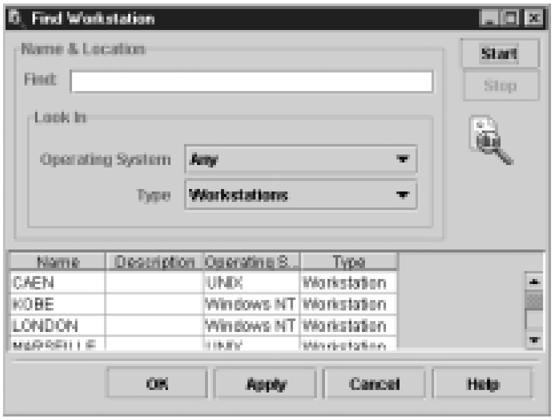
Description:

Quantity: 75

Workstation: PARIS

Figure 15. Properties - Resource in Database window.

Clicking the ellipsis button opens a Find window.



Find:

Operating System: Any

Type: Workstations

Name	Description	Operating S...	Type
CAEN		UNIX	Workstation
KOBE		Windows NT	Workstation
LONDON		Windows NT	Workstation
MARSEILLE		UNIX	Workstation

Figure 16. Find Workstation window.

To use the Find window, do the following:

1. Type search arguments in the available text boxes. The arguments can contain the following wildcard characters:

   ***** Specifies one or more characters.

   ? Specifies one character.

   Leaving a text box blank results in an unfiltered list of objects.

2. Select other filter criteria using radio buttons and checkbox.
3. Click the **Start** button. The results of the search are listed in the lower part of the Find window.
4. Select an object in the list and do one of the following:
   - Double-click the object in the list or click the **OK** button to insert the name of the object in the text box on the parent window and close the Find window.
   - Click the **Apply** button to insert the name of the object in the text box on the parent window. The Find window remains open to permit you to select other objects from the list.

- Click the **Cancel** button to close the Find window without inserting an object name.

Managing Job Definitions in the Database

A job is a unit of work that is part of a job stream processed at a workstation. It usually includes all necessary computer programs, links, files, and instructions to the operating system.

Creating a Job Definition in the Database

You create jobs in the database using the Properties - Job Definition window. To create a new job, follow these steps:

1. In the tree view of the Job Scheduling Console, click the TWS controller icon.
2. Click the **New Job Definition** button on the toolbar or right-click the TWS controller icon and select **New Job Definition** from the pop-up menu. This opens the Select a task type window.

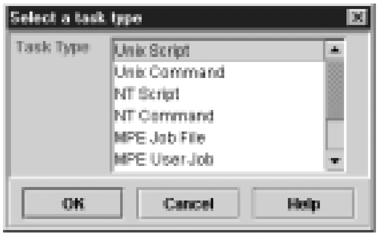


Figure 17. Select a Task Type window.

3. In the Select a task type window, select a **Task Type** from the drop-down list. Once a task type is defined for a job it cannot be changed. The following are the task types:

   Unix Script

   Specifies that the job is an executable file on a UNIX computer.

   Unix Command

   Specifies that the job is a UNIX command.

NT Script
Specifies that the job is an executable file on a Windows NT computer.

NT Command
Specifies that the job is a Windows NT command.

Workstation Class Script
Specifies that the job is an executable file that runs on a workstation class.

Workstation Class Command
Specifies that the job is a command that runs on a workstation class.

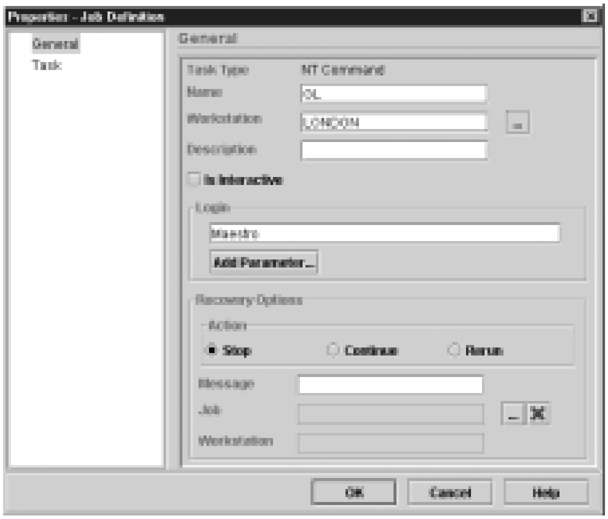
Extended Agent
Specifies that the job is associated with an Extended Agent workstation.

MPE Job File
Specifies that the job is an executable file on an MPE computer.

MPE User Job
Specifies that the job is streamed by an MPE user and is managed by TWS.

SAP Specifies that the job is an SAP job that runs on a TWS Extended Agent for SAP. The SAP task type is only displayed if the Extended Agent for SAP has been installed.

4. Click the **OK** button to proceed or click the **Cancel** button to cancel the operation. Clicking the **OK** button opens the **General** view of the Properties - Job Definition window.



Task Type: NT Command
Name: OL
Workstation: LONDON
Description:
Login: Maestro
Action: ● Stop ○ Continue ○ Rerun

Figure 18. Properties - Job Definition: General window.

5. In the **General** view of the Properties - Job Definition window, fill in the text boxes and select options as follows:

   Job Name

   Specify the name of the job. The name must start with a letter, and can contain alphanumeric characters, dashes and underscores. For non-expanded databases, it can contain up to eight characters. For expanded databases, it can contain up to 40 characters.

   Workstation

   Specify the name of the workstation or workstation class on which the job runs. You can type a name directly or you can click the Find button and select a workstation or workstation class from a list. If you specify a workstation class, it must match the workstation class of any job stream in which the job will be included. For information about using the Find button, refer to “Finding Objects in the Database” on page 125.

   Description

   Specify a description of the job. The description can contain up to 64 characters.

Is Interactive

For Windows NT jobs only. Specify this option to indicate that the job runs interactively on the Windows NT desktop.

Login

Specify the user name under which the job runs. The name can contain up to 47 characters. If the name contains special characters it must be enclosed in quotes (“). Specify a user that can log on to the workstation on which the job runs. For Windows NT jobs, the user must also be defined in the database. See “Managing Users in the Database” on page 225 for more information.

To include a parameter in the name, do the following:

- Place the cursor in the Login where you want to insert the parameter and click the **Add Parameter** button.
- This displays the Find Parameters window.
- Enter a parameter name in the **Find** text box. The name can contain wildcard characters.
- Click the **Start** button to display a list of parameter names.
- Select a parameter name in the list and do one of the following:
  - Click the **OK** button or double-click the parameter in the list to insert the parameter name in the **Login** text box of the Properties - Job Definition window and close the Find Parameters window.
  - Click the **Apply** button to insert the parameter name in the **Login** text box of the Properties - Job Definition window and keep the Find Parameters window open.

- Click the **Cancel** button to close the Find Parameters window without inserting a parameter name.

A parameter can be used for all or part of the text box and multiple parameters are permitted.

Recovery Options

Specify the recovery options for the job.

Action

Specify the action to be taken if the job ends abnormally (abends). Select one of the following. The default it **Stop**.

Stop If the job abends, do not continue with the next job.

Continue

If the job abends, continue with the next job.

Rerun If the job abends, rerun the job.

Prompt

Specify the text of a recovery prompt, enclosed in quotes, to be displayed if the job abends. The text can contain up to 64 characters. The recovery prompt is a local prompt and is responded to using the Job Scheduling Console.

Job

Specify the name of a recovery job to run if the parent job abends. Click the Find button and select a job from a list. Recovery jobs are run only once for each abended instance of the parent job. For information about using the Find button, refer to “Finding Objects in the Database” on page 125.

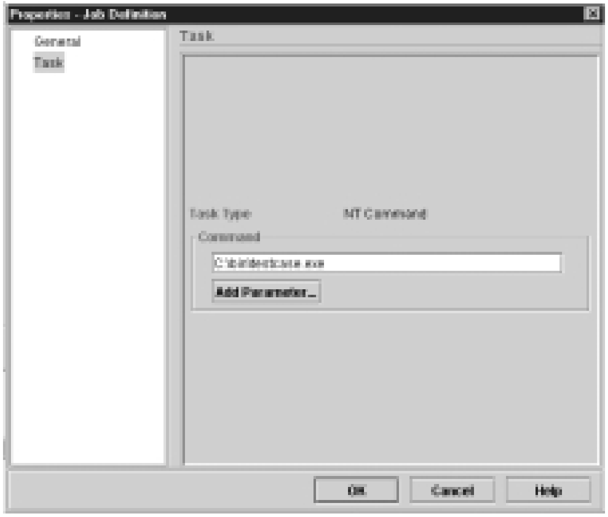
Workstation

Specify the name of the workstation on which the recovery job runs. The name is entered automatically when you select a recovery job.

Not all jobs are eligible to have recovery jobs run on a different workstation. Follow these guidelines:

- If either workstation is an extended agent, it must be hosted by a domain manager or a fault-tolerant agent that runs in **Full Status** mode.
- The recovery job's workstation must be in the same domain as the parent job's workstation.
- If the recovery job's workstation is a fault-tolerant agent, it must run in **Full Status** mode.

6. Select **Task** in the left panel of the Properties - Job Definition window. This displays the **Task** view.



Task Type: NT Command

Command: C:\bin\testcase.exe

Figure 19. Properties - Job Definition: Task window.

7. The **Task** view is different for each task type.

For task types **Unix Script**, **NT Script**, or **Workstation Class Script** fill in the text box as follows:

Script

Specify the name of the file the job executes. Enter the file name and any options and arguments. For non-expanded databases, the text box can contain up to 255 characters. For expanded databases, it can contain up to 4095 characters.

For Windows NT jobs, include the file extensions. Universal Naming Convention (UNC) names are permitted. Do not specify files on mapped drives.

If the file name contains spaces, enter the name in another file that does not have spaces in its name and use the second file's name in this text box.

To include a parameter in the **Script** text box, do the following:

- Place the cursor in the **Script** text box where you want to insert the parameter and click the **Add Parameter** button.
- This displays the Find Parameters window.
- Enter a parameter name in the **Find** text box. The name can contain wildcard characters.
- Click the **Start** button to display a list of parameter names.
- Select a parameter name in the list and do one of the following:
  - Click the **OK** button or double-click the parameter in the list to insert the parameter name in the **Script** text box of the Properties - Job Definition window and close the Find Parameters window.
  - Click the **Apply** button to insert the parameter name in the **Script** text box of the Properties -

Job Definition window and keep the Find Parameters window open.

- Click the **Cancel** button to close the Find Parameters window without inserting a parameter name.

A parameter can be used for all or part of the text box and multiple parameters are permitted.

For task types **Unix Command**, **NT Command**, or **Workstation Class Command** fill in the text box as follows:

Command

Specify the name of the command the job executes. Enter the command name and any options and arguments. For non-expanded databases, the text box can contain up to 255 characters. For expanded databases, it can contain up to 4095 characters. Commands are executed directly and the **jobmanrc** standard configuration script is not executed.

To include a parameter in the **Command** text box, do the following:

- Place the cursor in the **Command** text box where you want to insert the parameter and click the **Add Parameter** button.
- Enter a parameter name in the **Find** text box. The name can contain wildcard characters.
- Click the **Start** button to display a list of parameter names.
- Select a parameter name in the list and do one of the following:
    - Click the **OK** button or double-click the parameter in the list to insert the parameter name in the **Command** text box of the Properties - Job Definition window and close the Find Parameters window.

- Click the **Apply** button to insert the parameter name in the **Command** text box of the Properties - Job Definition window and keep the Find Parameters window open.
- Click the **Cancel** button to close the Find Parameters window without inserting a parameter name.

A parameter can be used for all or part of the text box and multiple parameters are permitted.

For task type **MPE Job File**, fill in the text box as follows:

Job File

Specify the name of the MPE file the job executes. For example, **JFILE4.JCL.CORP**.

For task type **MPE User Job**, fill in the text box as follows:

User Job

Specify the name from the JOB card of the MPE job. If the TWS job name does not match the MPE job card name or you want to use skeleton jobs, click the override userjob checkbox and enter the name or wildcard. For example, **$USERJOB=UJOB1** or **$USERJOB=UJ@**.

For task type **SAP Job**, refer to the *TWS SAP/R3 Extended Agent User Guide* for information about defining the task.

For task type **Extended Agent**, refer to the specific user guide for the Extended Agent you are working with for more information.

8. When you are finished in the Properties - Job Definition window, do one of the following:

   - Click the **OK** button to close the Properties - Job Definition window and save the new job in the database.

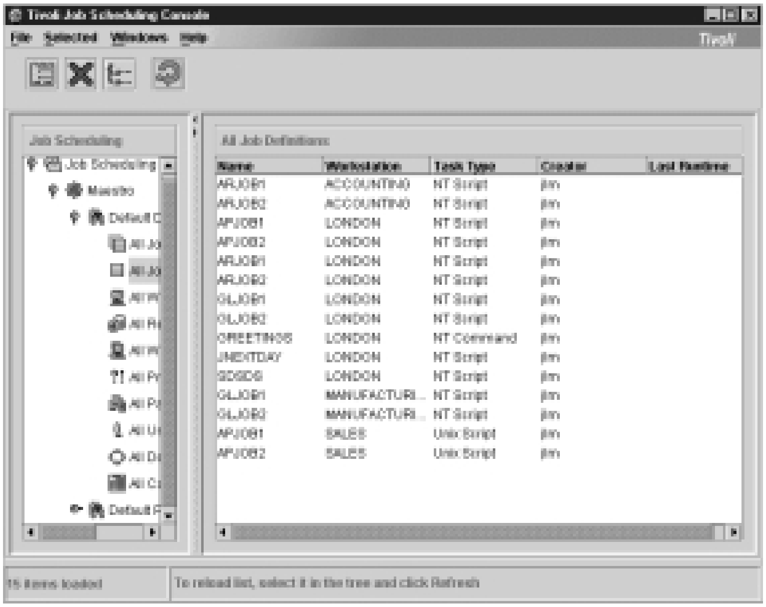
- Click the **Cancel** button to close the Properties - Job Definition window without saving the job in the database.

Displaying a List of Job Definitions in the Database

To display a list of jobs in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Expand the branches below TWS until you see the icon for the job list you want to run. See “Creating a Database List of Job Definitions” on page 116 for information about creating job lists.
3. Select the job list icon.
4. Click the **Load List** button on the toolbar or right-click the job list icon and select **Load List** from the pop-up menu.

   The list results are displayed in the right panel of the Job Scheduling Console.



Name	Workstation	Task Type	Creator	Last Runtime
ARJOB1	ACCOUNTING	NT Script	jim	
ARJOB2	ACCOUNTING	NT Script	jim	
APJOB1	LONDON	NT Script	jim	
APJOB2	LONDON	NT Script	jim	
ARJOB1	LONDON	NT Script	jim	
ARJOB2	LONDON	NT Script	jim	
GLJOB1	LONDON	NT Script	jim	
GLJOB2	LONDON	NT Script	jim	
GREETINGS	LONDON	NT Command	jim	
JNEXTDAY	LONDON	NT Script	jim	
SDSDS	LONDON	NT Script	jim	
GLJOB1	MANUFACTURI...	NT Script	jim	
GLJOB2	MANUFACTURI...	NT Script	jim	
APJOB1	SALES	Unix Script	jim	
APJOB2	SALES	Unix Script	jim	

15 items loaded

To reload list, select it in the tree and click Refresh

Figure 20. Job Definition list window.

The following are descriptions of the column headings.

Workstation
Specifies the name of the workstation on which the job runs.

Name Specifies the name of the job.

Task Type
Specifies the task type of the job. The following are the task types:

Unix Script
Specifies that the job is an executable file on a UNIX computer.

Unix Command
Specifies that the job is a UNIX command.

NT Script
Specifies that the job is an executable file on a Windows NT computer.

NT Command
Specifies that the job is a Windows NT command.

Workstation Class Script
Specifies that the job is an executable file on a specific class of workstations.

Workstation Class Command
Specifies that the job is a command on a specific class of workstations.

Extended Agent
Specifies that the job is an Extended Agent job. Refer to the specific user guide for the Extended Agent you are using for more information.

MPE Job File
Specifies that the job is an executable file on an MPE computer.

MPE User Job
Specifies that the job is streamed by an MPE user and is managed by TWS.

SAP Job

Specifies that the job is an SAP job. You must install the TWS Extended Agent for SAP software to use SAP jobs.

Creator

Specifies the name of the user who created the job in the database.

Last Runtime

Specifies the duration in minutes of the last run of the job.

Displaying a Job Definition in the Database

To display a job in the database, follow these steps:

1. Run a list of jobs that contains the job you want to display. See "Displaying a List of Job Definitions in the Database" on page 136 for more information.
2. In the list results, double-click on the job you want to display or right-click the job and choose **Properties** from the pop-up menu.

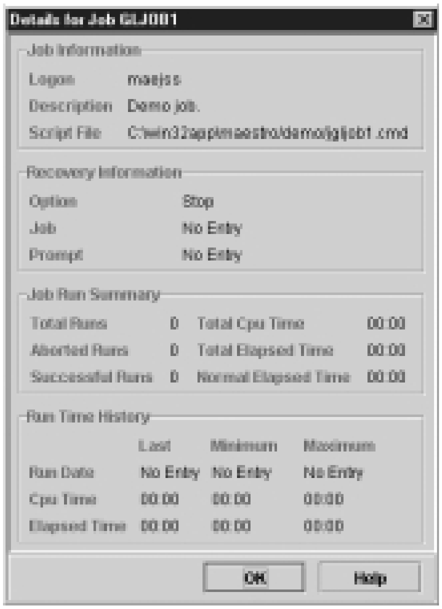
   This displays the job in the Properties - Job Definition window. For information about the Properties - Job Definition window, see "Creating a Job Definition in the Database" on page 127.
3. Click the **OK** or the **Cancel** button to close the Properties - Job Definition window.

Displaying Job Definition Details in the Database

To display job details in the database, follow these steps:

1. Run a list of jobs that contains the job you want to display. See "Displaying a List of Job Definitions in the Database" on page 136 for more information.
2. In the list results, right-click the job you want to display and choose **Job Details** from the pop-up menu.

   This displays the Details for Job window.



Details for Job GLJOB1

Job Information

Logon	maejss
Description	Demo job.
Script File	C:\win32app\maestro\demo\gljob1.cmd

Recovery Information

Option	Stop
Job	No Entry
Prompt	No Entry

Job Run Summary

Total Runs	0	Total Cpu Time	00:00
Aborted Runs	0	Total Elapsed Time	00:00
Successful Runs	0	Normal Elapsed Time	00:00

Run Time History

	Last	Minimum	Maximum
Run Date	No Entry	No Entry	No Entry
Cpu Time	00:00	00:00	00:00
Elapsed Time	00:00	00:00	00:00

Figure 21. Details for Job window.

The following are descriptions of the fields.

Job Information
Displays the job's logon information.

Logon Displays the user logon for the job.

Description
Displays the description of the job.

Script File
Displays the name of the job's script file.

Recovery Information
Displays the job's recovery information.

Option
Displays the job's recovery option. It can be **Stop**, **Continue**, or **Rerun**.

Job Displays the name of the job's recovery job.

Prompt

Displays the job’s recovery prompt.

Job Run Summary

Displays information about the job from the most recent production plan.

Total Runs

Displays the total number of times the job has run.

Aborted Runs

Displays the total number of abended runs of the job.

Successful Runs

Displays the total number of successful runs of the job.

Total CpuTime

Displays the total CPU time of the job.

Total Elapsed Time

Displays the total elapsed time of the job.

Normal Elapsed Time

Displays the elapse time for previous runs of the job.

Run Time History

Displays the job’s run time history for the last run, the minimum run, and the maximum run.

Run Date

Displays the date and time of the run.

CpuTime

The the CPU time of the run.

Elapsed Time

Displays the elapsed time of the run.

3. Click the **OK** button to close the Details for Job window.

Modifying a Job Definition in the Database

To modify a job in the database, follow these steps:

1. Run a list of jobs that contains the job you want to modify. See "Displaying a List of Job Definitions in the Database" on page 136 for more information.
2. In the list results, double-click on the job you want to modify or right-click the job and choose **Properties** from the pop-up menu. This displays the job in the Properties - Job Definition window.

   Note that you cannot modify the name of a job once it has been created. You can however use the **create another** command to save the job with a new name.
3. Make your changes in the Properties - Job Definition window. For information about the Properties - Job Definition window, see "Creating a Job Definition in the Database" on page 127.
4. When you are finished in the Properties - Job Definition window, do one of the following:
   - Click the **OK** button to save the job in the database and close the Properties - Job Definition window.
   - Click the **Cancel** button to close the Properties - Job Definition window without saving the job in the database.

Deleting Job Definitions in the Database

To delete jobs in the database, follow these steps:

1. Run a list of jobs that contains the job you want to delete. See "Displaying a List of Job Definitions in the Database" on page 136 for more information.
2. In the list results, do one of the following:
   - To delete one job, right-click the job.
   - To delete multiple jobs in a range, hold down the **Shift** key, click the first and last jobs in the range, then right-click one of the selected jobs.

- To delete multiple jobs that are not in a range, hold down the **Ctrl** key, click on each job, then right-click one of the selected jobs.

3. Choose **Delete** from the pop-up menu. A message is displayed for each job asking for confirmation.

4. Click the **OK** button to delete the job in the database or click the **Cancel** button to cancel the delete operation.

Managing Job Streams in the Database

Job streams are created and modified using the Job Stream Editor and the Properties - Job Stream window. The Job Stream Editor is used to work with the jobs and follows dependencies between the jobs, as well as the run cycles of the job stream. The Properties - Job Stream window is used to specify time restrictions, resource dependencies, file dependencies, and prompt dependencies at the job stream level.

Using the Job Stream Editor

Use the Job Stream Editor to create and modify job streams in the database. Job stream management functions are divided between three views, **Graph**, **Timeline**, and **Run Cycle**. Each view contains a set of menu and toolbar functions.

Graph View

The **Graph** view provides a graphical display of the jobs in a job stream. Jobs and external job dependencies are represented by icons. Dependencies between jobs are represented as arrows pointing to the successor jobs. Use this view to add and delete jobs and specify dependencies between jobs.

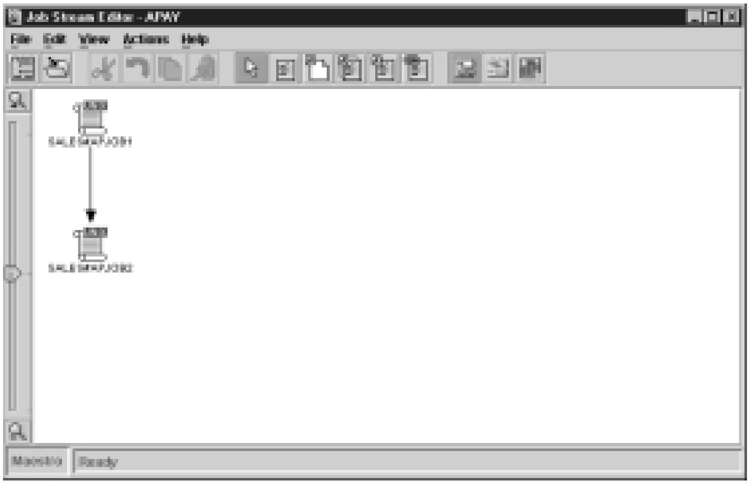


Figure 22. Job Stream Editor: Graph view window.

The toolbar in the **Graph** view of the Job Stream Editor contains the following buttons.

	Properties Click this button to display the Job Stream Properties window.
	Save Click this button to save the job stream in the database.
	Delete Click this button to delete the selected job.
	Undo Delete Click this button to undo the previous **Delete** operation.
	Copy Click this button to copy the selected job to the clipboard.
	Paste Click this button to add the job on the clipboard to the job stream.

	Select Click this button to change the mouse pointer to a selection arrow.
	Add Job Definition Click this button to add a job to the job stream. An icon is added to represent the job.
	Add Dependency on Internetwork Click this button to add an icon to represent an internetwork dependency.
	Add Dependency on External Job Stream Click this button to add an icon to represent an external job stream dependency.
	Add Dependency on External Job Click this button to add an icon to represent an external job dependency.
	Add Link Click this button to add a dependency between jobs in the job stream.
	Graph Click this button to display the **Graph** view.
	Timeline Click this button to display the **Timeline** view.
	Run Cycle Click this button to display the **Run Cycle** view.

Timeline View

The **Timeline** view provides a tabular and timeline display of the time restriction properties of the job stream and its jobs. Use this view to display and adjust time restriction properties.

The window is divided into four panels. The job stream is displayed in the upper panel and its jobs are displayed in the lower panel. Use the borders and the arrows on the borders to adjust the sizes of the panels. Use the arrows at the top of the timeline panel to move the view in one hour and one day increments.

Time intervals are shown in the right panel. A dark blue bar represents the time restrictions for a job or job stream. A light blue bar represents the expected duration, based on past run times. A black segment at the end of a timeline represents the deadline time (see“Deadline” below “Specifying Job Stream Properties” on page 148). Where the duration of the job exceeds the deadline time, the blue bar becomes red. The left panel lists the start, deadline, and duration times for each timeline shown in the right panel.

Dragging a line, or the end of a line, adjusts the start and deadline times of the job stream or a job. Double-clicking the job or job stream name opens time properties windows. You can edit the time properties of the job or job stream from these windows.

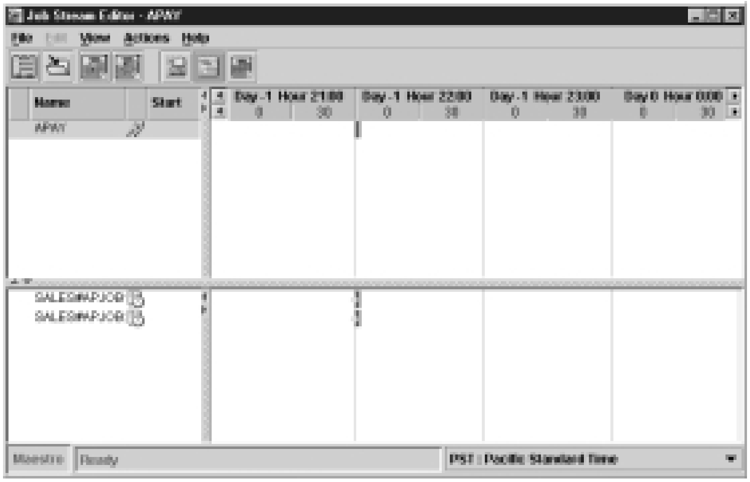


Figure 23. Job Stream Editor: Timeline view window.

The toolbar in the **Timeline** view of the Job Stream Editor contains the following buttons.

	Properties Click this button to display the Job Stream Properties window.

	Save Click this button to save the job stream in the database.
	Go to Day... Click this button to move the timeline display to a day offset from the schedule date of the plan (**Day 0**).
	Go to First Click this button to move the timeline display to the start time and day offset of the job stream or its earliest job, whichever is the first to occur.
	Graph Click this button to display the **Graph** view.
	Timeline Click this button to display the **Timeline** view.
	Run Cycle Click this button to display the **Run Cycle** view.

Run Cycle View

The **Run Cycle** view shows the run cycles of the job stream in a calendar format. Use this view to add and modify the run cycles of the job stream.

The window is divided into two panels. The names of the run cycles for the job stream are listed in the left panel and a calendar showing included and excluded days is displayed in the right panel. Use the border and the arrows on the border to adjust the sizes of the panels.

Use the tabs above the calendar to select the **Monthly** or **Yearly** view and use the arrows above and below the calendar to change the month or year of the calendar.

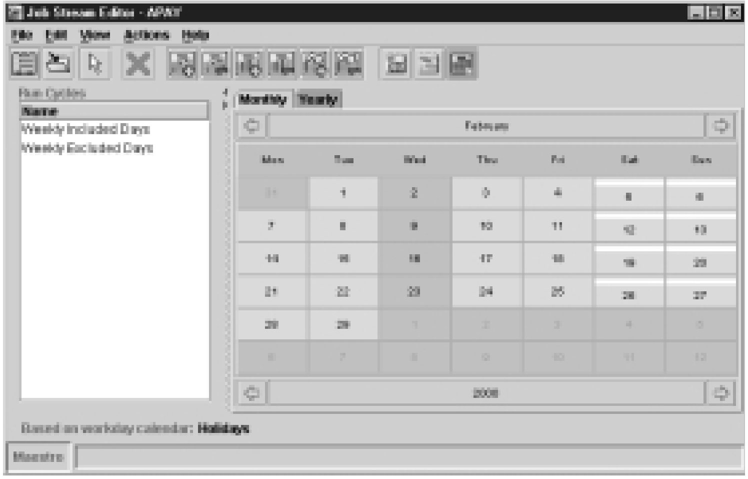


Figure 24. Job Stream Editor: Run Cycle view window.

The toolbar in the **Run Cycles** view of the Job Stream Editor contains the following buttons.

	Properties Click this button to display the Job Stream Properties window.
	Save Click this button to save the job stream in the database.
	Select a Run Cycle Click this button to change the mouse pointer to a selection arrow.
	Delete Click this button to delete the selected run cycle.
	Include Simple Run-Cycle Click this button to add a run cycle of included days.
	Exclude Simple Run-Cycle Click this button to add a run cycle of excluded days.

	Include Weekly Run-Cycle Click this button to add a run cycle of included days of the week.
	Exclude Weekly Run-Cycle Click this button to add a run cycle of excluded days of the week.
	Include Calendar Run-Cycle Click this button to add a run cycle of included days based on a calendar.
	Exclude Calendar Run-Cycle Click this button to add a run cycle of excluded days based on a calendar.
	Graph Click this button to display the **Graph** view.
	Timeline Click this button to display the **Timeline** view.
	Run Cycle Click this button to display the **Run Cycle** view.

Creating a Job Stream in the Database

You create job streams in the database using the Job Stream Editor. To create a new job stream, follow these steps:

1. In the tree view of the Job Scheduling Console, click the TWS controller icon.
2. Click the **New Job Stream** button on the toolbar or right-click the TWS controller icon and select **New Job Stream** from the pop-up menu.

   This displays the Job Stream Editor and the Job Stream Properties window.

Specifying Job Stream Properties

Job stream properties are specified in the Job Stream Properties window of the Job Stream Editor. There are five groups of job stream properties:

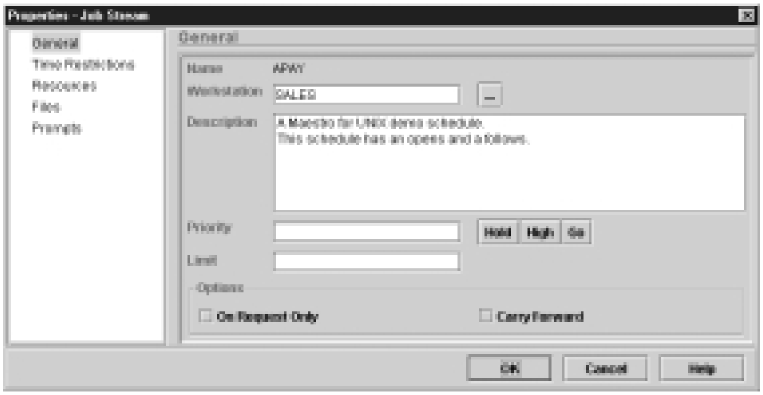
- General

- Time Restrictions
- Resources
- Files
- Prompts

The Job Stream Properties window opens automatically when you create a new job stream. If the Job Stream Properties window is not displayed, select **Properties...** from the **File** menu of the Job Stream Editor.

To specify job stream properties, do the following:

1. Click **General** in the left panel of the Job Stream Properties window. This displays the **General** view.



Name APWY

Workstation SALES

Description A Maestro for UNIX demo schedule.
This schedule has an opens and a follows.

Figure 25. Properties - Job Stream: General window.

2. In the **General** view of the Job Stream Properties window, fill in the text boxes and select options as follows:

   Name Specify the name of the job stream. The name must start with a letter, and can contain alphanumeric characters and dashes. For non-expanded databases, it can contain up to eight characters. For expanded databases, it can contain up to 16 characters. The name of a job stream cannot be changed once is has been saved. However, you can use the **create another** command to save the job stream with another name.

Workstation
Specify the name of the workstation or workstation class on which the job stream is launched. You can type a name directly or you can click the Find button and select a workstation or workstation class from a list. If you specify a workstation class, it must match the workstation class of any jobs or resources used in the job stream. For information about using the Find button, refer to “Finding Objects in the Database” on page 125.

Description
Specify a description of the job stream.

Priority
Specify the priority of the job stream. Select a priority value from the drop-down list or click one of the following buttons:

Hold Sets the priority to **0**.

High Sets the priority to **100**.

Go Sets the priority to **101**.

Possible priority values are **0** through **101**, where **101** is the highest priority. A priority value of zero prevents the job stream from launching. In the case of **High** and **Go**, all jobs in the job stream are given the priority. High and Go jobs are launched as soon as their dependencies are satisfied, overriding the workstation’s job limit, but not overriding the job stream’s job limit or the workstation’s job fence.

Limit Specify the number of jobs that can be running at the same time in the schedule. Select a job limit value from the drop-down list. Possible values are **0** through **1024**. If you specify a job limit of **0**, no jobs are launched in the job stream.

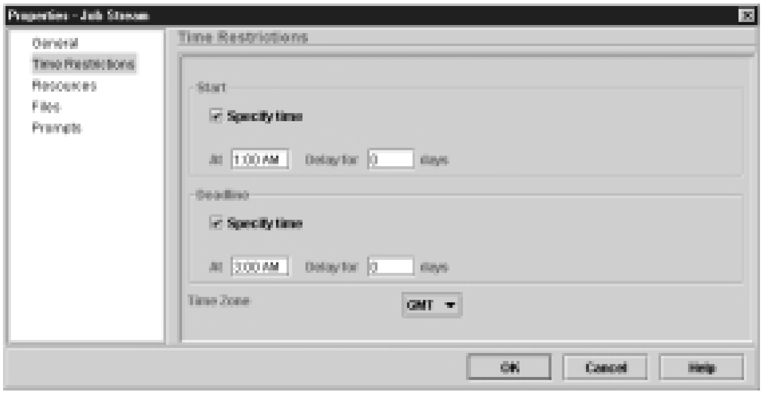
On Request

Check this to specify that the job stream is selected for execution by request. If you select On Request and specify run cycles for the job stream, the On request flag is ignored and the job stream will run according to the run cycle. Normally, these job stream must be submitted into the plan by the user or specifically requested when **schedulr** is run. For more information, see “The schedulr Command” on page 79.

Carry Forward

Check this to specify that the job stream is eligible to be carried forward to the next day’s production plan if it is not completed before the end of the current day’s production day. Job streams that are carried forward retain the **carryforward** option, and therefore, can be carried forward again. You can control the number of days a job stream is carried forward by specifying a deadline time (UNTIL keyword) plus x number of days.

3. To specify time restrictions for a job stream, click **Time Restrictions** in the left panel of the Job Stream Properties window. This displays the **Time Restrictions** view.



Start
☑ Specify time
At 1:00 AM Delay for 0 days

Deadline
☑ Specify time
At 3:00 AM Delay for 0 days

Time Zone GMT

Figure 26. Properties - Job Stream: Time Restrictions window.

4. In the **Time Restrictions** view of the Job Stream Properties window, fill in the text boxes and select options as follows:

Start Specify the earliest time the job stream will be launched. The job stream will not be launched before this time. Make your selections as follows:

Specify time
Specify this option to enable the entry of a start time.

At Specify a start time in the following format:

hh:*mm* **am**|**pm**

For example, **11:30 am** or **4:25 pm**.

Delay for
Specify the number of days to offset the start time from the day the job stream is selected for inclusion in the production plan.

Deadline
Specify the latest time the job stream will be launched. The job stream will not be launched after this time. Make your selections as follows:

Specify time
Specify this option to enable the entry of a deadline time.

At Specify a deadline time in the following format:

hh:*mm* **am**|**pm**

For example, **11:30 am** or **4:25 pm**.

Note: The Deadline time must be later than the Start Time.

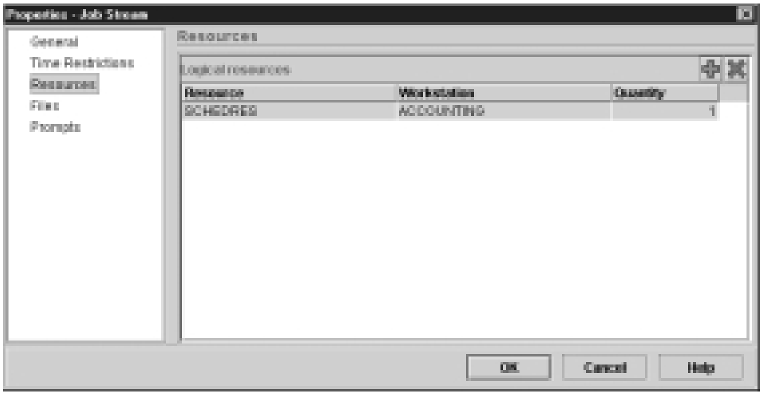
Delay for
Specify the number of days to offset the deadline time from the day the job stream is selected for inclusion in the production plan.

Time Zone
Specify the time zone in which the job stream runs. All time values specified are in this time zone. Select a

time zone from the drop-down list. For information about the time zone feature, see “Time Zones” on page 21. If a time zone is not specified for the job stream, all time values specified in the Time Restrictions properties window are in the time zone of the workstation on which the job stream is launched.

Note: Time Restrictions can also be set in the **Timeline View** of the Job Stream Editor. See “Specifying Time Restrictions in the Timeline View” on page 182 for more information.

5. To specify resource dependencies for a job stream, click **Resources** in the left panel of the Job Stream Properties window. This displays the **Resources** view.



Resource	Workstation	Quantity
SCHEDRES	ACCOUNTING	1

Figure 27. Properties - Job Stream: Resources window.

6. To add a resource dependency for the job stream, do the following:

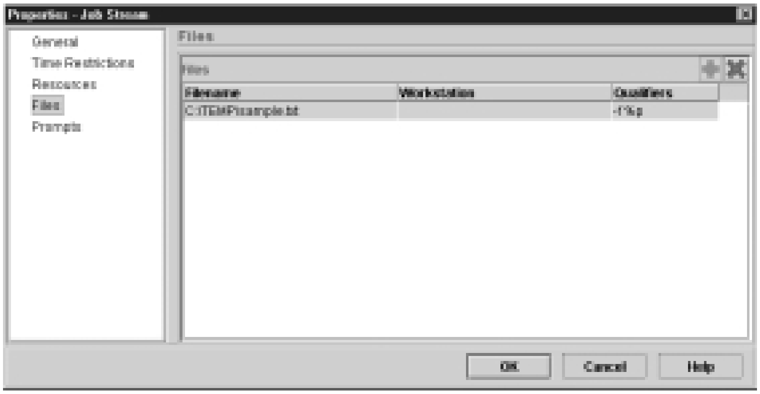
   a. Click the **Add Row** (+) button. This creates a new row in the list of resource dependencies.

   b. Double-click the text box in the **Resources** column and click the Find button to locate and insert a resource name. For information about using the Find window, see “Finding Objects in the Database” on page 125.

  c. Double-click the text box in the **Quantity** column and enter the number of resource units required by the job stream. The default is one. Resources can be defined with up to 1024 units, but they can only be allocated in increments of 32. For example, to allocate 1024 units of a resource to a job stream or job you would need to create 32 entries for the resource with 32 units each.

7. To remove a resource dependency for the job stream, select the resource row in the list and click the **Delete from Table** (X) button.

8. To specify file dependencies for the job stream, click **Files** in the left panel of the Job Stream Properties window. This displays the **Files** view.



Filename	Workstation	Qualifiers
C:\TEMP\sample.txt		-f %p

Figure 28. Properties - Job Stream: Files window.

9. To add a file dependency for the job stream, do the following:

  a. Click the **Add Row** (+) button. This creates a new row in the list of file dependencies.

  b. Double-click the text box in the **Workstation** column and click the Find button to locate and insert the name of a workstation or workstation class. For information about using the Find window, see “Finding Objects in the Database” on page 125.

c. Double-click the text box in the **Filename** column and type in a file name. Alternatively, click the Find button to locate and insert a file name. For information about using the select window, see “Finding Objects in the Database” on page 125.

d. Double-click the text box in the **Qualifiers** column and enter the test conditions for the file dependency. On UNIX, the valid qualifiers are the same as UNIX **test** command conditions. For more information, refer to your UNIX system documentation.

On Windows NT, only the following qualifiers are valid:

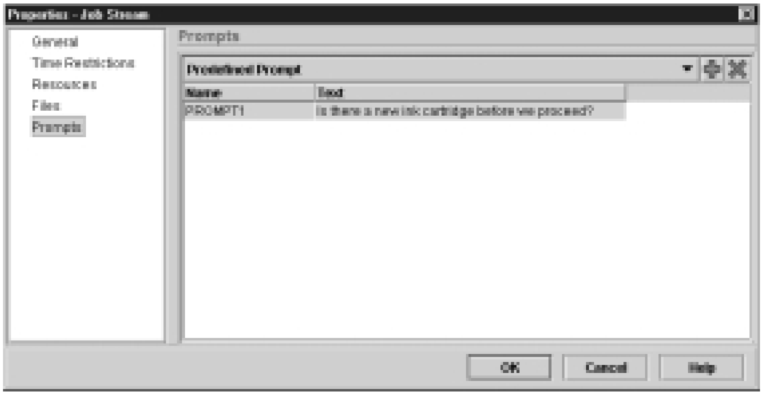
-d %p	True if the file exists and is a directory.
-e %p	True if the file exists.
-f %p	True if the file exists and is a regular file.
-r %p	True if the file exists and is readable.
-s %p	True if the file exists and it’s size is greater than zero.
-w %p	True if the file exists and is writable.

On both UNIX and Windows NT, the expression **%p**, inserts the file name.

Entering **notempty** is the same as entering **-s %p**. If no qualifier is specified, the default is **-f %p**.

10. To remove a file dependency for the job stream, select the file row in the list and click the **Delete from Table** (X) button.

11. To specify prompt dependencies for the job stream, click **Prompts** in the left panel of the Job Stream Properties window. This displays the **Prompts** view.



Predefined Prompt

Name	Text
PROMPT1	Is there a new ink cartridge before we proceed?

Figure 29. Properties - Job Stream: Prompts window.

12. For an ad hoc prompt dependency, select **Ad Hoc Prompt** from the drop-down list. For a predefined prompt dependency, select **Predefined Prompt** from the drop-down list.

13. To add a prompt dependency for the job stream, do the following:

    a. Click the **Add Row** (+) button. This creates a new row in the list of prompt dependencies.

    b. For a pre-defined prompt, double-click the text box in the **Name** column and click the Find button to locate and insert the name of a prompt. For information about using the Find window, see “Finding Objects in the Database” on page 125.

    c. For an ad hoc prompt, double-click the text box in the **Text** column and type in the text of the prompt. The default behavior of a prompt is to display a message and wait for a reply. If the string begins with a colon (:), the message is displayed but no reply is necessary. If the string begins with an exclamation mark (!), the message is not displayed but it requires a reply. You can include backslash n (**\n**) within the text for new lines.

       You can include one or more TWS parameters as part or all of the text string. To use a parameter, place its name between carets (^).

14. To remove a prompt dependency for the job stream, select the prompt row in the list and click the **Delete from Table** (X) button.

15. When you have finished specifying job stream properties, do one of the following:

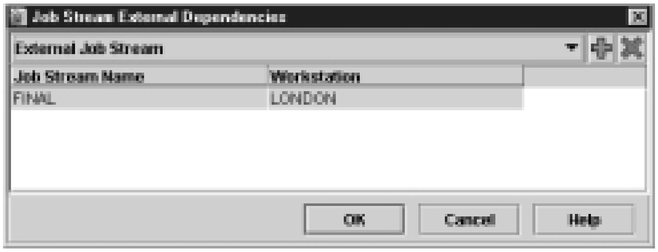
    - Click the **OK** button to keep the properties you have selected and close the Job Stream Properties window.
    - Click the **Cancel** button to ignore the properties you have selected and close the Job Stream Properties window.

Adding External Dependencies for a Job Stream

Job streams can be dependent on the successful execution of other job streams, jobs in other job streams, and jobs in other TWS networks (internetwork jobs). These external dependencies are also called predecessors.

To add external dependencies for a job stream, do the following:

1. Open the job stream in the Job Stream Editor.
2. Select **External Dependencies** from the **File** menu. This displays the Job Stream External Dependencies window.



Job Stream Name	Workstation
FINAL	LONDON

Figure 30. Job Stream External Dependencies window.

3. To add an external job stream dependency, do the following:

   a. Select **External Job Stream** from the drop-down menu at the top of the window.

   b. Click the Add Row (+) button.

   c. Double-click in the **Job Stream Name** column of the new row.

   d. Click the find (...) part of the **Job Stream Name** column and use the Find Job Stream window to select a job stream. For information about using the Find window, see “Finding Objects in the Database” on page 125.

   e. Click the **OK** button to add the external job stream dependency and close the window or click the **Cancel** button to close the window without adding the dependency.

4. To add an internetwork dependency, do the following:

   a. Select **Internetwork** from the drop-down menu at the top of the window.

   b. Click the Add Row (+) button.

   c. Double-click in the **Network Agent** column of the new row.

   d. Click the find (...) part of the Network Agent column and use the Find Workstation window to select the name of the network agent. Internetwork dependencies require that a Network Agent is configured to communicate with the external TWS network. For information about configuring a Network Agent, refer to the *Tivoli Workload Scheduler Reference Guide*.

   e. Double-click the **Dependency** column of the new row and enter a freeform dependency or the job/job stream predecessor in the form workstation#jobstream.job.

   f. Click the **OK** button to add the internetwork dependency and close the window or click the **Cancel** button to close the window without adding the dependency.

5. To add an external job dependency, do the following:

   a. Select **External Job** from the drop-down menu at the top of the window.

   b. Click the Add Row (+) button.

   c. Double-click in the **Job Name** column of the new row.

d. Click the find (...) part of the **Job Name** column and use the Find Job window to select a job. For information about using the Find window, see “Finding Objects in the Database” on page 125.

e. Click the **OK** button to add the external job dependency and close the window or click the **Cancel** button to close the window without adding the dependency.

Deleting External Dependencies from a Job Stream

Job streams can be dependent on the successful execution of other job streams, jobs in other job streams, and jobs in other TWS networks (internetwork jobs). These external dependencies are also called predecessors.

To delete external dependencies for a job stream, do the following:

1. Open the job stream in the Job Stream Editor.
2. Select **External Dependencies** from the **File** menu. This displays the Job Stream External Dependencies window.
3. Select **External Job Stream**, **Internetwork**, or **External Job** from the drop-down menu.
4. Click the row of the dependency in the list you want to delete and click the **Delete Row** button (×).
5. Click the **OK** button to delete the dependency and close the window or click the **Cancel** button to close the window without deleting the dependency.

Adding a Job to a Job Stream

A job definition is a description of work to be performed on a workstation. Jobs are scheduled for execution by adding them to job streams.

You add jobs in a job stream using the **Graph** view of the Job Stream Editor. See “Graph View” on page 142 for more information. To add a job to a job stream, do the following:

1. Open the **Graph** view by selecting **Graph** from the **View** menu or by clicking the **Graph** button in the toolbar.

2. Select **Add Job -> Job Definition** from the **Actions** menu or click the **Add Job Definition** button in the toolbar. This changes the mouse pointer to a cross (+).
3. Move the mouse pointer to the position you want to place the new job in the **Graph** view and left-click. This displays the Properties - Job window. When the job properties are completed, a new job icon is added in the **Graph** view.

Specifying Job Properties

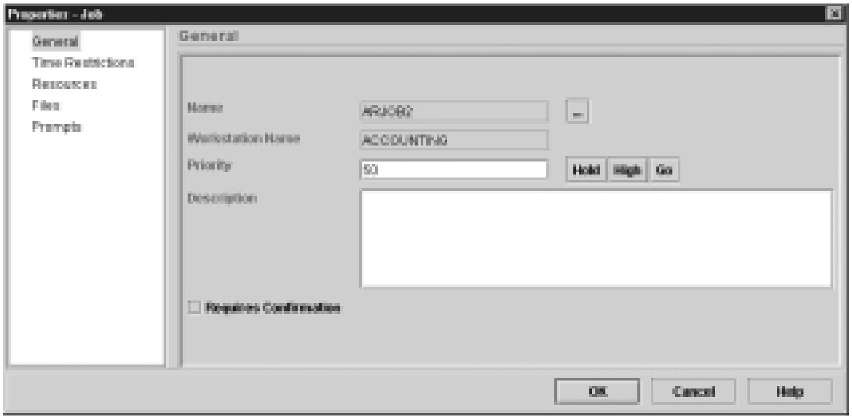
The Properties - Job window opens automatically when you add a new job to a job stream. If the Properties - Jobwindow is not displayed, right-click a job in the Graph view of the Job Stream Editor and select **Properties...** from the pop-up menu.

In the Properties - Job window, there are five groups of job properties:

- General
- Time Restrictions
- Resources
- Files
- Prompts

To specify job properties, do the following:

1. Click **General** in the left panel of the Properties - Job window. This displays the **General** view.



Name: ARJOB2

Workstation Name: ACCOUNTING

Priority: 50

Description:

□ Requires Confirmation

Figure 31. Properties - Job: General window.

2. In the **General** view of the Properties - Job window, fill in the text boxes and select options as follows:

   Name Specify the name of the job. Click the Find button to choose the job. See “Finding Objects in the Database” on page 125 for more information.

   Workstation Name
   Displays the workstation this job is defined to run on. If this workstation is deleted, the task type for the job is unknown and must be specified before you can save the job again.

   Priority
   Specify the priority of the job. Select a priority value from the drop-down list or click one of the following buttons:

   Hold Sets the priority to zero.

   High Sets the priority to **100**.

   Go Sets the priority to **101**.

   Possible priority values are **0** through **101**, where **101** is the highest priority. A priority value of zero prevents the job from launching.

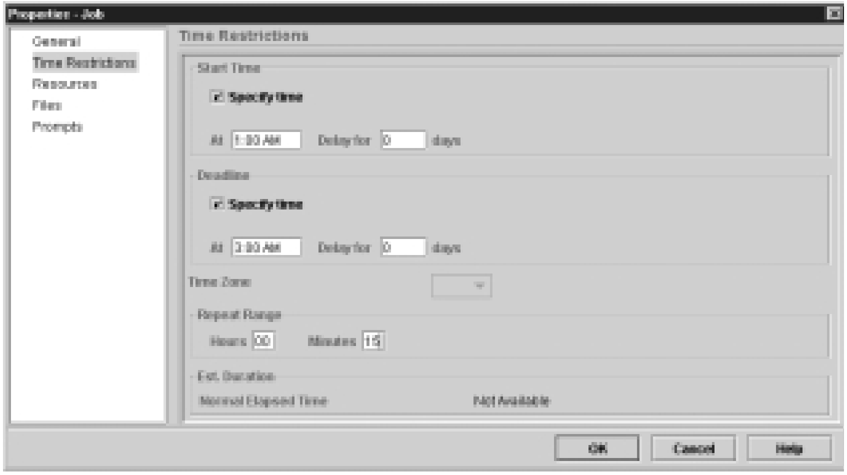
Description

Specify a description for the job.

Requires Confirmation

Specify this check box to indicate that job completion must be confirmed by the operator. When a job with requires confirmation enabled completes, it remains in the internal status PEND until confirmation is received. If confirmation is received before the job completes, its internal status is either SUCCP or ABENDP and other job and job stream successors are not released.

3. To specify time restrictions for a job, click **Time Restrictions** in the left panel of the Properties - Job window. This displays the **Time Restrictions** view.



Time Restrictions

Start Time
☑ Specify time
At 1:00 AM Delay for 0 days

Deadline
☑ Specify time
At 3:00 AM Delay for 0 days

Time Zone:

Repeat Range
Hours 00 Minutes 15

Est. Duration
Normal Elapsed Time Not Available

Figure 32. Properties - Job: Time Restrictions window.

4. In the **Time Restrictions** view of the Properties - Job window, fill in the text boxes and select options as follows:

Start time

Specifies the earliest time the job will be launched. The job will not be launched before this time. Make your selections as follows:

Specify time

Select this option to enable the entry of a start time.

At

Enter a start time in the following format:

hh:*mm* **am**|**pm**

For example, **11:30 am** or **4:25 pm**.

Delay for

Enter the number of days to offset the start time from the day the job is selected for inclusion in the production plan.

Deadline

Specifies the latest time the job will be launched. The job will not be launched after this time. Make your selections as follows:

Specify time

Select this option to enable the entry of a deadline time.

At

Enter a deadline time in the following format:

hh:*mm* **am**|**pm**

For example, **11:30 am** or **4:25 pm**.

Note: The Deadline time must be later than the Start Time.

Delay for

Enter the number of days to offset the deadline time from the day the job is selected for inclusion in the production plan.

Time Zone

Specify the time zone in which the job runs. All time values specified in the **Time Restrictions** view of the Properties - Job window are in this time zone. Select a time zone from the drop-down list. For information about the time zone feature, see “Time Zones” on page 21. If a time zone is not specified for the job, all time values specified in the **Time Restrictions** view of the Properties - Job window are in the time zone of the workstation on which the job is launched.

Repeat Range

Specify the repetition rate of the job. The job is launched multiple times at this rate. Make your selections as follows:

Hours Specify the hours that a job repeats.

Minutes

Specify the minutes that the job repeats.

If you cancel a repetitive job, it will not be launched again. If you rerun a repetitive job, the next iteration of the job is run immediately. If you rerun a repetitive job that had been cancelled, the repetition rate is reinstalled. If a repetitive job abends, the repetitions continue following the optional recovery action.

Est. Duration

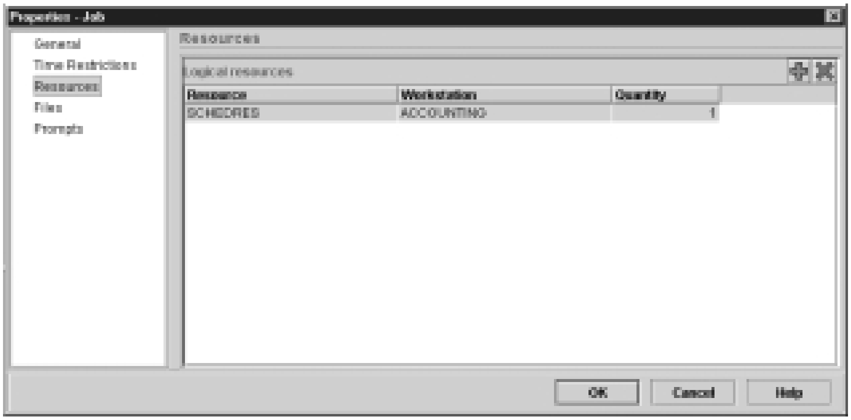
This field displays the estimated duration of the job if the job has run before.

Normal Elapsed Time

Displays the average time this job requires to execute, based on previous runs.

Note: Time Restrictions can also be set in the **Timeline View** of the Job Stream Editor. See “Timeline View” on page 144 for more information.

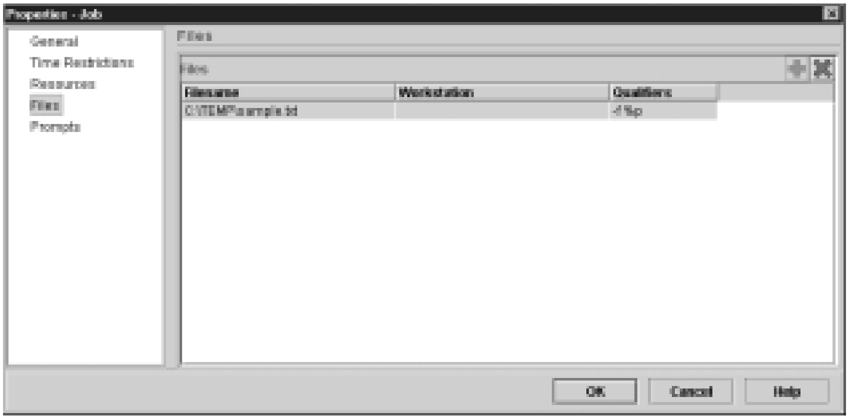
5. To specify resource dependencies for a job, click **Resources** in the left panel of the Properties - Job window. This displays the **Resources** view.



Resource	Workstation	Quantity
SCHEDRES	ACCOUNTING	1

Figure 33. Properties - Job: Resources window.

6. To add a resource dependency for the job, do the following:
   a. Click the **Add Row** (+) button. This creates a new row in the list of resource dependencies.
   b. Double-click the text box in the **Resources** column and click the Find button to locate and insert a resource name. For information about using the Find window, see “Finding Objects in the Database” on page 125.
   c. Double-click the text box in the **Quantity** column and enter the number of resource units required by the job.
7. To remove a resource dependency for the job, select the resource row in the list and click the **Delete from Table** (X) button.
8. To specify file dependencies for the job, click **Files** in the left panel of the Properties - Job window. This displays the **Files** view.



Filename	Workstation	Qualifiers
C:\TEMP\sample.txt		-f %p

Figure 34. Properties - Job: Files window.

9. To add a file dependency for the job, do the following:

   a. Click the **Add Row** (+) button. This creates a new row in the list of file dependencies.

   b. Double-click the text box in the **Workstation** column and type in a workstation or workstation class name. Alternatively, click the Find button to locate and insert the name of a workstation or workstation class. For information about using the Find window, see “Finding Objects in the Database” on page 125.

   c. Double-click the text box in the **Filename** column and type in a file name. Alternatively, click the Find button to locate and insert a file name. For information about using the select window, see “Finding Objects in the Database” on page 125.

   d. Double-click the text box in the **Qualifiers** column and enter the test conditions for the file dependency. On UNIX, the valid qualifiers are the same as UNIX **test** command conditions. For more information, refer to your UNIX system documentation.

      On Windows NT, only the following qualifiers are valid:

      -d %p True if the file exists and is a directory.

-e %p True if the file exists.

-f %p True if the file exists and is a regular file.

-r %p True if the file exists and is readable.

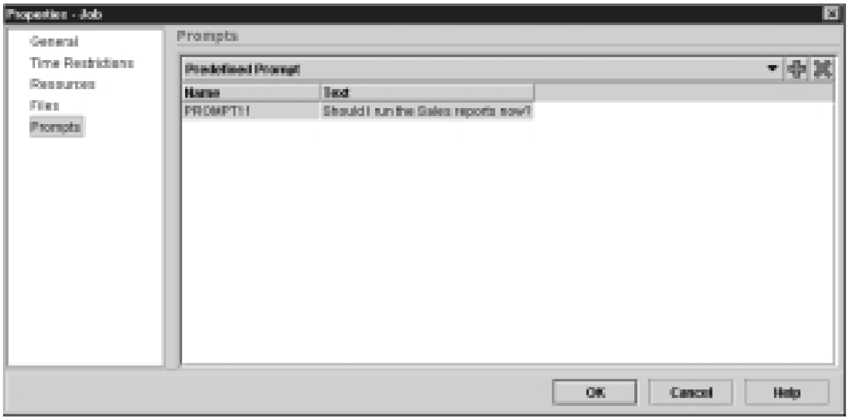
-s %p True if the file exists and it's size is greater than zero.

-w %p True if the file exists and is writable.

On both UNIX and Windows NT, the expression **%p**, inserts the file name.

Entering **notempty** is the same as entering **-s %p**. If no qualifier is specified, the default is **-f %p**.

10. To remove a file dependency for the job, select the file row in the list and click the **Delete from Table** (X) button.
11. To specify prompt dependencies for the job, click **Prompts** in the left panel of the Properties - Job window. This displays the **Prompts** view.



Name	Text
PROMPT11	Should I run the Sales reports now?

Figure 35. Properties - Job: Prompts window.

12. For an ad hoc prompt dependency, select **Ad Hoc Prompt** from the drop-down list. For a predefined prompt dependency, select **Predefined Prompt** from the drop-down list.

13. To add a prompt dependency for the job, do the following:

    a. Click the **Add Row** (+) button. This creates a new row in the list of prompt dependencies.

    b. For a pre-defined prompt, double-click the text box in the **Name** column and click the Find button to locate and insert the name of a prompt. For information about using the Find window, see “Finding Objects in the Database” on page 125.

    c. For an ad hoc prompt, double-click the text box in the **Text** column and type in the text of the prompt. The default behavior of a prompt is to display a message and wait for a reply. If the string begins with a colon (:), the message is displayed but no reply is necessary. If the string begins with an exclamation mark (!), the message is not displayed but it requires a reply. You can include backslash n (**\n**) within the text for new lines.

       You can include one or more TWS parameters as part or all of the text string. To use a parameter, place its name between carets (^).

14. To remove a prompt dependency for the job, select the prompt row in the list and click the **Delete from Table** (X) button.

15. When you have finished specifying job properties, do one of the following:

    - Click the **OK** button to keep the properties you have selected and close the Properties - Job window. If you are adding a new job, a job icon is added in the **Graph** view.

    - Click the **Cancel** button to ignore the properties you have selected and close the Properties - Job window without adding an icon in the **Graph** view.

Copying and Pasting Jobs

Within the Job Stream Editor you can copy and paste job and job stream icons to create dependencies:

- You can copy a job stream from a job stream list and paste it into the **Graph** view of the Job Stream Editor. Then, using the

Add Link button, you can create a dependency between this job stream and any jobs in the Job Stream Editor.

- You can open multiple job streams in separate Job Stream Editors and copy and paste jobs between the job streams.
- You can copy a job within the Job Stream Editor and clone its dependencies to another job.

Cloning the Job Dependencies

This procedure is used to clone the dependencies of a job to a new job within the **Graph** view of the Job Stream Editor. To clone the dependencies of a job:

1. right-click the job icon and select **Copy** from the pop-up menu. Alternatively, select the job icon and click the **Copy** button in the toolbar or select **Copy** from the **Edit** menu. This copies the job to the clipboard.
2. Click the **Paste** button in the toolbar or select **Paste** from the **Edit** menu. This displays the Properties - Job window for the copied job.
3. Use the search tool to find and select a new job to add to the job stream. The job name is added to the General tab of the Properties - Job window.
4. When you click the **OK** button in the Properties - Job window, a new icon is added for the job in the **Graph** view of the Job Stream Editor. This job has the same dependencies as the copied job.
5. If you are finished in the Job Stream Editor, save the job stream and close the Job Stream Editor. For more information see “Saving a Job Stream in the Database” on page 186 and “Closing the Job Stream Editor” on page 186.

Adding an Internetwork Dependency to a Job Stream

An internetwork dependency is a d13ependency on a job that runs in another TWS network. Internetwork dependencies require a Network Agent workstation to communicate with the external TWS network. For more information on configuring a Network Agent, refer to the *Tivoli Workload Scheduler Reference Guide*.

Add internetwork dependencies to a job stream to create predecessors for the jobs in the job stream you are editing. A predecessor must complete successfully before the successor job is launched.

You add internetwork dependencies in a job stream using the **Graph** view of the Job Stream Editor. See “Graph View” on page 142 for more information. To add an internetwork dependency, do the following:

1. Open the **Graph** view by selecting **Graph** from the **View** menu or by clicking the **Graph** button in the toolbar.
2. Select **Add Dependency** -> **Internetwork** from the **Actions** menu or click the **Add Dependency on Internetwork** button. This changes the mouse pointer to a cross (+).
3. Move the mouse pointer to the position you want to place the new internetwork dependency in the **Graph** view and left-click. This displays the Internetwork Dependency window.
4. Click the find (...) button and use the Find Workstation window to select the name of the Network Agent.
5. Fill in the text box as follows:

   Dependency

   Specify the freeform dependency or the job/job stream predecessor in the format: workstation#jobstream.job The maximum length of this field is 120 for freeform characters or 16 for workstation, 16 for the job stream, and 40 for the job.
6. When you are finished with the Internetwork Dependency Properties window, do one of the following:
   - Click the **OK** button to close the Internetwork Dependency Properties window. If you are adding a new internetwork dependency, a new internetwork dependency icon is added in the **Graph** view.
   - Click the **Cancel** button to ignore the properties you have selected and close the Internetwork Dependency Properties window without adding an icon in the **Graph** view.

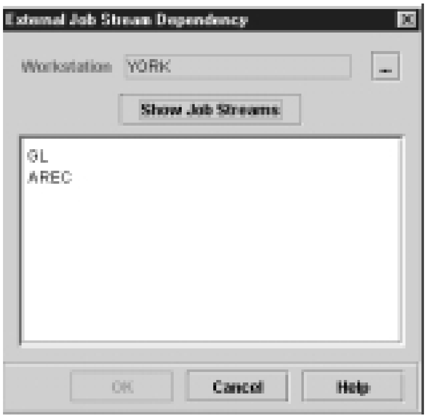
7. See “Creating Dependencies Between Jobs in a Job Stream” on page 173 for information about using an internetwork dependency as a predecessor.

Adding an External Job Stream to a Job Stream

An external job stream is any job stream other than the one you are editing. Add external job streams to a job stream to create predecessors for the jobs in the job stream you are editing. A predecessor must complete successfully before the successor job is launched.

You add external job streams in a job stream using the **Graph** view of the Job Stream Editor. See “Graph View” on page 142 for more information. To add an external job stream, do the following:

1. Open the **Graph** view by selecting **Graph** from the **View** menu or by clicking the **Graph** button in the toolbar.
2. Select **Add Dependency -> External Job Stream** from the **Actions** menu or click the **Add External Job Stream** button in the toolbar. This changes the mouse pointer to a cross (+).
3. Move the mouse pointer to the position you want to place the new external job stream in the **Graph** view and left-click. This displays the Properties - External Job Stream window.



External Job Stream Dependency

Workstation: YORK

GL
AREC

Figure 36. External Job Stream Dependency window.

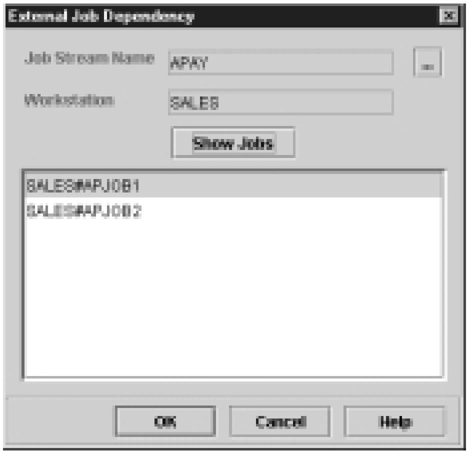
4. Click the Find button next to the **Workstation** text box to locate and insert the name of the workstation on which the job stream runs.
5. Click the **Show Job Streams** button to list the job streams that run on the workstation.
6. Select a job stream in the list and do one of the following:
   - Click the **OK** button to close the Properties - External Job Stream window. If you are adding a new external job stream, a job stream icon is added in the **Graph** view.
   - Click the **Cancel** button to ignore the properties you have selected and close the Properties - External Job Stream window without adding an icon in the **Graph** view.
7. See "Creating Dependencies Between Jobs in a Job Stream" on page 173 for information about using an external job stream as a predecessor.

Adding an External Job to a Job Stream

An external job is a job that runs in a job stream other than the one you are editing. Add external jobs to a job stream to create predecessors for the jobs in the job stream you are editing. A predecessor must complete successfully before the successor job is launched.

You add external jobs in a job stream using the **Graph** view of the Job Stream Editor. See "Graph View" on page 142 for more information. To add an external job, do the following:

1. Open the **Graph** view by selecting **Graph** from the **View** menu or by clicking the **Graph** button in the toolbar.
2. Select **Add Job -> External Job** from the **Actions** menu or click the **Add External Job** button in the toolbar. This changes the mouse pointer to a cross (+).
3. Move the mouse pointer to the position you want to place the new external job in the **Graph** view and left-click. This displays the Properties - External Job window.



Job Stream Name: APAY

Workstation: SALES

SALES#APJOB1
SALES#APJOB2

Figure 37. External Job Dependency window.

4. Click the Find button next to the **Job Stream Name** text box to locate and insert the name of the job stream in which the job runs. For information about using the Find window, see “Finding Objects in the Database” on page 125.
5. Click the **Show Jobs** button to list the jobs in the selected job stream that run on the selected workstation.
6. Select a job in the list and do one of the following:
   - Click the **OK** button to close the Properties - External Job window. If you are adding a new external job, a job icon is added in the **Graph** view.
   - Click the **Cancel** button to close the Properties - External Job window without adding an icon in the **Graph** view.
7. See “Creating Dependencies Between Jobs in a Job Stream” for information about using an external job as a predecessor.

Creating Dependencies Between Jobs in a Job Stream

You can add dependencies between jobs to specify the order in which they run. A job that depends on the successful completion of another job is called a successor and the job or job stream that it depends on is called a predecessor.

You add dependencies between jobs in the **Graph** view of the Job Stream Editor. See “Graph View” on page 142 for more information. The dependencies are represented by arrows. To add a dependency between jobs, do the following:

1. Select **Add Link** from the **Actions** menu or click the **Add Link** button in the toolbar. This changes the mouse pointer to a cross (+).

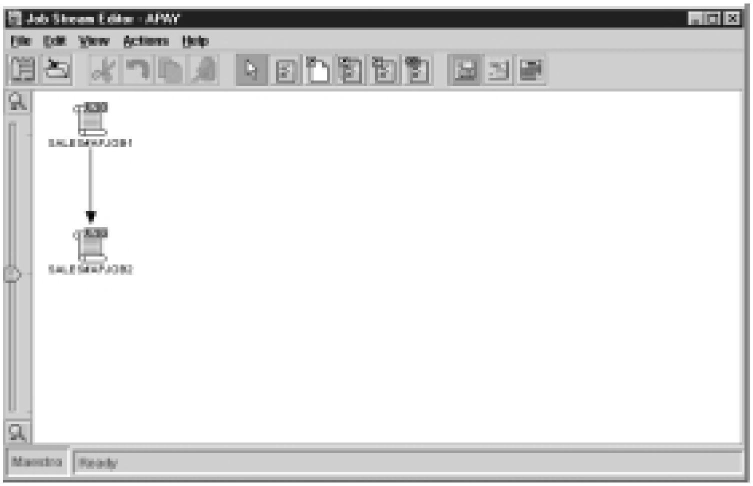


Figure 38. Graph View of the Job Stream Editor window.

2. Click on the predecessor job or job stream and drag to the successor job. When you release the mouse button, an arrow is drawn from the predecessor to the successor.

   Notes:

   a. Internetwork dependencies, external jobs, and external job streams cannot be successors.

   b. Internetwork dependencies, external jobs, and external job streams that are not linked are not saved when the Job Stream Editor is closed.

To remove a dependency between jobs, select the arrow between the predecessor and the successor and right-click the arrow and select **Delete** from the pop-up menu.

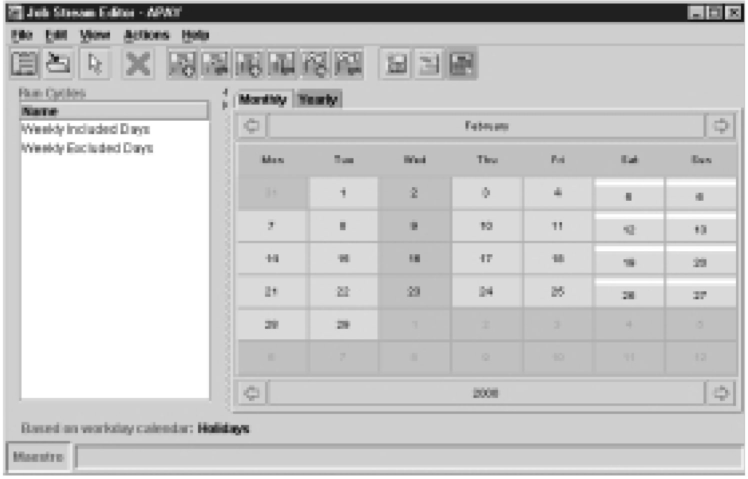
If you are finished in the Job Stream Editor, refer to “Saving a Job Stream in the Database” on page 186.

Specifying Run Cycles for a Job Stream

Run cycles specify when a job stream in the database will run in the plan. Combinations of run cycles are used to include and exclude certain dates. Run cycles can be defined based on the following criteria:

- **Simple Run Cycles** are based on specific calendar dates.
- **Weekly Run Cycles** are based on days of the week.
- **Calendar Run Cycles** are based on pre-defined calendars.

You specify run cycles for a job stream using the **Run Cycle** view of the Job Stream Editor. To display the **Run Cycle** view, select **Run Cycle** from the **View** menu in the Job Stream Editor or click the **Run Cycle** button in the toolbar. See “Run Cycle View” on page 146 for more information.



Mon	Tue	Wed	Thu	Fri	Sat	Sun
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	1	2	3	4	5
6	7	8	9	10	11	12

Based on workday calendar: **Holidays**

Figure 39. Run Cycle View of the Job Stream Editor window.

Colored Bars on Dates

As you include and exclude dates, colored bars are displayed across the dates. The bars have the following meanings:

Blue Specifies an included date.

Red Specifies an excluded date.

White Specifies a non-workday. Note that dates that are defined on the Holidays calendar are shown as non-workdays. For more information, see “The Holidays Calendar” on page 230.

White/Blue
Specifies an included non-workday.

White/Red
Specifies an excluded non-workday.

Specifying Simple Run Cycles

To specify a simple run cycle for a job stream, do the following:

1. Include run cycles specify when the job stream will run in the plan. To add an include simple run cycle, select **Add->Include Simple Run Cycle** from the Actions menu or click the **Include Simple Run Cycle** button in the toolbar.

Exclude run cycles specify when the job stream will not run in the plan. To add an exclude simple run cycle, select **Add->Exclude Simple Run Cycle** from the Actions menu or click the **Exclude Simple Run Cycle** button in the toolbar.

This displays the Include Simple Run Cycle or Exclude Simple Run Cycle window.

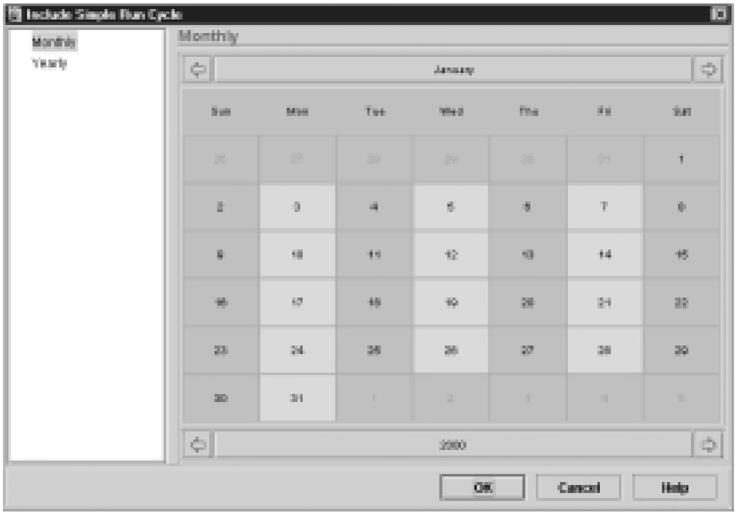


Figure 40. Include Simple Run Cycle window.

2. In the left panel, select either the **Monthly** or **Yearly** view. Use the arrow buttons in the upper and lower bars of the selected view to move to the desired month and year.
3. Click on the dates in the calendar to add them to the run cycle. Click the same date a second time to remove it from the run cycle.
4. When you are finished in the run cycle window, do one of the following:
   - Click the **OK** button to close the window and add the run cycle to the job stream.
   - Click the **Cancel** button to close the window without adding the run cycle to the job stream.

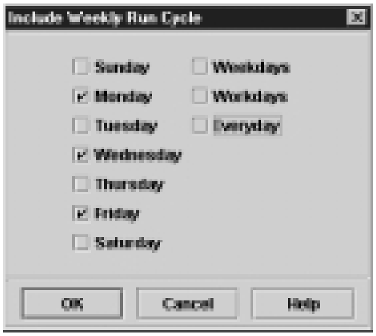
Specifying Weekly Run Cycles

To specify a weekly run cycle for a job stream, do the following:

1. Include run cycles specify when the job stream will run in the plan. To add an include weekly run cycle, select **Add->Include Weekly Run Cycle** from the Actions menu or click the **Include Weekly Run Cycle** button in the toolbar.

   Exclude run cycles specify when the job stream will not run in the plan. To add an exclude weekly run cycle, select **Add->Exclude Weekly Run Cycle** from the Actions menu or click the **Exclude Weekly Run Cycle** button in the toolbar.

   This displays the Include Weekly Run Cycle or Exclude Weekly Run Cycle window.



□ Sunday
☑ Monday
□ Tuesday
☑ Wednesday
□ Thursday
☑ Friday
□ Saturday

□ Weekdays
□ Workdays
□ Everyday

Figure 41. Include Weekly Run Cycle window.

2. Select the days by name to add them to the run cycle. In addition to single days, the following can also be selected:

   Weekdays
   Specifies every day of the week except Saturday and Sunday.

   Workdays
   Specifies every day of the week except Saturday, Sunday, and the days defined on a calendar named **HOLIDAYS**. Note: If your company requires more than a single HOLIDAYS calendar, you can create the same effect by using weekdays except *HOLIDAYS_NAME* calendar. For

example, you can specify for a job stream to run on Weekdays except a calendar called H_FRANCE.

Everyday
Specifies every day of the week.

3. When you are finished in the run cycle window, do one of the following:
   - Click the **OK** button to close the window and add the run cycle to the job stream.
   - Click the **Cancel** button to close the window without adding the run cycle to the job stream.

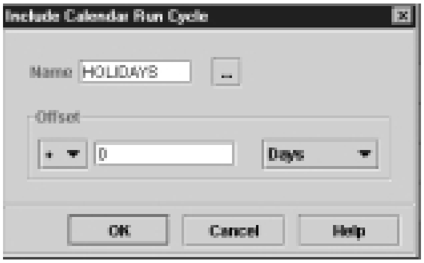
Specifying Calendar Run Cycles

To specify a calendar run cycle for a job stream, do the following:

1. Include run cycles specify when the job stream will run in the plan. To add an include calendar run cycle, select **Add->Include Calendar Run Cycle** from the Actions menu or click the **Include Calendar Run Cycle** button in the toolbar.

   Exclude run cycles specify when the job stream will not run in the plan. To add an exclude calendar run cycle, select **Add->Exclude Calendar Run Cycle** from the Actions menu or click the **Exclude Calendar Run Cycle** button in the toolbar.

   This displays the Include Calendar Run Cycle or Exclude Calendar Run Cycle window.



Include Calendar Run Cycle

Name: HOLIDAYS

Offset: + 0 Days

Figure 42. Include Calendar Run-Cycle window.

2. Type the name of the calendar in the **Name** text box or click the Find button to locate a calendar. See “Finding Objects in the Database” on page 125 for more information.

3. In the **Offset** group, you can specify an offset from the dates defined in the calendar. For example, if a calendar date is **3/13/2000**, an offset of **+2 Days** results in an effective date of **3/15/2000**. To specify an offset, do the following:

   a. Select **+** for a positive offset or **-** for a negative offset from the drop-down menu.

   b. Enter the number of days in the text box. The range of numbers is **0** to **9999**.

   c. Select one of the following from the drop-down menu:

   Days Specifies calendar days with no exceptions.

   Workdays
   Specifies calendar days except Saturday, Sunday, and days that are defined in the **holidays** calendar.

   Weekdays
   Specifies calendar days except Saturday and Sunday.

4. When you are finished in the run cycle window, do one of the following:

   - Click the **OK** button to close the window and add the run cycle to the job stream.
   - Click the **Cancel** button to close the window without adding the run cycle to the job stream.

Modifying Run Cycles for a Job Stream

To modify the run cycles for a job stream, do the following:

1. Open the job stream in the Job Stream Editor.
2. Display the Run Cycle View, by clicking the Run Cycle view button.
3. In the Run Cycles Name column, double click the Run Cycle you want to modify.

- If this is a Simple Run Cycle (either inclusionary or exclusionary) a window is opened displaying the days selected by that run cycle. Modify the days selected and click the **OK** button to save your changes.
- If this is a Weekly Run Cycle (either inclusionary or exclusionary) a window is opened displaying the days selected by that run cycle. Modify the days selected and click the **OK** button to save your changes.
- If this is a Calendar Run Cycle (either inclusionary or exclusionary) a window is opened displaying the name of the calendar you selected and offset specified. Modify the calendar selected or the offset and click the **OK** button to save your changes.

Note: You can only specify two simple and two weekly run cycles per job stream, one inclusionary and one exclusionary. Exclusionary run cycles take precedence over inclusionary run cycles.

4. When you are finished in the run cycle window, do one of the following:
   - Click the **OK** button to close the window and save the changes to the job stream.
   - Click the **Cancel** button to close the window without saving the changes to the job stream.

Deleting Run Cycles from a Job Stream

To delete a run cycle from a job stream, do the following:

1. Open the job stream in the Job Stream Editor.
2. Display the Run Cycle View, by clicking the Run Cycle view button.
3. In the Run Cycles Name column, select the Run Cycle you want to delete from the job stream.

4. Click the Delete Button. The Run Cycle is deleted from the job stream. If the run cycle was a calendar it is deleted from this job stream, but it was not deleted from the database, and still may be used by other job streams.

5. When you are finished in the run cycle window, do one of the following:

   - Click the **OK** button to close the window and save the changes to the job stream.
   - Click the **Cancel** button to close the window without saving the changes to the job stream.

Specifying Time Restrictions in the Timeline View

You can display and specify the time restrictions for a job stream and its jobs using the **Timeline** view of the Job Stream Editor. For information about the **Timeline** view refer to “Timeline View” on page 144.

Specifying Time Restrictions for a Job Stream

To specify time restrictions for the job stream in the **Timeline** view of the Job Stream Editor, do the following:

1. Select **Timeline** from the **View** menu in the Job Stream Editor or click the **Timeline** button in the toolbar.

2. To adjust the time restrictions using the timeline, do any of the following:

   - Drag the left side of the timeline to adjust the start time.
   - Drag the right side of the timeline to adjust the deadline time.
   - Drag the center of the timeline to change both the start and the deadline time.

3. To adjust the time restrictions using a window, do the following:

   a. Double-click the job stream row in the tabular panel or right-click the row and select **Properties...** from the pop-up menu. This displays a Properties window.

b. In the Properties window, fill in the text boxes and select options as follows:

Start Specify the earliest time the job stream will be launched. The job stream will not be launched before this time. Make your selections as follows:

Specify time
Select this option to enable the entry of a start time.

At Enter a start time in the following format:

hh:*mm* **am**|**pm**

For example, **11:30 am** or **4:25 pm**.

Delay for
Enter the number of days to offset the start time from the day the job stream is selected for inclusion in the production plan.

Deadline
Specify the latest time the job stream will be launched. The job stream will not be launched after this time. Make your selections as follows:

Specify time
Select this option to enable the entry of a deadline time.

At Enter a deadline time in the following format:

hh:*mm* **am**|**pm**

For example, **11:30 am** or **4:25 pm**.

Note: The Deadline time must be later than the Start Time.

Delay for
Enter the number of days to offset the deadline time from the day the job stream is selected for inclusion in the production plan.

c. When you are finished in the Properties window, do one of the following:

- Click the **OK** button to close the window and save the time restrictions.
- Click the **Cancel** button to close the window without saving the time restrictions.

Note: Time Restrictions can also be set in the **Time Restrictions** view of the Properties - Job window. See “Specifying Job Stream Properties” on page 148 for more information.

Specifying Time Restrictions for a Job

To specify time restrictions for a job in the **Timeline** view of the Job Stream Editor, do the following:

1. Select **Timeline** from the **View** menu in the Job Stream Editor or click the **Timeline** button in the toolbar.
2. To adjust the time restrictions using the timeline, do any of the following:
   - Drag the left side of the timeline to adjust the start time.
   - Drag the right side of the timeline to adjust the deadline time.
   - Drag the center of the timeline to change both the start and the deadline time.
3. To adjust the time restrictions using a window, do the following:

   a. Double-click the job row in the tabular panel or right-click the row and select **Properties...** from the pop-up menu. This displays a Properties window.

   b. In the Properties window, fill in the text boxes and select options as follows:

   Start Specify the earliest time the job will be launched. The job will not be launched before this time. Make your selections as follows:

Specify time
: Select this option to enable the entry of a start time.

At
: Enter a start time in the following format:

hh:*mm* **am**|**pm**

For example, **11:30 am** or **4:25 pm**.

Delay for
: Enter the number of days to offset the start time from the day the job is selected for inclusion in the production plan.

Deadline

Specify the latest time the job will be launched. The job will not be launched after this time. Make your selections as follows:

Specify time
: Select this option to enable the entry of a deadline time.

At
: Enter a deadline time in the following format:

hh:*mm* **am**|**pm**

For example, **11:30 am** or **4:25 pm**.

Note: The Deadline time must be later than the Start Time.

Delay for
: Enter the number of days to offset the deadline time from the day the job is selected for inclusion in the production plan.

Time Zone

Specify the time zone for this job. For information about the time zone feature, see “Time Zones” on page 21

Repeat Range

Specify the repetition rate of the job. The job is launched multiple times at this rate. Make your selections as follows:

Hours Specify the hours that a job repeats.

Minutes

Specify the minutes that the job repeats.

c. When you are finished in the Properties window, do one of the following:

- Click the **OK** button to close the window and save the time restrictions.
- Click the **Cancel** button to close the window without saving the time restrictions.

Note: Time Restrictions can also be set in the **Time Restrictions** view of the Properties - Job window. See “Specifying Job Properties” on page 160 for more information.

Saving a Job Stream in the Database

To save a job stream in the database from the Job Stream Editor, click the **Save** button in the toolbar or select **Save** from the **File** menu.

Closing the Job Stream Editor

To close the Job Stream Editor, click the **Close** button in the window titlebar or select **Close** on the **File** menu. You receive a warning message if your job stream changes have not been saved. Respond to the message in one of the following ways:

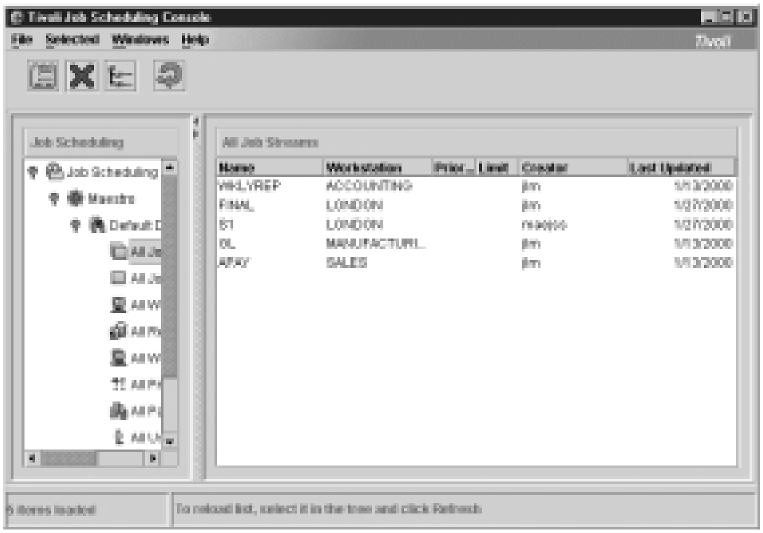
- Click **Yes** to save the job stream in the database before closing the Job Stream Editor.
- Click **No** to close the Job Stream Editor without saving the job stream in the database.
- Click **Cancel** to return to the Job Stream Editor without saving the job stream in the database.

Displaying a List of Job Streams in the Database

To display a list of job streams in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Expand the branches below TWS until you see the icon for the job stream list you want to run. See “Creating a Database List of Job Streams” on page 114 for information about creating job stream lists.
3. Select the job stream list icon.
4. Click the **Load List** button on the toolbar or right-click the job stream list icon and select **Load List** from the pop-up menu.

   The list results are displayed in the right panel of the Job Scheduling Console.



Name	Workstation	Prior...	Limit	Creator	Last Updated
WKLYREP	ACCOUNTING			jim	1/13/2000
FINAL	LONDON			jim	1/27/2000
51	LONDON			maejso	1/27/2000
0L	MANUFACTURI...			jim	1/13/2000
APAY	SALES			jim	1/13/2000

5 items loaded

To reload list, select it in the tree and click Refresh

Figure 43. Job Streams list window.

The following are descriptions of the column headings.

Name Specifies the name of the job stream.

Workstation
Specifies the name of the workstation on which the job stream runs.

Priority
Specifies the priority of the job stream.

Limit Specifies the job limit of the job stream.

Creator
Specifies the name of the user who created the job stream in the database.

Last Updated
Specifies the date the job stream was last updated in the database.

Displaying a Job Stream in the Database

To display a job stream in the database, follow these steps:

1. Run a list of job streams that contains the job stream you want to display. See “Displaying a List of Job Streams in the Database” on page 187 for more information.
2. In the list results, double-click on the job stream you want to display or right-click the job stream and choose **Properties** from the pop-up menu.

   This displays the job stream in the Job Stream Editor. For information about the Job Stream Editor, see “Creating a Job Stream in the Database” on page 148.
3. Click the **OK** or the **Cancel** button to close the Job Stream Editor.

Modifying a Job Stream in the Database

To modify a job stream in the database, follow these steps:

1. Run a list of job streams that contains the job stream you want to modify. See “Displaying a List of Job Streams in the Database” on page 187 for more information.
2. In the list results, double-click on the job stream you want to modify or right-click the job stream and choose **Properties** from the pop-up menu.

This displays the job stream in the Job Stream Editor.

3. Make your changes in the Job Stream Editor. For information about the Job Stream Editor, see “Using the Job Stream Editor” on page 142 and “Creating a Job Stream in the Database” on page 148.
4. To edit the properties of the job stream, click **Properties** button in the toolbar or select **Properties...** from the **File** menu. For information about job stream properties, see “Specifying Job Stream Properties” on page 148.

   For information about modifying the objects in a job stream, refer to the following:

   - For jobs, see “Modifying a Job in a Job Stream” and “Deleting a Job in a Job Stream” on page 190.
   - For internetwork dependencies, see “Modifying an Internetwork Dependency in a Job Stream” on page 190 and “Deleting an Internetwork Dependency in a Job Stream” on page 190.
   - For external job streams, see “Modifying an External Job Stream in a Job Stream” on page 190 and “Deleting an External Job Stream in a Job Stream” on page 190.
   - For external jobs, see “Modifying an External Job in a Job Stream” on page 190 and “Deleting Job Streams in the Database” on page 191.
5. When you are finished modifying the job stream, save the job stream in the database and close the Job Stream Editor. For more information, see “Saving a Job Stream in the Database” on page 186 and “Closing the Job Stream Editor” on page 186.

Modifying a Job in a Job Stream

To modify a job in a job stream, right-click the job icon in the **Graph** view and select **Properties...** from the pop-up menu. For information about job properties, see “Specifying Job Properties” on page 160.

Deleting a Job in a Job Stream

To delete a job in a job stream, right-click the job icon in the **Graph** view and select **Delete** from the pop-up menu.

Modifying an Internetwork Dependency in a Job Stream

To modify an internetwork dependency in a job stream, right-click its icon in the **Graph** view and select **Properties...** from the pop-up menu. For information about internetwork dependency properties, see “Adding an Internetwork Dependency to a Job Stream” on page 169.

Deleting an Internetwork Dependency in a Job Stream

To delete an internetwork dependency in a job stream, right-click its icon in the **Graph** view and select **Delete** from the pop-up menu.

Modifying an External Job Stream in a Job Stream

To modify an external job stream in a job stream, right-click its icon in the **Graph** view and select **Edit -> External Job Stream** from the pop-up menu. This displays the job stream in a Job Stream Editor. For information about the Job Stream Editor, see “Using the Job Stream Editor” on page 142 and “Creating a Job Stream in the Database” on page 148.

Deleting an External Job Stream in a Job Stream

To delete an external job stream in a job stream, right-click its icon in the **Graph** view and select **Delete** from the pop-up menu.

Modifying an External Job in a Job Stream

To modify an external job in a job stream, right-click its icon in the **Graph** view and select **Edit -> External Job Stream** from the pop-up menu. This displays the job’s job stream in a Job Stream Editor. For information about the Job Stream Editor, see “Using the Job Stream Editor” on page 142 and “Creating a Job Stream in the Database” on page 148. To edit the job in the external job stream, right-click the job icon in the **Graph** view and select **Properties...** from the pop-up menu. For information about job properties, see “Specifying Job Properties” on page 160.

Deleting an External Job in a Job Stream

To delete an external job in a job stream, right-click its icon in the **Graph** view and select **Delete** from the pop-up menu.

Deleting Job Streams in the Database

To delete job streams in the database, follow these steps:

1. Run a list of job streams that contains the job stream you want to delete. See “Displaying a List of Job Streams in the Database” on page 187 for more information.
2. In the list results, do one of the following:
   - To delete one job stream, right-click the job stream.
   - To delete multiple job streams in a range, hold down the **Shift** key, click the first and last job streams in the range, then right-click one of the selected job streams.
   - To delete multiple job streams that are not in a range, hold down the **Ctrl** key, click on each job stream, then right-click one of the selected job streams.
3. Choose **Delete** from the pop-up menu. A message is displayed for each job stream asking for confirmation.
4. Click the **OK** button to delete the job stream in the database or click the **Cancel** button to cancel the delete operation.

Managing Workstations in the Database

A workstation is usually an individual computer, on which jobs and job streams are executed. A workstation definition is required for every computer that executes jobs in the TWS network.

Primarily workstation definitions refer to physical workstations. However, in the case of extended agents, the workstations are logical definitions that must be hosted by a physical workstation.

There are several types of workstations in a TWS Network:

- Master Domain Manager
- Domain Manager
- Backup Domain Manager
- Fault Tolerant Agent

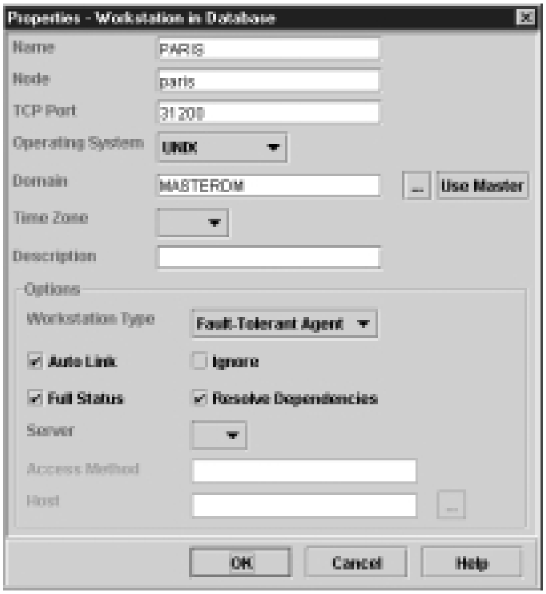
- Standard Agent
- Extended Agent
- Network Agent

Creating a Workstation in the Database

You create workstations in the database using the Properties - Workstation in Database window. To create a new workstation, follow these steps. See also “Creating a Workstation in the Database by Copying Another Workstation” on page 202. For information about creating extended agent workstations, see the user manual for the specific extended agent.

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Click the **New Workstation** button on the toolbar or right-click the TWS controller icon and select **New Workstation** from the pop-up menu.

   This opens the **Properties - Workstation in Database** window.



Properties - Workstation in Database

Name: PARIS

Node: paris

TCP Port: 31200

Operating System: UNIX

Domain: MASTERDM

Time Zone:

Description:

Options

Workstation Type: Fault-Tolerant Agent

☑ Auto Link □ Ignore

☑ Full Status ☑ Resolve Dependencies

Server:

Access Method:

Host:

Figure 44. Properties - Workstation in Database window.

3. In the Properties - Workstation in Database window, fill in the text boxes and select options as follows:

Workstation name
Specify the name of the workstation. The name must start with a letter and can contain alphanumeric characters, dashes, and underscores. For non-expanded databases, it can contain up to eight characters. For expanded databases, it can contain up to 16 characters.

Note: Workstation names must be unique, and cannot be the same as workstation class and domain names.

Node Specify the host name or the IP address of the workstation. Fully-qualified domain names are accepted.

TCP Port
Specify the Netman TCP port number that TWS uses for communications on the workstation. The default is **31111**. The port number of Netman on a workstation is defined by the **localopts** file in the parameter **nm port**.

Operating System

Specify the operating system of the workstation as one of the following:

UNIX
MPE/IX
MPE/V
Windows NT
Other

Domain name

Specify the name of the TWS domain of the workstation. The name must start with a letter and can contain alphanumeric characters, dashes, and underscores. For non-expanded databases, it can contain up to eight characters. For expanded databases, it can contain up to 16 characters.

Note: Domain names must be unique, and cannot be the same as workstation and workstation class names.

The default for fault-tolerant and standard agents is the master domain, usually named **MASTERDM**. The default for a domain manager is the domain in which it is defined as the manager. The default for an extended agent is the domain of its host.

Time Zone

Specify the time zone of the workstation. Choose a time zone name from the drop-down list. For a description of time zone names, refer to the *Tivoli Workload Scheduler Reference Guide*. To ensure the accuracy of scheduling times, this time zone must be the same as the computer's operating system time zone.

Description

Specify a description of the workstation. The description can contain up to 40 characters.

Workstation type

Specify the type of workstation. Select one of the following from the drop-down list:

Fault-Tolerant Agent

Select this type for an agent workstation that is capable of launching its jobs and resolving local dependencies without a domain manager. Select this type for fault-tolerant agents, domain managers, and backup domain managers.

Standard Agent

Select this type for an agent workstation that launches jobs only under the direction of its domain manager.

Extended Agent

Select this type for an agent workstation that launches jobs only under the direction of its host. Extended agents can be used to interface TWS with non-Tivoli systems and applications. For more information refer the user manual for the specific extended agent.

Auto Link

Specify whether to open the link between workstations at startup. For fault-tolerant and standard agents, select this option to have the domain manager open the link to the agent when the domain manager is started. For a domain manager, select this option to have its agents open links to the domain manager when they are started.

Auto Link is useful primarily during the startup sequence at the beginning of each day. At that time, a new production plan is created and compiled on the master domain manager, and all workstations are stopped and restarted. For each agent that has **Auto Link** selected, the domain manager automatically sends a copy of the new production plan and starts the agent. If **Auto Link** is also selected for the domain manager, the agent, in turn, opens a link back to the domain manager. If **Auto Link** is not selected for an agent, it is initialized when you execute a **link** action on the agent's domain manager or the master domain manager.

Full Status

Specify whether the agent is updated with full or partial status. This is for fault-tolerant agents only. When **Full Status** is selected, the agent is updated about the status of jobs and job streams running on all other workstations in its domain and subordinate domains.

If **Full Status** is not selected, the agent is informed only about the status of jobs and job streams on other workstations that affect its own jobs and job streams. This can improve performance by reducing network activity.

To keep an agent's production plan at the same level of detail as its domain manager, select **Full Status** and **Resolve Dependencies**. Always select these options for backup domain managers.

Ignore

Specify that TWS will ignore this workstation. This can be used to define workstations before they are actually installed.

Resolve Dependencies

Specify whether an agent will track all dependencies or only its own. This is for fault-tolerant agents only. When **Resolve Dependencies** is selected, the agent tracks dependencies for all jobs and job streams, including those running on other workstations. Note that **Full Status** must also be selected so that the agent is informed about activity on other workstations. If **Resolve Dependencies** is not selected, the agent tracks dependencies for its own jobs and job streams only. This reduces processing overhead.

To keep an agent's production plan at the same level of detail as its domain manager, select **Full Status** and **Resolve Dependencies**. Always select these options for backup domain managers.

Server ID

Specify a Mailman server on the domain manager to handle communications with the agent. This is for fault-tolerant and standard agents only. Do not use this option for domain managers. Using servers can reduce the time required to initialize agents and improve the timeliness of messages.

To specify a server, select a letter or a number (A-Z and 0-9) from the drop-down list. The IDs are unique to each domain manager, so you can use the same IDs in other domains without conflict. If more than 36 server IDs are required in a domain, consider dividing it into two or more domains.

If a server ID is not specified, communications with the agent are handled by the main Mailman process on the domain manager.

When a domain manager starts up, it creates a separate server for each unique server ID. If the same ID is used for multiple agents, a single server is created to handle their communications. As a guide, extra servers should be defined to prevent a single server from handling more than eight agents.

Access Method
Specify an access method for extended agents and network agents. This must be the name of a method file that resides in the *TWShome*/methods directory on the agent's host workstation. For a local UNIX extended agent, the method name is **unixlocl**. For a remote UNIX extended agent the method name is **unixrsh**. For Network agents, the method name is **netmth**. For more information about extended agents, refer to the individual extended agent user's guides. For more information about network agents, refer to the *Tivoli Workload Scheduler Reference Guide*.

Host Specify the name of the agent's host workstation. This is required for extended agents. The host is the workstation with which the extended agent communicates and where its access method resides. The host for an extended agent must be a Master, Domain Manager, or FTA. The host for an extended agent can be specified as $MASTER. This assigns the host as the Master Domain Manager, and is useful if you need to switch masters in the domain. The extended agent will automatically connect to the new manager.

Note: The host option is no longer required for Standard agents. The host workstation for standard agents is now defaulted to the domain manager.

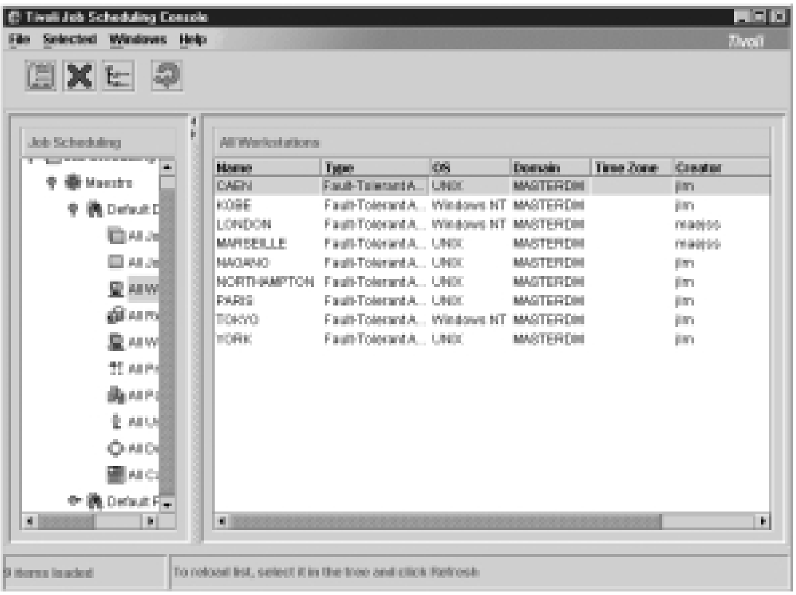
4. When you are finished in the Properties - Workstation in Database window, do one of the following:
   - Click the **OK** button to save the workstation in the database and close the Properties - Workstation in Database window.
   - Click the **Cancel** button to close the Properties - Workstation in Database window without saving the workstation in the database.

Displaying a List of Workstations in the Database

To display a list of workstations in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Expand the branches below TWS until you see the icon for the workstation list you want to run. See “Creating a Database List of Workstations” on page 110 for information about creating workstation lists.
3. Select the workstation list icon.
4. Click the **Load List** button on the toolbar or right-click the workstation list icon and select **Load List** from the pop-up menu.

   The list results are displayed in the right panel of the Job Scheduling Console.



All Workstations

Name	Type	OS	Domain	Time Zone	Creator
CAEN	Fault-Tolerant A...	UNIX	MASTERDM		jim
KOBE	Fault-Tolerant A...	Windows NT	MASTERDM		jim
LONDON	Fault-Tolerant A...	Windows NT	MASTERDM		maggio
MARSEILLE	Fault-Tolerant A...	UNIX	MASTERDM		maggio
NAGANO	Fault-Tolerant A...	UNIX	MASTERDM		jim
NORTHAMPTON	Fault-Tolerant A...	UNIX	MASTERDM		jim
PARIS	Fault-Tolerant A...	UNIX	MASTERDM		jim
TOKYO	Fault-Tolerant A...	Windows NT	MASTERDM		jim
YORK	Fault-Tolerant A...	UNIX	MASTERDM		jim

9 items loaded

To reload list, select it in the tree and click Refresh

Figure 45. Workstation list window.

The following are descriptions of the column headings in the workstation display.

Name Specifies the name of the workstation.

Type Specifies the type of workstation as one of the following:

Fault-Tolerant Agent
Standard Agent
Extended Agent

OS Specifies the type of Operating System for the workstation as one of the following:

UNIX
MPE/IX
MPE/V
Windows NT
Other

Domain

Specifies the name of the domain in which the workstation is a member.

Time Zone

Specifies the time zone of the workstation, if one is defined.

Creator

Specifies the name of the user who created the workstation in the database.

Last Updated

Specifies the date the workstation was last updated in the database.

Displaying a Workstation in the Database

To display a workstation in the database, follow these steps:

1. Run a list of workstations that contains the workstation you want to display. See “Displaying a List of Workstations in the Database” on page 198 for more information.
2. In the list results, double-click on the workstation you want to display or right-click the workstation and choose **Properties** from the pop-up menu.

   This opens the workstation in the Properties - Workstation in Database window. For information about the Properties - Workstation in Database window, see “Creating a Workstation in the Database” on page 192.
3. Click the **OK** or the **Cancel** button to close the Properties - Workstation in Database window.

Modifying a Workstation in the Database

To modify a workstation in the database, follow these steps:

1. Run a list of workstations that contains the workstation you want to display. See “Displaying a List of Workstations in the Database” on page 198 for more information.

2. In the list results, double-click on the workstation you want to modify or right-click the workstation and choose **Properties** from the pop-up menu.

   This opens the workstation in the Properties - Workstation in Database window.

3. Make your changes in the Properties - Workstation in Database window. For information about the Properties - Workstation in Database window, see “Creating a Workstation in the Database” on page 192.

4. When you are finished in the Properties - Workstation in Database window, do one of the following:

   - Click the **OK** button to save the workstation in the database and close the Properties - Workstation in Database window.

   - Click the **Cancel** button to close the Properties - Workstation in Database window without saving the workstation in the database.

Deleting Workstations in the Database

To delete workstations in the database, follow these steps:

1. Run a list of workstations that contains the workstation you want to delete. See “Creating a Workstation in the Database” on page 192 for more information.

2. In the list results, do one of the following:

   - To delete one workstation, right-click the workstation.

   - To delete multiple workstations in a range, hold down the **Shift** key, click the first and last workstations in the range, then right-click on of the selected workstations.

   - To delete multiple workstations that are not in a range, hold down the **Ctrl** key, click on each workstation, then right-click one of the selected workstations.

3. Choose **Delete** from the pop-up menu. A message is displayed for each workstation asking for confirmation.

4. Click the **OK** button to delete the workstation in the database or click the **Cancel** button to cancel the delete operation.

Creating a Workstation in the Database by Copying Another Workstation

To create a new workstation in the database using a copy of another workstation, follow these steps:

1. Run a list of workstations that contains the workstation you want to copy. See "Displaying a List of Workstations in the Database" on page 198 for more information.
2. In the list results, right-click the workstation you want to copy and choose **Create another** from the pop-up menu.

   This displays a copy of the workstation in the Properties - Workstation in Database window.
3. Change the **Workstation name** text box to the name of the new workstation.
4. Make other changes as needed to define the new workstation. For information about the Properties - Workstation in Database window, see "Creating a Workstation in the Database" on page 192.
5. When you are finished in the Properties - Workstation in Database window, do one of the following:
   - Click the **OK** button to save the workstation in the database and close the Properties - Workstation in Database window.
   - Click the **Cancel** button to close the Properties - Workstation in Database window without saving the workstation in the database.

Managing Workstation Classes in the Database

A workstation class is a group of workstations. Any number of workstations can be placed in a class. Job streams and jobs can be assigned to execute on a workstation class, making replication across many workstations easy.

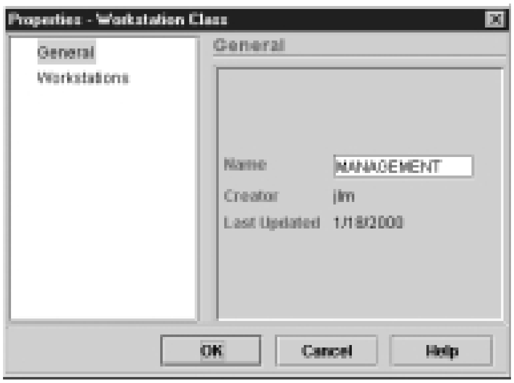
If a job stream is defined on a workstation class then each job added to the job stream must be defined either on a single workstation or on the exact same workstation class that the job stream was defined on.

Creating a Workstation Class in the Database

You create workstation classes in the database using the Properties - Workstation Class window. To create a new workstation class, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Right-click the TWS controller icon and select **New Workstation Class** from the pop-up menu.

   This opens the General page of the Properties - Workstation Class window.



Name MANAGEMENT
Creator jim
Last Updated 1/18/2000

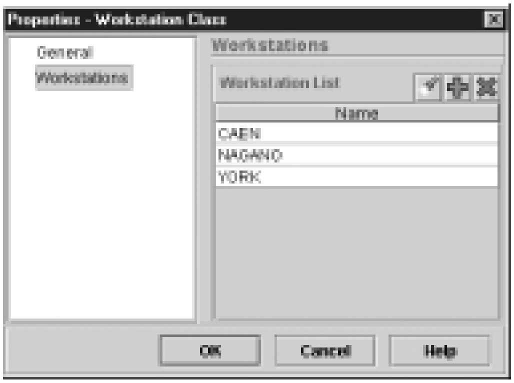
Figure 46. Properties - Workstation Class: General window.

3. On the General page of the Properties - Workstation Class window, fill in the text box as follows:

   Name Specifies the name of the workstation class. The name must start with a letter and can contain alphanumeric characters, dashes, and underscores. For non-expanded databases, it can contain up to eight characters. For expanded databases, it can contain up to 16 characters.

Note: Workstation class names must be unique and cannot be the same as workstation and domain names.

4. Select **Workstations** in the left panel of the Properties - Workstation Class window. This opens the **Workstations** view.



Name
CAEN
NAGANO
YORK

Figure 47. Properties - Workstation Class: Workstations window.

5. To add individual workstations to the class, click the **Find Workstations** button. For information about using the find facility, refer to “Finding Objects in the Database” on page 125.

6. To add all of the workstations in the database to the workstation class, click the **Add All Workstations** button.

7. To delete a workstation from the workstation class, select the workstation in the Workstation List and click the **Delete from Table** (X) button.

8. When you are finished in the Properties - Workstation Class window, do one of the following:

   - Click the **OK** button to close the Properties - Workstation Class window and save the new workstation class in the database.

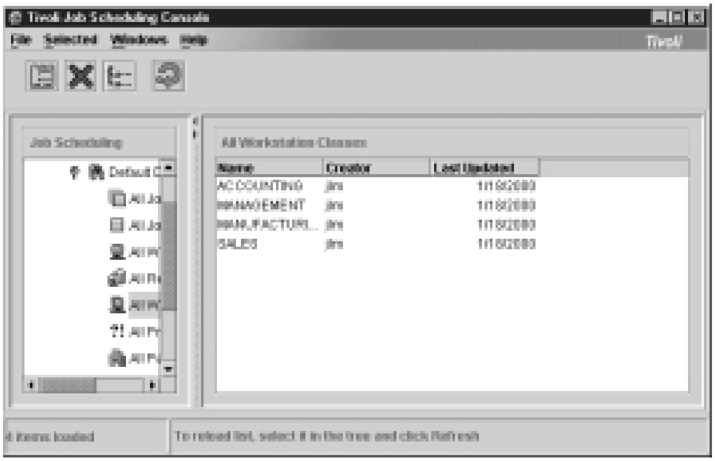
   - Click the **Cancel** button to close the Properties - Workstation Class window without saving the workstation class in the database.

Displaying a List of Workstation Classes in the Database

To display a list of workstation classes in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Expand the branches below TWS until you see the icon for the workstation class list you want to run. See “Creating a Database List of Workstation Classes” on page 112 for information about creating workstation class lists.
3. Select the workstation class list icon.
4. Click the **Load List** button on the toolbar or right-click the workstation class list icon and select **Load List** from the pop-up menu.

   The list results are displayed in the right panel of the Job Scheduling Console.



Name	Creator	Last Updated
ACCOUNTING	jim	1/18/2000
MANAGEMENT	jim	1/18/2000
MANUFACTURI...	jim	1/18/2000
SALES	jim	1/18/2000

4 items loaded

To reload list, select it in the tree and click Refresh

Figure 48. Workstation Class list window.

The following are descriptions of the column headings.

Name Specifies the name of the workstation class.

Creator

Specifies the name of the user who created the workstation class in the database.

Last Updated

Specifies the date the workstation class was last updated in the database.

Displaying a Workstation Class in the Database

To display a workstation class in the database, follow these steps:

1. Run a list of workstation classes that contains the workstation class you want to display. See “Displaying a List of Workstation Classes in the Database” on page 205 for more information.
2. In the list results, double-click on the workstation class you want to display or right-click the workstation class and choose **Properties** from the pop-up menu.

   This opens the workstation class in the Properties - Workstation Class window. For information about the Properties - Workstation Class window, see “Creating a Workstation Class in the Database” on page 203.
3. Click the **OK** or the **Cancel** button to close the Properties - Workstation Class window.

Modifying a Workstation Class in the Database

To modify a workstation class in the database, follow these steps:

1. Run a list of workstation classes that contains the workstation class you want to modify. See “Displaying a List of Workstation Classes in the Database” on page 205 for more information.
2. In the list results, double-click on the workstation class you want to modify or right-click the workstation class and choose **Properties** from the pop-up menu.

   This opens the workstation class in the Properties - Workstation Class window.

3. Make your changes in the Properties - Workstation Class window. For information about the Properties - Workstation Class window, see “Creating a Workstation Class in the Database” on page 203.
4. When you are finished in the Properties - Workstation Class window, do one of the following:
   - Click the **OK** button to save the workstation class in the database and close the Properties - Workstation Class window.
   - Click the **Cancel** button to close the Properties - Workstation Class window without saving the workstation class in the database.

Deleting Workstation Classes in the Database

To delete workstation classes in the database, follow these steps:

1. Run a list of workstation classes that contains the workstation class you want to delete. See “Displaying a List of Workstation Classes in the Database” on page 205 for more information.
2. In the list results, do one of the following:
   - To delete one workstation class, right-click the workstation class.
   - To delete multiple workstation classes in a range, hold down the **Shift** key, click the first and last workstation classes in the range, then right-click one of the selected workstation classes.
   - To delete multiple workstation classes that are not in a range, hold down the **Ctrl** key, click on each workstation class, then right-click one of the selected workstation classes.
3. Choose **Delete** from the pop-up menu. A message is displayed for each workstation class asking for confirmation.
4. Click the **OK** button to delete the workstation class in the database or click the **Cancel** button to cancel the delete operation.

Managing Domains in the Database

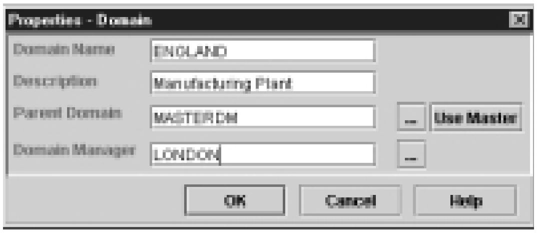
A domain is a named group of TWS workstations, consisting of one or more workstations and a domain manager acting as the management hub. All domains have a parent domain, except for the master domain.

Creating a Domain in the Database

You create domains in the database using the Properties - Domain window. To create a new domain, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Right-click the TWS controller icon and select **New Domain** from the pop-up menu.

   This opens the Properties - Domain window.



Properties - Domain

Domain Name: ENGLAND

Description: Manufacturing Plant

Parent Domain: MASTERDM

Domain Manager: LONDON

Figure 49. Properties - Domain window.

3. In the Properties - Domain window, fill in the text boxes as follows:

   Domain Name
   Specify the name of the domain. The name must start with a letter and can contain alphanumeric characters, dashes, and underscores. For non-expanded databases, it can contain up to eight characters. For expanded databases, it can contain up to 16 characters.

   Note: Domain names must be unique and cannot be the same as workstation and workstation class names.

Description
Specify a description of the domain.

Parent Domain
Specify the name of the parent domain to which the domain manager is linked. The default is the master domain. For information about using the Find button, refer to “Finding Objects in the Database” on page 125.

Domain Manager
Specify the name of the workstation that is the domain manager. The domain manager must be a fault-tolerant agent with **Full Status** and **Resolve Dependencies** selected. Note that when creating a new domain, you can specify a domain manager workstation that does not yet exist. For information about using the Find button, refer to “Finding Objects in the Database” on page 125.

4. When you are finished in the Properties - Domain window, do one of the following:

   - Click the **OK** button to close the Properties - Domain window and save the new domain in the database.
   - Click the **Cancel** button to close the Properties - Domain window without saving the domain in the database.

Displaying a List of Domains in the Database

To display a list of domains in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Expand the branches below TWS until you see the icon for the domain list you want to run. See “Creating a Database List of Domains” on page 113 for information about creating domain lists.
3. Select the domain list icon.
4. Click the **Load List** button on the toolbar or right-click the domain list icon and select **Load List** from the pop-up menu.

The list results are displayed in the right panel of the Job Scheduling Console. The following are descriptions of the column headings.

Name Specifies the name of the domain.

Parent Domain
Specifies the name of the domain above this domain in the hierarchy.

Domain Manager
Specifies the name of the workstation that is the manager of this domain.

Creator
Specifies the name of the user who created the domain in the database.

Last Updated
Specifies the date the domain was last updated in the database.

Displaying a Domain in the Database

To display a domain in the database, follow these steps:

1. Run a list of domains that contains the domain you want to display. See “Displaying a List of Domains in the Database” on page 209 for more information.
2. In the list results, double-click on the domain you want to display or right-click the domain and choose **Properties** from the pop-up menu.

   This opens the domain in the Properties - Domain window. For information about the Properties - Domain window, see “Creating a Domain in the Database” on page 208.
3. Click the **OK** or the **Cancel** button to close the Properties - Domain window.

Modifying a Domain in the Database

To modify a domain in the database, follow these steps:

1. Run a list of domains that contains the domain you want to modify. See “Displaying a List of Domains in the Database” on page 209 for more information.
2. In the list results, double-click on the domain you want to modify or right-click the domain and choose **Properties** from the pop-up menu.

   This opens the domain in the Properties - Domain window.
3. Make your changes in the Properties - Domain window. For information about the Properties - Domain window, see “Creating a Domain in the Database” on page 208.
4. When you are finished in the Properties - Domain window, do one of the following:
   - Click the **OK** button to save the domain in the database and close the Properties - Domain window.
   - Click the **Cancel** button to close the Properties - Domain window without saving the domain in the database.

Deleting Domains in the Database

To delete domains in the database, follow these steps:

1. Run a list of domains that contains the domain you want to delete. See “Displaying a List of Domains in the Database” on page 209 for more information.
2. In the list results, do one of the following:
   - To delete one domain, right-click the domain.
   - To delete multiple domains in a range, hold down the **Shift** key, click the first and last domains in the range, then right-click one of the selected domains.
   - To delete multiple domains that are not in a range, hold down the **Ctrl** key, click on each domain, then right-click one of the selected domains.
3. Select **Delete** from the pop-up menu. A message is displayed for each domain asking for confirmation.

4. Click the **OK** button to delete the domain in the database or click the **Cancel** button to cancel the delete operation.

Managing Resources in the Database

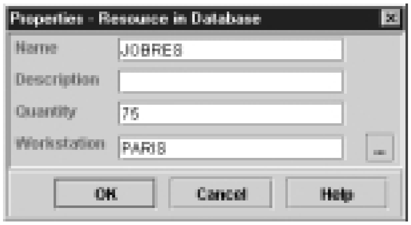
Resources represent any type of resources on your system such as tape drives, communication lines, databases, or printers, that are needed to run a job. Resources can be physical or logical. After defining a resource in the TWS database, it can be used as a dependency for jobs and job streams that run on the workstation or workstation class for which the resource is defined.

For example, you can define a resource called **TAPES** with a value of 2 and define jobs that require both tape drives as a dependency. Jobs with this dependency cannot run concurrently, because each time a job is run the TAPES resource is in use.

Creating a Resource in the Database

You create resources in the database using the Properties - Resource in Database window. To create a new resource, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Click the **New Resource** button on the toolbar or right-click the TWS controller icon and select **New Resource** from the pop-up menu. This displays the Properties - Resource in Database window.



Properties - Resource in Database

Name: JOBRES

Description:

Quantity: 75

Workstation: PARIS

Figure 50. Properties - Resource in Database window.

3. In the Properties - Resource in Database window, fill in the text boxes as follows:

Name Specify the name of the resource. The name must start with a letter and can contain alphanumeric characters, dashes, and underscores. The name can contain up to eight characters.

Description
Specify a description of the resource.

Quantity
Specify the number of available resource units. Values can be **0** through **1024**.

Workstation
Specify the name of the workstation or workstation class on which the resource is used. You can type a name directly or you can click the Find button and select a workstation or workstation class from a list. For information about using the Find button, refer to "Finding Objects in the Database" on page 125.

4. When you are finished in the Properties - Resource in Database window, do one of the following:
   - Click the **OK** button to close the Properties - Resource In Database Window and save the new resource in the database.
   - Click the **Cancel** button to close the Properties - Resource In Database Window without saving the resource in the database.

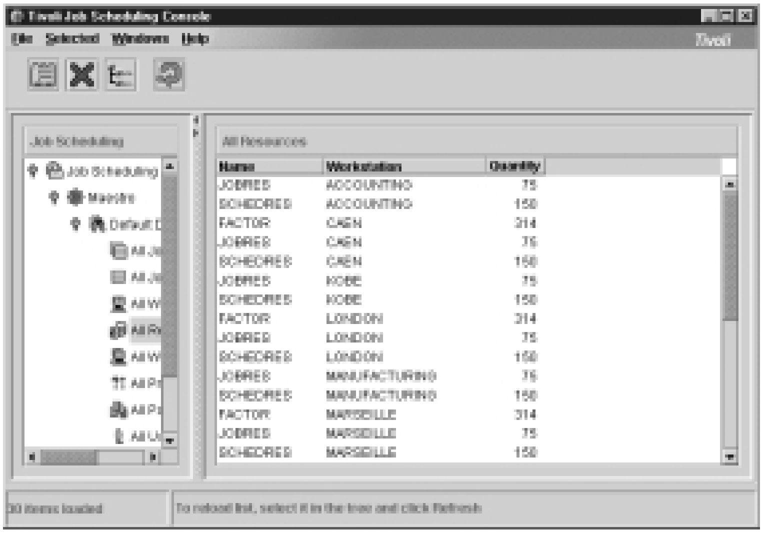
Displaying a List of Resources in the Database

To display a list of resources in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Expand the branches below TWS until you see the icon for the resource list you want to run. See "Creating a Database List of Resources" on page 117 for information about creating resource lists.
3. Select the resource list icon.

4. Click the **Load List** button on the toolbar or right-click the resource list icon and select **Load List** from the pop-up menu.

   The list results are displayed in the right panel of the Job Scheduling Console.



Name	Workstation	Quantity
JOBRES	ACCOUNTING	75
SCHEDRES	ACCOUNTING	150
FACTOR	CAEN	314
JOBRES	CAEN	75
SCHEDRES	CAEN	150
JOBRES	KOBE	75
SCHEDRES	KOBE	150
FACTOR	LONDON	314
JOBRES	LONDON	75
SCHEDRES	LONDON	150
JOBRES	MANUFACTURING	75
SCHEDRES	MANUFACTURING	150
FACTOR	MARSEILLE	314
JOBRES	MARSEILLE	75
SCHEDRES	MARSEILLE	150

30 items loaded

To reload list, select it in the tree and click Refresh

Figure 51. Resource list window.

The following are descriptions of the column headings.

Workstation
: Specifies the name of the workstation or workstation class on which the resource is used.

Resource
: Specifies the name of the resource.

Quantity
: Specifies the number of available resource units.

Displaying a Resource in the Database

To display a resource in the database, follow these steps:

1. Run a list of resources that contains the resource you want to display. See “Displaying a List of Resources in the Database” on page 213 for more information.

2. In the list results, double-click on the resource you want to display or right-click the resource and choose **Properties** from the pop-up menu.

   This opens the resource in the Properties - Resource In Database window. For information about the Properties - Resource In Database window, see “Creating a Resource in the Database” on page 212.

3. Click the **OK** or the **Cancel** button to close the Properties - Resource In Database window.

Modifying a Resource in the Database

To modify a resource in the database, follow these steps:

1. Run a list of resources that contains the resource you want to modify. See “Displaying a List of Resources in the Database” on page 213 for more information.

2. In the list results, double-click on the resource you want to modify or right-click the resource and choose **Open** from the pop-up menu.

   This opens the resource in the Properties - Resource In Database Window.

3. Make your changes in the Properties - Resource In Database Window. For information about the Properties - Resource In Database Window, see “Creating a Resource in the Database” on page 212.

4. When you are finished in the Properties - Resource In Database Window, do one of the following:

   - Click the **OK** button to save the resource in the database and close the Properties - Resource In Database Window.

   - Click the **Cancel** button to close the Properties - Resource In Database Window without saving the resource in the database.

Deleting Resources in the Database

To delete resources in the database, follow these steps:

1. Run a list of resources that contains the resource you want to delete. See “Displaying a List of Resources in the Database” on page 213 for more information.
2. In the list results, do one of the following:
   - To delete one resource, right-click the resource.
   - To delete multiple resources in a range, hold down the **Shift** key, click the first and last resources in the range, then right-click one of the selected resources.
   - To delete multiple resources that are not in a range, hold down the **Ctrl** key, click on each resource, then right-click one of the selected resources.
3. Select the **Delete** command from the pop-up menu. A message is displayed for each resource asking for confirmation.
4. Click the **OK** button to delete the resource in the database or click the **Cancel** button to cancel the delete operation.

Creating a Resource in the Database by Copying Another Resource

To create a new resource in the database using a copy of another resource, follow these steps:

1. Run a list of resources that contains the resource you want to copy. See “Displaying a List of Resources in the Database” on page 213 for more information.
2. In the list results, right-click the resource you want to copy and choose **Create another** from the pop-up menu.

   This displays a copy of the resource in the Properties - Resource In Database Window.
3. Change the **Name** text box to the name of the new resource.
4. Change the other text boxes as needed to define the new resource. For information about the Properties - Resource In Database Window, see “Creating a Resource in the Database” on page 212.

5. When you are finished in the Properties - Resource In Database Window, do one of the following:
   - Click the **OK** button to save the resource in the database and close the Properties - Resource In Database Window.
   - Click the **Cancel** button to close the Properties - Resource In Database Window without saving the resource in the database.

Managing Prompts in the Database

Prompts can be used as dependencies for jobs and job streams. A prompt must be answered affirmatively for the dependent job or job stream to launch. For example, you can issue a prompt to make sure that a printer is online before a job that prints a report runs.

There are two types of prompts:

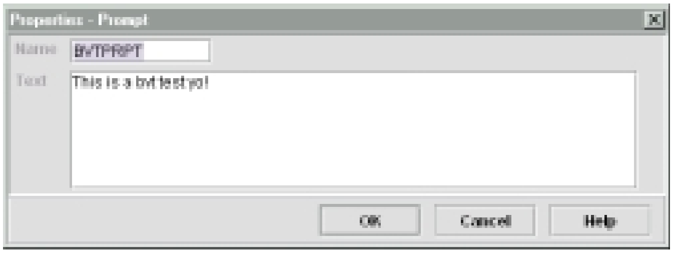
- ad hoc prompts
- predefined prompt

An ad hoc prompt is defined within the properties of a job or job stream and is unique to that job or job stream. A predefined prompt is defined in the TWS database and can be used by any job or job stream.

Creating a Prompt in the Database

You create prompts in the database using the Properties - Prompt window. To create a new prompt, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Right-click the TWS controller icon and select **New Prompt** from the pop-up menu. This opens the Properties - Prompt window.



Properties - Prompt

Name BVTPRPT

Text This is a bvt test yo!

Figure 52. Properties - Prompt window.

3. In the Properties - Prompt window, fill in the text boxes as follows:

   Name Specify the name of the prompt. The name must start with a letter and can contain alphanumeric characters, dashes, and underscores. The name can contain up to eight characters.

   Text

   Specify the text of a prompt. The default behavior of a prompt is to display a message and wait for a reply. If the string begins with a colon (:), the message is displayed but no reply is necessary. If the string begins with an exclamation mark (!), the message is not displayed but it requires a reply.

   You can include backslash n (**n**) within the text to create a new line.

4. When you are finished in the Properties - Prompt window, do one of the following:

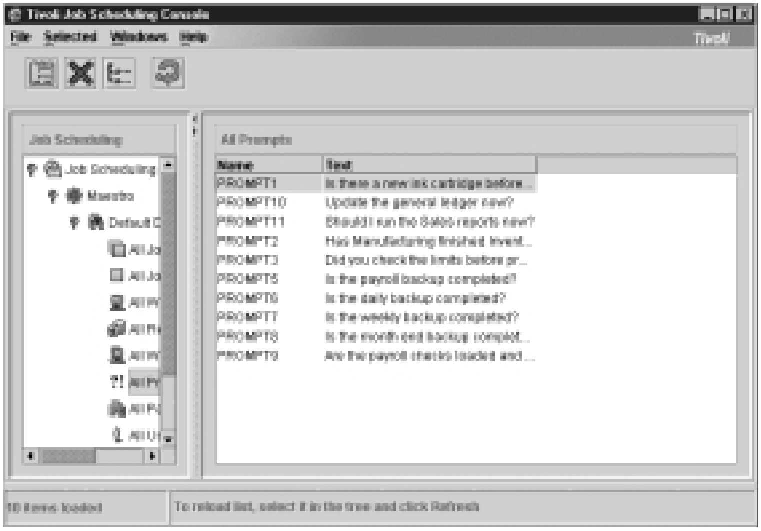
   - Click the **OK** button to close the Properties - Prompt window and save the new prompt in the database.
   - Click the **Cancel** button to close the Properties - Prompt window without saving the prompt in the database.

Displaying a List of Prompts in the Database

To display a list of prompts in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Expand the branches below TWS until you see the icon for the prompt list you want to run. See “Creating a Database List of Prompts” on page 119 for information about creating prompt lists.
3. Select the prompt list icon.
4. Click the **Load List** button on the toolbar or right-click the prompt list icon and select **Load List** from the pop-up menu.

   The list results are displayed in the right panel of the Job Scheduling Console.



Name	Text
PROMPT1	Is there a new ink cartridge before ...
PROMPT10	Update the general ledger now?
PROMPT11	Should I run the Sales reports now?
PROMPT2	Has Manufacturing finished invent...
PROMPT3	Did you check the limits before pr...
PROMPT5	Is the payroll backup completed?
PROMPT6	Is the daily backup completed?
PROMPT7	Is the weekly backup completed?
PROMPT8	Is the month end backup complet...
PROMPT9	Are the payroll checks loaded and ...

10 items loaded

To reload list, select it in the tree and click Refresh

Figure 53. Prompts list window.

The following are descriptions of the column headings.

Name Specifies the name of the prompt.

Text Specifies the text of the prompt.

Displaying a Prompt in the Database

To display a prompt in the database, follow these steps:

1. Run a list of prompts that contains the prompt you want to display. See “Displaying a List of Prompts in the Database” on page 218 for more information.
2. In the list results, double-click on the prompt you want to display or right-click the prompt and choose **Open** from the pop-up menu.

   This opens the prompt in the Properties - Prompt window. For information about the Properties - Prompt window, see “Creating a Prompt in the Database” on page 217.
3. Click the **OK** or the **Cancel** button to close the Properties - Prompt window.

Modifying a Prompt in the Database

To modify a prompt in the database, follow these steps:

1. Run a list of prompts that contains the prompt you want to modify. See “Displaying a List of Prompts in the Database” on page 218 for more information.
2. In the list results, double-click on the prompt you want to modify or right-click the prompt and choose **Open** from the pop-up menu.

   This opens the prompt in the Properties - Prompt window.
3. Make your changes in the Properties - Prompt window. For information about the Properties - Prompt window, see “Creating a Prompt in the Database” on page 217.
4. When you are finished in the Properties - Prompt window, do one of the following:
   - Click the **OK** button to save the prompt in the database and close the Properties - Prompt window.
   - Click the **Cancel** button to close the Properties - Prompt window without saving the prompt in the database.

Deleting Prompts in the Database

To delete prompts in the database, follow these steps:

1. Run a list of prompts that contains the prompt you want to delete. See “Displaying a List of Prompts in the Database” on page 218 for more information.
2. In the list results, do one of the following:
   - To delete one prompt, right-click the prompt.
   - To delete multiple prompts in a range, hold down the **Shift** key, click the first and last prompts in the range, then right-click one of the selected prompts.
   - To delete multiple prompts that are not in a range, hold down the **Ctrl** key, click on each prompt, then right-click one of the selected prompts.
3. Choose **Delete** from the pop-up menu. A message is displayed for each prompt asking for confirmation.
4. Click the **OK** button to delete the prompt in the database or click the **Cancel** button to cancel the delete operation.

Managing Parameters in the Database

Parameters are useful to substitute values into your jobs and job streams. Since parameters are stored in the TWS database, all jobs and job streams that use the particular parameter are updated automatically when the value changes. For scheduling, a parameter can be used as a substitute for all or part of:

- File dependency path names
- Text for prompts
- Logon, command, and script file names

When using a parameter in a job script, the value is substituted at run time. In this case, the parameter must be defined on the workstation where it will be used. Parameters cannot be used when scripting Extended Agent jobs.

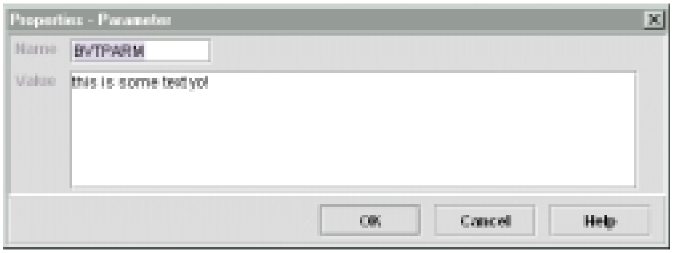
Note: Use caution when renaming a parameter, it may be part of a dependency for a job scheduler object in the database. If this is the case, and you rename it, any action you perform that refers to the old name will return an error.

Creating a Parameter in the Database

You create parameters in the database using the Properties - Parameter window. To create a new parameter, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Right-click the TWS controller icon and select **New Parameter** from the pop-up menu.

   This opens the Properties - Parameter window.



Properties - Parameter

Name: BVTPARM

Value: this is some text yo!

Figure 54. Properties - Parameter window.

3. In the Properties - Parameter window, fill in the text boxes as follows:

   Name Specify the name of the parameter. The name must start with a letter and can contain alphanumeric characters, dashes, and underscores. The name can contain up to eight characters.

   Value Specify the value assigned to the parameter. Do not include the names of other parameters.

4. When you are finished in the Properties - Parameter window, do one of the following:

   - Click the **OK** button to close the Properties - Parameter window and save the new parameter in the database.

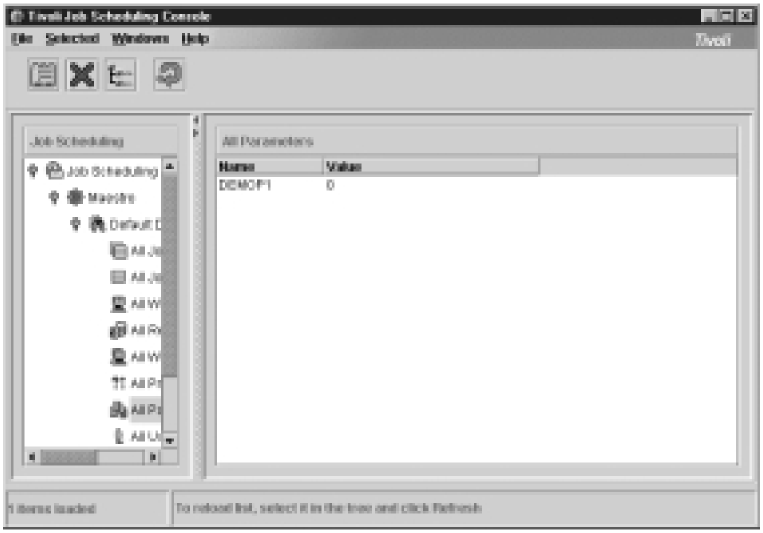
- Click the **Cancel** button to close the Properties - Parameter window without saving the parameter in the database.

Displaying a List of Parameters in the Database

To display a list of parameters in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Expand the branches below the TWS controller icon until you see the icon for the parameter list you want to run. See "Creating a Database List of Prompts" on page 119 for information about creating parameter lists.
3. Select the parameter list icon.
4. Click the **Load List** button on the toolbar or right-click the parameter list icon and select **Load List** from the pop-up menu.

   The list results are displayed in the right panel of the Job Scheduling Console.



Name	Value
DEMOP1	0

1 items loaded

To reload list, select it in the tree and click Refresh

Figure 55. Parameter list window.

The following are descriptions of the column headings.

Name Specifies the name of the parameter.

Value Specifies the value of the parameter.

Displaying a Parameter in the Database

To display a parameter in the database, follow these steps:

1. Run a list of parameters that contains the parameter you want to display. See “Displaying a List of Parameters in the Database” on page 223 for more information.
2. In the list results, double-click on the parameter you want to display or right-click the parameter and choose **Open** from the pop-up menu.

   This opens the parameter in the Properties - Parameter window. For information about the Properties - Parameter window, see “Creating a Parameter in the Database” on page 222.
3. Click the **OK** or the **Cancel** button to close the Properties - Parameter window.

Modifying a Parameter in the Database

To modify a parameter in the database, follow these steps:

1. Run a list of parameters that contains the parameter you want to modify. See “Displaying a List of Parameters in the Database” on page 223 for more information.
2. In the list results, double-click on the parameter you want to modify or right-click the parameter and choose **Open** from the pop-up menu.

   This opens the parameter in the Properties - Parameter window.
3. Make your changes in the Properties - Parameter window. For information about the Properties - Parameter window, see “Creating a Parameter in the Database” on page 222.
4. When you are finished in the Properties - Parameter window, do one of the following:

   - Click the **OK** button to save the parameter in the database and close the Properties - Parameter window.

- Click the **Cancel** button to close the Properties - Parameter window without saving the parameter in the database.

Deleting Parameters in the Database

To delete parameters in the database, follow these steps:

1. Run a list of parameters that contains the parameter you want to delete. See “Displaying a List of Parameters in the Database” on page 223 for more information.
2. In the list results, do one of the following:
   - To delete one parameter, right-click the parameter.
   - To delete multiple parameters in a range, hold down the **Shift** key, click the first and last parameters in the range, then right-click one of the selected parameters.
   - To delete multiple parameters that are not in a range, hold down the **Ctrl** key, click on each parameter, then right-click one of the selected parameters.
3. Choose **Delete** from the pop-up menu. A message is displayed for each parameter asking for confirmation.
4. Click the **OK** button to delete the parameter in the database or click the **Cancel** button to cancel the delete operation.

Managing Users in the Database

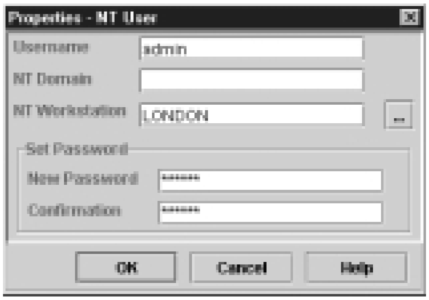
The users for whom TWS will launch jobs must be defined in the database. This is required for Windows NT users only.

Creating a User in the Database

You create users in the database using the Properties - NT User window. To create a new user, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Right-click the TWS controller icon and select **New User** from the pop-up menu.

   This opens the Properties - NT User window.



Properties - NT User

Username: admin

NT Domain:

NT Workstation: LONDON

Set Password

New Password: ******

Confirmation: ******

Figure 56. Properties - NT User window.

3. In the Properties - NT User window, fill in the text boxes as follows:

User Name

Specify the Windows NT user name. The name can contain up to 47 characters.

Note that Windows NT user names are case-sensitive. Also, the user must be able to log on to the workstation on which TWS will launch jobs, and must have the right to **Log on as batch**.

If the name is not unique in Windows NT, it is considered to be a local user, a domain user, or a trusted domain user, in that order.

NT Domain

Specify the Windows NT domain of this user. This field is optional. If the name is not fully qualified (that is, no Windows NT domain is entered) or is not unique in Windows NT, it is considered to be a local user, a domain user, or a trusted domain user, in that order.

NT Workstation

Specify the name of the TWS workstation on which the user is allowed to launch jobs. For information about using the Find button, refer to “Finding Objects in the Database” on page 125. The default is all workstations.

New Password

Specify a new user's password as defined on the Windows NT computer.

Confirmation

Specify the user's password again for confirmation.

4. When you are finished in the Properties - NT User window, do one of the following:

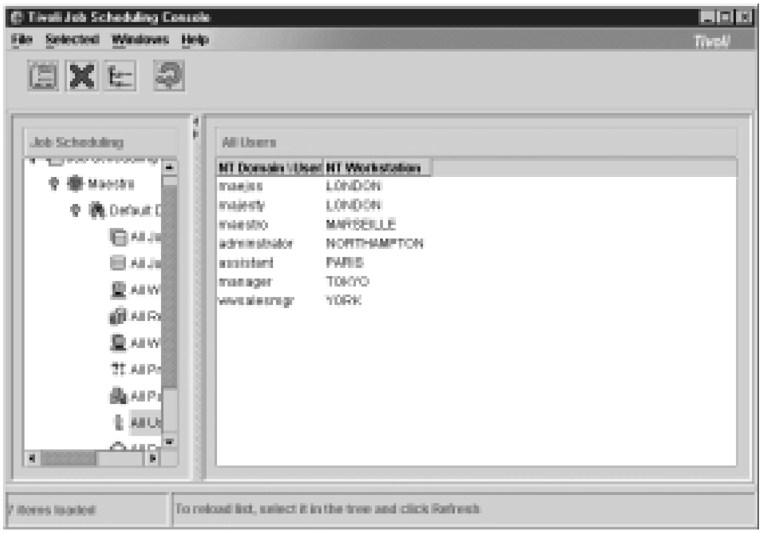
   - Click the **OK** button to close the Properties - NT User window and save the new user in the database.
   - Click the **Cancel** button to close the Properties - NT User window without saving the user in the database.

Displaying a List of Users in the Database

To display a list of users in the database, follow these steps:

1. In the tree **v**iew of the Job Scheduling Console, expand the TWS controller branch.
2. Expand the branches below TWS until you see the icon for the user list you want to run. See "Creating a Database List of Users" on page 121 for information about creating user lists.
3. Select the user list icon.
4. Click the **Load List** button on the toolbar or right-click the user list icon and select **Load List** from the pop-up menu.

   The list results are displayed in the right panel of the Job Scheduling Console.



NT Domain\User	NT Workstation
maejss	LONDON
majesty	LONDON
maestro	MARSEILLE
administrator	NORTHAMPTON
assistant	PARIS
manager	TOKYO
wwsalesmgr	YORK

7 items loaded

To reload list, select it in the tree and click Refresh

Figure 57. Users list window.

The following are descriptions of the column headings.

NT Domain\User
Specifies the Windows NT domain and the name of the user.

NT Workstation
Specifies the name of the workstation on which the user will launch jobs.

Displaying a User in the Database

To display a user in the database, follow these steps:

1. Run a list of users that contains the user you want to display. See “Displaying a List of Users in the Database” on page 227 for more information.
2. In the list results, double-click on the user you want to display or right-click the user and choose **Open** from the pop-up menu.

   This opens the user in the Properties - NT User window. For information about the Properties - NT User window, see “Creating a User in the Database” on page 225.

3. Click the **OK** or the **Cancel** button to close the Properties - NT User window.

Modifying a User in the Database

To modify a user in the database, follow these steps:

1. Run a list of users that contains the user you want to modify. See "Displaying a List of Users in the Database" on page 227 for more information.
2. In the list results, double-click on the user you want to modify or right-click the user and choose **Open** from the pop-up menu.

   This opens the user in the Properties - NT User window.
3. Make your changes in the Properties - NT User window. For information about the Properties - NT User window, see "Creating a User in the Database" on page 225.
4. When you are finished in the Properties - NT User window, do one of the following:
   - Click the **OK** button to save the user in the database and close the Properties - NT User window.
   - Click the **Cancel** button to close the Properties - NT User window without saving the user in the database.

Deleting Users in the Database

To delete users in the database, follow these steps:

1. Run a list of users that contains the user you want to delete. See "Displaying a List of Users in the Database" on page 227 for more information.
2. In the list results, do one of the following:
   - To delete one user, right-click the user.
   - To delete multiple users in a range, hold down the **Shift** key, click the first and last users in the range, then right-click one of the selected users.
   - To delete multiple users that are not in a range, hold down the **Ctrl** key, click on each user, then right-click one of the selected users.

3. Choose **Delete** from the pop-up menu. A message is displayed for each user asking for confirmation.
4. Click the **OK** button to delete the user in the database or click the **Cancel** button to cancel the delete operation.

Changing User Passwords

To change a user password, follow these steps:

1. From the main console, click the connector in the left pane.
2. Click **Selected** from the menu.
3. Click **Change Password**.
4. Click the search button to specify a name in the **User Name** text box.
5. Enter the password in the **New Password** text box.
6. Reenter the password in the **Confirmation**text box.
7. Click **OK**.

Managing Calendars in the Database

A calendar is a list of scheduling dates defined in the TWS database. Assigning a calendar run cycle to a job stream causes that job stream to be executed on the days specified in the calendar. Since a calendar is defined to the TWS database, it can be assigned to multiple job streams.

You can create as many calendars as required to meet your scheduling needs. For example, you can define a calendar named **PAYDAYS** that contains a list of pay dates, a calendar named **MONTHEND** that contains a list of month ending dates, and a calendar named **HOLIDAYS** that contains a list of your company’s holidays.

The Holidays Calendar

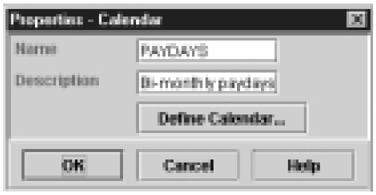
The **HOLIDAYS** calendar is used to determine non-workdays for the purpose of defining run cycles for your job streams. You should create a **HOLIDAYS** calendar with the dates of your holidays.

Creating a Calendar in the Database

You create calendars in the database using the Properties - Calendar window. To create a new calendar, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller branch.
2. Right-click the TWS controller icon and select **New Calendar** from the pop-up menu.

   This opens the Properties - Calendar window.



Properties - Calendar

Name: PAYDAYS

Description: Bi-monthly paydays

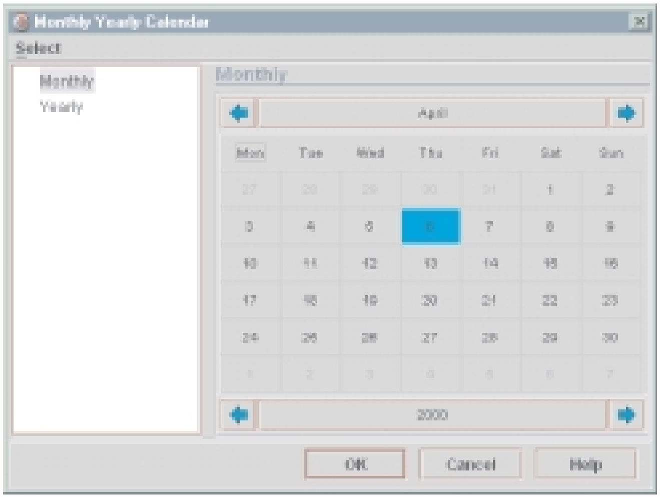
Figure 58. Properties - Calendar window.

3. In the Properties - Calendar window, fill in the text boxes as follows:

   Name Specify the name of the calendar. The name must start with a letter and can contain alphanumeric characters, dashes, and underscores. The name can contain up to eight characters.

   Description
   Specify a description of the calendar.

4. Click the **Define Calendar...** button to add dates to the calendar. This opens the **Monthly Yearly Calendar** window.



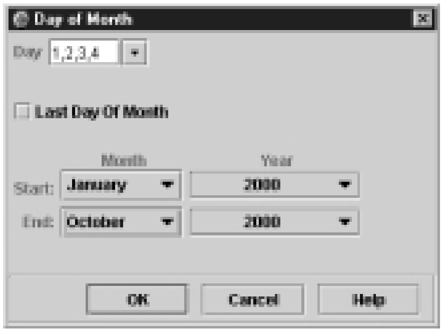
April

Mon	Tue	Wed	Thu	Fri	Sat	Sun
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
1	2	3	4	5	6	7

2000

Figure 59. Monthly Yearly Calendar window.

5. Select **Monthly** or **Yearly** in the left panel of the window to view a monthly or yearly calendar. Use the arrow buttons above and below the calendar to change the month and year.
6. To add a specific date to the calendar, click on the date in the calendar view.
7. To add a specific day of the month, select **Day of Month** from the **Select** menu. This opens the Day of Month window.



Day 1,2,3,4

□ Last Day Of Month

	Month	Year
Start:	January	2000
End:	October	2000

Figure 60. Day of Month window.

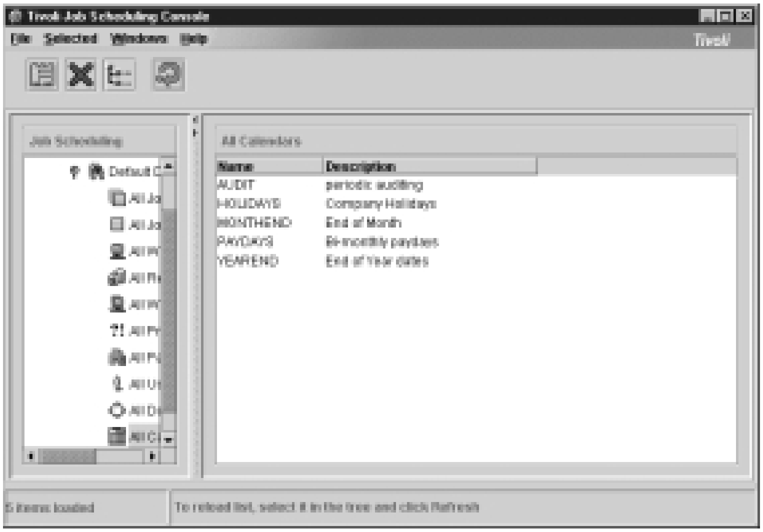
8. To add a day of the month by number, choose the day number in the **Day** drop-down list. To add the last day of the month, check the **Last Day of Month** option.
9. Select start and end dates for the calendar by selecting the month and year from the **Start** and **End** drop-down lists. The days you specified are selected for every month in this range.
10. Click the **OK** button to close the Day of Month window and select the dates. Click the **Cancel** button to close the Day of Month window without selecting the dates.
11. Click the **OK** button to close the Monthly Yearly Calendar window and add the dates to the calendar. Click the **Cancel** button to close the Day of Month window without adding the dates to the calendar.
12. When you are finished in the Properties - Calendar window, do one of the following:
    - Click the **OK** button to close the Properties - Calendar window and save the new calendar in the database.
    - Click the **Cancel** button to close the Properties - Calendar window without saving the calendar in the database.

Displaying a List of Calendars in the Database

To display a list of calendars in the database, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller branch.
2. Expand the branches below TWS until you see the icon for the calendar list you want to run. See “Creating a Database List of Calendars” on page 123 for information about creating calendar lists.
3. Select the calendar list icon.
4. Click the **Load List** button on the toolbar or right-click the calendar list icon and select **Load List** from the pop-up menu.

   The list results are displayed in the right panel of the Job Scheduling Console.



Name	Description
AUDIT	periodic auditing
HOLIDAYS	Company Holidays
MONTHEND	End of Month
PAYDAYS	Bi-monthly paydays
YEAREND	End of Year dates

5 items loaded

To reload list, select it in the tree and click Refresh

Figure 61. Calendars list window.

The following are descriptions of the column headings.

Name Specifies the name of the calendar.

Description
Provides a description of the calendar.

Viewing Calendar Properties in the Database

To display a calendar in the database, follow these steps:

1. Run a list of calendars that contains the calendar you want to display. See “Displaying a List of Calendars in the Database” on page 233 for more information.
2. In the list results, double-click on the calendar you want to display or right-click the calendar and choose **Properties** from the pop-up menu.

   This opens the calendar in the Properties - Calendar window. For information about the Properties - Calendar window, see “Creating a Calendar in the Database” on page 231.
3. Click the **OK** or the **Cancel** button to close the Properties - Calendar window.

Modifying a Calendar in the Database

To modify a calendar in the database, follow these steps:

1. Run a list of calendars that contains the calendar you want to modify. See "Displaying a List of Calendars in the Database" on page 233 for more information.
2. In the list results, double-click on the calendar you want to modify or right-click the calendar and choose **Properties** from the pop-up menu.

   This opens the calendar in the Properties - Calendar window.
3. Make your changes in the Properties - Calendar window. For information about the Properties - Calendar window, see "Creating a Calendar in the Database" on page 231.
4. When you are finished in the Properties - Calendar window, do one of the following:
   - Click the **OK** button to save the calendar in the database and close the Properties - Calendar window.
   - Click the **Cancel** button to close the Properties - Calendar window without saving the calendar in the database.

Deleting Calendars in the Database

To delete calendars in the database, follow these steps:

1. Run a list of calendars that contains the calendar you want to delete. See "Displaying a List of Calendars in the Database" on page 233 for more information.
2. In the list results, do one of the following:
   - To delete one calendar, right-click the calendar.
   - To delete multiple calendars in a range, hold down the **Shift** key, click the first and last calendars in the range, then right-click one of the selected calendars.
   - To delete multiple calendars that are not in a range, hold down the **Ctrl** key, click on each calendar, then right-click one of the selected calendars.

3. Choose **Delete** from the pop-up menu. A message is displayed for each calendar asking for confirmation.
4. Click the **OK** button to delete the calendar in the database or click the **Cancel** button to cancel the delete operation.

8

TWS Plan Tasks

Using Plan Lists

Plan lists display objects in the TWS plan. When you create a list, you give it a name and specify filtering criteria. When you run a list, it displays a filtered list of objects in the plan. Each list you create is represented by an icon in the tree view of the Job Scheduling Console.

You can create groups to organize your lists. After installation there are a default set of basic plan lists in a group named **Default Plan Lists**.

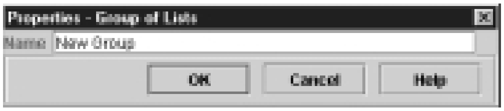
Creating a Group for Plan Lists

To create a group for plan lists, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. From the TWS branch, highlight the group you want to contain this list.
3. Click the **Create a Group of Lists** button on the toolbar or right-click the TWS controller icon and select **Create Group...** from the pop-up menu.

   To create a group in an existing group, select the group and click the **Create a Group of Lists** button on the toolbar or right-click the existing group icon and select **Create Group...** from the pop-up menu.

This displays the Properties - Group of Lists window.



Properties - Group of Lists

Name: New Group

Figure 62. Properties - Group of Lists window.

4. In the Properties window, fill in the text box as follows:

   Name Specify the name of the list group. The name can contain up to 40 characters, starting with a letter.

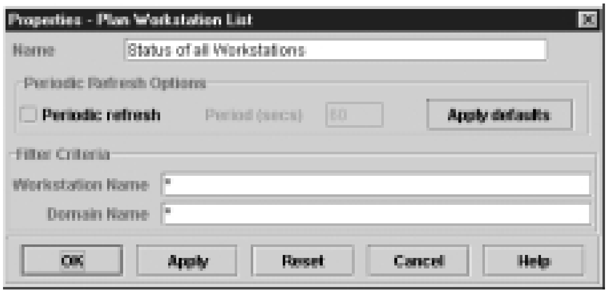
5. Click the **OK** button to close the window and save the new group.

Creating a Plan List of Workstations

To create a plan list that displays workstations, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. From the TWS branch, highlight the group you want to contain this list.
3. Click the **List Workstations in Plan** button on the toolbar. Alternatively, you can right-click the TWS controller icon or group icon and choose **Create Plan List > Workstation** from the pop-up menu.

   This displays the Properties - Plan Workstation List window.



Properties - Plan Workstation List

Name: Status of all Workstations

Periodic Refresh Options

□ Periodic refresh   Period (secs): 60

Filter Criteria

Workstation Name: *

Domain Name: *

Figure 63. Properties - Plan Workstation List window.

4. Type a name for the list in the **Name** text box.
5. To have the list results refreshed automatically, click the **Periodic Refresh** check box and specify a refresh interval in seconds in the **Period (secs)** text box.
6. To filter the list results, specify a workstation name in the **Workstation Name** text box and a TWS domain name in the **Domain Name** text box. The workstation and domain names can contain the following wildcard characters:

   ***** Specifies one or more characters.

   ? Specifies one character.

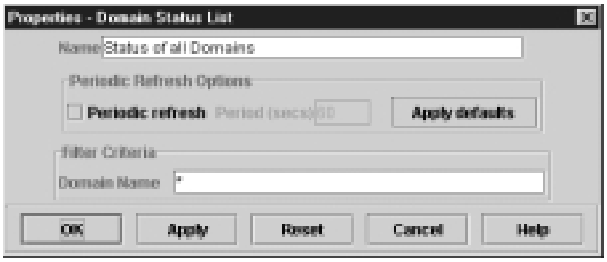
   Leaving the text box blank results in an unfiltered list.
7. When you finish making your entries, do one of the following:
   - Click the **OK** button to save the list and close the window. The list icon is added to the group you selected.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.

Creating a Plan List of Domain Status

To create a plan list to display domains, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. From the TWS branch, highlight the group you want to contain this list.
3. Right-click the TWS controller icon or group icon and choose **Create Plan List > Domain Status** from the pop-up menu.

   This displays the Properties - Domain Status List window.



Properties - Domain Status List

Name: Status of all Domains

Periodic Refresh Options

□ Periodic refresh Period (secs): 60

Filter Criteria

Domain Name: *

Figure 64. Properties - Domains Status List window.

4. Type a name for the list in the **Name** text box.
5. If you want the list results refreshed automatically, click the **Periodic Refresh** check box and specify a refresh interval in seconds in the **Period (secs)** text box.
6. To filter the list results, specify a domain name in the **Domain Name** text box. The domain name can contain the following wildcard characters:

   ***** Specifies one or more characters.

   ? Specifies one character.

   Leaving the text box blank results in an unfiltered list.
7. When you finish making your entries, do one of the following:
   - Click the **OK** button to save the list and close the window. The list icon is added to the group you selected.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.

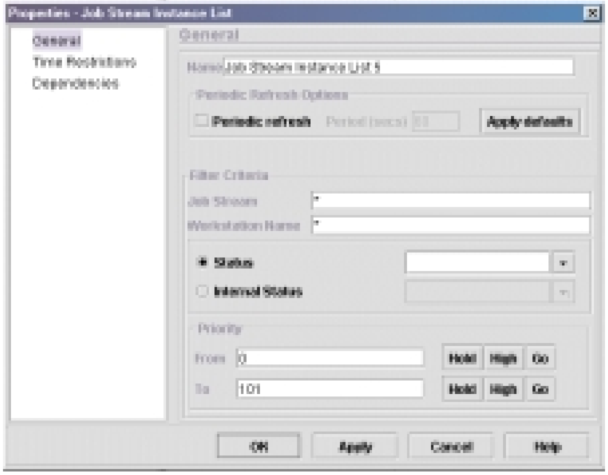
Creating a Plan List of Job Stream Instances

To create a plan list to display job stream instances, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. From the TWS branch, highlight the group you want to contain this list.

3. Click the **List Job Stream Instances** button on the toolbar. Alternatively, you can right-click the TWS controller icon or group icon and choose **Create Plan List > Job Stream Instance...** from the pop-up menu.

   This displays the **General** view of a Properties - Job Stream Instance List window.



Properties - Job Stream Instance List

General

Name: Job Stream Instance List 5

Periodic Refresh Options

□ Periodic refresh

Filter Criteria

Job Stream: *

Workstation Name: *

● Status

○ Internal Status

Priority

From: 0

To: 101

Figure 65. Properties - Job Stream Instance List: General window.

4. Type a name for the list in the **Name** text box.
5. If you want the list results refreshed automatically, click the **Periodic Refresh** check box and specify a refresh interval in seconds in the **Period (secs)** text box.
6. To filter the list results, enter criteria as follows:

   Job Stream
   Specify a job stream name.

   Workstation Name
   Specify a workstation name.

   Start Time
   Specify a range for the start date and time of the job stream instances you want to display.

From Date

Use the **Date** and **Time** text boxes to specify the beginning of a range of time. Only job streams that start execution within this range are displayed.

To Date

Use the **Date** and **Time** text boxes to specify the end of a range of time. Only job streams that start execution within this range are displayed.

Finish Time

Specify a range for the finish date and time of the job stream instances you want to display.

From Date

Use the **Date** and **Time** text boxes to specify the beginning of a range of time. Only job streams that finish execution within this range are displayed.

To Date

Use the **Date** and **Time** text boxes to specify the end of a range of time. Only job streams that finish execution within this range are displayed.

Status To use the Job Scheduling Console status to filter job stream instances, select this option and select the status type from the drop-down list.

Internal Status

To use TWS internal status to filter job stream instances, select this option and select the status type from the drop-down list.

Priority

Use the **From** and **To** text boxes to specify a priority range of job streams to display. Only job streams with priorities within the range are displayed. Possible priority values are **0** through **101**, where **101** is the highest priority. Click **Hold** to select priority **0**, **High** to select priority **100**, or **Go** to select priority **101**.

7. To filter job stream instances using dependencies, click **Dependencies** in the left window of the Properties - Job Stream Instance List window. This displays the **Dependencies** window.

8. Use this window to define a list of jobs from the plan based on dependency types. Only job stream instances with the specified dependencies are displayed. Note that all the fields in this window act as filters, so that all fields specified must be valid for a job stream to be chosen for display.

   For example, to display all job streams with a file dependency, specify an asterisk (*) in the **File Dependency / File Name** field.

   To display all job streams with both a file and a prompt dependency, specify an asterisk (*) in the **File Dependency / File Name** field and in the **Prompt Dependency / Prompt Name** field. Note that in this case, only job streams with both a file and a prompt dependency are displayed. Job Streams with only prompt dependencies or only file dependencies are not displayed.

   Job/Job Stream Dependency
   Specifies the name of a job or job stream dependency.

   Workstation
   Specify the name of a workstation.

   Job Stream
   Specify the name of a job stream.

   Job Specify the name of a job.

   Resource Dependency
   Specifies the name of a resource dependency.

   Workstation
   Specify the name of a workstation.

   Name Specify the name of a resource.

   File Dependency
   Specifies the name of a file dependency.

   Workstation
   Specify the name of a workstation.

File Name
Specify the name of a file.

Prompt Dependency
Specifies the name of a prompt dependency.

Name Specify the name of a prompt.

Prompt Number
Specify the number of a prompt.

9. When you finish making your entries, do one of the following:

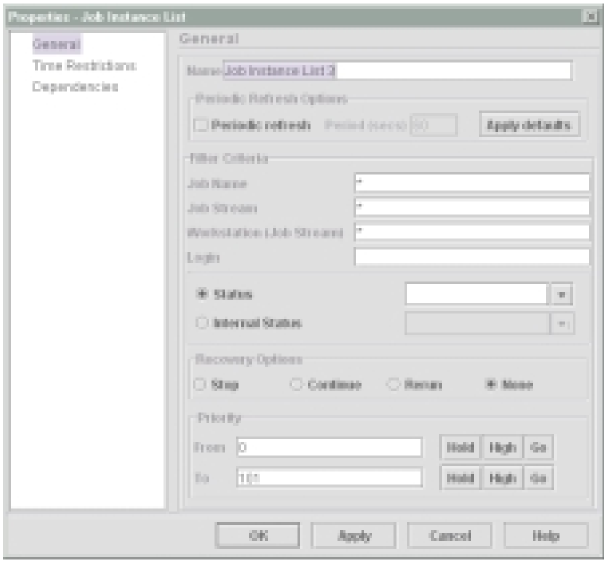
   - Click the **OK** button to save the list and close the window. The list icon is added to the group you selected.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.

Creating a Plan List of Job Instances

To create a plan list to display job instances, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. From the **TWS** branch, highlight the group you want to contain this list.
3. Click the **List Job Instances** icon on the toolbar. Alternatively, you can right-click the TWS controller icon or group icon and choose **Create Plan List > Job Instance...** from the pop-up menu.

   This displays the Properties - Job Instance List window.



Name: Job Instance List 3

□ Periodic refresh Period (secs) 60

Job Name: *

Job Stream: *

Workstation (Job Stream): *

Login:

● Status

○ Internal Status

○ Stop ○ Continue ○ Rerun ● None

From: 0

To: 101

Figure 66. Properties - Job Instance List: General window.

4. Type a name for the list in the **Name** text box.
5. If you want the list results refreshed automatically, click the **Periodic Refresh** check box and specify a refresh interval in seconds in the **Period (secs)** text box.
6. To filter the job instances using general criteria, click **General** in the left pane. This displays the **General** window.

   Job Name
   Specify a job name.

   Job Stream
   Specify a job stream.

   Workstation (Job Stream)
   Specify a workstation name.

   Login Specify a login name.

   Status To use Job Scheduling Console status to filter job instances, select this option and select the status type from the drop-down list.

Internal Status

To use TWS internal status to filter job instances, select this option and select the status type from the drop-down list.

Recovery Options

Select a job recovery option using the option buttons. Valid options are **Stop**, **Continue**, **Rerun**, and **None**.

Priority

Use the **From** and **To** text boxes to specify a priority range of job instances to display. Only jobs with priorities within the range are displayed. Possible priority values are **0** through **101**, where **101** is the highest priority. Click **Hold** to select priority **0**, **High** to select priority **100**, or **Go** to select priority **101**.

7. To filter the job instances using time restrictions, click **Time Restrictions** in the left pane. This brings up the **Time Restrictions** window.

Start Time

Specify a range for the start date and time of the job instance.

From Date

Use the **Date** and **Time** text boxes to specify the beginning of a range of time. Only job instances that start execution within this range are displayed.

To Date

Use the **Date** and **Time** text boxes to specify the end of a range of time. Only job instances that start execution within this range are displayed.

Finish Time

Specify a range for the finish date and time of a job instance.

From Date

Use the **Date** and **Time** text boxes to specify the beginning of a range of time. Only job instances that finish execution within this range are displayed.

To Date
Use the **Date** and **Time** text boxes to specify the end of a range of time. Only job instances that finish execution within this range are displayed.

8. To filter the job instances using dependencies, click **Dependencies** in the left window of the window. This displays the **Dependencies** window.

9. Use this window to define a list of jobs from the plan based on dependency types. Note that all the fields in this window act as filters, so that all fields specified must be valid for a job instance to be chosen for display.

   For example, to display all jobs with a file dependency, specify an asterisk (*) in the **File Dependency / File Name** field.

   To display all jobs with both a file and a prompt dependency, specify an asterisk (*) in the **File Dependency / File Name** field and in the **Prompt Dependency / Prompt Name** field. Note that in this case, only jobs with both a file and a prompt dependency are displayed. Jobs with only prompt dependencies or only file dependencies are not displayed.

   Job/Job Stream Dependency
   Specifies the name of a job or job stream dependency.

   Workstation
   Specify the name of a workstation.

   Job Stream
   Specify the name of a job stream.

   Job Specify the name of a job.

   Resource Dependency
   Specifies the name of a resource dependency.

   Workstation
   Specify the name of a workstation.

Name Specify the name of a resource.

File Dependency
Specifies the name of a file dependency.

Workstation
Specify the name of a workstation.

File Name
Specify the name of a file.

Prompt Dependency
Specifies the name of a prompt dependency.

Name Specify the name of a prompt.

Prompt Number
Specify the number of a prompt.

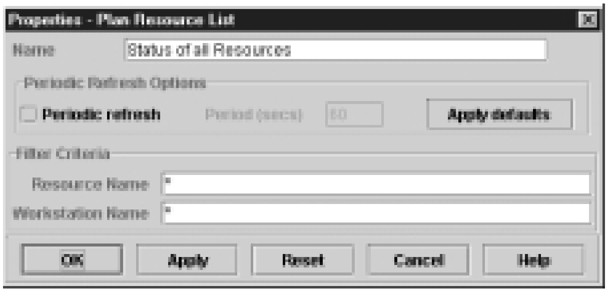
10. When you finish making your entries, do one of the following:
    - Click the **OK** button to save the list and close the window. The list icon is added to the group you selected.
    - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.

Creating a Plan List of Resources

To create a plan list to display resources, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. From the **TWS** branch, highlight the group you want to contain this list.
3. Click the **List Resources in Plan** button on the toolbar. Alternatively, you can right-click the **TWS** controller icon or group icon and choose **Create Plan List > Resource...** from the pop-up menu.

   This displays the Properties - Plan Resource List window.



Properties - Plan Resource List

Name: Status of all Resources

Periodic Refresh Options

☐ Periodic refresh — Period (secs): 60

Filter Criteria

Resource Name: *

Workstation Name: *

Figure 67. Properties - Plan Resource List window.

4. Type a name for the list in the **Name** text box.
5. If you want the list results refreshed automatically, click the **Periodic Refresh** check box and specify a refresh interval in seconds in the **Period (secs)** text box.
6. To filter the list results, specify a resource name in the **Resource Name** text box and a workstation name in the **Workstation Name** text box. The resource name and workstation name can contain the following wildcard characters:

   ***** Specifies one or more characters.

   ? Specifies one character.

   Leaving the text box blank results in an unfiltered list.
7. When you finish making your entries, do one of the following:
   - Click the **OK** button to save the list and close the window. The list icon is added to the group you selected.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.

Creating a Plan List of Prompts

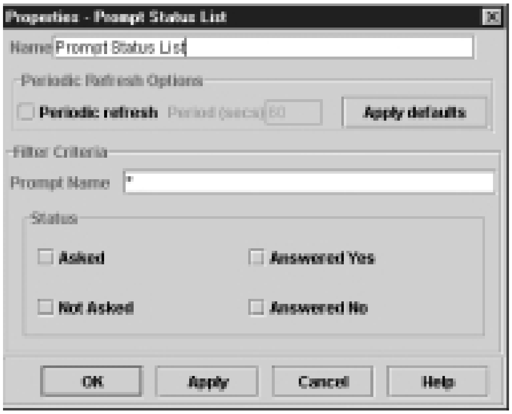
To create a plan list to display prompts, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.

2. From the TWS branch, highlight the group you want to contain this list.

3. Right-click the TWS controller icon or group icon and choose **Create Plan List > Prompt Status** from the pop-up menu.

   This displays the Properties - Prompt Status List window.



Name Prompt Status List

Period (secs) 60

Prompt Name *

Figure 68. Properties Prompt Status List window.

4. Type a name for the list in the **Name** text box.

5. If you want the list results refreshed automatically, click the **Periodic Refresh** check box and specify a refresh interval in seconds in the **Period (secs)** text box.

6. To filter the list results, specify a prompt name in the **Prompt Name** text box. The prompt name can contain the following wildcard characters:

   ? Specifies one character.

   Leaving the text box blank results in an unfiltered list.

7. To filter the list using prompt status, use the **Status** check boxes to select the status values. The status values are:

   Asked The prompt has been asked, but not answered.

Not Asked
The prompt has not been asked.

Answered Yes
The prompt has been answered with a “yes” response.

Answered No
The prompt has been answered with a “no” response.

If no status values are selected, prompts with all status values are displayed.

8. When you finish making your entries, do one of the following:

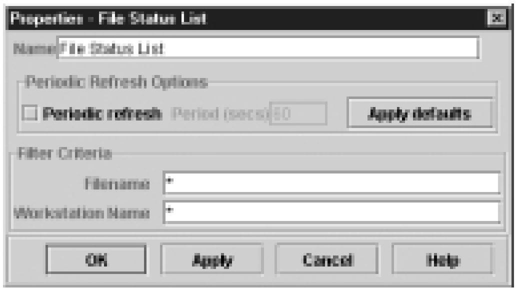
   - Click the **OK** button to save the list and close the window. The list icon is added to the group you selected.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.

Creating a Plan List of Files

To create a plan list to display Files, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. From the TWS branch, highlight the group you want to contain this list.
3. Right-click the TWS controller icon or group icon and choose **Create Plan List > File Status** from the pop-up menu.

   This displays the Properties - File Status List window.



Properties - File Status List

Name: File Status List

Periodic Refresh Options

☐ Periodic refresh Period (secs): 60

Filter Criteria

Filename: *

Workstation Name: *

Figure 69. Properties - File Status List window.

4. Type a name for the list in the **Name** text box.
5. If you want the list results refreshed automatically, click the **Periodic Refresh** check box and type a refresh interval in seconds in the **Period (secs)** text box.
6. To filter the list results, type a file name in the **Filename** text box and a workstation name in the **Workstation Name** text box. The file name and workstation name can contain the following wildcard characters:

   ***** Specifies one or more characters.

   ? Specifies one character.

   Leaving the text box blank results in an unfiltered list.
7. When you finish making your entries, do one of the following:
   - Click the **OK** button to save the list and close the window. The list icon is added to the group you selected.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.

Modifying the Properties of a Plan List

To modify the properties of a plan list, do the following:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Select the list icon you want to modify.

3. Right-click the list icon and select **Properties** from the pop-up menu.This displays the properties window for the list.
4. Make your modification in the properties window.
5. When you finish making your modifications to the list properties, do one of the following:
   - Click the **OK** button to save the changes and to close the window.
   - Click the **Apply** button to run the list without closing the window. The list results are displayed in the right panel of the Job Scheduling Console.

Deleting a Plan List

To delete a plan list, do the following:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Select the list icon you want to delete.
3. Right-click the list icon and select **Delete** from the pop-up menu. In the confirmation window, click **Yes** to delete the list or **Cancel** to cancel the delete operation.

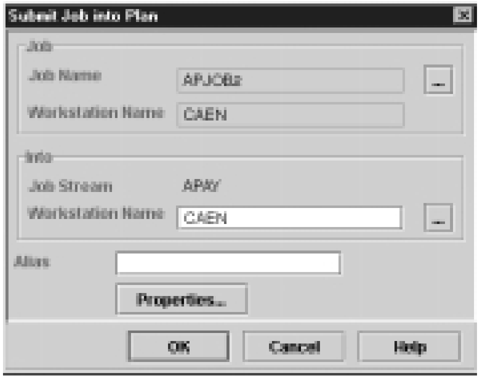
Detaching a Plan List Display

Detaching a list frees the right-window of the Job Scheduling Console to display other objects. You can detach multiple lists to display several objects simultaneously. In TWS you can have up to seven detached windows at a time. To detach a plan list display, do the following:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Select the list icon you want to view in a detached window.
3. Right-click the list icon and select **Detach View** from the pop-up menu. This displays the separate window for the list display.

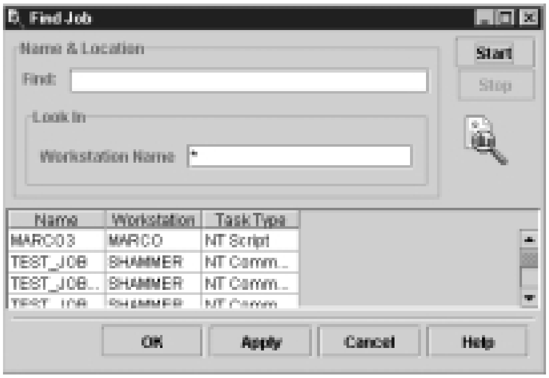
Finding Objects in the Plan

Search tools are provided in the Job Scheduling Console to help you find objects in the plan. The availability of a search tool is indicated by an ellipsis located next to the text box where you type an object name. In the following example of the Submit Job into Plan window, the **Job Name** and **Workstation Name** text boxes provide search tools.Clicking the ellipsis button opens a Find window.



Job Name: APJOB2
Workstation Name: CAEN
Job Stream: APAY
Workstation Name: CAEN
Alias:

Figure 70. Examples of Search Tool Buttons.



Find:
Workstation Name: *

Name	Workstation	Task Type
MARCO3	MARCO	NT Script
TEST_JOB	SHAMMER	NT Comm...
TEST_JOB...	SHAMMER	NT Comm...
TEST_JOB	SHAMMER	NT Comm

Figure 71. Example Find window.

To use the Find window, do the following:

1. Type search character string in the available text boxes. The search character string can contain the following wildcard characters:

   ***** Specifies one or more characters.

   ? Specifies one character.

   Leaving the text box blank results in an unfiltered list.
2. Select other filter criteria using option buttons and check boxes.
3. Click the **Start** button. The results of the search are listed in the lower part of the Find window. The **Stop** button is displayed while the list is being generated. The **Stop** button can be used to stop the search. Any objects that have been found by the system until the **Stop** is clicked are then displayed.
4. Select an object in the list and do one of the following:
   - Double-click the object in the list or click the **OK** button to insert the name of the object in the text box on the parent window and close the Find window.
   - Click the **Apply** button to insert the name of the object in the text box on the parent window. The Find window remains open to permit you to select other objects from the list.

Managing Job Instances in the Plan

A job is a unit of work that is part of a job stream processed at a workstation. A job usually refers to a command or script file. Job definitions in TWS include all necessary workstation and path locations, command names, file names, login IDs, user permissions, priority levels, and recovery options necessary to successfully execute a command or script file with no manual intervention.

You can execute the following commands against a job instance in the plan:

Properties
View or modify the properties of a job instance. This

includes viewing, adding, modifying, or deleting the dependencies and time restrictions on the job instance.

Dependencies
View, add, modify, or delete the predecessors of a job instance.

Hold Sets a job instance priority to 0, the internal status to HOLD, and the Job Schedule Console status to HELD.

Release
Counteracts the Hold command. The Release command reverts a job instance priority to what it was prior to the execution of the Hold command.

Rerun Rerun a job instance.

Cancel Job
Cancels the planned execution of a job instance.

Kill Stops a job instance.

Confirm
Forces the status of a job instance to SUCC or ABEND.

Release All Dependencies
Releases all dependencies to this job instance.

Get Job Output
View the STDLIST of a job instance that has completed running.

Displaying a List of Jobs in the Plan

To display a list of jobs in the plan, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Expand the branches below TWS until you see the icon for the job instance list you want to run. See “Creating a Plan List of Job Instances” on page 244 for information about creating job instance lists.
3. Select the job instance list icon.

4. Click the **Load List** button on the toolbar or right-click the job instance list icon and select **Load List** from the pop-up menu.

   The list results are displayed in the right panel of the Job Scheduling Console. For descriptions of the job instance list views refer to the following:

   - "Timeline View of Job Instances".
   - "List View of Job Instances" on page 259.

Timeline View of Job Instances

The **Timeline View** provides a table and a timeline display of job instances. Use the borders and the arrows on the borders to adjust the sizes of the windows. Use the arrows at the top of the timeline window to move the view in one hour and one day increments.

In the timeline window, the dark blue line represents the window of time a job instance can start. A black bar at the end of the blue line represents the deadline time (UNTIL keyword). The actual start time of the job instance is displayed by a black dot. A light blue bar within the dark blue line represents the actual duration of the job instance. The start time, deadline time, and duration time are also listed in the tabular window.

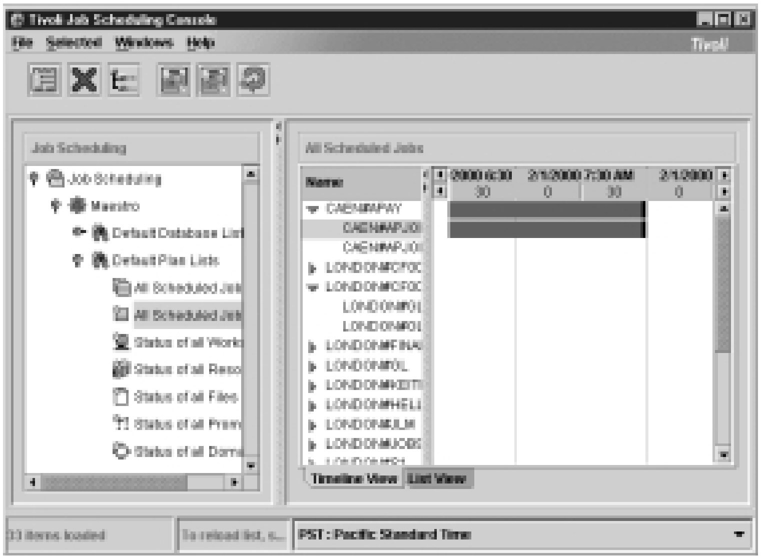


Figure 72. Job Instance List: Timeline View window.

The toolbar in the job instance **Timeline** view contains two special buttons.

▦	**Go to** Click this button to move the timeline display to the date you select on the popup calendar.
▦	**Go to First** Click this button to move the timeline display to the start time and day offset of the earliest job instance.

The following are descriptions of the column headings in the table part of the **Timeline** view.

Name Displays the name of the job instance.

Status Displays the status of the job instance. For more information on job or job stream status refer to “Status Description and Mapping” on page 375.

Started
Displays the actual start date and time of the job instance.

Runtime
Displays the actual duration of the job instance.

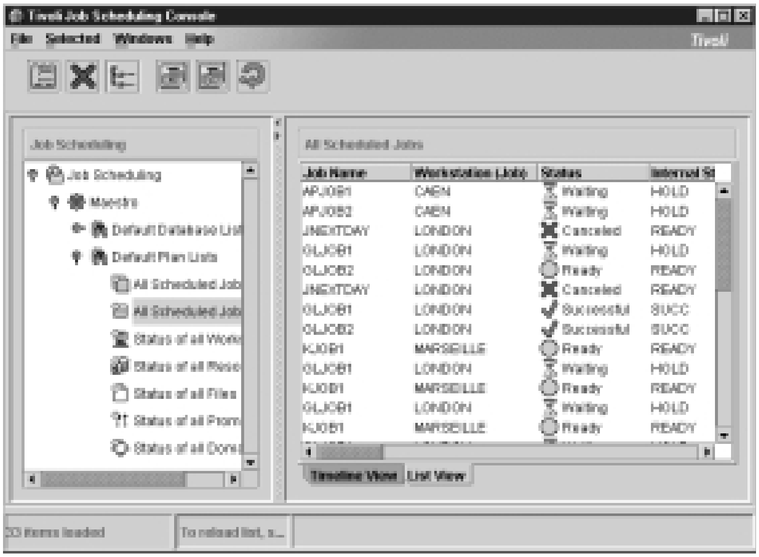
Start at
Displays the date and time of the planned start time for the job instance.

Duration
Displays the estimated duration time of the job instance.

Deadline
Displays the date and time of the deadline for the job instance.

List View of Job Instances

The **List View** provides a tabular display of job instances.



Job Name	Workstation (Job)	Status	Internal St
APJOB1	CAEN	Waiting	HOLD
APJOB2	CAEN	Waiting	HOLD
JNEXTDAY	LONDON	Canceled	READY
GLJOB1	LONDON	Waiting	HOLD
GLJOB2	LONDON	Ready	READY
JNEXTDAY	LONDON	Canceled	READY
GLJOB1	LONDON	Successful	SUCC
GLJOB2	LONDON	Successful	SUCC
KJOB1	MARSEILLE	Ready	READY
GLJOB1	LONDON	Waiting	HOLD
KJOB1	MARSEILLE	Ready	READY
GLJOB1	LONDON	Waiting	HOLD
KJOB1	MARSEILLE	Ready	READY

Figure 73. Job Instance List: List View window.

The following are descriptions of the column headings in the List View.

Job Name
Displays the name of the job instance.

Job Number
For UNIX and MPE, this displays the process identification number (PID) of the job instance. For Windows NT, the job number is an incremental number from the value found in the file **nxtjobno** in *TWShome*.

Workstation (Job)
Displays the name of the workstation on which the job instance runs.

Job Stream
Displays the name of the job stream instance that owns this job instance.

Workstation (Job Stream)
Displays the name of the workstation on which the job stream instance runs.

Status Displays the Job Scheduling Console status of the job instance. For more information on job or job stream status refer to “Status Description and Mapping” on page 375.

Internal Status
Displays the TWS Internal status of the job instance. For more information on job or job stream status refer to “Status Description and Mapping” on page 375.

Information
Displays additional information about the job instance.

Run Options
Displays the run options of the job instance.

Priority
Displays the priority of the job instance. The priority can be from 0 to 101. A priority of 0 stops the job instance from running.

Every Frequency
Displays in hours and minutes of the repeat rate for this job instance.

Start Time
Displays the date, time and time zone when this job instance is scheduled to start running.

Est. Duration
Displays the estimated run time of the job instance.

Actual Time
Displays the actual start time of the job instance.

Elapse Time
Displays the actual duration of the job instance.

Deadline Time
Displays the date, time and time zone after which the job instance cannot begin running.

Job Stream Dep.
Displays the number of follows job stream dependencies for each job instance.

Job Dep.
Displays the number of follows job dependencies for each job instance.

Inet Dep.
The number of internetwork predecessors to this job.

File Dep.
Displays the number of file dependencies for each job instance.

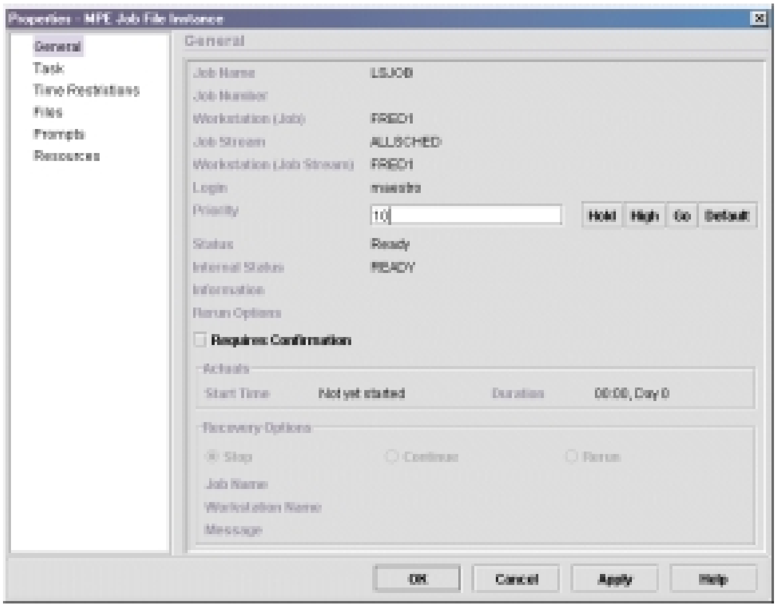
Prompt Dep.
Displays the number of prompt dependencies for each job instance.

Resource Dep.
Displays the number of resource dependencies for each job instance.

Modifying the Properties of a Job Instance

To display the properties of a job instance in the plan, follow these steps:

1. Run a list of job streams that contains the job instance you want to display. See “Creating a Plan List of Job Instances” on page 244 for more information.
2. In the list results, double-click on the job instance you want to display or right-click the job instance and choose **Properties** from the pop-up menu. This displays the Properties - Job Instance window. Note that the window title reflects the job type. The **General** tab is displayed in the left window of the Properties - Job Instance window.



Job Name LSJOB
Job Number
Workstation (Job) FRED1
Job Stream ALLSCHED
Workstation (Job Stream) FRED1
Login maestro
Priority 10
Status Ready
Internal Status READY
Information
Rerun Options
□ Requires Confirmation

Actuals
Start Time Not yet started Duration 00:00, Day 0

Recovery Options
● Stop ○ Continue ○ Rerun
Job Name
Workstation Name
Message

Figure 74. Properties - Job Instance: General window.

The following are descriptions of the text boxes and options in the **General** view of the Properties - Job Instance window.

Job Name
Displays the name of the job instance.

Job Number
Displays the number of times this job instance has been run in the production plan.

Workstation (Job)
Displays the name of the workstation on which the job instance is launched.

Job Stream
Displays the name of the job stream this job instance belongs to.

Workstation (Job Stream)
Displays the name of the workstation on which the job stream instance is launched.

Login Displays the User ID of the person running the job instance.

Priority
Displays the priority of the job instance. To change the priority, select a value from the drop-down list or click **Hold** to select priority **0**, **High** to select priority **100**, or **Go** to select priority **101**. Possible priority values are **0** through **101**, where **101** is the highest priority. A priority value of zero prevents the job instance from launching.

Status Displays the Job Scheduling Console status of the job instance. For more information on job or job stream status refer to “Status Description and Mapping” on page 375.

Internal Status
Displays the TWS Internal status of the job instance. For more information on job or job stream status refer to “Status Description and Mapping” on page 375.

Information
Displays additional information about the job instance.

Rerun Status
Displays whether this job instance has been rerun.

Is Interactive
Displays whether this job instance is an interactive job. This information appears only for Windows NT jobs.

Requires Confirmation

Displays that this job instance will not be executed in the plan until user intervention is used to submit it.

Actuals

These fields display the actual start time and duration of the job instance, if it has completed running.

Start Time

Displays the actual start time of the job instance.

Duration

Displays the actual duration of the job instance.

Recovery Options

These fields display any automatic recovery action to be taken if the job instance ends with a status of ABEND.

Stop, Continue, or Rerun

Specifies what action to take if this job instance ends with a status of ABEND (the job instance ends with an error).

Job Name

Specifies the name of an error recovery job that will run if the current job instance ends with a status of ABEND.

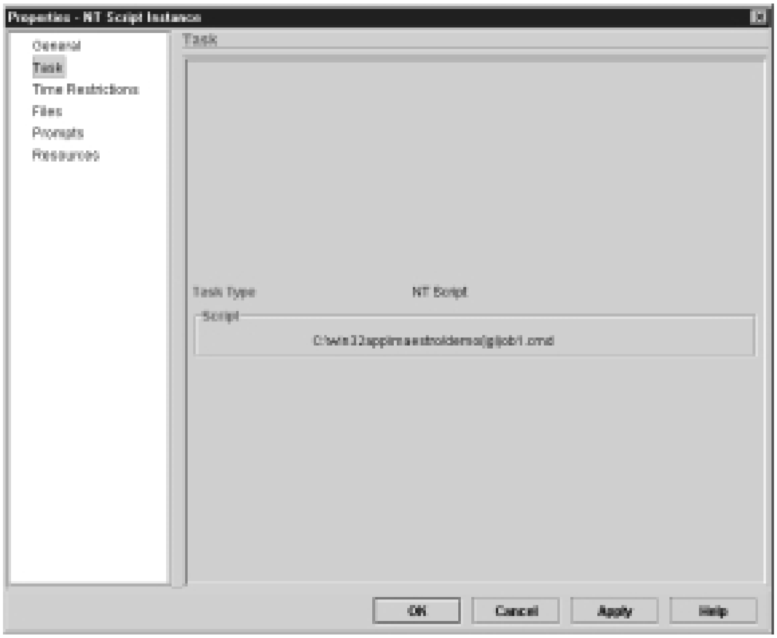
Workstation

Specifies the name of the workstation that owns the recovery job.

Message

Specifies the message text that displays if the job instance ends with a status of ABEND.

3. To display the task information for a job instance, click **Task** in the left window of the Properties - Job Instance window. This displays the **Task** view.



Task Type NT Script

Script

C:\win32app\maestro\demo\jg\job1.cmd

Figure 75. Properties - Job Instance: Task window.

The Task view changes depending on the type of job instance selected.

The following are descriptions of the text boxes and options in the Task view of the Properties - Job Instance window.

Task Type
Displays the task type of the job instance.

The following fields change depending on the type of job instance displayed:

UNIX Script
Displays information about the UNIX script file:

Script Displays the path and filename of the UNIX script.

UNIX Command
Displays information about the UNIX command:

Command
Displays the path and filename of the UNIX command.

NT Script
Displays information about the Windows NT script file:

Script Displays the path and filename of the Windows NT script.

NT Command
Displays information about the Windows NT command:

Command
Displays the path and filename of the Windows NT command.

MPE Job File
Displays information about the MPE Job File:

Job File
Displays the filename, group, and account for this MPE job file.

MPE User Job
Displays information about the MPE User Job:

User Job
Displays the filename, group, and account for this MPE User Job.

Extended Agent Task
Displays information about the extended agent task:

Task Displays the filename or command for this extended agent task.

Workstation Class Script
Displays information about the Workstation Class script file:

Script Displays the path and filename of the Workstation Class script.

Workstation Class Command

Displays information about the Workstation Class command:

Script Displays the path and filename of the Workstation Class command.

SAP Job

Displays information about the SAP task::

R/3 Job Identity

Use these fields to identify the R/3 job..

Job Name

The R/3 job name.

Job ID

This field is filled in when you submit the job to the R/3 system.

Disable BDC Wait

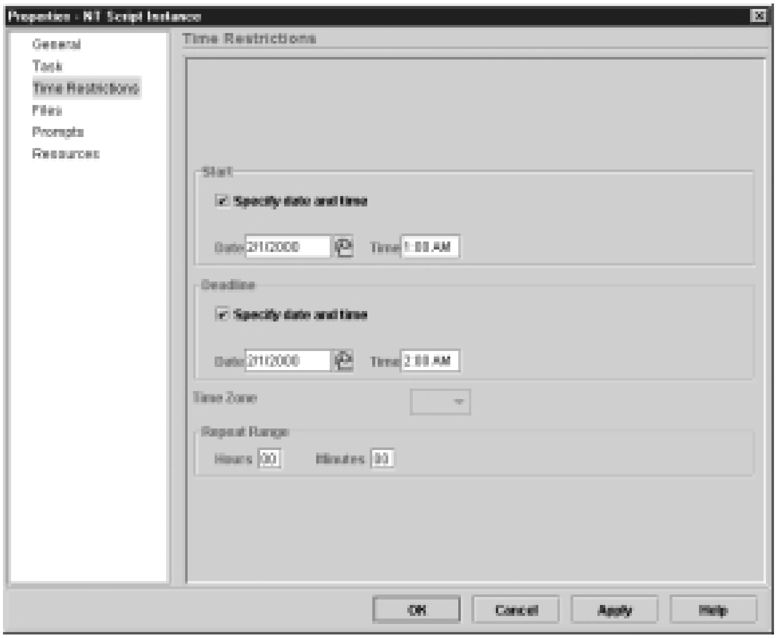
Indicates if BDC Wait option for the job is disabled

Debug Options

Indicates if additional debut information is included in the job's stdlist file.

Trace Indicates if a trace file dev_rfc is created in the TWS home directory.

4. To display time restrictions, click **Time Restrictions** in the left window of the **Properties - Job Instance** window. This displays the **Time Restrictions** view.



Start

☑ Specify date and time

Date 2/1/2000 Time 1:00 AM

Deadline

☑ Specify date and time

Date 2/1/2000 Time 2:00 AM

Time Zone

Repeat Range

Hours 00 Minutes 00

Figure 76. Properties - Job Instance: Time Restrictions window.

The following are descriptions of the text boxes and options in the Time Restrictions tab of the Properties - Job Instance window.

Start
Specifies the earliest time the job instance will be launched. The job instance will not be launched before this time. To change the time, make your selections as follows:

Specify date and time
Select this option to enable the entry of a start time.

Date
Specify the start date or click the calendar button and select a date from the drop-down calendar.

Time
Specify a start time in the following format:

hh:*mm* **am**|**pm**

For example, **11:30 am** or **4:25 pm**.

Deadline
Specifies the latest time the job instance will be launched. The job instance will not be launched after this time. To change the time, make your selections as follows:

Specify date and time
Select this option to enable the entry of a deadline time.

Date Specify the deadline date or click the calendar button and select a date from the drop-down calendar.

Time Specify a deadline time in the following format:

hh:*mm* **am**|**pm**

For example, **11:30 am** or **4:25 pm**.

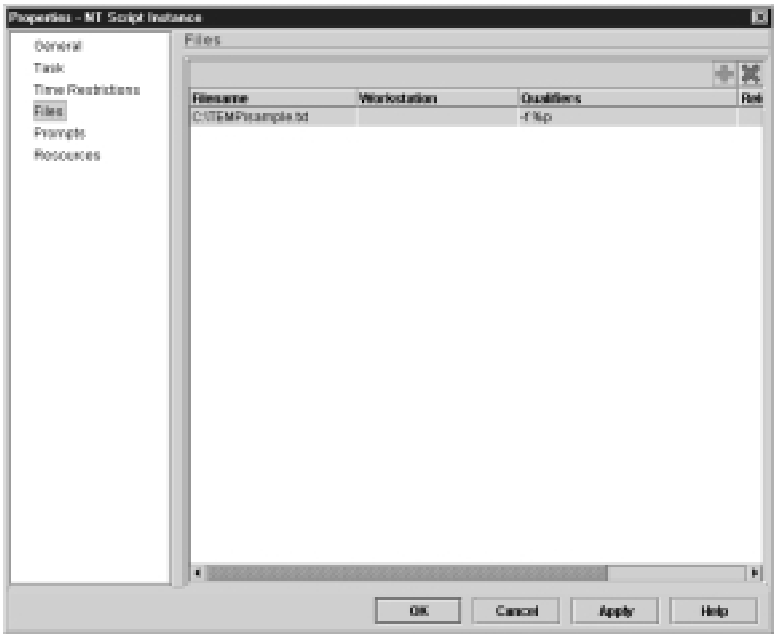
Time Zone
Select a time zone from the drop-down list. The start time and deadline time are in this time zone. If a time zone is not specified for the job instance, all time values are in the time zone of the workstation on which the job instance is launched. Note that the time zone option must be activated in the global options file for this field to be active.

Repeat Range
Specifies the repeat rate of a job instance. Using the Repeat Range field with the Start and Deadline times allows you to run a job instance, for example, every 15 minutes from 1:00 pm to 5:00 pm.

Hours Specify the rate in hours that this job instance will repeat.

Minutes
Specify the rate in minutes that this job instance will repeat.

5. To display file dependencies, click **Files** in the left window of the Properties - Job Instance window. This displays the **Files** view.



Filename	Workstation	Qualifiers	Rel
C:\TEMP\sample.txt		-f %p	

Figure 77. Properties - Job Instance: Files window.

The following are descriptions of the column headings in the **Files** view.

Filename
Specifies the path and name of the file.

Workstation
Specifies the workstation on which the file resides.

Release Status
Specifies the status of the file dependency. The possible values are:

Not Released
The job instance is not released from the file dependency.

Released
The job instance is released from the file dependency.

To release the job instance from the file dependency, click in the **Status** column and select **Released** from the drop-down menu.

Qualifiers
Specifies the test conditions for the file dependency.

Internal Status
Specifies the internal status of the file dependency. The possible values are:

Not Checked
The file dependency has not been checked.

Checking
The file dependency is being checked.

Exists The file dependency is satisfied.

Does Not Exist
The file dependency is not satisfied.

6. To add a file dependency for the job instance, do the following:

   a. Click the **Add Row** (+) button. This creates a new row in the list of file dependencies.

   b. Double-click the text box in the **Filename** column and type in a file name.

   c. Double-click the text box in the **Workstation** column and click the Find button (**...**) to locate and insert the name of the workstation on which the file exists or will be created.

   d. Double-click the text box in the **Qualifiers** column and specify the test conditions for the file dependency. On UNIX, the valid qualifiers are the same as UNIX **test** command conditions. For more information, refer to your UNIX system documentation.

      On Windows NT, only the following qualifiers are valid:

-d %p True if the file exists and is a directory.

-e %p True if the file exists.

-f %p True if the file exists and is a regular file.

-r %p True if the file exists and is readable.

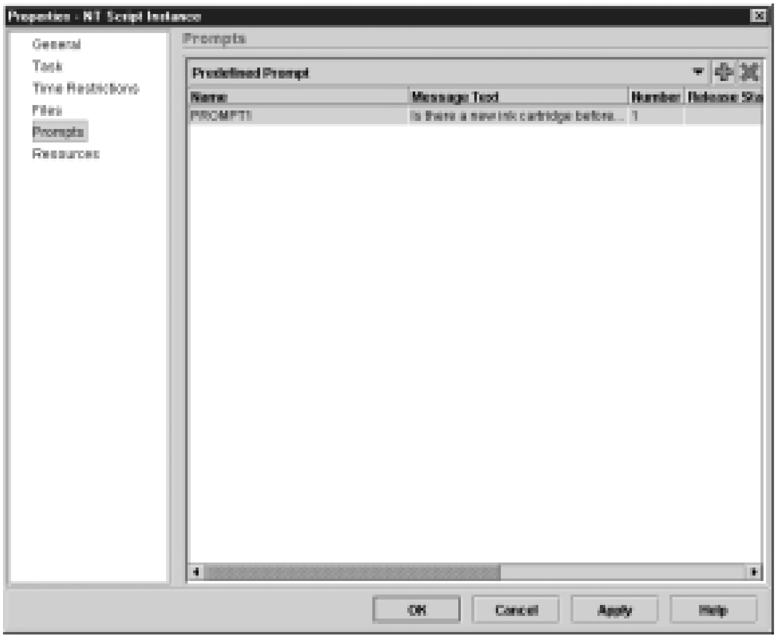
-s %p True if the file exists and its size is greater than zero.

-w %p True if the file exists and is writable.

On both UNIX and Windows NT, the expression **%p** inserts the file name.

Entering **notempty** is the same as entering **-s %p**. If no qualifier is specified, the default is **-f %p**.

7. To remove a file dependency for the job instance, select the file row in the list and click the **Delete from Table** (X) button.
8. To display prompt dependencies, click **Prompts** in the left window of the Properties - Job Instance window. This displays the **Prompts** view.



Name	Message Text	Number	Release Sta
PROMPT1	Is there a new ink cartridge before...	1	

Figure 78. Properties - Job Instance: Prompts window.

9. To display ad hoc prompt dependencies, select **Ad Hoc Prompt** from the drop-down list in the toolbar. To display Predefined prompt dependencies, select **Predefined Prompt** from the drop-down list in the toolbar.

   The following are descriptions of the column headings in the **Prompts** view.

   Name Specifies the name of the prompt. This is used for Predefined Prompts only.

   Message Text
   Specifies the text of the prompt message.

   Workstation
   Specifies the workstation that displays the prompt message text. This is only available for Ad Hoc prompts.

   Number
   Specifies the number of the prompt dependency.

Release Status
Specifies the release status of the prompt dependency. The possible values are:

Not Released
The job instance is not released from the prompt dependency.

Released
The job instance is released from the prompt dependency.

To release the job instance from the prompt dependency, click in the **Status** column and select **Released** from the drop-down menu.

Internal Status
Specifies the internal status of the prompt dependency. The possible values are:

Not Asked
The prompt has not been asked.

Asked The has been asked, but no response has been received.

Answered Yes
The prompt has been answered affirmatively and the job instance dependency is released.

Answered No
The prompt has been answered negatively and the job instance dependency is not released.

Reply Specifies the reply to the prompt dependency. To reply to the prompt, click in this column and select **Yes** or **No** from the drop-down menu.

10. To add a prompt dependency for the job instance, do the following:

    a. Click the **Add Row** (+) button. This creates a new row in the list of prompt dependencies.

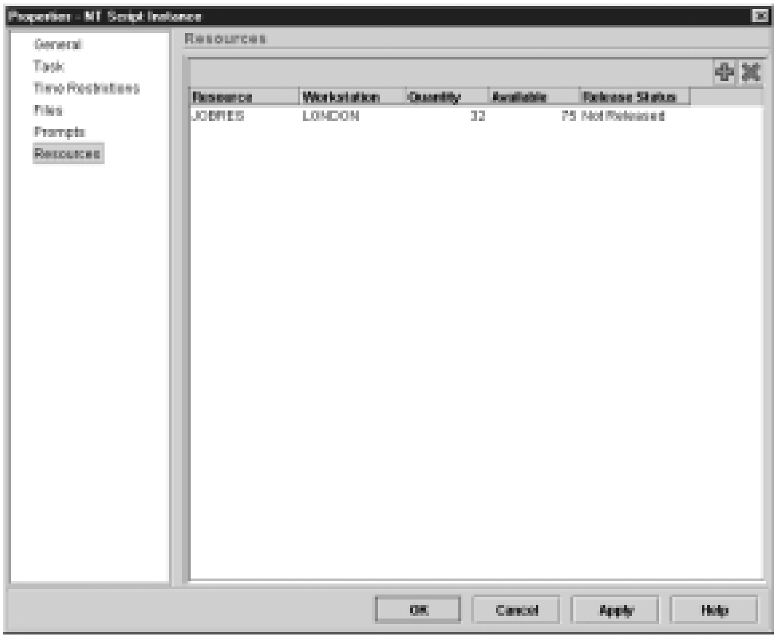
b. For a pre-defined prompt, double-click the text box in the **Name** column and click the Find button to locate and insert the name of a prompt.

c. For an ad hoc prompt, double-click the text box in the **Message Text** column and type in the text of the prompt. The default behavior of a prompt is to display a message and wait for a reply. If the string begins with a colon (:), the message is displayed but no reply is necessary. If the string begins with an exclamation mark (!), the message is not displayed but it requires a reply. You can include backslash n (**n**) within the text for new lines.

   You can include one or more TWS parameters as part or all of the text string. To use a parameter, place its name between carets (^).

11. To remove a prompt dependency for the job instance, select the prompt row in the list and click the **Delete from Table** (X) button.

12. To display resource dependencies, click **Resources** in the left window of the Properties - Job Instance window. This displays the **Resources** view.



Resource	Workstation	Quantity	Available	Release Status
JOBRES	LONDON	32	75	Not Released

Figure 79. Properties - Job Instance: Resources window.

The following are descriptions of the column headings in the **Resources** view.

Resource
Specifies the name of the resource.

Workstation
Specifies the workstation on which the resource resides.

Quantity
Specifies the number of units of a resource are needed by the job instance to satisfy the dependency.

Available
Specifies the number of units of the resource that are currently available.

Release Status
Specifies the status of the resource dependency. The possible values are:

Not Released
The job instance is not released from the resource dependency.

Released
The job instance is released from the resource dependency.

To release the job instance from the resource dependency, click in the **Status** column and select **Released** from the drop-down menu.

13. To add a resource dependency for the job instance, do the following:

    a. Click the **Add Row** (+) button. This creates a new row in the list of resource dependencies.

    b. In the **Workstation** column, click the Find button to locate and insert the name of a workstation.

    c. Double-click the text box in the **Resource** column and click the Find button to locate and insert a resource name.

    d. Double-click the text box in the **Quantity** column and specify the number of resource units required by the job instance. The default is one.

14. To delete a resource dependency for the job instance, select the resource row in the list and click the **Delete from Table** (X) button.

15. When you have finished viewing job properties, do one of the following:

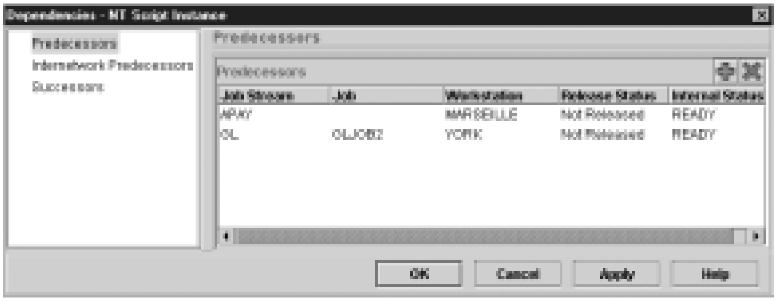
    - Click the **OK** button to save the changes you made to the properties and close the Properties - Job Instance window.
    - Click the **Cancel** button to ignore any changes you made to the properties and close the Properties - Job Instance window.
    - Click the **Apply** button to save the changes you made to the properties and leave open the Properties - Job Instance window.

Displaying Predecessors of a Job Instance

To display the predecessors of a job instance in the plan, follow these steps:

1. Run a list of jobs that contains the job instance you want to modify. See “Displaying a List of Jobs in the Plan” on page 256 for more information.
2. In the list results, right-click the job instance you want to display and select **Dependencies...** from the pop-up menu.

   This displays the Dependencies - Job Instance window.



Job Stream	Job	Workstation	Release Status	Internal Status
APAY		MARSEILLE	Not Released	READY
OL	OLJOB2	YORK	Not Released	READY

Figure 80. Dependencies - Job Instance window.

3. Click **Predecessors** in the left window. This displays the **Predecessor** view in the right window.

   The following are descriptions of the column headings in the **Predecessors** view.

   Job Stream
   Specifies the name of a predecessor job stream instance or the job stream that owns the predecessor job.

   Job Specifies the name of a predecessor job instance.

   Workstation
   Specifies the workstation of the predecessor job or job stream.

   Release Status
   Specifies the status of the predecessor dependency. The possible values are:

Released
The job instance is released from the predecessor dependency.

Not Released
The job instance is not released from the predecessor dependency.

To release the job instance from the predecessor dependency, click in the **Status** column and select **Released** from the drop-down menu.

Internal Status
Specifies the TWS internal status of the predecessor job or job stream instance. For more information on job or job stream status refer to "Status Description and Mapping" on page 375.

4. When you are finished in the Dependencies - Job Instance window, do one of the following:
   - Click the **OK** button to save your changes in the plan and close the Dependencies - Job Instance window.
   - Click the **Apply** button to save your changes in the plan and leave open the Dependencies - Job Instance window.

Adding Predecessors to a Job Instance

To add a predecessor job or job stream to a job instance, do the following:

1. Display the predecessors of the job instance. For information, see "Displaying Predecessors of a Job Stream Instance" on page 307.
2. Click the **Add Row** (+) button. This creates a new row in the list of predecessors.
3. To specify a predecessor job instance, double-click the text box in the **Job** column and click the Find button to locate and insert the name of a predecessor job instance.
4. To specify a predecessor job stream instance, double-click the text box in the **Job Stream** column and click the Find button to locate and insert the name of the predecessor job stream instance.

5. When you are finished in the Dependencies - Job Instance window, do one of the following:
   - Click the **OK** button to save your changes in the plan and close the Dependencies - Job Instance window.
   - Click the **Apply** button to save your changes in the plan and leave open the Dependencies - Job Instance window.

Deleting Predecessors from a Job Instance

To delete a predecessor job or job stream from a job instance, do the following:

1. Display the predecessors of the job instance. For information, see “Displaying Predecessors of a Job Instance” on page 278.
2. Select the predecessor row in the list and click the **Delete from Table** (X) button.
3. When you are finished in the Dependencies - Job Instance window, do one of the following:
   - Click the **OK** button to save your changes in the plan and close the Dependencies - Job Instance window.
   - Click the **Apply** button to save your changes in the plan and leave open the Dependencies - Job Instance window.

Displaying Successors of a Job Instance

To display the successors of a job instance in the plan, follow these steps:

1. Run a list of job instances that contains the job you want to display. See “Displaying a List of Jobs in the Plan” on page 256 for more information.
2. In the list results, right-click the job instance you want to display and select **Dependencies...** from the pop-up menu.

   This displays the Dependencies - Job Instance window.
3. To display successor jobs and job streams, click **Successors** in the left window.

   For descriptions of the column headings in the **Successors** view, refer to “Deleting Predecessors from a Job Instance”.

4. When you are finished in the Dependencies - Job Instance window, do one of the following:
   - Click the **OK** button to save your changes in the plan and close the window.
   - Click the **Apply** button to save your changes in the plan and leave the window open.

Changing a Job Instance to Hold

Changing a job instance to **Hold** sets the priority of the job instance to 0. Use the **Release** command to change the priority back to its original level at the start of day.

To change a job instance to **Hold**, follow these steps:

1. Run a list of job instances that contains the job instance you want to modify. See “Displaying a List of Jobs in the Plan” on page 256 for more information.
2. Select the **All Scheduled Jobs List View**.
3. Right-click the job instance you want to hold. To select more than one job instance, do one of the following:
   - To select a range of job instances in the list, hold down the shift key and left-click the first and last job instances in the range. Right-click one of the selected jobs to open the popup menu.
   - To select multiple job instances, hold down the control key and left-click each job instance. Right-click one of the selected job instances to open the popup menu.
4. Select **Hold** from the pop-up menu and click the **Yes** button in the confirmation message window.

To hold all jobs in a group of job instances, follow these steps:

1. Run the list of job instances.
2. Select the **All Scheduled Jobs Timeline View**.
3. Right-click the arrow next to the job instance group.

4. Click **Hold All**.

Changing a Job Instance to Release

The **Release**commandis used to reverse the **Hold** command. The **Release** command sets the priority of a job back to the original setting at the start of the processing day. Do not confuse this command with **Release All Dependencies**. This command has no effect on job dependencies.

To change a job instance to **Release**, follow these steps:

1. Run a list of job instances that contains the job instance you want to modify. See “Displaying a List of Jobs in the Plan” on page 256 for more information.
2. Select the **All Scheduled Jobs List View**.
3. Right-click the job instance you want release. To select more than one job instance, do one of the following:
   - To select a range of job instances in the list, hold down the shift key and left-click on the first and last job instances in the range. Right-click one of the selected job instances to open the popup menu.
   - To select multiple job instances, hold down the control key and left-click each job instance. Right-click one of the selected job instances to open the popup menu.
4. Select **Release** from the pop-up menu and click the **Yes** button in the confirmation message window.

To release all jobs in a group of job instances, follow these steps:

1. Run the list of job instances.
2. Select the **All Scheduled Jobs Timeline View**.
3. Right-click the arrow next to the job instance group.
4. Click **Release All**.

Canceling a Job Instance

Canceling a job instance in the plan prevents the job from running. A canceled job instance can be submitted anytime during the production cycle using an alias name. For more information, see “Submitting a Job into the Plan” on page 337.

To cancel a job instance, follow these steps:

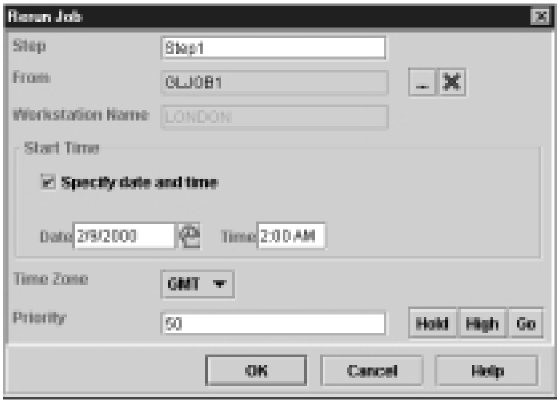
1. Run a list of job instances that contains the job instance you want to modify. See “Displaying a List of Jobs in the Plan” on page 256 for more information.
2. In the list results, right-click the job instance you want cancel. To select more than one job instance, do one of the following:
   - To select a range of job instances in the list, hold down the shift key and left-click on the first and last job instances in the range. Right-click one of the selected jobs to open the popup menu.
   - To select multiple job instances, hold down the control key and left-click each job instance. Right-click one of the selected job instances to open the popup menu.
3. Select **Cancel** from the pop-up menu and click the **Yes** button in the confirmation message window.

Rerunning a Job Instance

Note that you cannot rerun multiple job instances simultaneously.

To rerun a job instance:

1. Run a list of job instances that contains the job instance you want to rerun. See “Displaying a List of Jobs in the Plan” on page 256 for more information.
2. In the list results, right-click the job instance you want rerun.
3. Select **Rerun** from the pop-up menu. This opens the Rerun Job window.


Rerun Job

Step: Step1

From: GLJOB1

Workstation Name: LONDON

Start Time

☑ Specify date and time

Date: 2/9/2000 Time: 2:00 AM

Time Zone: GMT

Priority: 50

Figure 81. Rerun Job window.

4. To rerun the job directly click **OK** otherwise add any additional options.
5. The following are descriptions of the fields in the Rerun Job window.

   Step Specify the step from which you would like to rerun this job. The new job instance will assume the name specified here.

   From Specify the job from which you want the job to run.

   Workstation Name
   Specify the workstation to run the job.

   The following fields are only valid when using the “from” option:

   Start Time
   Specify the start date and time for the job.

   Specify Date and Time
   Select this checkbox to specify a start date and time for the job.

   Date Specify a start date for the job.

   Time Specify a start time for the job.

Time Zone
Specify a time zone for the job. The time zone option must be enabled for this field to be active.

Priority
Specify the priority of the job. When the job competes with other jobs for execution, the job with the higher priority runs first.You can select a priority from 0 to 101.

Hold Sets the priority to 0. This job will not execute until the priority is raised.

High Sets the priority to 100.

Go Sets the priority to 101.

6. When you are finished in the Rerun Job window, do one of the following:

   - Click the **OK** button to save your changes in the plan and close the window.
   - Click the **Apply** button to save your changes in the plan and leave the window open.

Killing a Job Instance

Killing a job instance can only be done for UNIX command and UNIX script jobs. You cannot kill Windows NT job instances.

To kill a UNIX job instance, follow these steps:

1. Run a list of job instances that contains the job instance you want to kill. See “Displaying a List of Jobs in the Plan” on page 256 for more information.
2. In the list results, right-click the job instance you want kill. To select more than one job instance, do one of the following:

   - To select a range of job instances in the list, hold down the shift key and left-click on the first and last job instances in the range. Right-click one of the selected job to open the popup menu.

- To select multiple job instances, hold down the control key and left-click each job instance. Right-click one of the selected job instances to open the popup menu.

3. Select **Kill** from the pop-up menu and select the **Yes** button in the confirmation box. This kills a currently running UNIX job.

Confirming a Job Instance SUCC or ABEND

Confirming a job instance status as SUCC or ABEND allows you to force the job instance into a state where either its successors can continue processing or job recovery options are started.

To confirm a job instance status to SUCC or ABEND, follow these steps:

1. Run a list of job instances that contains the job instance you want to confirm. See "Displaying a List of Jobs in the Plan" on page 256 for more information.
2. In the list results, right-click the job instance you want to confirm. To select more than one job instance, do one of the following:
   - To select a range of job instances in the list, hold down the shift key and left-click on the first and last job instances in the range. Right-click the selected job instance to open the popup menu.
   - To select multiple job instances, hold down the control key and left-click each job instance. Right-click one of the selected job instances to open the popup menu.
3. Select **Confirm > SUCC** or **Confirm > ABEND** from the pop-up menu and select the **Yes** button in the confirmation box. This forces the status of the selected job instances to **SUCC** or **ABEND**.

Releasing a Job Instance from Dependencies

Releasing a job instance from its dependencies removes dependencies on the following:

- Scheduled start time

- Predecessor jobs and job streams
- File dependencies
- Prompt dependencies
- Resource dependencies

To release a job instance from its dependencies, follow these steps:

1. Run a list of job instances that contains the job instance you want to release. See “Displaying a List of Jobs in the Plan” on page 256 for more information.
2. In the list results, right-click the job instance you want release. To select more than one job instance, do one of the following:
   - To select a range of job instances in the list, hold down the shift key and left-click on the first and last job instances in the range. Right-click the selected job instance to open the popup menu.
   - To select multiple job instances, hold down the control key and left-click each job instance. Right-click one of the selected job instances to open the popup menu.
3. Select **Release All Dependencies** from the pop-up menu and click the **Yes** button in the confirmation message window. This permits the job instance to run unless there are other higher priority jobs waiting to run, or if the job instance priority is below the fence for the workstation.

Getting the Job Output (STDLIST)

A standard list file (STDLIST) is created for each job instance launched by TWS. Standard list files contain header and trailer banners, echoed commands, and errors and warnings. These files can be used to troubleshoot problems in job execution.

To view the STDLIST for a job instance, follow these steps:

1. Run a list of job instances that contains the job instance you want to modify. See “Displaying a List of Jobs in the Plan” on page 256 for more information.

2. In the list results, right-click the job instance you want to view the STDLIST for. The STDLIST for a job is blank until the job has completed.
3. Select **Get Job Output** from the pop-up menu. The Get Job Instance Output window is displayed for the job.

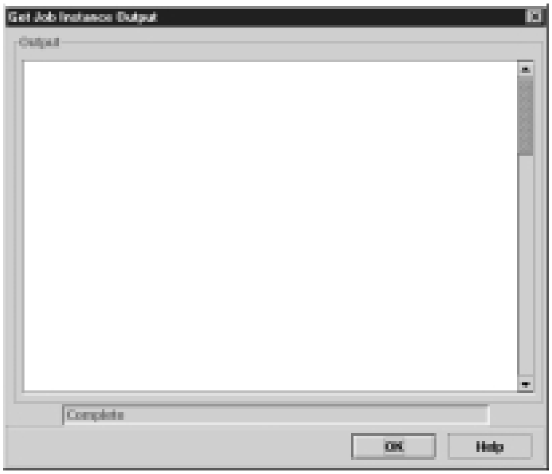


Figure 82. Get Job Instance Output window.

Managing Job Stream Instances in the Plan

A job stream is a sequence of jobs, including the resources, prompts, parameters, and workstations that support them, and scheduling information. The dependency of one job on the completion of another determines the sequence of the jobs. The scheduling information, such as the use of run cycles, calendars, and time restrictions, determines when and how often the job stream instance is run.

You can execute the following commands against a job stream instance in the plan:

Properties
View or modify the properties of a job stream instance. This

includes viewing, adding, modifying, or deleting the dependencies and time restrictions on the job stream instance.

Dependencies
View, add, modify, or delete the predecessors of a job stream instance.

Hold Sets a job stream instance priority to 0, the internal status to hold, and the Job Schedule Console status to held.

Release
Counteracts the Hold command. The Release command reverts a job stream instance priority to the what it was prior to the execution of the Hold command.

Cancel
Cancels the planned execution of a job stream instance.

Limit View or modify the job limit of a job stream instance. This is the number of jobs that can run concurrently in the job stream instance.

Priority
View or modify the priority of a job stream instance.

Release All Dependencies
Releases all dependencies to this job stream instance.

Re-submit
Re-submits the job stream instance under an alias name.

Displaying a List of Job Streams in the Plan

To display a list of job stream instances in the plan, follow these steps:

1. In the tree view of the Job Scheduling Console, expand TWS controller icon.

2. Expand the branches below the TWS controller icon until you see the icon for the job stream instance list you want to run. See “Creating a Plan List of Workstations” on page 238 for information about creating job stream instance lists.

3. Select the job stream instance list icon.

4. Click the **Load List** button on the toolbar or right-click the job stream instance list icon and select **Load List** from the pop-up menu.

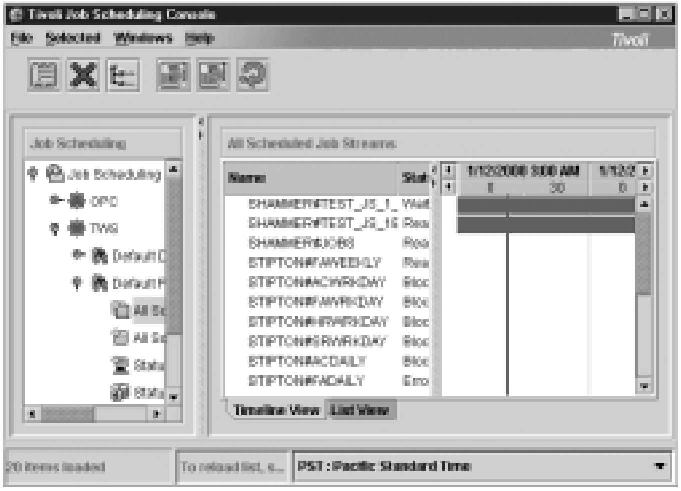
   The list results are displayed in the right panel of the Job Scheduling Console. For descriptions of the job stream instance list views refer to the following:

   - "Timeline View of Job Stream Instances".
   - "List View of Job Stream Instances" on page 292.

Timeline View of Job Stream Instances

The **Timeline View** provides a table and timeline display of job stream instances in the plan. Use the borders and the arrows on the borders to adjust the sizes of the windows. Use the arrows at the top of the timeline window to move the view in one hour and one day increments.

In the timeline window, the dark blue line represents the window of time a job stream instance can start. A black bar at the end of the blue line represents the deadline time (UNTIL keyword). The actual start time of the job stream instance is displayed by a black dot. A light blue bar within the dark blue line represents the actual duration of the job stream. The start time, deadline time, and duration time are also listed in the tabular window.



Name	Stat
SHAMMER#TEST_JS_1_	Wait
SHAMMER#TEST_JS_1S	Rea
SHAMMER#JOBS	Rea
STIPTON#FAWEEKLY	Rea
STIPTON#ACWRKDAY	Bloc
STIPTON#FAWRKDAY	Bloc
STIPTON#HRWRKDAY	Bloc
STIPTON#SRWRKDAY	Bloc
STIPTON#ACDAILY	Bloc
STIPTON#FADAILY	Erro

1/12/2000 3:00 AM 0 30 1/12/2 0

20 items loaded

To reload list, s...

PST : Pacific Standard Time

Figure 83. Job Stream Instances: Timeline View window.

The toolbar in the job stream instance **Timeline** view contains two special buttons.

	Go to Click this button to move the timeline display to the date you select on the popup calendar.
	Go to First Click this button to move the timeline display to the start time and day offset of the earliest job stream instance.

The following are descriptions of the column headings in the tabular part of the **Timeline** view.

Name Displays the name of the job stream instance.

Status Displays the status of the job stream instance. For more information on job or job stream instance status refer to "Status Description and Mapping" on page 375.

Started
Displays the actual start date and time of the job stream instance.

Runtime
Displays the actual duration of the job stream instance.

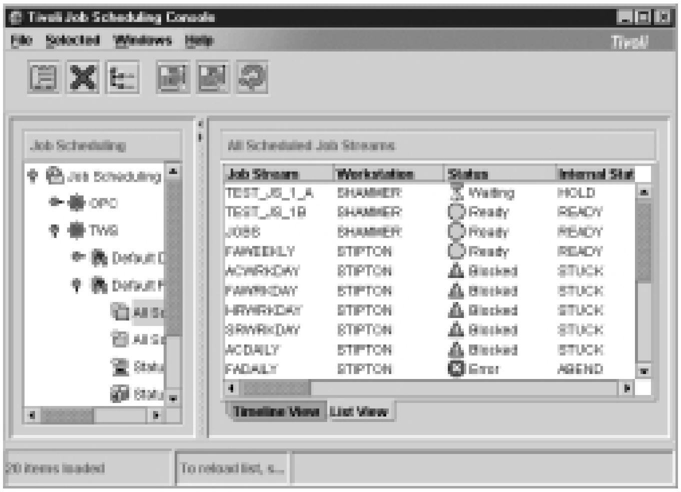
Start at
Displays the date and time of the planned start time for the job stream instance.

Duration
Displays the estimated duration time of the job stream instance.

Deadline
Displays the date and time of the deadline for the job stream instance.

List View of Job Stream Instances

The **List View** provides a table display of job stream instances.



Job Stream	Workstation	Status	Internal Stat
TEST_JS_1_A	SHAMMER	Waiting	HOLD
TEST_JS_1B	SHAMMER	Ready	READY
JOBS	SHAMMER	Ready	READY
FAWEEKLY	STIPTON	Ready	READY
ACWRKDAY	STIPTON	Blocked	STUCK
FAWRKDAY	STIPTON	Blocked	STUCK
HRWRKDAY	STIPTON	Blocked	STUCK
SRWRKDAY	STIPTON	Blocked	STUCK
ACDAILY	STIPTON	Blocked	STUCK
FADAILY	STIPTON	Error	ABEND

20 items loaded

To reload list, s...

Figure 84. Job Stream Instances: List View window.

The following are descriptions of the column headings in the List View.

Job Stream
Specifies the name of the job stream instance.

Workstation
Specifies the name of the workstation on which the job stream instance runs.

Status Specifies the Job Scheduling Console status of the job stream instance. For more information on job or job stream instance status refer to “Status Description and Mapping” on page 375.

Internal Status
Specifies the TWS Internal status of the job stream instance. For more information on job or job stream status refer to “Status Description and Mapping” on page 375.

Information
Specifies additional information about the job stream instance.

Priority
Specifies the priority of the job stream instance.

Num Jobs
Specifies the total number of jobs in the job stream instance.

OK Jobs
Specifies the number of jobs that have completed successfully in the job stream instance.

Limit Specifies the job limit of the job stream instance.

Original Job Stream
For job stream instances that were submitted with an alias name, this specifies the original name of the job stream instance.

Scheduled Start
Specifies the date and time the job stream instance is scheduled to start running.

Actual Start
Specifies the date and time the job stream instance started running.

Est. Duration
Specifies the expected duration time of the job stream instance.

Actual Duration
Specifies the actual duration time of the job stream instance.

Deadline Time
Specifies the date and time of the job stream instance deadline.

Job Stream Dep.
Specifies the number of predecessor job streams for the job stream instance. An icon indicates the lowest status of the predecessors.

Job Dep.
Specifies the number of predecessor jobs of the job stream instance. An icon indicates the lowest status of the predecessors.

Inet Dep.
The number of internetwork predecessors to this job stream.

File Dep.
Specifies the number of file dependencies of the job stream instance. An icon indicates the lowest status of the dependencies.

Prompt Dep.
Specifies the number of prompt dependencies of the job stream instance. An icon indicates the lowest status of the dependencies.

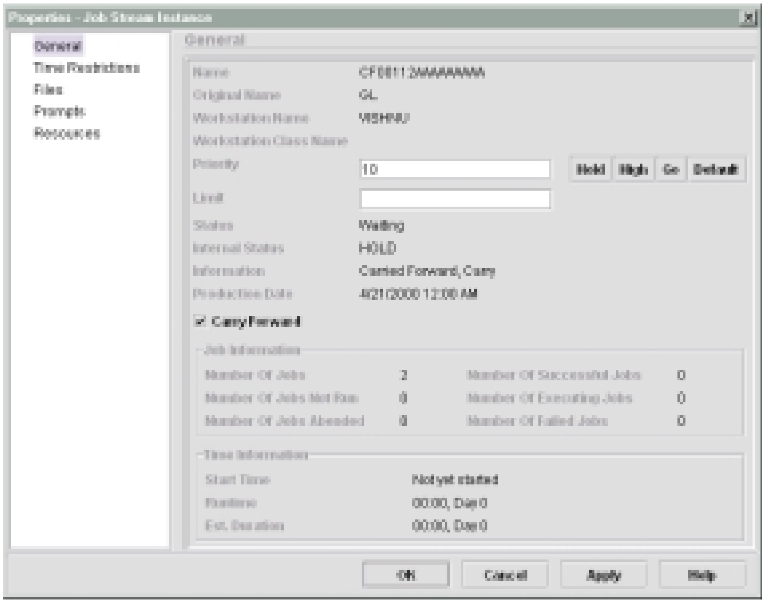
Resource Dep.
Specifies the number of resource dependencies of the job stream instance. An icon indicates the lowest status of the dependencies.

Displaying and Changing the Properties of a Job Stream Instance

To display the properties of a job stream instance in the plan, follow these steps:

1. Run a list of job stream instances that contains the job stream you want to display.
2. In the list results, double-click on the job stream instance you want to display or right-click the job stream instance and choose **Properties** from the pop-up menu.

This displays the Properties - Job Stream Instance window, General view.



Name CF0811 2AAAAAAAA
Original Name GL
Workstation Name VISHNU
Workstation Class Name
Priority 10
Limit
Status Waiting
Internal Status HOLD
Information Carried Forward, Carry
Production Date 4/21/2000 12:00 AM
☑ Carry Forward

Number Of Jobs	2	Number Of Successful Jobs	0
Number Of Jobs Not Run	0	Number Of Executing Jobs	0
Number Of Jobs Abended	0	Number Of Failed Jobs	0

Start Time Not yet started
Runtime 00:00, Day 0
Est. Duration 00:00, Day 0

Figure 85. Properties - Job Stream Instance: General window.

3.

The following are descriptions of the text boxes and options in the **General** view of the Properties - Job Stream Instance window.

Name Specifies the name of the job stream instance.

Original Name
Specifies the original name of a job stream instance that was submitted with an alias name.

Workstation Name
Specifies the name of the workstation on which the job stream instance is launched.

Workstation Class Name
Specifies the name of the workstation class on which the job stream instance is launched.

Priority
Specifies the priority of the job stream instance. To change the priority, select a value from the drop-down list or click **Hold** to select priority **0**, **High** to select priority **100**, or **Go** to select priority **101**. Possible priority values are **0** through **101**, where **101** is the highest priority. A priority value of zero prevents the job stream instance from launching.

Limit
Specifies the number of jobs that can be running at the same time in the schedule. To change the job limit, select a value from the drop-down list. Possible values are **0** through **1024**. If you specify a job limit of **0**, no jobs within the job stream instance are launched.

Status
Specifies the status of the job stream instance. For more information on job or job stream status refer to “Status Description and Mapping” on page 375.

Internal Status
Specifies the TWS internal status of the job stream instance. For more information on job or job stream status refer to “Status Description and Mapping” on page 375.

Information
Specifies additional information about the job stream instance.

Production Date
Specifies the current date of the production cycle.

Carry Forward
Indicates this job stream instance is carried forward to the next processing day if it does not complete before the end of the current production day.

Job Information
Specifies information about the job instances in the job stream instance.

Number Of Jobs
Specifies the total number of job instances.

Number of Jobs Not Run
Specifies the number of job instances that have not run.

Number Of Jobs Abended
Specifies the number of job instances that have abended.

Number of Successful Jobs
Specifies the number of job instances that have run successfully.

Number Of Executing Jobs
Specifies the number of job instances that are running.

Number of Failed Jobs
Specifies the number of job instances that have failed to run.

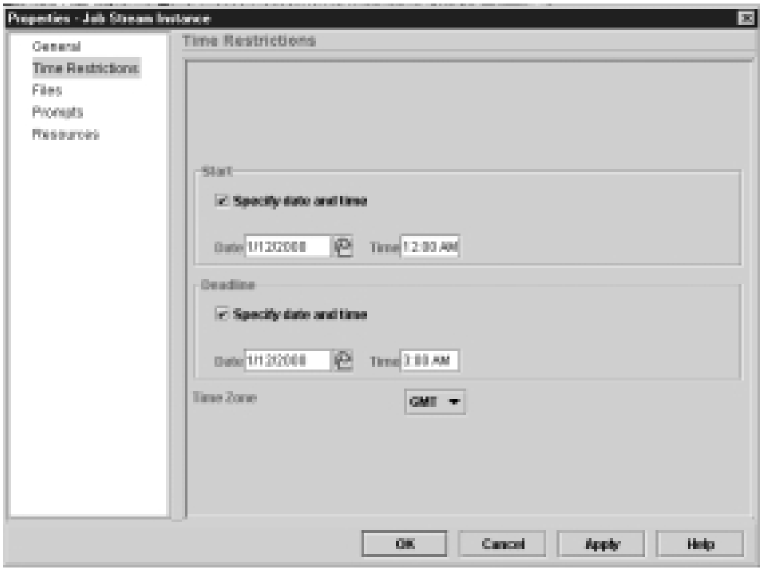
Time Information
Specifies information about the timing of the job stream instance.

Start Time
Specifies the time and day the job stream instance started running.

Runtime
Specifies the duration of the job stream instance.

Est. Duration
Specifies the estimated duration of the job stream instance.

4. To display time restrictions, click **Time Restrictions** in the left window of the Properties - Job Stream Instance window. This displays the **Time Restrictions** view.



Time Restrictions

Start

☑ Specify date and time

Date 1/12/2008 Time 12:00 AM

Deadline

☑ Specify date and time

Date 1/12/2008 Time 3:00 AM

Time Zone GMT

Figure 86. Properties - Job Stream Instance: Time Restrictions window.

The following are descriptions of the text boxes and options in the **Timeline** view of the Properties - Job Stream Instance window.

Start Specifies the earliest time the job stream instance will be launched. The job stream instance will not be launched before this time. To change the time, make your selections as follows:

Specify date and time
Select this option to enable the entry of a start time.

Date Specify the start date or click the calendar button and select a date from the drop-down calendar.

Time Specify a start time in the following format:

hh:*mm* **am**|**pm**

For example, **11:30 am** or **4:25 pm**.

Deadline
Specifies the latest time the job stream instance will be launched. The job stream instance will not be launched after this time. To change the time, make your selections as follows:

Specify date and time
Select this option to enable the entry of a deadline time.

Date Specify the deadline date or click the calendar button and select a date from the drop-down calendar.

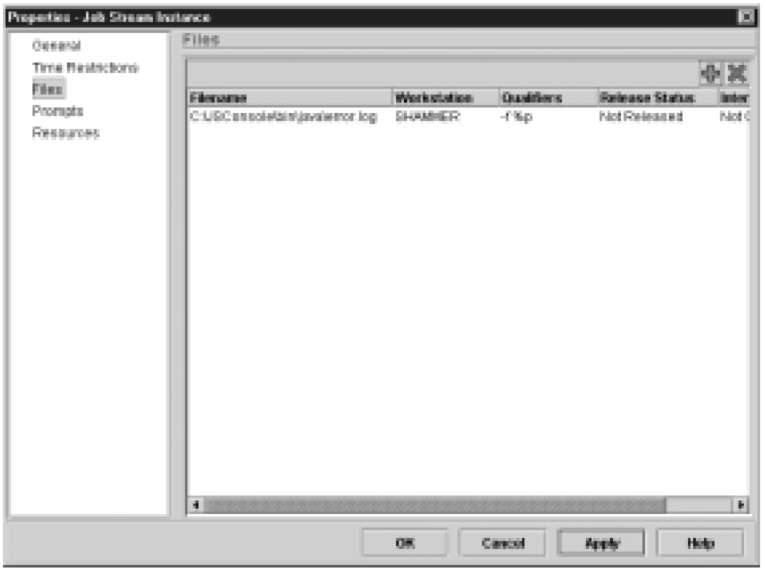
Time Specify a deadline time in the following format:

hh:*mm* **am**|**pm**

For example, **11:30 am** or **4:25 pm**.

Time Zone
Select a time zone from the drop-down list. The start time and deadline time are in this time zone. If a time zone is not specified for the job stream instance, all time values are in the time zone of the workstation on which the job instance is launched. Note that the time zone option must be activated in the global options file for this field to be active.

5. To display file dependencies, click **Files** in the left window of the Properties - Job Stream Instance window. This displays the **Files** view.



Filename	Workstation	Qualifiers	Release Status	Inter
C:\JSConsole\bin\javaerror.log	SHAMMER	-f %p	Not Released	Not

Figure 87. Properties - Job Stream Instance: Files window.

The following are descriptions of the column headings in the **Files** view.

Filename
Specifies the name of the file.

Workstation
Specifies the workstation on which the file resides.

Release Status
Specifies the status of the file dependency. The possible values are:

Not Released
The job stream instance is not released from the file dependency.

Released
The job stream instance is released from the file dependency.

To release the job instance from the file dependency, click in the **Status** column and select **Released** from the drop-down menu.

Qualifiers
Specifies the test conditions for the file dependency.

Internal Status
Specifies the internal status of the file dependency. The possible values are:

Not Checked
The file dependency has not been checked.

Checking
The file dependency is being checked.

Exists The file dependency is satisfied.

Does Not Exist
The file dependency is not satisfied.

6. To add a file dependency for the job stream instance, do the following:

   a. Click the **Add Row** (+) button. This creates a new row in the list of file dependencies.

   b. Double-click the text box in the **Filename** column and type in a file name.

   c. Double-click the text box in the **Workstation** column and click the Find button to locate and insert the name of the workstation on which the file exists or will be created.

   d. Double-click the text box in the **Qualifiers** column and specify the test conditions for the file dependency. On UNIX, the valid qualifiers are the same as UNIX **test** command conditions. For more information, refer to your UNIX system documentation.

   On Windows NT, only the following qualifiers are valid:

   -d %p True if the file exists and is a directory.

   -e %p True if the file exists.

-f %p True if the file exists and is a regular file.

-r %p True if the file exists and is readable.

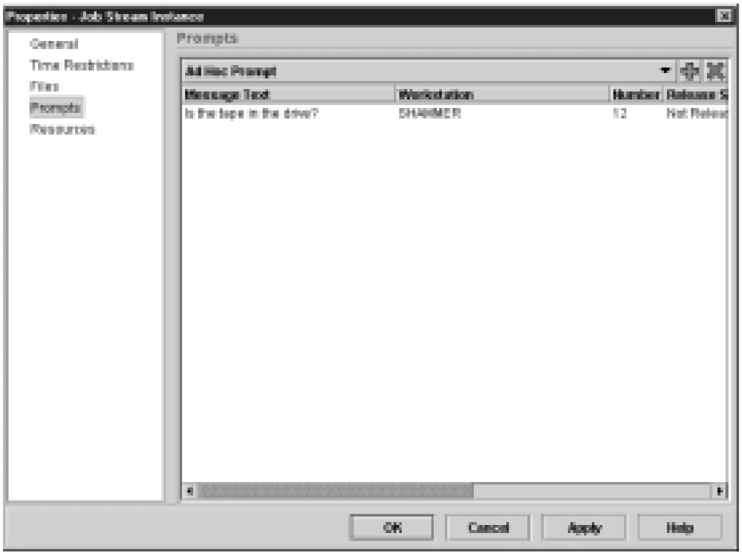
-s %p True if the file exists and it’s size is greater than zero.

-w %p True if the file exists and is writable.

On both UNIX and Windows NT, the expression **%p**, inserts the file name.

Entering **notempty** is the same as entering **-s %p**. If no qualifier is specified, the default is **-f %p**.

7. To remove a file dependency for the job stream instance, select the file row in the list and click the **Delete from Table** (X) button.
8. To display prompt dependencies, click **Prompts** in the left window of the Properties - Job Stream Instance window. This displays the **Prompts** view.



Message Text	Workstation	Number	Release S
Is the tape in the drive?	SHAMMER	12	Not Releas

Figure 88. Properties - Job Stream Instance: Prompts window.

9. Select the type of Prompt you want to display, **ad hoc** or **Predefined**. To display ad hoc prompt dependencies, select **Ad Hoc Prompt** from the drop-down list in the toolbar. To display Predefined prompt dependencies, select **Predefined Prompt** from the drop-down list in the toolbar.

   The following are descriptions of the column headings in the **Prompts** view.

   Name Specifies the name of the prompt. This column is for Predefined prompts only.

   Message Text
   Specifies the text of the prompt message.

   Workstation
   Specifies the workstation that will display the prompt message. This is for Ad Hoc prompts only.

   Number
   Specifies the number of the prompt dependency.

   Status Specifies the status of the prompt dependency. The possible values are:

   Not Released
   The job stream instance is not released from the prompt dependency.

   Released
   The job stream instance is released from the prompt dependency.

   To release the job instance from the prompt dependency, click in the **Status** column and select **Released** from the drop-down menu.

   Internal Status
   Specifies the internal status of the prompt dependency. The possible values are:

   Not Asked
   The prompt has not been asked.

Asked The has been asked, but no response has been received.

Answered Yes
The prompt has been answered affirmatively and the job stream instance dependency is released.

Answered No
The prompt has been answered negatively and the job stream instance dependency is not released.

Reply Specifies the reply to the prompt dependency. To reply to the prompt, click in this column and select **Yes** or **No** from the drop-down menu.

10. To add a prompt dependency for the job stream instance, do the following:

    a. Click the **Add Row** (+) button. This creates a new row in the list of prompt dependencies.

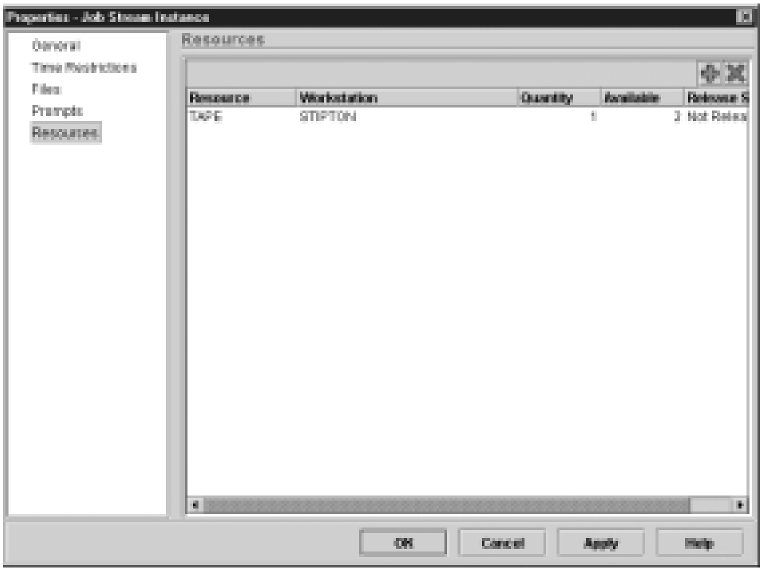
    b. For a pre-defined prompt, double-click the text box in the **Name** column and click the Find button to locate and insert the name of a prompt.

    c. For an ad hoc prompt, double-click the text box in the **Message Text** column and type in the text of the prompt. The default behavior of a prompt is to display a message and wait for a reply. If the string begins with a colon (:), the message is displayed but no reply is necessary. If the string begins with an exclamation mark (!), the message is not displayed but it requires a reply. You can include backslash n (**n**) within the text for new lines.

       You can include one or more TWS parameters as part or all of the text string. To use a parameter, place its name between carets (^).

11. To remove a prompt dependency for the job stream instance, select the prompt row in the list and click the **Delete from Table** (X) button.

12. To display resource dependencies, click **Resources** in the left window of the Properties - Job Stream Instance window. This displays the **Resources** view.



Resource	Workstation	Quantity	Available	Release S
TAPE	STIPTON	1	2	Not Releas

Figure 89. Properties - Job Stream Instance: Resources window.

The following are descriptions of the column headings in the **Resources** view.

Resource
Specifies the name of the resource.

Workstation
Specifies the workstation on which the resource resides.

Quantity
Specifies the number of units of the resource that are needed by the job stream instance to satisfy the dependency.

Available
Specifies the number of units of the resource that are currently available.

Release Status

Specifies the status of the resource dependency. The possible values are:

Not Released

The job stream instance is not released from the resource dependency.

Released

The job stream instance is released from the resource dependency.

To release the job instance from the resource dependency, click in the **Status** column and select **Released** from the drop-down menu.

13. To add a resource dependency for the job stream instance, do the following:

    a. Click the **Add Row** (+) button. This creates a new row in the list of resource dependencies.

    b. In the **Workstation** column, click the Find button to locate and insert the name of a workstation.

    c. Double-click the text box in the **Resource** column and click the Find button to locate and insert a resource name.

    d. Double-click the text box in the **Quantity** column and specify the number of resource units required by the job stream instance. The default is one.

14. To delete a resource dependency for the job stream instance, select the resource row in the list and click the **Delete from Table** (X) button.

15. When you have finished viewing job stream instance properties, do one of the following:

    - Click the **OK** button to save the changes you made to the properties and close the Properties - Job Stream Instance window.

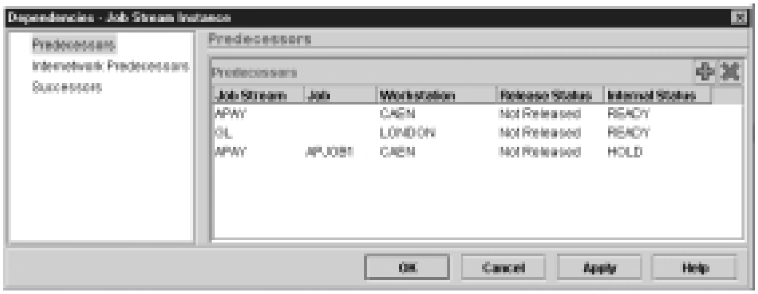
- Click the **Apply** button to save the changes you made to the properties and leave open the Properties - Job Stream Instance window.

Displaying Predecessors of a Job Stream Instance

To display the predecessors of a job stream instance in the plan, follow these steps:

1. Run a list of job stream instances that contains the job stream instance you want to modify.
2. In the list results, right-click the job stream instance you want to display and select **Dependencies...** from the pop-up menu.

   This displays the Dependencies - Job Stream Instance window.



Job Stream	Job	Workstation	Release Status	Internal Status
APWY		CAEN	Not Released	READY
GL		LONDON	Not Released	READY
APWY	APJOB1	CAEN	Not Released	HOLD

Figure 90. Dependencies - Job Stream Instance: Predecessor window.

3. Click **Predecessors** in the left window. This displays the **Predecessor** view in the right window.

   The following are descriptions of the column headings in the **Predecessors** view.

   Job Stream
   Specifies the name of a predecessor job stream instance.

   Job Specifies the name of a predecessor job instance.

   Workstation
   Specifies the workstation of the predecessor job or job stream instance.

Release Status

Specifies the status of the predecessor dependency. The possible values are:

Released

The job stream instance is released from the predecessor dependency.

Not Released

The job stream instance is not released from the predecessor dependency.

To release the job stream instance from the predecessor dependency, click in the **Release Status** column and select **Released** from the drop-down menu.

Internal Status

Specifies the TWS internal status of the predecessor job or job stream instance. For more information on job or job stream status refer to “Status Description and Mapping” on page 375.

4. When you are finished in the Dependencies - Job Stream Instance window, do one of the following:
   - Click the **OK** button to save your changes in the plan and close the Dependencies - Job Stream Instance window.
   - Click the **Apply** button to save your changes in the plan and leave open the Dependencies - Job Stream Instance window.

Adding Predecessors to a Job Stream Instance

To add a predecessor job or job stream to a job stream instance, do the following:

1. Display the predecessors of the job stream instance. For information, see “Displaying Predecessors of a Job Stream Instance” on page 307.
2. Click the **Add Row** (+) button. This creates a new row in the list of predecessors.

3. To specify a predecessor job stream instance, double-click the text box in the **Job Stream** column and click the Find button to locate and insert the name of the predecessor job stream instance.

4. To specify a predecessor job instance, double-click the text box in the **Job** column and click the Find button to locate and insert the name of a predecessor job instance.

5. When you are finished in the Dependencies - Job Stream Instance window, do one of the following:

   - Click the **OK** button to save your changes in the plan and close the Dependencies - Job Stream Instance window.

   - Click the **Apply** button to save your changes in the plan and leave open the Dependencies - Job Stream Instance window.

Deleting Predecessors from a Job Stream Instance

To delete a predecessor job or job stream from a job stream instance, do the following:

1. Display the predecessors of the job stream instance. For information, see “Displaying Predecessors of a Job Stream Instance” on page 307.

2. Select the predecessor row in the list and click the **Delete from Table** (X) button.

3. When you are finished in the Dependencies - Job Stream Instance window, do one of the following:

   - Click the **OK** button to save your changes in the plan and close the Dependencies - Job Stream Instance window.

   - Click the **Apply** button to save your changes in the plan and leave open the Dependencies - Job Stream Instance window.

Displaying Successors of a Job Stream Instance

To display the successors of a job stream instance in the plan, follow these steps:

1. Run a list of job stream instances that contains the job stream you want to modify.

2. In the list results, right-click the job stream instance you want to display and select **Dependencies...** from the pop-up menu.

   This displays the Dependencies - Job Stream Instance window.

3. To display successor jobs and job streams, click **Successors** in the left window.

   For descriptions of the column headings in the **Successors** view, refer to “Displaying Predecessors of a Job Stream Instance” on page 307.

4. When you are finished in the Dependencies - Job Stream Instance window, do one of the following:

   - Click the **OK** button to save your changes in the plan and close the Dependencies - Job Stream Instance window.
   - Click the **Apply** button to save your changes in the plan and leave open the Dependencies - Job Stream Instance window.

Changing a Job Stream Instance to Hold

Changing a job stream instance to **Hold** sets the priority of the job instance to zero. Use the **Release** command to change the priority back to its original level at the start of the processing day.

To change a job stream instance to **Hold**, follow these steps:

1. Run a list of job stream instances that contains the job stream instance you want to modify. See “Displaying a List of Job Streams in the Plan” on page 289 for more information.
2. Select the All Scheduled Job Streams List View.
3. Right-click the job stream instance you want to hold. To select more than one job stream instance, do one of the following:

   - To select a range of job stream instances in the list, hold down the shift key and left-click on the first and last job stream instances in the range. Right-click one of the selected job stream instances to open the popup menu.

- To select multiple job stream instances, hold down the control key and left-click each job stream instance. Right-click one of the selected job stream instances to open the popup menu.

4. Select **Hold** from the pop-up menu and click the **Yes** button in the confirmation message window.

Releasing a Job Stream Instance

The **Release**commandis used to counteract the **Hold** command. The **Release** command sets the priority back to the original setting at the start of the processing day. Do not confuse this command with the **Release All Dependencies**command. This command has no effect on job stream instance dependencies.

To change a job stream instance to **Release**, follow these steps:

1. Run a list of job stream instances that contains the job stream instance you want to modify. See "Displaying a List of Job Streams in the Plan" on page 289 for more information.
2. Select the All Scheduled Job Streams List View.
3. In the list results, right-click the job stream instance you want to release. To select more than one job stream instance, do one of the following:
   - To select a range of job stream instances in the list, hold down the shift key and left-click on the first and last job stream instances in the range. Right-click one of the selected job stream instance to open the popup menu.
   - To select multiple job stream instances, hold down the control key and left-click each job stream instance. Right-click one of the selected job stream instances to open the popup menu.
4. Select **Release** from the pop-up menu and click the **Yes** button in the confirmation message window.

Canceling a Job Stream Instance

Canceling a job stream instance in the plan prevents the job stream instance from running. A canceled job stream instance can be re-submitted using an alias name. For more information, see "Re-Submitting a Job Stream Instance" on page 316.

To cancel a job stream instance, follow these steps:

1. Run a list of job stream instances that contains the job stream instance you want to modify. See "Displaying a List of Job Streams in the Plan" on page 289 for more information.
2. In the list results, right-click the job stream instance you want cancel. To select more than one job stream instance, do one of the following:
   - To select a range of job stream instances in the list, hold down the shift key and left-click on the first and last job stream instances in the range. Right-click one of the selected job stream instance to open the popup menu.
   - To select multiple job stream instances, hold down the control key and left-click each job stream instance. Right-click one of the selected job stream instances to open the popup menu.
3. Select **Cancel** from the pop-up menu and click the **Yes** button in the confirmation message window.

Changing the Job Limit of a Job Stream Instance

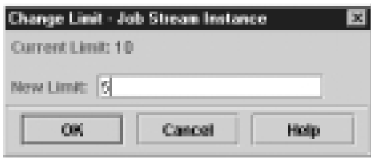
To change the job limit of a job stream instance in the plan, follow these steps:

1. Run a list of job stream instances that contains the job stream instance you want to modify. See "Displaying a List of Job Streams in the Plan" on page 289 for more information.
2. In the list results, right-click the job stream instance you want modify. To select more than one job stream instance, do one of the following:
   - To select a range of job stream instances in the list, hold down the shift key and left-click on the first and last job stream instances in the range. Right-click one of the selected job stream to open the popup menu.

- To select multiple job stream instances, hold down the control key and left-click each job stream instance. Right-click one of the selected job stream instances to open the popup menu.

3. Select **Limit...** from the pop-up menu.

   This displays the Change Limit - Job Stream Instance window.



Current Limit: 10

New Limit: 5

Figure 91. Change Limit - Job Stream Instance window.

4. Specify a new job limit in the New Limit field.
5. When you are finished in the Change Limit - Job Stream Instance window, do one of the following:
   - Click the **OK** button to save the new job limit in the plan and close the window.
   - Click the **Cancel** button to close the window without saving the new job limit.

Changing the Priority of a Job Stream Instance

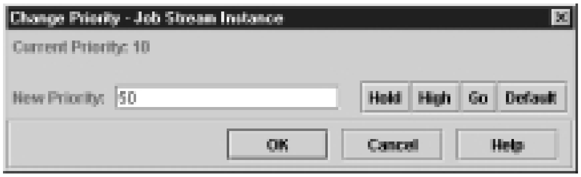
To change the priority of a job stream instance in the plan, follow these steps:

1. Run a list of job stream instances that contains the job stream instance you want to modify. See “Displaying a List of Job Streams in the Plan” on page 289 for more information.
2. In the list results, right-click the job stream instance you want modify or, to select more than one job stream instance, do one of the following:
   - To select a range of job stream instances in the list, hold down the shift key and left-click on the first and last job stream instances in the range. Right-click one of the selected job stream instance to open the popup menu.

- To select multiple job stream instances, hold down the control key and left-click each job stream instance. Right-click one of the selected job stream instances to open the popup menu.

3. Select **Priority...** from the pop-up menu.

   This displays the Change Priority - Job Stream Instance window.



Change Priority - Job Stream Instance

Current Priority: 10

New Priority: 50

Figure 92. Change Priority - Job Stream Instance window.

4. Select a new priority value from the drop-down list or click one of the following buttons:

   Hold Sets the priority to **0**.

   High Sets the priority to **100**.

   Go Sets the priority to **101**.

   Default
   If a single job stream instance is selected, this sets the priority to the original value of the job stream instance at the start of processing day. If multiple job stream instances are selected, the priority of each job stream instance is set back to what it was at start of processing day.

5. When you are finished in the Change Priority - Job Stream Instance window, do one of the following:

   - Click the **OK** button to save the new priority in the plan and close the window.
   - Click the **Cancel** button to close the window without saving the new priority.

Releasing a Job Stream Instance from Dependencies

Releasing a job stream instance from its dependencies removes dependencies on the following objects:

- Scheduled start time
- Predecessor jobs and job streams
- Resources
- Files
- Prompts

To release a job stream instance from its dependencies, follow these steps:

1. Run a list of job stream instances that contains the job stream instance you want to release. See “Displaying a List of Job Streams in the Plan” on page 289 for more information.
2. In the list results, right-click the job stream instance you want release. To select more than one job stream instance, do one of the following:
   - To select a range of job stream instances in the list, hold down the shift key and left-click on the first and last job stream instances in the range. Right-click one of the selected job stream to open the popup menu.
   - To select multiple job stream instances, hold down the control key and left-click each job stream instance. Right-click one of the selected job stream instances to open the popup menu.
3. Select **Release All Dependencies** from the pop-up menu and click the **Yes** button in the confirmation message window.

This permits the job stream to run unless there are other prerequisites. For more information, see to the following:

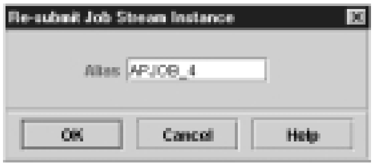
- “Displaying and Changing the Properties of a Job Stream Instance” on page 294.
- “Changing the Job Limit of a Job Stream Instance” on page 312.

- “Changing the Priority of a Job Stream Instance” on page 313.

Re-Submitting a Job Stream Instance

When you re-submit a job stream instance, a new job stream instance is created in the plan. The new job stream instance is given an alias name. To re-submit a job stream instance in the plan, follow these steps:

1. Run a list of job stream instances that contains the job stream instance you want to re-submit. See “Displaying a List of Job Streams in the Plan” on page 289 for more information.
2. In the list results, right-click the job stream instance you want re-submit.
3. Select **Re-Submit** from the pop-up menu. This displays the Re-Submit Job Stream Instance window.



Alias: APJOB_4

Figure 93. Re-Submit Job Stream Instance window.

4. Specify an alias name for the re-submitted job stream instance in the **Alias** text box. If you do not specify an alias name, a name is generated by TWS. For unexpanded mode, TWS starts with the first two characters of the original job stream instance name followed by six random numbers. For expanded mode, TWS starts with the first six characters of the original job stream instance name followed by ten random numbers.
5. When you are finished in the Re-Submit Job Stream Instance window, do one of the following:
   - Click the **OK** button to re-submit the job stream instance and close the window.
   - Click the **Cancel** button to close the window without re-submitting the job stream instance.

6. To change the properties of the re-submitted job stream, click the **Properties...** button. For information about job stream instance properties, refer to “Displaying and Changing the Properties of a Job Stream Instance” on page 294.
7. To change the predecessors for the re-submitted job stream, refer to “Adding Predecessors to a Job Stream Instance” on page 308 and “Deleting Predecessors from a Job Stream Instance” on page 309.

Managing Workstations in the Plan

The plan contains a list of all workstation that are going to be used in that days processing. You can perform the following actions on a workstation in the plan:

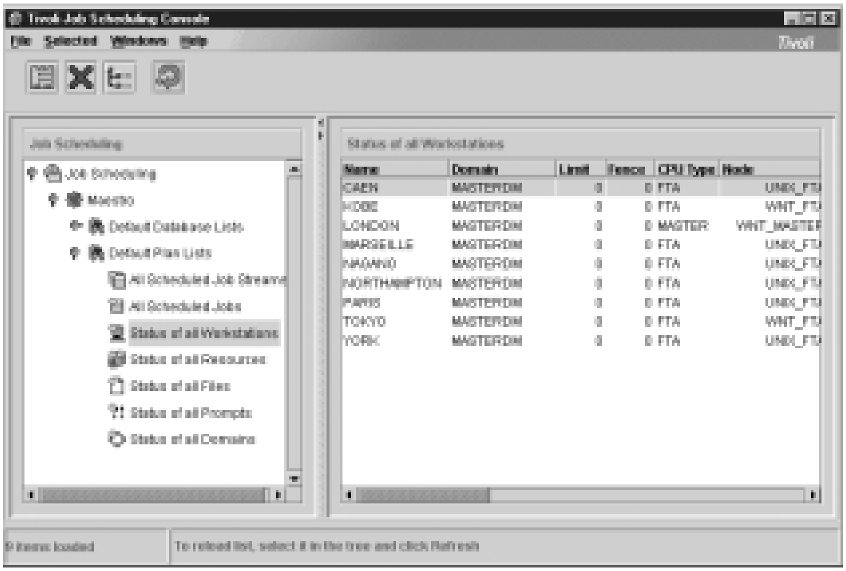
- Display a list of workstation in the plan. This list contains a number of fields with information about the workstation status.
- Changing the job limit of a workstation instance
- Changing the job fence of a workstation instance
- Starting, stopping, linking, unlinking a workstation

Displaying a List of Workstations in the Plan

To display a list of workstations in the plan, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Expand the Default Plan lists group.
3. Select the Status of All Workstation icon.
4. Click the **Load List** button on the toolbar or right-click the workstation list icon and select **Load List** from the pop-up menu.

   The list results are displayed in the right panel of the Job Scheduling Console.



Name	Domain	Limit	Fence	CPU Type	Node
CAEN	MASTERDM	0	0	FTA	UNIX_FT
KOBE	MASTERDM	0	0	FTA	WNT_FT
LONDON	MASTERDM	0	0	MASTER	WNT_MASTER
MARSEILLE	MASTERDM	0	0	FTA	UNIX_FT
NAGANO	MASTERDM	0	0	FTA	UNIX_FT
NORTHAMPTON	MASTERDM	0	0	FTA	UNIX_FT
PARIS	MASTERDM	0	0	FTA	UNIX_FT
TOKYO	MASTERDM	0	0	FTA	WNT_FT
YORK	MASTERDM	0	0	FTA	UNIX_FT

9 items loaded

To reload list, select it in the tree and click Refresh

Figure 94. Workstation Status list window.

The following are descriptions of the column headings in the workstation display.

Name Displays the workstation instance name.

Jobman Running
Displays whether or not the jobman process on the workstation is running.

Link Status
Displays the current link status of the workstation. A workstation can be either **LINKED** or **UNLINKED**.

Limit Displays the total number of jobs that can be run concurrently on this workstation.

Fence Displays the job fence for this workstation. The job fence is the priority a job must exceed to execute on this workstation. Setting the fence to **40**, for example, prevents jobs with priorities of **40** or less from being launched. Valid values are from **0** to **101**.

Node Specifies the type of workstation and the type operating system of the workstation in the following format:

os_wkstat

where *os* is one of the following:

WNT Windows NT.

UNX UNIX.

MPV MPE/V.

MPX MPE/IX.

Other Other workstation OS.

and where *wkstat* is one of the following:

FTA Fault-tolerant agent

Master
Master

Manager
Domain manager

S-Agent
Standard agent

X-Agent
Extended agent

Time Zone
Displays the time zone of the workstation.

Node Port
Displays the port address of the workstation.

CPU Type
Displays the TWS workstation type. Valid values are MASTER, FTA, SAGENT or XAGENT.

Host Displays the TWS physical workstation that is hosting this workstation definition. This is only valid for Extended Agents and Network agents.

Run Displays the run number of the production plan of the workstation. This is used synchronize the workstations in a TWS network.

Start Time
Displays the date and time the **batchman** process was started on the workstation.

Jobman Init
Displays whether or not the jobman process on the workstation has completed its startup initialization. The value can be either YES or NO.

Method
Displays the method name, if this workstation is an extended agent or network agent workstation.

Domain
Displays the name of the TWS domain of the workstation.

Version
Displays the version of TWS installed on this workstation.

Node Information
Displays operating system information about the workstation.

Node Name
Displays the node name of the workstation.

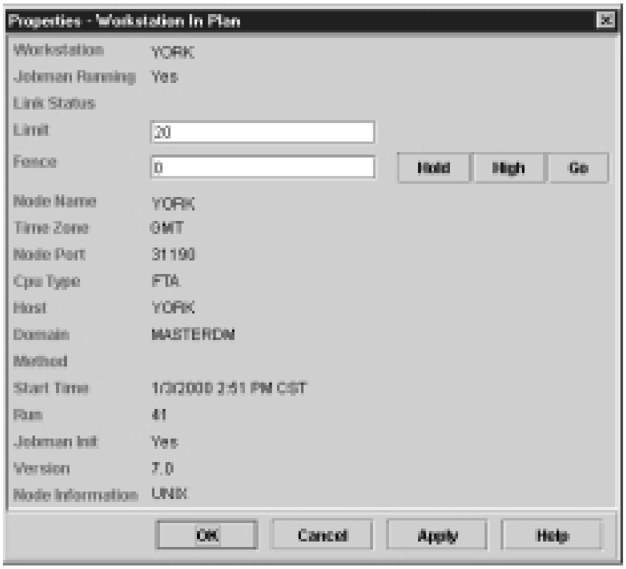
Displaying a Workstation Instance

To display a workstation instance in the plan, follow these steps:

1. Run a list of workstations that contains the workstation you want to display. See “Displaying a List of Workstations in the Plan” on page 317 for more information.

2. In the list results, double-click on the workstation you want to display or right-click the workstation and choose **Properties** from the pop-up menu.

This displays the Properties - Workstation in Plan window.



Workstation	YORK
Jobman Running	Yes
Link Status	
Limit	20
Fence	0
Node Name	YORK
Time Zone	GMT
Node Port	31190
Cpu Type	FTA
Host	YORK
Domain	MASTERDM
Method	
Start Time	1/3/2000 2:51 PM CST
Run	41
Jobman Init	Yes
Version	7.0
Node Information	UNIX

Figure 95. Properties - Workstation in Plan window.

For descriptions of the field values see “Displaying a List of Workstations in the Plan” on page 317.

3. In the Properties - Workstation in Plan window, you can change the Limit and Fence values by entering new values from in the fields. For more information see “Changing the Job Limit of a Workstation in the Plan” and “Changing the Job Fence of a Workstation in the Plan” on page 322.

4. Click the **OK** button to save your changes and close the Properties - Workstation in Plan window or click the **Cancel** button to close the Properties - Workstation in Plan window without saving your changes.

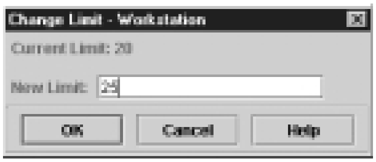
Changing the Job Limit of a Workstation in the Plan

To change the job limit of a workstation instance in the plan, follow these steps:

1. Run a list of workstations in the plan that contains the workstation you want to modify.

2. In the list results, right-click the workstation you want to modify or, to select more than one workstation, do one of the following:
   - To select a range of workstations in the list, hold down the shift key and left-click on the first and last workstations in the range. Right-click one of the selected workstations to open the popup menu.
   - To select multiple workstations, hold down the control key and left-click each workstation. Right-click one of the selected workstations to open the popup menu.
3. Select **Limit...** from the pop-up menu.

   This displays the Change Limit - Workstation window.


Change Limit - Workstation

Current Limit: 20

New Limit: 25

Figure 96. Change Limit - Workstation window.

4. Specify a new job limit in the New Limit field.
5. When you are finished, do one of the following:
   - Click the **OK** button to save the new job limit in the plan and close the window.
   - Click the **Cancel** button to close the window without saving the new job limit.

Changing the Job Fence of a Workstation in the Plan

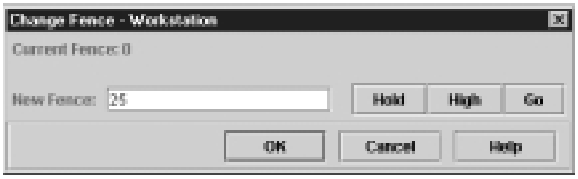
To change the job fence of a workstation instance in the plan, follow these steps:

1. Run a list of workstation instances that contains the workstation you want to modify.
2. In the list results, right-click the workstation you want to modify, or, to select more than one workstation, do one of the following:

- To select a range of workstations in the list, hold down the shift key and left-click on the first and last workstations in the range. Right-click one of the selected workstations to open the popup menu.
- To select multiple workstations, hold down the control key and left-click each workstation. Right-click one of the selected workstations to open the popup menu.

3. Select **Fence...** from the pop-up menu.

   This displays the Change Fence - Workstation window.



Current Fence: 0

New Fence: 25

Figure 97. Change Fence - Workstation window.

4. Specify a new job fence or click one of the following buttons:

   Hold None
   Sets the fence to **0**.

   Hold All
   Sets the fence to **101**.

5. When you are finished in the Change Fence - Workstation window, do one of the following:

   - Click the **OK** button to save the new job fence in the plan and close the window.
   - Click the **Cancel** button to close the window without saving the new job fence.

Starting a Workstation Instance

To start TWS running on a workstation instance, follow these steps:

Note: To start all of the workstations in a domain, refer to “Starting the Workstations in a Domain” on page 325.

1. Run a list of workstation instances that contains the workstation you want to start.
2. In the list results, right-click the workstation you want to start.
3. Select **Start** from the pop-up menu.

Stopping a Workstation Instance

To stop TWS running on a workstation instance, follow these steps:

Note: To stop all of the workstations in a domain, refer to “Stopping the Workstations in a Domain” on page 326.

1. Run a list of workstation instances that contains the workstation you want to stop.
2. In the list results, right-click the workstation you want to stop.
3. Select **Stop** from the pop-up menu.

Linking a Workstation Instance

To link a workstation instance, follow these steps:

Note: To link all of the workstations in a domain, refer to “Linking the Workstations in a Domain” on page 326.

1. Run a list of workstation instances that contains the workstation you want to link.
2. In the list results, right-click the workstation you want to link.
3. Select **Link** from the pop-up menu.

Unlinking a Workstation Instance

To unlink a workstation instance, follow these steps:

Note: To unlink all of the workstations in a domain, refer to “Unlinking the Workstations in a Domain” on page 326.

1. Run a list of workstation instances that contains the workstation you want to link.
2. In the list results, right-click the workstation you want to unlink.
3. Select **Unlink** from the pop-up menu.

Managing Domains in the Plan

You can perform the following actions on a domains in the plan:

- Display a list of domains in the plan. This list contains a number of fields with information about the domain status.
- Starting, stopping, linking, unlinking all the workstation in a domain.
- Change the domain manager workstation in a domain.

Displaying a List of Domains in the Plan

To display a list of domains in the plan, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Expand the Default Plan Lists group.
3. Select a Status of All Domains list icon.
4. Click the **Load List** button on the toolbar or right-click the domain list icon and select **Load List** from the pop-up menu.

   The list results are displayed in the right panel of the Job Scheduling Console. The following are descriptions of the column headings in the domain display.

   Name Specifies the name of the domain.

   Domain Manager
   Specifies the name of the domain manager workstation.

   Domain Parent
   Specifies the name of the parent domain.

Starting the Workstations in a Domain

To start TWS running on all of the workstations in a domain, follow these steps:

Note: To start individual workstations, refer to “Starting a Workstation Instance” on page 323.

1. Run a list of domains that contains the domain you want to start. See “Displaying a List of Domains in the Plan” on page 325 for more information.
2. In the list results, right-click the domain you want to start.
3. Select **Start Workstations** from the pop-up menu.

Stopping the Workstations in a Domain

To stop TWS running on all of the workstations in a domain, follow these steps:

Note: To stop individual workstations, refer to “Stopping a Workstation Instance” on page 324.

1. Run a list of domains that contains the domain you want to stop. See “Displaying a List of Domains in the Plan” on page 325 for more information.
2. In the list results, right-click the domain you want to stop.
3. Select **Stop Workstations** from the pop-up menu.

Linking the Workstations in a Domain

To link all of the workstations in a domain, follow these steps:

Note: To link individual workstations, refer to “Linking a Workstation Instance” on page 324.

1. Run a list of domains that contains the domain you want to link. See “Displaying a List of Domains in the Plan” on page 325 for more information.
2. In the list results, right-click the domain you want to link.
3. Select **Link Workstations** from the pop-up menu.

Unlinking the Workstations in a Domain

To unlink all of the workstations in a domain, follow these steps:

Note: To unlink individual workstations, refer to “Unlinking a Workstation Instance” on page 324.

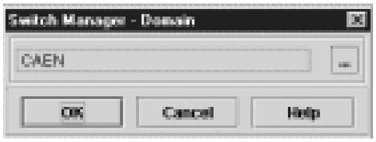
1. Run a list of domains that contains the domain you want to unlink. See “Displaying a List of Domains in the Plan” on page 325 for more information.
2. In the list results, right-click the domain you want to unlink.
3. Select **Unlink Workstations** from the pop-up menu.

Switching the Domain Manager in a Domain

When switching domain managers to a backup domain manager, make sure the new domain manager is a fault-tolerant agent with **Full Status** and **Resolve Dependencies** selected.

To switch the domain manager to a different workstation in a domain, follow these steps:

1. Run a list of domains that contains the domain you want to switch. See “Displaying a List of Domains in the Plan” on page 325 for more information.
2. In the list results, right-click the domain you want to switch.
3. Select **Switch Manager...** from the pop-up menu. This displays the Select Domain Manager window.



CAEN

Figure 98. Switch Manager - Domain window.

4. Click the Find button and use the Find window to select the name of the new domain manager workstation. The new domain manager must be a member of the domain and it must be a fault-tolerant agent with **Full Status** and **Resolve Dependencies** selected.
5. When you are finished in the Select Domain Manager window, do one of the following:
   - Click the **OK** button to switch to the new domain manager and close the window.

- Click the **Cancel** button to close the window without switching the domain manager.

Managing File Dependencies in the Plan

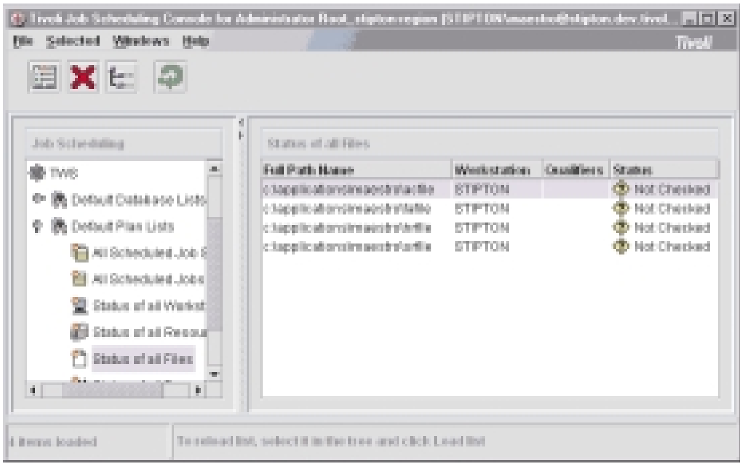
A file dependency is when a job or job stream needs to verify the existence of one or more files before it can begin execution.

Displaying File Dependencies Status

To display a list of file dependencies in the plan, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Expand the Default Plan Lists group.
3. Select a Status of All Files list icon.
4. Expand the branches below **TWS** until you see the icon for the file list you want to run. See “Creating a Plan List of Files” on page 251 for information about creating file lists.
5. Select the file list icon.
6. Click the **Load List** button on the toolbar or right-click the file list icon and select **Load List** from the pop-up menu.

   The list results are displayed in the right panel of the Job Scheduling Console.



Full Path Name	Workstation	Qualifiers	Status
c:\applications\maestro\actfile	STIPTON		Not Checked
c:\applications\maestro\tsfile	STIPTON		Not Checked
c:\applications\maestro\trfile	STIPTON		Not Checked
c:\applications\maestro\arfile	STIPTON		Not Checked

4 items loaded

To reload list, select it in the tree and click Load list

Figure 99. Status of All Files list window.

The following are descriptions of the column headings in the file display.

Full Path Name
Specifies the path and name of the file.

Workstation
Specifies the name of the workstation that owns the file.

Qualifiers
Displays any qualifiers used with this file dependency.

Status Specifies the status of the file as one of the following:

Not Checked
Not yet checked or the file was available and used to satisfy a job or job stream dependency.

Checking
File availability is being checked.

Exists The file exists and is available.

Does Not Exist
The file does not exist or is not available.

Managing Prompt Dependencies in the Plan

A prompt dependency is when a job or job stream needs to wait for an affirmative response to a prompt before it can begin execution.

Displaying Prompt Dependencies Status

To display a list of prompt dependencies in the plan, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Expand the Default Plan Lists group.
3. Select the Status of All Prompts list icon.
4. Click the **Load List** button on the toolbar or right-click the prompt list icon and select **Load List** from the pop-up menu.

   The list results are displayed in the right panel of the Job Scheduling Console. The following are descriptions of the column headings in the prompt display.

   Name Specifies the name of a predefined prompt or the number of an ad hoc prompt.

   Workstation
   Specifies the name of the workstation.

   Dependency
   Specifies the jobs or job stream names that are dependent on this prompt.

   Release Status
   Specifies the status of the prompt as one of the following:

   ASKED
   The prompt has been issued, but no response has been received.

   NOT ASKED
   The prompt has not been issued.

   YES The prompt has been issued and a **YES** response has been received.

NO The prompt has been issued and a **NO** response has been received.

Number
Specifies the internal ID of the prompt.

Type Specifies the prompt type as one of the following:

Ad Hoc
The prompt is locally defined in a job or job stream.

Predefined
The prompt has a name and is defined in the database.

Recovery
The prompt is locally defined in a job as a recovery option.

Message Text
Specifies the text of the prompt.

Replying to a Prompt Dependency

To reply to a prompt dependency, follow these steps:

1. Run a list of prompt dependencies that contains the prompt you want to modify. See “Displaying Prompt Dependencies Status” on page 330 for more information.
2. In the list results, right-click the prompt dependency you want to reply to or, to select more than one prompt dependency, do one of the following:
   - To select multiple prompt dependencies from the list, hold down the shift key and left-click on the first and last prompt dependencies in the range. Right-click one of the selected prompt dependencies to open the popup menu.
   - To select multiple prompt dependencies, hold down the control key and left-click each prompt dependency. Right-click one of the selected prompt dependencies to open the popup menu.
3. Select **Reply** > **Yes** or **Reply** > **No** from the pop-up menu.

Managing Resource Dependencies in the Plan

Resources represent any type of resources on your system such as tape drives, communication lines, databases, or printers, that are needed to run a job. Resources can be physical or logical. After defining a resource in the TWS database, it can be used as a dependency for jobs and job streams that run on the workstation or workstation class for which the resource is defined.

Displaying Resource Dependencies Status

To display a list of resource dependencies in the plan, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.
2. Expand the branches below TWS until you see the icon for the resource list you want to run. See “Creating a Plan List of Resources” on page 248 for information about creating resource lists.
3. Select the resource list icon.
4. Click the **Load List** button on the toolbar or right-click the resource list icon and select **Load List** from the pop-up menu.

   The list results are displayed in the right panel of the Job Scheduling Console. The following are descriptions of the column headings in the resource display.

   Name Displays the name of the resource.

   Workstation
   Displays the name of the workstation.

   Status Displays the status of the resource as one of the following:

   Available
   The resource has units available.

   Not Available
   The resource has no units available.

Unknown
The status of the resource is unknown.

Quantity Defined
Displays the total number of units defined for the resource.

Quantity Available
Displays the number resource units that are not in use.

In Use
Displays the number of resource units that are currently in use.

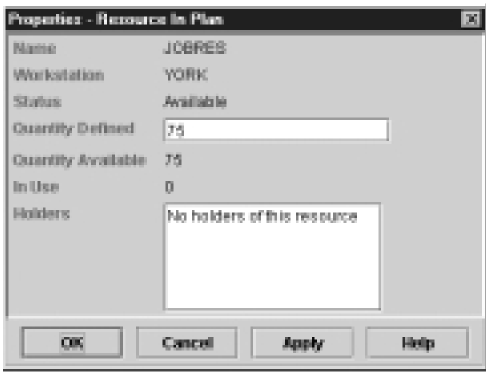
Holders
Displays the names of job and job stream instances that require units of the resource and the number of units required.

Displaying the Properties of a Resource Dependency

To display a resource dependency in the plan, follow these steps:

1. Run a list of resource dependencies that contains the resource you want to modify. See “Displaying Resource Dependencies Status” on page 332 for more information.
2. In the list results, double-click on the resource you want to display or right-click the resource and choose **Properties** from the pop-up menu.

   This displays the Properties - Resource in Plan window.



Properties - Resource In Plan

Name JOBRES

Workstation YORK

Status Available

Quantity Defined 75

Quantity Available 75

In Use 0

Holders No holders of this resource

Figure 100. Properties - Resource in Plan window.

For descriptions of the field values see “Displaying Resource Dependencies Status” on page 332.

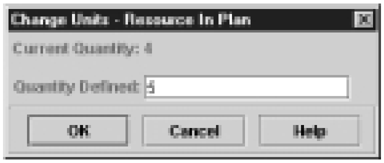
3. In the Properties - Resource in Plan window, you can change the total number of defined units of the resource. To do this, specify a new value in the **Quantity Defined** text box.
4. Click the **OK** button to save your changes and close the Properties - Resource Instance window or click the **Cancel** button to close the window without saving your changes.

Changing the Number of Units of a Resource Dependency

To change the total number of defined units of a resource dependency, follow these steps:

1. Run a list of resource dependencies that contains the resource you want to modify. See “Displaying Resource Dependencies Status” on page 332 for more information.
2. In the list results, right-click the resource you want to modify.
3. Select **Change Units...** from the pop-up menu.

   This displays the Change Units - Resource in Plan window.



Current Quantity: 4

Quantity Defined: 5

Figure 101. Change Units - Resource in Plan window.

4. Specify a new value in the **Quantity Defined** text box.
5. When you are finished in the Change Units - Resource in Plan window, do one of the following:
   - Click the **OK** button to save the new units in the plan and close the window.
   - Click the **Cancel** button to close the window without saving the new units.

Submitting Jobs and Job Streams Into the Plan

This sections provides information for submitting jobs and job streams into the plan for impromptu processing. You can submit jobs and job streams that have been previously defined to the database into the plan for impromptu processing. If the job or job stream is already in the plan and you would like to schedule it again, you can submit it with an alias.

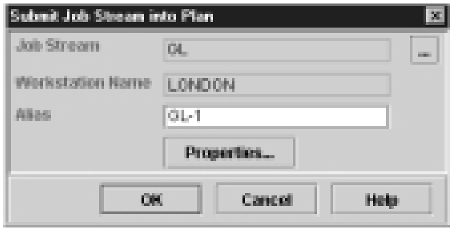
You can also submit ad hoc jobs to the plan. These are jobs that have not been defined in the database. These jobs are created and submitted into the plan, but are never saved in the database.

Submitting a Job Stream Into the Plan

To submit a job stream that already exists in the database into the plan, follow these steps:

1. In the tree view of the Job Scheduling Console, expand the TWS controller icon.

2. right-click the TWS controller icon and select **Submit > Job Stream** from the pop-up menu. This displays the Submit Job Stream into Plan window.



Submit Job Stream into Plan

Job Stream: OL

Workstation Name: LONDON

Alias: OL-1

Figure 102. Submit Job Stream into Plan window.

3. In the Submit Job Stream into Plan window, fill in the text boxes as follows:

   Job Stream
   Click the ellipsis button to open a Find Job Stream window. This field is filled out automatically when you select a job stream using the Find Job Stream window.

   Workstation name
   This field is filled out automatically when you select a job stream using the Find Job Stream window.

   Alias
   Specify an alias name for the submitted job stream instance. An alias name is needed only if the plan contains a job stream instance of the same name. If an alias name is necessary, and you do not specify an alias, a name is generated by TWS that starts with the first two characters of the original job stream name followed by six random characters.

4. To modify the properties of the submitted job stream, click the **Properties...** button. For information about job stream properties, see “Displaying and Changing the Properties of a Job Stream Instance” on page 294.

5. When you are finished in the Submit Job Stream into Plan window, do one of the following:

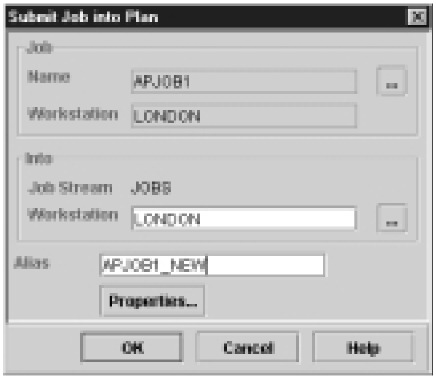
- Click the **OK** button to submit the job stream and close the window.
- Click the **Cancel** button to close the window without submitting the job stream.

Submitting a Job into the Plan

To submit a job that is defined in the database into a job stream instance, you can use the job stream instance popup menu or the TWS controller popup menu.

To submit a job that is defined in the database into a job stream instance, follow these steps:

1. In the Job Scheduling view, right-click the TWS controller icon or right-click over a job stream instance in a list, to display the **Submit** commands.
2. Select **Submit > Job** from the pop-up menu. This displays the Submit Job into Plan window.



Name: APJOB1
Workstation: LONDON
Job Stream: JOBS
Workstation: LONDON
Alias: APJOB1_NEW

Figure 103. Submit Job into Plan window.

3. In the Submit Job into Plan window, use the Find buttons to fill in these fields:

   Job Specifies the job to submit.

   Name Specify the job name that you want to submit to the plan. Use the Find button (**...**) to search for and select a job to submit into the plan.

Workstation
This field displays the name of the workstation on which the job instance runs. This field is filled automatically when you select a job using the Find button.

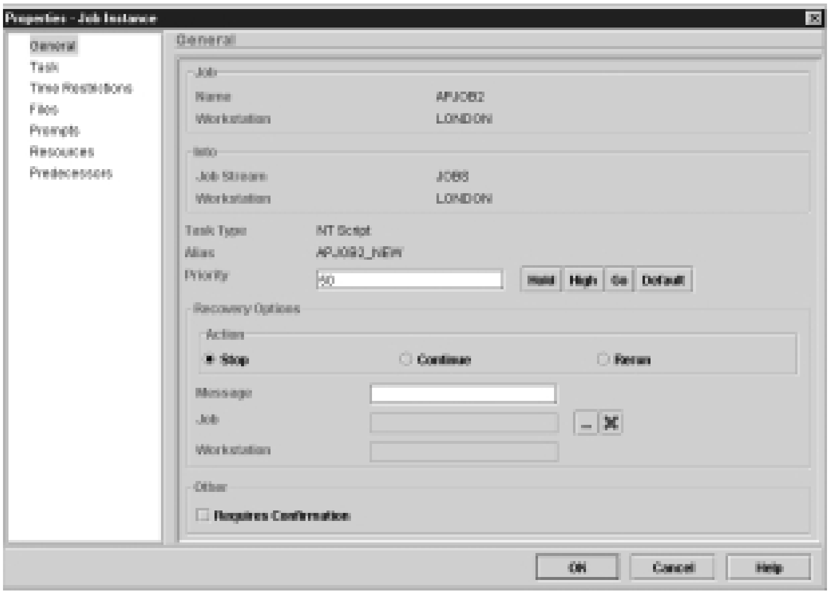
Into Specifies the job stream into which the job is submitted.

Job Stream
Use the Find button (**...**) to search for the job stream name. If no job stream is entered, a default job stream **JOBS** is used.

Workstation
This field is filled automatically when you select a job using the Find button. This field displays the name of the workstation on which the job stream instance runs.

Alias Specify an alias name for the submitted job. An alias name is needed only if the job stream into which the job is submitted contains another job of the same name. An error message will display if you submit a job to a job stream instance that already has a job instance of the same name.

4. Click Properties to view or modify the properties of this submitted job. When you click the properties button, the **General** tab is displayed of the Properties - Job Instance window.



Job
Name APJOB2
Workstation LONDON

Into
Job Stream JOBS
Workstation LONDON

Task Type NT Script
Alias APJOB3_NEW
Priority 50

Recovery Options
Action
● Stop ○ Continue ○ Rerun
Message
Job
Workstation

Other
□ Requires Confirmation

Figure 104. Properties - Job Instance: General window.

The following are descriptions of the text boxes and options in the **General** view of the Properties - Job Instance window.

Job Displays information about the submitted job.

Name Displays the name of the submitted job.

Workstation
Displays the name of the workstation of the job.

Into Displays information about the job stream into which the job is submitted.

Job Stream
Displays the name of the job stream into which the job is submitted.

Workstation
Displays the name of the workstation of the job stream.

Task Type
Displays the task type of the submitted job.

Alias Displays the alias name of the submitted job, if defined.

Priority
Specifies the priority of the submitted job. To change the priority, specify a value into the field or click **Hold** to select priority **0**, **High** to select priority **100**, **Go** to select priority **101**, or **Default** to select the default priority of the submitted job. Possible priority values are **0** through **101**, where **101** is the highest priority. A priority value of zero prevents the job stream from launching.

Recovery Options
Displays information about the recovery options of the submitted job.

Action
Displays the recovery action for the submitted job. It can be **Stop**, **Continue**, or **Rerun**.

Message
Specify the text of a recovery prompt. The text can contain up to 64 characters. The default behavior of a prompt is to display a message and wait for a reply. If the string begins with a colon (:), the message is displayed but no reply is necessary. If the string begins with an exclamation mark (!), the message is not displayed but it requires a reply.

Job

Displays the name of a recovery job to run if the parent job abends. To change the name, click the Find button and select a job from a list. Recovery jobs are run only once for each abended instance of the parent job.

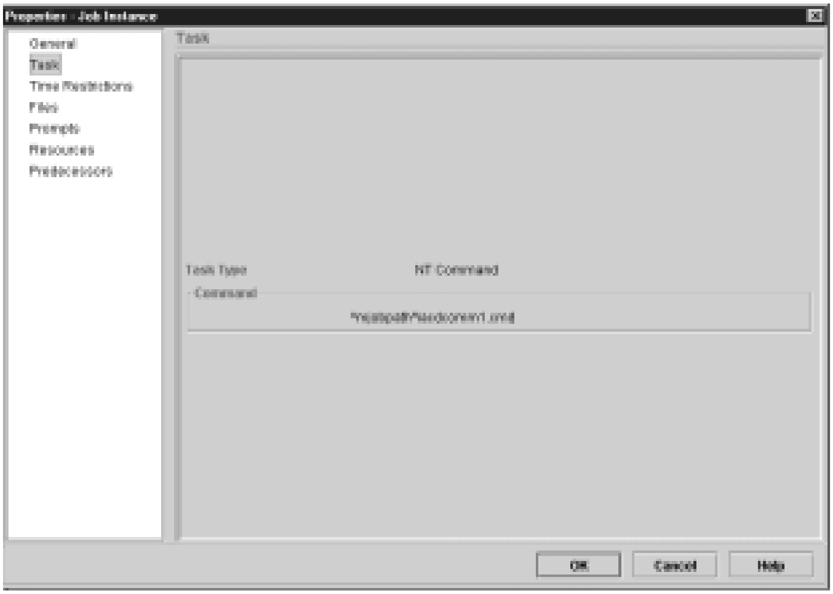
Workstation
Displays the name of the workstation on which the recovery job runs. The name is entered automatically when you select a recovery job.

Not all jobs are eligible to have recovery jobs run on a different workstation. Follow these guidelines:

- If either workstation is an extended agent, it must be hosted by a domain manager or a fault-tolerant agent that runs in **Full Status** mode.
- The recovery job's workstation must be in the same domain as the parent job's workstation.
- If the recovery job's workstation is a fault-tolerant agent, it must run in **Full Status** mode.

Requires Confirmation
Check this box to indicate that job completion must be confirmed by the operator.

5. To display task information, click **Task** in the left window of the Properties - Job Instance window. This displays the **Task** view.



Task

Task Type NT Command

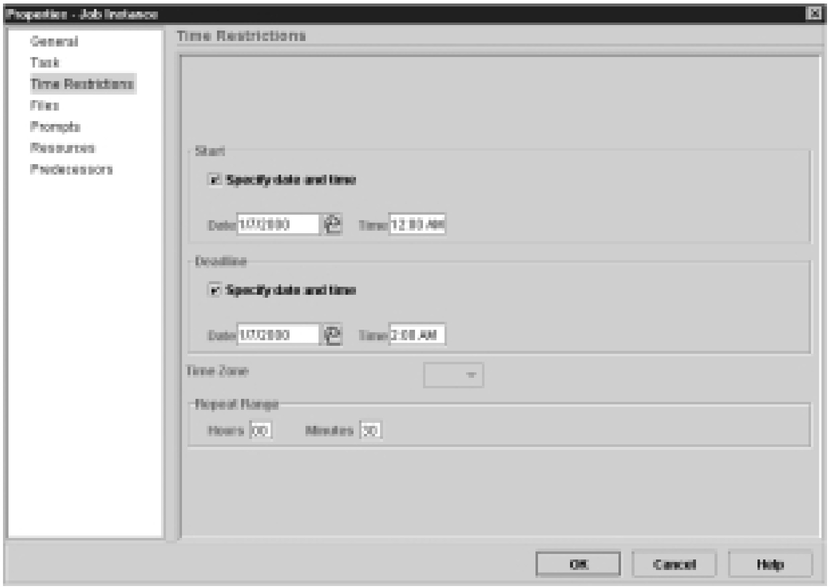
Command

^mjstpath^\sedcomm1.cmd

Figure 105. Properties - Job Instance: Task window.

6. The **Task** view is different for each type of job and operating system. These fields display the task type, the path, and the command or script file referenced by the job. These fields are read only.

7. To display time restrictions, click **Time Restrictions** in the left window of the Properties - Job Instance window. This displays the **Time Restrictions** view.



Start: ☑ Specify date and time; Date: 1/7/2000; Time: 12:00 AM

Deadline: ☑ Specify date and time; Date: 1/7/2000; Time: 2:00 AM

Repeat Range: Hours: 00; Minutes: 30

Figure 106. Properties - Job Instance: Time Restrictions window.

The following are descriptions of the text boxes and options in the **Time Restrictions** view of the Properties - Job Instance window.

Start Specifies the earliest time the job will be launched. The job will not be launched before this time. To change the time, make your selections as follows:

Specify date and time
Select this option to enable the entry of a start time.

Date Specify a start date or click the calendar button and select a date from the drop-down calendar.

Time Specify a start time in the following format:

hh:*mm* **am**|**pm**

For example, **11:30 am** or **4:25 pm**.

Deadline
Specifies the latest time the job will be launched. The

job will not be launched after this time. To change the time, make your selections as follows:

Specify date and time
Select this option to enable the entry of a deadline time.

Date Specify the deadline date or click the calendar button and select a date from the drop-down calendar.

Time Specify a deadline time in the following format:

hh:*mm* **am|pm**

For example, **11:30 am** or **4:25 pm**.

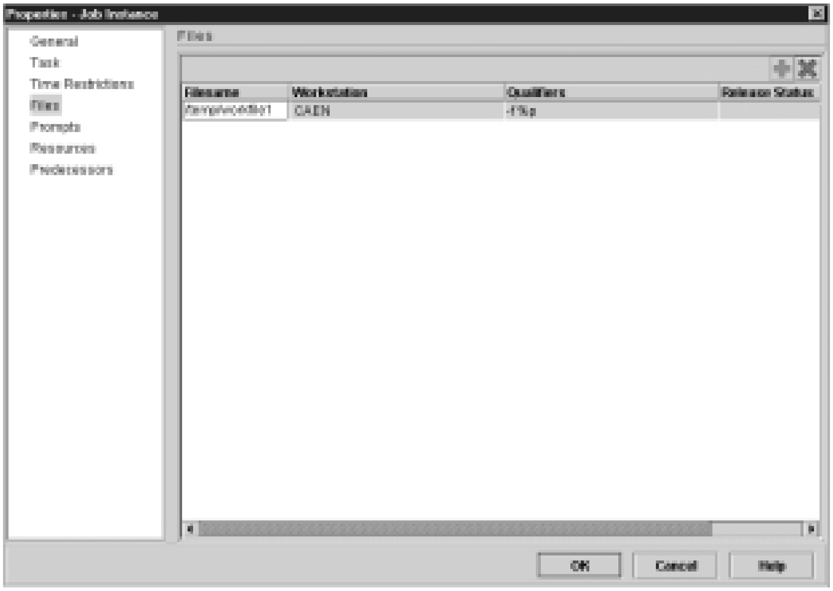
Time Zone
If the Time Zone option is enabled, specify the time zone in which the job runs. The start time and deadline time are in this time zone. For more information about the time zone feature, refer to "Time Zones" on page 21.

Repeat Range
Specifies the repetition rate of the job. The job is launched multiple times at this rate. Make your selections as follows:

Hours Specify the hours. The value can be **00** to **23**.

Minutes
Specify the minutes. The value can be **00** to **59**.

8. To view or modify file dependencies, click **Files** in the left window of the Properties - Job Instance window. This displays the **Files** view.



Filename	Workstation	Qualifiers	Release Status
/temp/workfile1	CAEN	-f %p	

Figure 107. Properties - Job Instance: Files window.

The following are descriptions of the column headings in the **Files** view.

Filename
Specifies the path and name of the file.

Workstation
Specifies the workstation on which the file resides.

Qualifiers
Specifies the test conditions for the file dependency.

Release Status
Specifies the status of the file dependency. This field is read only for submitted jobs. The possible values are:

Not Released
The job stream instance is not released from the file dependency.

Released
The job stream instance is released from the file dependency.

Internal Status
Specifies the internal status of the file dependency. The possible values are:

Not Checked
The file dependency has not been checked.

Checking
The file dependency is being checked.

Exists The file dependency is satisfied.

Does Not Exist
The file dependency is not satisfied.

9. To add a file dependency for the job, do the following:

   a. Click the **Add Row** (+) button. This creates a new row in the list of file dependencies.

   b. Double-click the text box in the **Filename** column and type in a file name.

   c. Double-click the text box in the **Workstation** column and click the Find button to locate and insert the name of the workstation on which the file exists or will be created.

   d. Double-click the text box in the **Qualifiers** column and specify the test conditions for the file dependency. On UNIX, the valid qualifiers are the same as UNIX **test** command conditions. For more information, refer to your UNIX system documentation.

      On Windows NT, only the following qualifiers are valid:

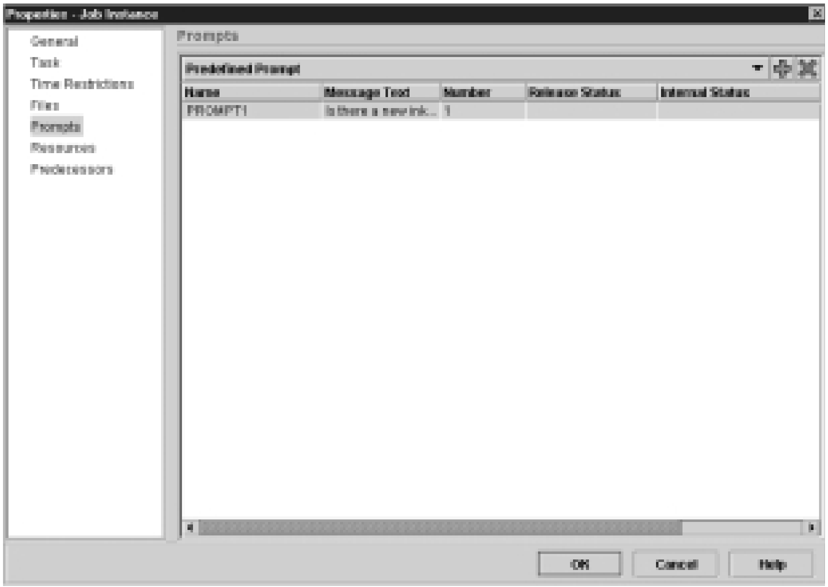
-d %p	True if the file exists and is a directory.
-e %p	True if the file exists.
-f %p	True if the file exists and is a regular file.
-r %p	True if the file exists and is readable.

-s %p	True if the file exists and it's size is greater than zero.
-w %p	True if the file exists and is writable.

On both UNIX and Windows NT, the expression **%p**, inserts the file name.

Entering **notempty** is the same as entering **-s %p**. If no qualifier is specified, the default is **-f %p**.

10. To remove a file dependency for the job, select the file row in the list and click the **Delete from Table** (X) button.
11. To display prompt dependencies, click **Prompts** in the left window of the Properties - Job Instance window. This displays the **Prompts** view.



Name	Message Text	Number	Release Status	Internal Status
PROMPT1	Is there a new ink...	1		

Figure 108. Properties - Job Instance: Prompts window.

12. To display ad hoc prompt dependencies, select **Ad Hoc Prompt** from the drop-down list in the toolbar.

The following are descriptions of the column headings in the **Prompts** view.

Message Text
Specifies the text of the prompt message.

Workstation
Specifies the workstation that displays the prompt message text.

Number
Specifies the internal TWS ID number of the prompt dependency.

Release Status
Specifies the status of the prompt dependency.This field is read only for submitted jobs. The possible values are:

Not Released
The job instance is not released from the prompt dependency.

Released
The job instance is released from the prompt dependency.

Internal Status
Specifies the internal status of the prompt dependency. The possible values are:

Not Asked
The prompt has not been asked.

Asked The has been asked, but no response has been received.

Yes The prompt has been answered affirmatively and the job dependency is released.

No The prompt has been answered negatively and the job dependency is not released.

Reply Displays the reply to the prompt dependency.

13. To display pre-defined prompt dependencies, select **Predefined Prompt** from the drop-down list in the toolbar.

The following are descriptions of the column headings in the **Prompts** view.

Name Specifies the name of the prompt.

Message Text
Specifies the text of the prompt message.

Number
Specifies the internal TWS ID number of the prompt dependency.

Release Status
Specifies the status of the prompt dependency. This field is read only for submitted jobs. The possible values are:

- **Not Released**
  The job instance is not released from the prompt dependency.

- **Released**
  The job instance is released from the prompt dependency.

Internal Status
Specifies the internal status of the prompt dependency. The possible values are:

- **Not Asked**
  The prompt has not been asked.

- **Asked** The has been asked, but no response has been received.

- **Yes** The prompt has been answered affirmatively and the job dependency is released.

- **No** The prompt has been answered negatively and the job dependency is not released.

Reply Specifies the reply to the prompt dependency. To reply to the prompt, click in this column and select **Yes** or **No** from the drop-down menu.

14. To add a prompt dependency for the job instance, do the following:

    a. Click the **Add Row** (+) button. This creates a new row in the list of prompt dependencies.

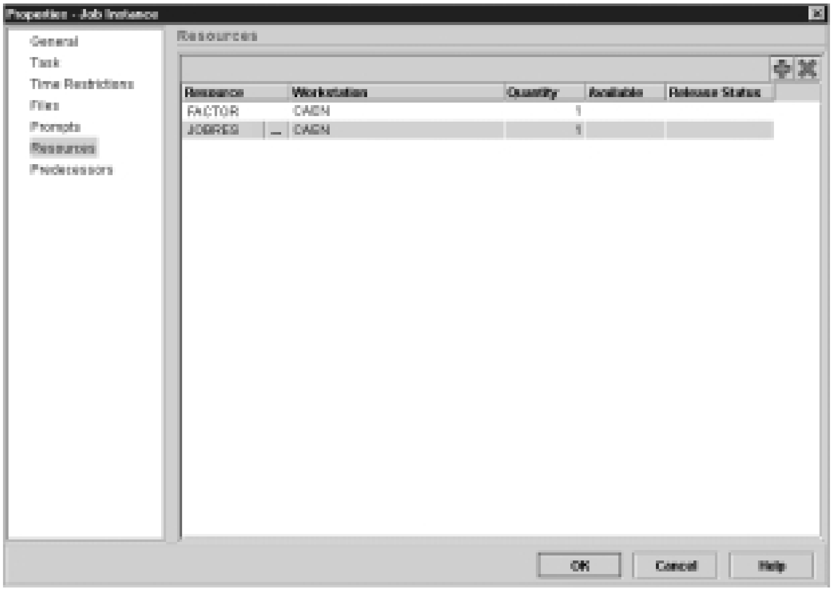
    b. For a pre-defined prompt, double-click the text box in the **Name** column and click the Find button to locate and insert the name of a prompt.

    c. For an ad hoc prompt, double-click the text box in the **Message Text** column and type in the text of the prompt. The default behavior of a prompt is to display a message and wait for a reply. If the string begins with a colon (:), the message is displayed but no reply is necessary. If the string begins with an exclamation mark (!), the message is not displayed but it requires a reply. You can include backslash n (**\n**) within the text for new lines.

       You can include one or more TWS parameters as part or all of the text string. To use a parameter, place its name between carets (^).

15. To remove a prompt dependency for the job, select the prompt row in the list and click the **Delete from Table** (X) button.

16. To display resource dependencies, click **Resources** in the left panel of the Properties - Job Instance window. This displays the **Resources** view.



Resource	Workstation	Quantity	Available	Release Status
FACTOR	CAEN	1		
JOBRES	CAEN	1		

Figure 109. Properties - Job Instance: Resources window.

The following are descriptions of the column headings in the **Resources** view.

Resource
Specifies the name of the resource.

Workstation
Specifies the workstation on which the resource resides.

Quantity
Specifies the number of units of the resource that are needed by the job to satisfy the dependency.

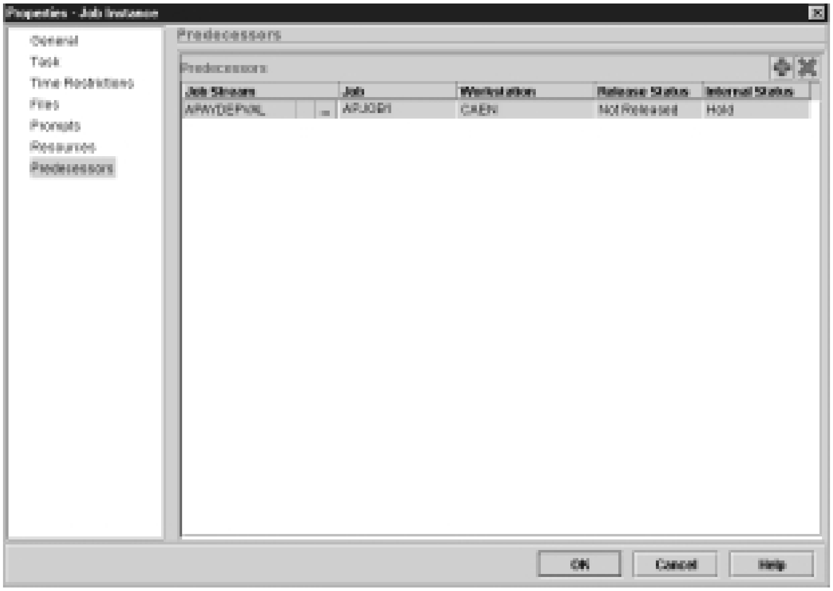
Available
Specifies the number of units of the resource that are currently available.

Release Status
Specifies the status of the resource dependency. This field is read only for submitted jobs. The possible values are:

Not Released
: The job instance is not released from the resource dependency.

Released
: The job instance is released from the resource dependency.

17. To add a resource dependency for the job instance, do the following:
    a. Click the **Add Row** (+) button. This creates a new row in the list of resource dependencies.
    b. Double-click the text box in the **Workstation** column and click the Find button to locate and insert the name of a workstation.
    c. Double-click the text box in the **Name** column and click the Find button to locate and insert a resource name.
    d. Double-click the text box in the **Quantity** column and specify the number of resource units required by the job instance. The default is one.
18. To delete a resource dependency for the job instance, select the resource row in the list and click the **Delete from Table** (X) button.
19. To display predecessor jobs and job streams, click **Predecessors** in the left panel of the Properties - Job Instance window. This displays the **Predecessors** view.



Job Stream	Job	Workstation	Release Status	Internal Status
APWYDEPWL	APJOB1	CAEN	Not Released	Hold

Figure 110. Properties - Job Instance: Predecessors window.

The following are descriptions of the column headings in the **Predecessors** view.

Job Stream
Specifies the name of the predecessor job stream.

Job
Specifies the name of job in the predecessor job stream.

Workstation
Specifies the name of the predecessor job stream’s workstation.

Release Status
Specifies the status of the predecessor job or job stream.

Internal Status
Specifies the TWS internal status of the predecessor job or job stream. For more information on job or job stream status refer to “Status Description and Mapping” on page 375.

20. To add a predecessor for the job instance, do the following:

a. Click the **Add Row** (+) button. This creates a new row in the list of predecessors.

b. To specify a predecessor job stream, double-click the text box in the **Job Stream** column and click the Find button to locate and insert the name of a job stream.

c. To specify a predecessor job, double-click the text box in the **Job** column and click the Find button to locate and insert a resource name.

21. To delete a predecessor for the job instance, select the predecessor row in the list and click the **Delete from Table** (X) button.

22. When you are finished in the Properties - Job Instance window, do one of the following:

    - Click the **OK** button to submit the job and close the window.
    - Click the **Cancel** button to close the window without submitting the job.

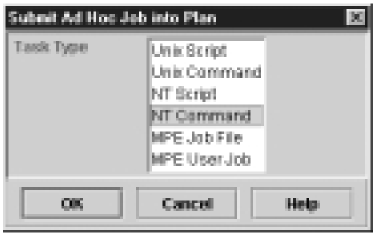
Submitting an Ad Hoc Job into the Plan

To submit an ad hoc job (a job that is not defined in the database) into a job stream instance, you can use the TWS controller pop-up menu.

To submit a job that is defined in the database into a job stream instance, you can use the job stream instance popup menu or the TWS controller popup menu.

To submit an ad hoc job into a job stream instance, follow these steps:

1. In the Job Scheduling view, right-click the TWS controller icon or right-click over a job stream instance in a list, to display the **Submit** commands.
2. Select **Submit > Ad Hoc** from the pop-up menu. This displays the Submit Ad Hoc Job into Plan window.



Task Type: NT Command

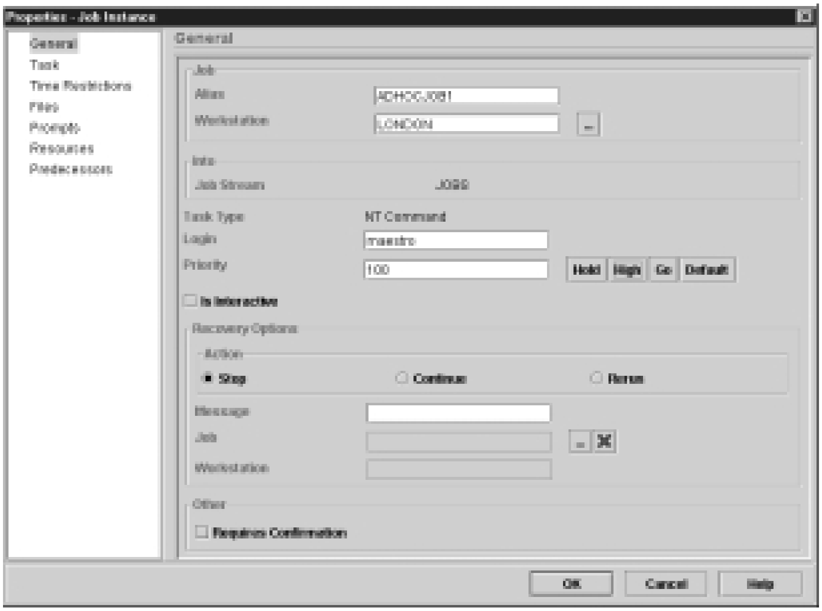
- Unix Script
- Unix Command
- NT Script
- NT Command
- MPE Job File
- MPE User Job

Figure 111. Submit Ad Hoc Job into Plan window.

3. In the Submit Ad Hoc Job into Plan window, fill in the text boxes as follows:

   Task Type
   Select the task type of the ad hoc job.

4. Click **OK** to specify the properties of this submitted ad hoc job. When you click the **OK** button, the General tab is displayed of the Properties - Job Instance window.



Alias: ADHOC.J081

Workstation: LONDON

Job Stream: JOB9

Task Type: NT Command

Login: maestro

Priority: 100

□ Is Interactive

● Stop ○ Continue ○ Rerun

Message:

Job:

Workstation:

□ Requires Confirmation

Figure 112. Properties - Job Instance: General window.

The following are descriptions of the text boxes and options in the **General** view of the **Properties - Job Instance** window.

Job Displays information about the ad hoc job.

Alias Specify an Alias name for the ad hoc job, if necessary.

Workstation
Specify the name of the workstation of the ad hoc job.

Into Displays information about the job stream into which the ad hoc job is submitted.

Job Stream
Specify the name of the job stream for the ad hoc job. The workstation for this job stream instance is only displayed when the **Submit > Ad Hoc** command was invoked from the Job Stream Instance list. For **JOBS** job stream, the Properties - Job Instance window job instance will be submitted into the **JOBS** job stream on the workstation for the job specified in the field above.

Task Type
Displays the task type of the submitted ad hoc job.

Login Displays the UNIX or Windows NT User ID that launches the ad hoc job.

Priority
Specifies the priority of the submitted job. To change the priority, specify a value into the field or click **Hold** to select priority **0**, **High** to select priority **100**, **Go** to select priority **101**, or **Default** to select the default priority of the submitted ad hoc job. Possible priority values are **0** through **101**, where **101** is the highest priority. A priority value of zero prevents the ad hoc job from launching.

Is Interactive

Specify whether this is an interactive job or not. Interactive jobs are for Windows NT only.

Recovery Options

Displays information about the recovery options of the submitted ad hoc job.

Action

Displays the recovery action for the submitted ad hoc job. It can be **Stop**, **Continue**, or **Rerun**.

Message

Specify the text of a recovery prompt. The text can contain up to 64 characters. The default behavior of a prompt is to display a message and wait for a reply. If the string begins with a colon (:), the message is displayed but no reply is necessary. If the string begins with an exclamation mark (!), the message is not displayed but it requires a reply.

Job

Displays the name of a recovery job to run if the parent job abends. To change the name, click the Find button and select a job from a list. Recovery jobs are run only once for each abended instance of the parent ad hoc job.

Workstation

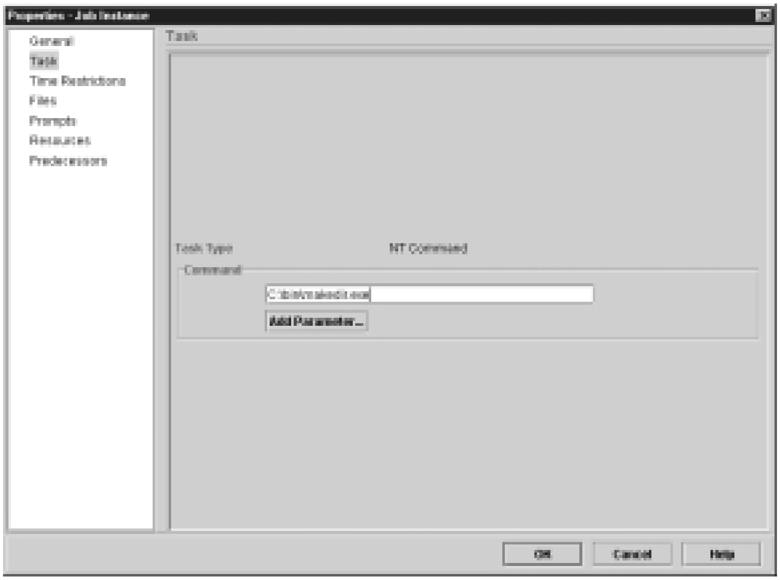
Displays the name of the workstation on which the recovery job runs. The name is entered automatically when you select a recovery job.

Not all jobs are eligible to have recovery jobs run on a different workstation. Follow these guidelines:

- If either workstation is an extended agent, it must be hosted by a domain manager or a fault-tolerant agent that runs in **Full Status** mode.
- The recovery job's workstation must be in the same domain as the parent job's workstation.
- If the recovery job's workstation is a fault-tolerant agent, it must run in **Full Status** mode.

Requires Confirmation
Check this box to indicate that ad hoc job completion must be confirmed by the operator.

5. To display task information, click **Task** in the left window of the Properties - Job Instance window. This displays the **Task** view.



Task Type NT Command

Command: C:\bin\makedit.exe

Figure 113. Properties - Job Instance: Task window.

6. The **Task** view is different for each task type.

For task types **Unix Script** and **NT Script**, fill in the text box as follows:

Script

Specifies the name of the file the ad hoc job executes. Specify the file name and any options and arguments. For non-expanded databases, the text box can contain up to 255 characters. For expanded databases, it can contain up to 4095 characters.

For Windows NT ad hoc jobs, include the file extensions. Universal Naming Convention (UNC) names are permitted. Do not specify files on mapped drives.

If spaces or special characters are included, other than slashes (/) and backslashes (\), the entire string must be enclosed in quotes (″).

If the file name contains spaces, specify the name in another file that does not have spaces in its name and use the second file’s name in this text box.

To include a parameter in the **Script** text box, do the following:

- Place the cursor in the **Script** text box where you want to insert the parameter and click the **Add Parameter** button.
- This displays the Find Parameters window.
- Specify a parameter name in the **Find** text box. The name can contain wildcard characters.
- Click the **Start** button to display a list of parameter names.
- Select a parameter name in the list click the **OK** button.

A parameter can be used for all or part of the text box and multiple parameters are permitted.

For task types **Unix Command** and **NT Command**, fill in the text box as follows:

Command

Specifies the name of the command the ad hoc job executes. Specify the command name and any options and arguments. For non-expanded databases, the text box can contain up to 255 characters. For expanded databases, it can contain up to 4095 characters. Commands are executed directly and the **jobmanrc** standard configuration script is not executed.

To include a parameter in the **Command** text box, do the following:

- Place the cursor in the **Command** text box where you want to insert the parameter and click the **Add Parameter** button.
- This displays the Find Parameters window.
- Specify a parameter name in the **Find** text box. The name can contain wildcard characters.
- Click the **Start** button to display a list of parameter names.
- Select a parameter name in the list click the **OK** button.

A parameter can be used for all or part of the text box and multiple parameters are permitted.

For task type **MPE Job File**, fill in the text box as follows:

Job File

Specifies the name of the MPE file the ad hoc job executes. For example, **JFILE4.JCL.CORP**.

For task type **MPE User Job**, fill in the text box as follows:

User Job

Specifies the name from the JOB card of the MPE job. For example, **$userjob=UJOB5**.

For task type **Extended Agent Task,**fill in the text box as follows:

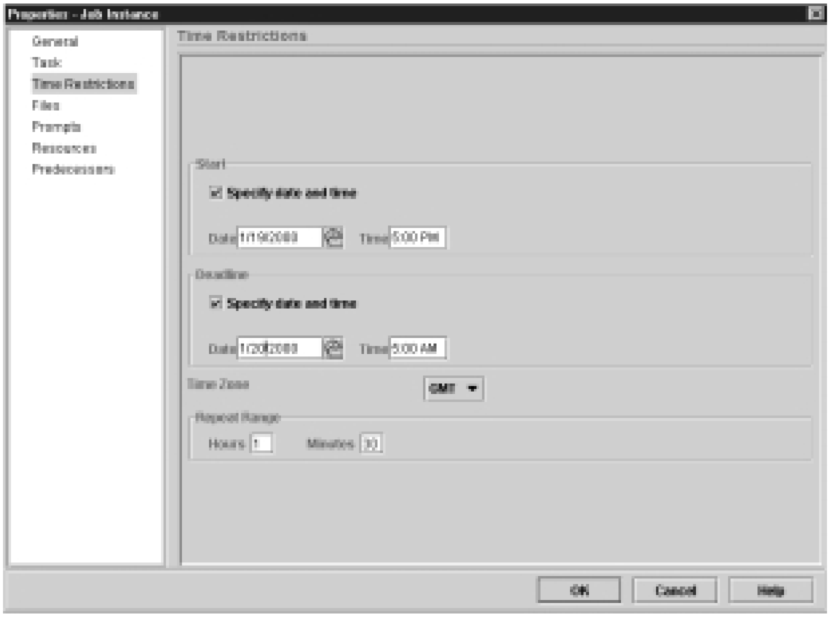
Extended Agent Task
Displays information about the extended agent task.

Task Enter the XAgent script path or filename or the XAgent command for this job.

Add Parameter...
Click this button to add a predefined parameter to the task specification.

For task type **SAP Job**, refer to the *Tivoli Workload Scheduler Extended Agent for SAP/R3 User's Guide* for information about defining the task.

7. To display time restrictions, click **Time Restrictions** in the left panel of the Properties - Job Instance window. This displays the **Time Restrictions** view.



Time Restrictions

Start

☑ Specify date and time

Date 1/19/2000 Time 5:00 PM

Deadline

☑ Specify date and time

Date 1/20/2000 Time 5:00 AM

Time Zone GMT

Repeat Range

Hours 1 Minutes 10

Figure 114. Properties - Job Instance: Time Restrictions window.

The following are descriptions of the text boxes and options in the **Time Restrictions** view of the Properties - Job Instance window.

Start Specifies the earliest time the ad hoc job will be launched. The ad hoc job will not be launched before this time. To change the time, make your selections as follows:

Specify date and time
Select this option to enable the entry of a start time.

Date Specify the start date or click the calendar button and select a date from the drop-down calendar.

Time Specify a start time in the following format:

hh:*mm* **am**|**pm**

For example, **11:30 am** or **4:25 pm**.

Deadline
Specifies the latest time the ad hoc job will be launched. The ad hoc job will not be launched after this time. To change the time, make your selections as follows:

Specify date and time
Select this option to enable the entry of a deadline time.

Date Specify the deadline date or click the calendar button and select a date from the drop-down calendar.

Time Specify a deadline time in the following format:

hh:*mm* **am**|**pm**

For example, **11:30 am** or **4:25 pm**.

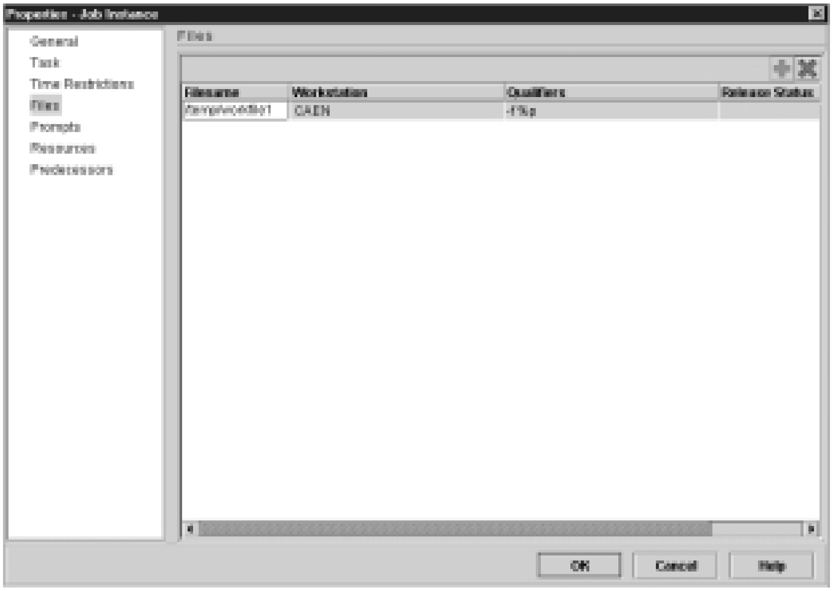
Time Zone
If the Time Zone option is enabled, specify the time zone in which the ad hoc job runs. The start time and deadline time are in this time zone. For more information about the time zone feature, refer to “Time Zones” on page 21.

Repeat Range
Specifies the repetition rate of the ad hoc job. The ad hoc job is launched multiple times at this rate. Make your selections as follows:

Hours Specify the hours. The value can be **00** to **23**.

Minutes
Specify the minutes. The value can be **00** to **59**.

8. To view or modify file dependencies, click **Files** in the left panel of the Properties - Job Instance window. This displays the **Files** view.



Filename	Workstation	Qualifiers	Release Status
/temp/workfile1	CAEN	-f %p	

Figure 115. Properties - Job Instance: Files window.

The following are descriptions of the column headings in the **Files** view.

Filename
Specifies the path and name of the file.

Workstation
Specifies the workstation on which the file resides.

Qualifiers
Specifies the test conditions for the file dependency.

Release Status
Specifies the status of the file dependency. This field is read only for submitted job instances. The possible values are:

Not Released
The ad hoc job is not released from the file dependency.

Released
The ad hoc job is released from the file dependency.

Internal Status
Specifies the internal status of the file dependency. The possible values are:

Not Checked
The file dependency has not been checked.

Checking
The file dependency is being checked.

Exists The file dependency is satisfied.

Does Not Exist
The file dependency is not satisfied.

9. To add a file dependency for the ad hoc job, do the following:
   a. Click the **Add Row** (+) button. This creates a new row in the list of file dependencies.
   b. Double-click the text box in the **Filename** column and type in a file name.
   c. Double-click the text box in the **Workstation** column and click the Find button to locate and insert the name of the workstation on which the file exists or will be created.
   d. Double-click the text box in the **Qualifiers** column and specify the test conditions for the file dependency. On UNIX, the valid qualifiers are the same as UNIX **test** command conditions. For more information, refer to your UNIX system documentation.

      On Windows NT, only the following qualifiers are valid:

-d %p	True if the file exists and is a directory.
-e %p	True if the file exists.
-f %p	True if the file exists and is a regular file.
-r %p	True if the file exists and is readable.

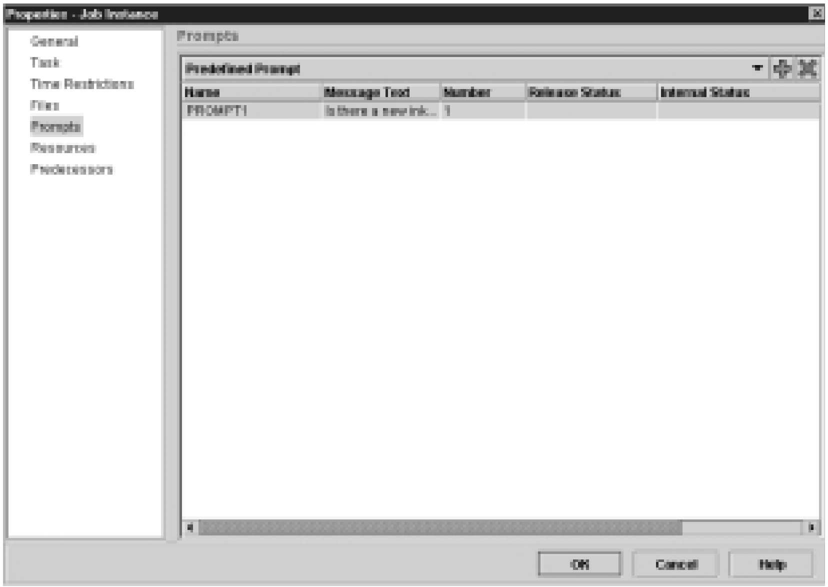
-s %p True if the file exists and it’s size is greater than zero.

-w %p True if the file exists and is writable.

On both UNIX and Windows NT, the expression **%p**, inserts the file name.

Entering **notempty** is the same as entering **-s %p**. If no qualifier is specified, the default is **-f %p**.

10. To remove a file dependency for the ad hoc job, select the file row in the list and click the **Delete from Table** (X) button.
11. To display prompt dependencies, click **Prompts** in the left panel of the Properties - Job Instance window. This displays the **Prompts** view.



Name	Message Text	Number	Release Status	Internal Status
PROMPT1	Is there a new ink...	1		

Figure 116. Properties - Job Instance: Prompts window.

12. To display ad hoc prompt dependencies, select **Ad Hoc Prompt** from the drop-down list in the toolbar.

The following are descriptions of the column headings in the **Prompts** view.

Message Text
Specifies the text of the prompt message.

Workstation
Specifies the workstation that displays the prompt message text.

Number
Specifies the internal TWS ID number of the prompt dependency.

Release Status
Specifies the status of the prompt dependency. This field is read only for submitted job instances. The possible values are:

Not Released
The ad hoc job instance is not released from the prompt dependency.

Released
The ad hoc job instance is released from the prompt dependency.

Internal Status
Specifies the internal status of the prompt dependency. The possible values are:

Not Asked
The prompt has not been asked.

Asked The has been asked, but no response has been received.

Yes The prompt has been answered affirmatively and the ad hoc job dependency is released.

No The prompt has been answered negatively and the ad hoc job dependency is not released.

Reply Specifies the reply to the prompt dependency. This field is read only for submitted job instances.

13. To display pre-defined prompt dependencies, select **Predefined Prompt** from the drop-down list in the toolbar.

    The following are descriptions of the column headings in the **Prompts** view.

    Name Specifies the name of the prompt.

    Message Text
    Specifies the text of the prompt message.

    Number
    Specifies the internal TWS ID number of the prompt dependency.

    Release Status
    Specifies the status of the prompt dependency. This field is read only for submitted job instances. The possible values are:

    Not Released
    The ad hoc job instance is not released from the prompt dependency.

    Released
    The ad hoc job instance is released from the prompt dependency.

    Internal Status
    Specifies the internal status of the prompt dependency. The possible values are:

    Not Asked
    The prompt has not been asked.

    Asked The has been asked, but no response has been received.

    Yes The prompt has been answered affirmatively and the job dependency is released.

    No The prompt has been answered negatively and the job dependency is not released.

    Reply Specifies the reply to the prompt dependency. This field is read only for submitted job instances.

14. To add a prompt dependency for the ad hoc job instance, do the following:

    a. Click the **Add Row** (+) button. This creates a new row in the list of prompt dependencies.

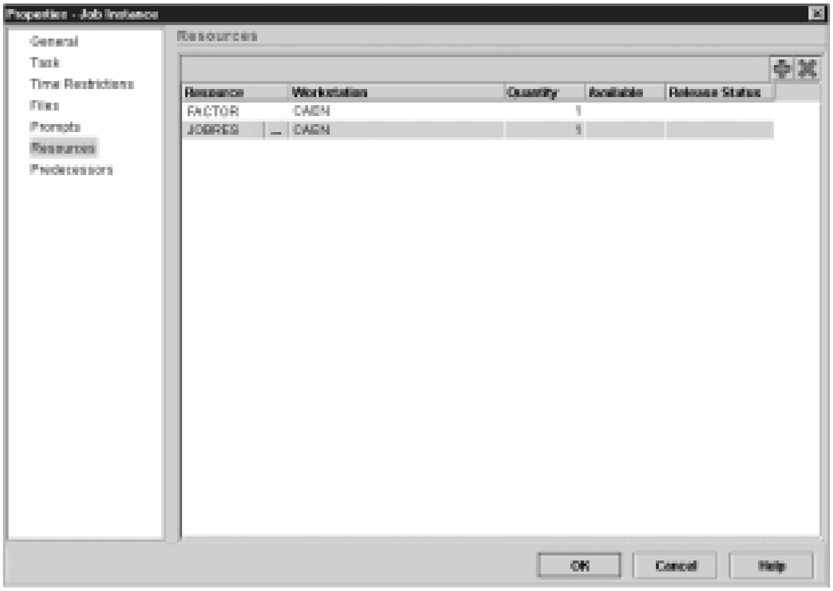
    b. For a pre-defined prompt, double-click the text box in the **Name** column and click the Find button to locate and insert the name of a prompt.

    c. For an ad hoc prompt, double-click the text box in the **Message Text** column and type in the text of the prompt. The default behavior of a prompt is to display a message and wait for a reply. If the string begins with a colon (:), the message is displayed but no reply is necessary. If the string begins with an exclamation mark (!), the message is not displayed but it requires a reply. You can include backslash n (**\n**) within the text for new lines.

       You can include one or more TWS parameters as part or all of the text string. To use a parameter, place its name between carets (^).

15. To remove a prompt dependency for the ad hoc job, select the prompt row in the list and click the **Delete from Table** (X) button.

16. To display resource dependencies, click **Resources** in the left panel of the Properties - Job Instance window. This displays the **Resources** view.



Resource	Workstation	Quantity	Available	Release Status
FACTOR	CAEN	1		
JOBRES	CAEN	1		

Figure 117. Properties - Job Instance: Resources window.

The following are descriptions of the column headings in the **Resources** view.

Resource
Specifies the name of the resource.

Workstation
Specifies the workstation on which the resource resides.

Quantity
Specifies the number of units of the resource that are needed by the ad hoc job to satisfy the dependency.

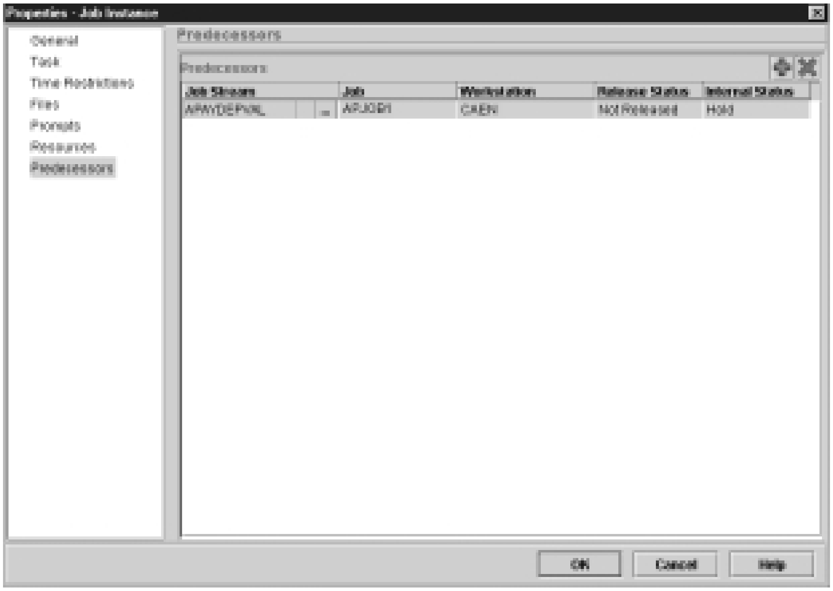
Available
Specifies the number of units of the resource that are currently available.

Release Status
Specifies the status of the resource dependency. This field is read only for submitted job instances. The possible values are:

Not Released
The job instance is not released from the resource dependency.

Released
The job instance is released from the resource dependency.

17. To add a resource dependency for the ad hoc job instance, do the following:
    a. Click the **Add Row** (+) button. This creates a new row in the list of resource dependencies.
    b. Double-click the text box in the **Workstation** column and click the Find button to locate and insert the name of a workstation.
    c. Double-click the text box in the **Name** column and click the Find button to locate and insert a resource name.
    d. Double-click the text box in the **Quantity** column and specify the number of resource units required by the ad hoc job instance. The default is one.
18. To delete a resource dependency for the ad hoc job instance, select the resource row in the list and click the Delete from Table (X) button.
19. To display predecessor jobs and job streams, click **Predecessors** in the left panel of the Properties - Job Instance window. This displays the **Predecessors** view.



Job Stream	Job	Workstation	Release Status	Internal Status
APWYDEPVAL	ARJOB1	CAEN	Not Released	Hold

Figure 118. Properties - Job Instance: Predecessors window.

The following are descriptions of the column headings in the **Predecessors** view.

Job Stream
Specifies the name of the predecessor job stream.

Job
Specifies the name of job in the predecessor job stream.

Workstation
Specifies the name of the predecessor job stream's workstation.

Release Status
Specifies the status of the predecessor job or job stream.

Internal Status
Specifies the TWS internal status of the predecessor job or job stream. For more information on job or job stream status refer to "Status Description and Mapping" on page 375.

20. To add a predecessor for the ad hoc job instance, do the following:

    a. Click the **Add Row** (+) button. This creates a new row in the list of predecessors.

    b. To specify a predecessor job stream, double-click the text box in the **Job Stream** column and click the Find button to locate and insert the name of a job stream.

    c. To specify a predecessor job, double-click the text box in the **Job** column and click the Find button to locate and insert a resource name.

21. To delete a predecessor for the ad hoc job instance, select the predecessor row in the list and click the **Delete from Table** (X) button.

22. When you are finished in the Properties - Job Instance window, do one of the following:

    - Click the **OK** button to submit the ad hoc job and close the window.

    - Click the **Cancel** button to close the window without submitting the ad hoc job.

A

Status Description and Mapping

This appendix provides information on job and job stream status, both Job Scheduling Console status and Internal TWS.

Status Overview

There are two types of status in TWS 7.0:

JS Console status
Job Scheduling Console status is a subset of internal status and is common for both TWS and OPC.

Internal Status
Internal status refers to the TWS internal or engine status for the job or job stream. The internal status messages are unique to TWS.

Job Status

This section describes the job status for both Job Scheduling Console and TWS Internal status.

JS Console Job Status

Below are listed possible job states and descriptions:

WAITING
The job stream instance is waiting for its dependencies to be resolved.

READY
The dependencies of the job stream instance have been resolved and the job stream instance is ready to run.

RUNNING
The job stream instance is executing.

SUCCESSFUL
The job stream instance completed successfully.

ERROR
The job stream instance has stopped execution with an error.

CANCELED
The job stream instance was canceled.

HELD
The job stream instance was interrupted.

UNDECIDED
The job stream status is currently being checked.

BLOCKED
The job stream instance was blocked due to unfulfilled dependencies.

TWS Internal Job Status

Below are listed possible job states and descriptions:

ABEND
The job terminated with a non-zero exit code.

ABENP
An **abend** confirmation was received, but the job is not completed.

ADD The job is being submitted.

DONE
The job completed in an unknown state.

ERROR
For internetwork dependencies only, an error occurred while checking for the remote status.

EXEC
The job is executing.

EXTRN
For internetwork dependencies only, the status is unknown. An error occurred, a rerun action was just performed on the job in the **external** job stream, or the remote job or job stream does not exist.

FAIL Unable to launch the job.

FENCE
The job's priority is below the fence.

HOLD
The job is awaiting dependency resolution.

INTRO
The job is introduced for launching by the system.

PEND The job completed, and is awaiting confirmation.

READY
The job is ready to launch, and all dependencies are resolved.

SCHED
The job's **at** time has not arrived.

SUCC The job completed with an exit code of zero.

SUCCP
A **SUCC** confirmation was received, but the job is not completed.

SUSP The job was suspended by a **breakjob** command. (MPE only)

WAIT The job is in the **wait** state. (Extended agent and MPE only)

WAITD
The job is in the **wait** state, and is deferred. (MPE only)

Job Stream Status

This section describes the job stream status for both Job Scheduling Console and TWS Internal status.

JS Console Job Stream Status

Below are listed possible job stream states and descriptions:

WAITING
The job stream instance is waiting for its dependencies to be resolved.

READY
The dependencies of the job stream instance have been resolved and the job stream instance is ready to run.

RUNNING
The job stream instance is executing.

SUCCESSFUL
The job stream instance completed successfully.

ERROR
The job stream instance has stopped execution with an error.

CANCELED
The job stream instance was canceled.

HELD
The job stream instance was interrupted.

UNDECIDED
The job stream status is currently being checked.

BLOCKED
The job stream instance was blocked due to unfulfilled dependencies.

TWS Internal Job Stream Status

Below are listed possible job stream states and descriptions:

READY
The dependencies for the job stream have been met but the time restrictions for the job stream have not.

HOLD
The job stream instance is awaiting dependency resolution.

CANCEL PEND
The job stream instance is pending cancelation. Cancelation is deferred until all of the dependencies, including an at time, are resolved.

EXEC
The job stream instance is executing.

STUCK
Job stream instance execution was interrupted. No jobs are launched without operator intervention.

ABEND
The job stream instance terminated with a non-zero exit code.

SUCC The job stream instance completed successfully.

CANCEL
The job stream instance was canceled.

ADD The job stream instance was added with operator intervention.

EXTRN
The job stream instance is in a remote TWS network and its status is unknown. An error occurred, a Rerun action was performed on the EXTERNAL job stream, or the INET job or job stream does not exist.

ERROR
This is for Internetwork job streams and specifies that an error occurred while checking for the remote status.

Status Mapping

This section provides a table of how Job Scheduling Console status map to TWS Internal status for jobs and job streams.

Job Status Mapping

The following table describes how Job Scheduling Console status correlate to TWS Internal status for jobs.

JS Console Status	TWS Internal Status
Waiting	ADD, PEND, WAIT, WAITD, INTRO, HOLD
Ready	READY
Running	EXEC, SUCCP, ABENP
Successful	SUCC
Error	ABEND, FAIL
Canceled	Status of the job when it was canceled. Canceled flag is set.
Held	Priority = 0, WAITING, READY
Undecided	ERROR, EXTRN
Blocked	SUSP

Job Stream Status Mapping

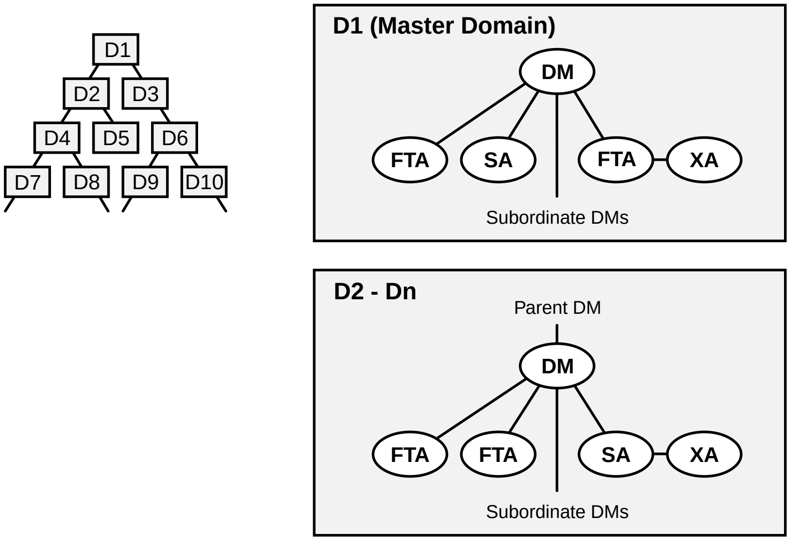
The following table describes how Job Scheduling Console status correlate to TWS Internal status for job streams.

JS Console Status	TWS Internal Status
Waiting	ADD, PEND, WAIT, WAITD, INTRO, HOLD
Ready	READY
Running	EXEC
Successful	SUCC
Error	ABEND, FAIL
Canceled	CANCEL, HOLD, CANCEL P
Held	HOLD
Undecided	EXTRN, ERROR
Blocked	STUCK

B

TWS Networks

A TWS network consists of one or more TWS domains arranged hierarchically. A TWS domain is a logical grouping of computers, consisting of a domain manager and a number of agents.



Definitions

Backup Domain Manager

A fault-tolerant agent capable of assuming the responsibilities of its domain manager.

Domain

A named group of TWS workstations consisting of one or more agents and a domain manager. All domains have a parent.

Domain Manager (DM)

The management hub in a domain. All communications in and from the agents in a domain is routed through the domain manager. See also Master Domain Manager.

Extended Agent (xa)

An agent workstation that launches jobs only under the direction of its host. Extended agents can be used to interface TWS with non-TWS systems and applications

Fault-tolerant Agent (fta)

An agent workstation capable of resolving local dependencies and launching its jobs in the absence of a domain manager.

Host (x-host)

The scheduling function required by extended agents It can be performed by any TWS workstation, except another extended agent.

Master Domain Manager

The domain manager in the topmost domain of a TWS network. It contains the centralized master files used to document scheduling objects. It creates the Production Control file at the start of each day and performs all logging and reporting for the network. See also Domain Manager.

Master Domain

The topmost domain in a Maestro network.

Parent Domain

The domain directly above the current domain. All domains, except the master domain, have a parent domain. All communications to/from a domain is rooted through the parent domain manager.

Standard Agent (sa)

An agent cpu that launches jobs only under the direction of its domain manager.

TWS for MPE

TWS networks can contain a mix of MPE (Hewlett-Packard proprietary operating system), Windows NT, UNIX, and other computers and agents. For more information, see the *Maestro for MPE User's Guide*.

Network Communications

In a TWS network, agents communicate with their domain managers, and domain managers communicate with their parent domain managers. There are basically two types of communications that take place: 1) start-of-day initialization, and 2) scheduling events in the form of change-of-state messages during the processing day.

Before the start of each new day. the master domain manager creates a production control file called Symphony. Then, TWS is restarted in the network, and the master domain manager sends a copy of the new **Symphony** file to each of its automatically-linked agents and subordinate domain managers. The domain managers, in turn, send copies to their automatically-linked agents and subordinate domain managers. Agents and domain managers that are not set up to link automatically are initialized with a copy of **Symphony** as soon as a link operation is executed in TWS.

Once the network is started, scheduling messages, like job starts and completions, are passed from the agents to their domain managers, through parent domain managers to the master domain manager. The master domain manager then broadcasts the messages throughout the hierarchical tree to update the **Symphony** files of all domain managers and all fault-tolerant agents running in full status mode.

Network Links

Links provide bidirectional communications between TWS workstations in a network. Links are controlled by the AUTO Link flag, and the Console Manager **Link** and **Unlink** commands. When a link is open, messages are passed between two workstations. When a link is closed, the sending workstation stores messages in a local pobox file and sends them to the destination workstation when the link is reopened.

Note: Extended agents do not have links. They communicate with their domain managers via their hosts.

To have a workstation link opened automatically, turn on the AUTO Link flag in the workstation's definition. The link is first opened when TWS is started on the Master Domain workstation. If the subdomain manager and workstations are not initialized and their AUTO Link flag is on, the master domain manager attempts to link to its subordinates and begin the initialization processes. If the AUTO Link flag is turned off, the workstation is only initialized by executing a **Link** command from the master domain manager. After the workstation is initialized, it automatically starts and issues a link back to its domain manager.

If you stop a workstation, the paths from it to other workstations are closed. However, the paths from the other workstations to it remain open until either:

- the stopped workstation is restarted and a **Link** command is issued
- the other workstations' **Mailman** processes time out

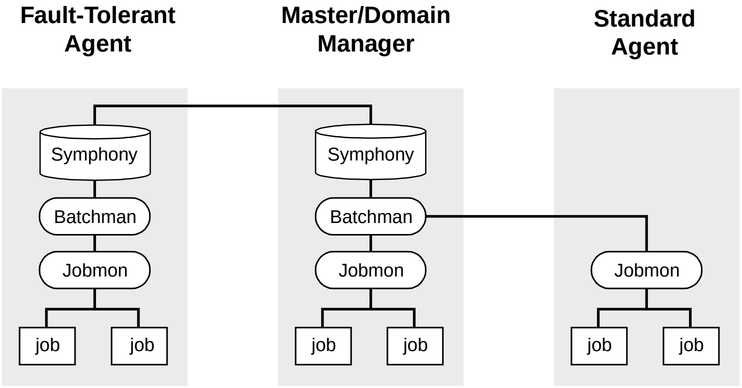
To be certain that interworkstation communication is properly restored, you can issue a **Link** command after restarting a workstation.

Network Operation

The Batchman process on each domain manager and fault-tolerant agent workstation operates autonomously, scanning its **Symphony** files to resolve dependencies and launch jobs. Batchman launches jobs via the Jobman process. On a standard agent, the Jobman process responds to launch requests from the domain manager's Batchman.

The master domain manager is continuously informed of job launches and completions and is responsible for broadcasting the information to domain managers and fault-tolerant agents so they can resolve any interworkstation dependencies.

The degree of synchronization among the **Symphony** files depends on the setting of Full Status and Resolve Dependencies modes in a workstation's definition. Assuming that these modes are turned on, a fault-tolerant agent's Symphony file contains the same information as the master domain manager's (see "Managing Workstations in the Database" on page 191).

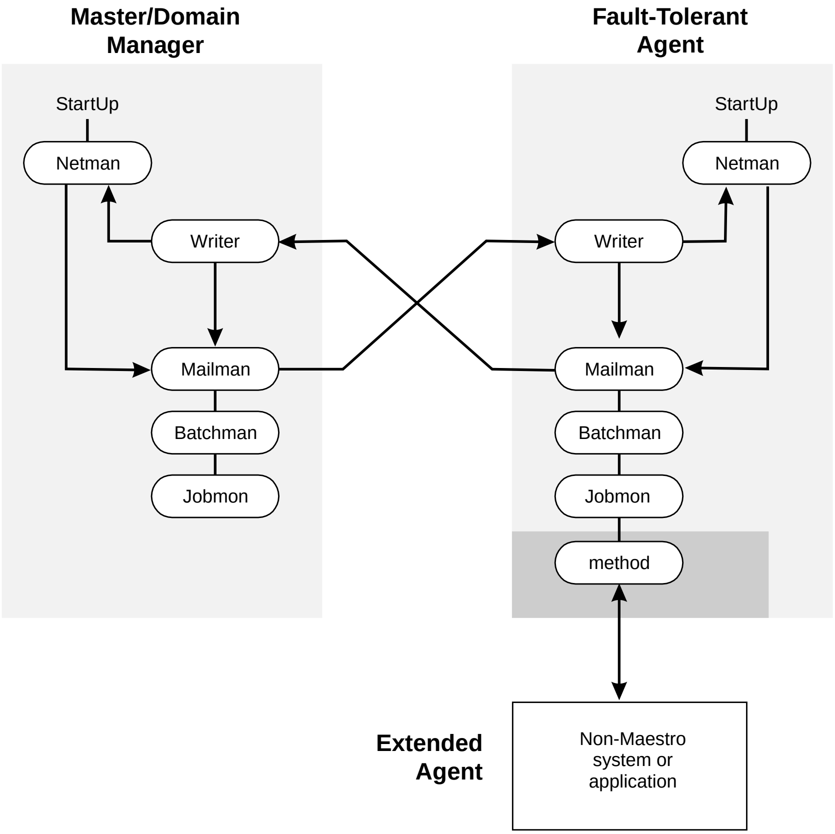


Network Processes

Netman is started by the **StartUp** script. The order of process creation is Netman, Mailman, Batchman, and Jobman. On standard agent workstations, Batchman does not execute. All processes, except Jobman, run as the **TWS** user. Jobman runs as **root**.

As network activity begins, Netman receives requests from remote Mailman processes. Upon receiving a request, Netman spawns a Writer process and passes the connection off to it. Writer receives the message and passes it to the local Mailman. The Writer processes (there may be more than one on a domain manager) are started by link requests and are stopped by unlink requests (or when the communicating Mailman terminates).

Domain managers, including the master domain manager, can communicate with a large number of agents and subordinate domain managers. For improved efficiency, you can define Mailman servers on a domain manager to distribute the communications load (see “Managing Workstations in the Database” on page 191).



Extended Agents

An extended agent (xa or x-agent) serves as an interface to an external, non-TWS system or application. It is defined as a TWS workstation with an access method and a host. The access method communicates with the external system or application to launch and monitor jobs and test Opens file dependencies. The host is another

TWS workstation (except another xa) that resolves dependencies and issues job launch requests via the method.

Jobs are defined for an x-agent in the same manner as for other TWS workstations, except that job attributes are dictated by the external system or application.

Extended agent software is available for several systems and applications. The UNIX xa's, included with TWS, are described in the following section. Please contact your Tivoli Systems sales representative for information about other extended agents. For information on defining TWS workstations, see "Managing Workstations in the Database" on page 191. For information on writing access methods, see the *Tivoli Workload Scheduler Reference Guide*.

UNIX Extended Agents

TWS includes access methods for two types of UNIX extended agents. The Local UNIX method allows a single UNI computer to operate as two TWS workstations, both of which can execute TWS-scheduled jobs. The Remote UNIX access method allows you to designate a remote UNIX computer to run TWS-scheduled jobs without having TWS installed on it.

Information about a job's execution is sent to TWS from an extended agent via the job's **stdlist** file. A Method Options file can specify alternate logons to launch jobs and check Opens file dependencies. For more information, see the *Tivoli Workload Scheduler Reference Guide*.

Local UNIX Access Method

The Local UNIX method can be used to define multiple TWS workstations on one computer: the host workstation and one or more extended agents. When TWS sends a job to a local UNIX xa, the access method, **unixlocl**, is invoked by the host to execute the job. The method starts by executing the standard configuration script on the host workstation (`TWShome/jobmanrc`). If the job's logon user is permitted to use a local configuration script and the script exists as `$HOME/.jobmanrc`, the local configuration script is also executed.

The job itself is then executed either by the standard or the local configuration script. If neither configuration script exists, the method starts the job.

The launching of the configuration scripts, `jobmanrc` and `.jobmanrc` is configurable in the method script. The method executes the configuration scripts by default, if they exist. To disable this feature, you must comment out a set of lines in the method script. For more information, examine the script file `TWShome/methods/unixlocl` on the x-agent's host.

Remote UNIX Access Method

The Remote UNIX access method can be used to designate a non-TWS computer to run TWS-scheduled jobs. When TWS sends a job to a remote UNIX extended agent, the access method, `unixrsh`, creates a `/tmp/maestro` directory on the non-TWS computer. It then transfers a wrapper script to the directory and executes it. The wrapper then executes the scheduled job. The wrapper is created only once, unless it is deleted, moved, or is outdated.

To execute jobs via the x-agent, the job logon users must be given appropriate access on the non-TWS UNIX computer. To do this, a `.rhost`, `/etc/host.equiv`, or equivalent file should be set up on the computer. If Opens file dependencies are to be checked, **root** access must also be permitted. Contact your system administrator for help. For more information about the access method, examine the script file `Maestrohome/methods/unixrsh` on an x-agent's host.

Managing Production for Extended Agents

In general, jobs that run on x-agents behave like other TWS jobs. TWS tracks a job's status and records output in the job's **stdlist** files. These files are stored on the x-agent's HOST workstation. For more information on managing jobs, see "TWS Plan Tasks" on page 237.

Failure Launching Jobs on an X-Agent

If the access method is not located in the proper directory on the x-agent's host or the method cannot be accessed by TWS, jobs will fail to launch or a file dependency will not be checked. For a job, the TWS job’s logon or the logon specified in the Method Options file must have read and execute permissions for the access method. When checking a file to satisfy an Opens dependency, root is used as the login unless another login is specified in the Method Options file. For more information on Method Options, see the *Tivoli Workload Scheduler Reference Guide*

Netman Configuration File

The Netman configuration file exists on all TWS workstations. If Netman is installed in TWS’ home directory (the default), the name of the file is `Maestrohome/Netconf`. If Netman is installed in a separate directory, the name of the file is `netmanhome/Netconf`. It defines the services provided by Netman. The `NetConf` file supplied by Tivoli includes comments describing each service. The services are:

2001 Start a Writer process to handle incoming messages from a remote Mailman.

2002 Start the Mailman process. Mailman, in turn, starts the rest of TWS’ process tree (Batchman, Jobman).

2003 Stop TWS’ process to handle incoming messages from a remote Mailman.

2004 Find and return a stdlist file to the requesting Conman process.

2005 Switch the domain manager in a domain.

2501 Check the status of a remote job.

2502 Start the Console Manager–a service requested by the client side of the Remote Console. See the *Tivoli Remote Console User’s Guide* for more information.

The Mailman service (2002) can include a parameter that determines the size of TWS’s internal **Symphony** table. The table should contain enough space for all the records in the **Symphony** file, plus additional space for work submitted after TWS has started its production run. The syntax for the `NetConf` entry is:

```
2002     son     bin/mailman [-parm value]
```

In the **-parm** option, *value* can be one of the following:

-number
The Symphony table is built with space for exactly this many records. For example, **-parm 6000** builds a table with space for exactly 6000 records. The maximum permitted is 65,535 records. Setting the parameter to -1 ensures the maximum size is used.

number
The Symphony table is built with space for all records in the **Symphony** file, plus this many additional records.

If yo receive a message indicating that there are too many jobs scheduled for Batchman to handle, it may be necessary to increase the size of the **Symphony** table. Before doing so, contact your Tivoli support representative for help in determining an appropriate size.

Network IP Address Validation

When a TCP/IP connection is established, Netman reads the requester’s nodename and IP address from the socket. The IP address and nodename are used to search the **Symphony** file for a known TWS workstation with one of the following possible results:

- If an IP address match is found the validation is considered successful.
- If a nodename match is found, the validation is considered successful.
- If no match is found in **Symphony** or the IP address returned by `gethostbyname()` does not match the one read from the socket, the validation is considered unsuccessful.

The Local Option, `nm ipvalidate`, determines the action to be taken if IP validation is unsuccessful. If the option is set to `full`, unsuccessful validation causes TWS to close the connection and generate an error message. If the option is set to none, TWS permits all connections, but generates a warning message for unsuccessful validation checks.

System Configuration (UNIX only)

IP validation depends on the system call gethostbyname() to look up all the valid addresses for a host. The behavior of this routine varies, depending on the system configuration. When gethostbyname() uses the file /etc/hosts, it returns the first matching entry. If the connection is initiated on an address that appears after the first matching entry, IP validation fails, To resolve the problem, place the entry used to initiate the connection before any other matching entries in the /etc/hosts file. If gethostbyname() uses the ″named″ name server or the Network Information Service server and gethostbyname() fails, contact your system administrator for assistance.

Error/Warning Messages

Following is a list of the messages for IP validation. If the Local Option nm ipvalidate is set to none, the errors appear as warnings.

- TWS workstation name is not found in the **Symphony** file

  ```
  Ip address validation failed for request:
  Service num for program on cpu(os_type).
  Connection received from IP address:
  c_ipaddr. MAESTRO CPU cpu not found in
  Symphony file.
  ```

- Call to gethostbyname()fails:

  ```
  IP address validation failed for request:
  Service num for program on cpu(os_type).
  Connection received from IP address:
  c_ipaddr. gethostbyname() failed, unable to
  retrieve IP address of connecting node: node.
  ```

- IP Addresses returned by gethostbyname()do not match the IP address of connection workstation:

  ```
  IP address validation failed for request:
  Service num for program on cpu(os_type).
  Connection received from IP address:
  c_ipaddr. System known IP addresses for node
  name node: k_ipaddr.
  ```

- The IP address specified in the workstation definition for the TWS workstation specified in service request packet does not match the IP address of connecting workstation:

  ```
  IP address validation failed for request:
  Service num for program on cpu(os_type).
  Connection received from IP address:
  c_ipaddr. TWS known IP addresses for cpu
  k_ipaddr.
  ```

- Regardless of the state of nm ipvalidate, the following information message is displayed when IP validation cannot be performed because the **Symphony** file does not exist or an error occurs when reading it:

  ```
  IP address validation not performed for
  request: Service num for program on
  cpu(os_type). Connection received from IP
  address: c_ipaddr. Cannot open or read
  Symphony file. Service request accepted.
  ```

  Where:

  num service number (2001-**writer**, 2002-**mailman**...)

  program
  program requesting service

  cpu TWS workstation name of connecting workstation

  os_type
  operating system of connecting workstation

  node node name or IP address of connecting workstation

  c_ipaddr
  IP address of connecting workstation

  k_ipaddr
  known IP address for connecting workstation

IP validation is always successful in the absence of a **Symphony** file. In a TWS domain manager to an agent is normally successful because a **Symphony** file does not yet exist. However, if the agent has a **Symphony** file from a previous TWS run, the initial link request may fail if the **Symphony** file does not include the name of the domain manager.

Network Recovery

Several types of problems may make it necessary to follow network recovery procedures. These include:

- Initialization problems that prevent agents and domain managers from starting properly at the start of a new day
- Network link problems that prevent agents from communicating with their domain managers
- Loss of a domain manager, which requires a switch to a backup

Note: In all cases, a problem with a domain manager affects all of its agents and subordinate domain managers.

Initialization Problems

Initialization problems can occur when TWS is started for a new day. This can be caused by having TWS processes running on an agent or domain manager from the previous day or a previous TWS run. To initialize the agent or domain manager in this situation, do the following:

1. For a domain manager, log into the parent domain manager or the master domain manager. For an agent, log into the agent domain manager, the parent domain manager, or the master domain manager.
2. Run the Console Manager and execute a **Stop** command for the affected agent.
3. Execute a **Link** command for the affected agent. This initializes and starts the agent.

If these actions fail to work, check to see if netman is running on the affected agent. If not, issue the startup command locally and then issue a LINK command from its domain manager. If there are severe network problems, a fault-tolerant agent or subordinate domain manager can be run as a stand-alone system. To do this, stop the agent or domain manager and copy the file `TWShome\Sinfonia` from the master domain manager. Rename the copied file `TWShome\Symphony` and start the agent or domain manager. Any interworkstation dependencies must be resolved locally using appropriate Console Manager commands: **Delete Dependency** and **Release**, for example.

Network Link Problems

TWS has a high degree of fault tolerance in the event of a communications problem. Each fault-tolerant agent has its own copy of the **Symphony** file, containing the day's processing. When link failures occur, they continue processing using their own copies of **Symphony**. Any interworkstation dependencies, however, must be resolved locally using appropriate Console Manager commands: **Delete Dependency** and **Release**, for example.

While a link is down, any messages destined for a noncommunicating workstations are stored by the sending workstations in the `TWShome\pobox` directory, in files named `workstationname.msg.`When the links are restored, the workstations begin sending their stored messages. If the links to a domain manager will be down for an extended period of time, it may be necessary to switch to a standby.

Notes

- The Console Manager **Submit Job** and **Submit Schedule** commands cannot be used on an agent that cannot communicate with its domain manager.
- If the link to a standard agent workstation is lost, there is no temporary recovery option available, because standard agents are hosted by their domain managers. In networks with a large number of standard agents, you can choose to switch to a standby.

Setting Up a Standby Domain Manager

Being prepared for network problems makes recovery easier. In particular, you should perform the following actions:

- Designate a fault-tolerant agent in the domain to be a standby domain manager.

- Make certain that the Full Status and Resolve Dependencies modes are selected in the standby's workstation definition.
- Ensure the domain managers (including the Master DM) have full status and resolve dependency turned on. This is important if you need to resort to long-term recovery, where the backup master generates a **Symphony** file (runs Jnextday). If those records are *not* enabled, the former master domain manager shows up as a regular fault-tolerant agent after the first occurrence of Jnextday. During normal operations, the Jnextday job automatically turns on the full status and resolve dependency flags for the master domain manager, if they are not already turned on. When the new master runs Jnextday, it does not recognize the former master domain manager as a backup master unless those flags are enabled. The former master does not have an accurate **Symphony** file when the time comes to switch back. Treat the all domain manager's workstation definitions as if they were backup domain manager definitions to the new domain managers. This ensures true fault tolerance.

For a Standby Master Domain Manager

It may be necessary to transfer files between the master domain manager and its standby. For this reason, the computers must have compatible operating systems. Do not combine UNIX with Windows NT computers, and in UNIX, do not combine big-endian with little-endian computers.

On a daily basis, following start-of-day processing on the master domain manager, make copies of the `Maestrohome\mozart` and `TWShome\..\unison\network` directories, and the `TWShome\Sinfonia` file. The copies can then be moved to the standby master domain manager, if necessary.

Note: For a UNIX master domain manager, if the `Maestrohome/mozart` and `../unison/network` directories on the current master domain manager are reasonably static, they can be copied to the standby beforehand. During normal operation, they are hidden when you mount the current master domain manager's directories on the standby. If it becomes necessary to switch to the standby, simply unmounting the current master domain manager’s directories will make the standby’s copies accessible.

A Note About Network Security

Network security is enforced using IP address validation. As a consequence. workstation linking (AUTO Link option or Link command) may fail if an agent has an old **Symphony** file that does not contain the new domain manager. If a connection fails, remove the old **Symphony** file on the agent and retry the connection.

Losing a Domain Manager

Loss of a domain manager can occur as the result of network linking problems or the failure of the domain manager computer itself. Running without a domain manager has the following effects:

- Agents and subordinate domain managers cannot resolve interworkstation dependencies, because activity records broadcasted by the master domain manager are not being received.
- Standard agents that are hosted by the failed domain manager cannot perform any processing, since they depend on the domain manager for all scheduling and job launching.

If the problem is expected to be of short duration, you can handle it as described in “Network Link Problems” on page 394. If you are uncertain about the duration, or if you want to restore normal agent operation, you must switch to a standby, as described in the following sections.

Switching a Domain Manager

Use this procedure when you have a short-term loss of the master domain manager.

1. Run the JS Console.
2. Select the TWS master connector.
3. Select Default Plan List.
4. Click Status of All Domains.

5. Click refresh.
6. Select Switch Manager...
7. Specify the name of the backup domain manager you want to use.
8. Click OK.

Domain managers remain switched until you execute another switch manager operation. To return to the original domain manager, repeat this procedure. For a switched master domain manager you must do this before the next day turnover, unless you do not expect the master domain manager to be available for the next day turnover (**final** schedule and **Jnextday** job). In this case, use the procedure in the following section.

Extended Loss of Master Domain Manager

Use the following procedure to switch to the standby if the original master is not expected to return to service before the next new day turnover (**final** schedule and **Jnextday** job). For UNIX, use forward slashes in pathnames.

1. Use the Console Manager’s Stop function to stop TWS on the master domain manager and its standby.
2. On UNIX, unmount the master’s directories if they are mounted on any of the agents or domain managers.
3. Create a method for the standby to access the TWS file system for UNIX. You can use either of the following:
   - Copy the `maestrohome/mozart` and `maestrohome/../unison/network` directories to the standby. Note that you must do this before the event of a total system failure on the original master.
   - Set up a mountable file system. You may want to make this file system external to the master and standby, in case the original master experiences total system failure. On the system that contains the maestro directories `maestrohome/mozart` and `maestrohome/../unison/network`, make sure the directories

can be mounted via an entry in the `etc/exports` file. Mount the file systems on the standby.

4. On the standby, edit the file `maestrohome\mozart\globalopts` and change the Global Option master to the workstation name of the standby.
5. On the standby, use Composer to modify any important job streams that run on the master domain manager, such as the **final** schedule. For each of these, change the workstation name to the name of the standby.
6. If necessary, on agents and domain managers, mount the directories from the standby domain manager.
7. Use the Console Manager Switch Manager function to switch to the backup master. See “Switching a Domain Manager” on page 396.

Glossary

A

Access method
An executable used by extended agents to connect and control job execution on other operating systems (for example, MVS) and applications (for example, Oracle Applications, Peoplesoft, and Baan). The access method must be specified in the workstation definition for the extended agent.

B

Batchman
A process started at the beginning of each TWS processing day to launch jobs in accordance with the information in the Symphony file.

C

Calendar
An object defined in the Tivoli Workload Scheduler database that contains a list of scheduling dates. Because it is a unique object defined in the database, it can be assigned to multiple job streams. Assigning a calendar to a job stream causes that job stream to be executed on the days specified in the calendar. Note that a calendar can be used as an inclusionary or exclusionary run cycle.

Conman
A legacy command-line application for managing the production environment. Conman (console manager) performs the following tasks: start and stop production processes, alter and display schedules and jobs in the plan, and control workstation linking in a network.

Composer
A legacy command-line application for managing the definitions of your scheduling objects in the database.

D

Database
A database that contains all the definitions you have created for scheduling objects (for example, jobs, job streams, resources, workstations, etc). In addition, the database holds other important information such as statistics of job and job stream execution, information on the user ID who created an object, and an object’s last modified date. In contrast, the plan contains only those jobs and job streams (including dependent objects) that are scheduled for execution in today’s production.

Deadline

The last moment in time that a job or job stream can begin execution. This corresponds to the Until time in legacy Maestro.

Dependency

A prerequisite that must be satisfied before the execution of a job or job stream can proceed. The maximum number of dependencies permitted for a job or job stream is 40. The four types of dependencies used by Tivoli Workload Scheduler are follows dependencies, resource dependencies, file dependencies, and prompt dependencies.

Domain

A named group of TWS workstations consisting of one or more agents and a domain manager acting as the management hub. All domains have a parent domain except for the master domain.

Domain Manager

The management hub in a Tivoli Workload Scheduler domain. All communications to and from the agents in the domain are routed through the domain manager.

Duration

The time you expect the job to take to complete. In the Timeline view of jobs in the database, the duration is represented by a light blue bar at the center of the activity bar or by a light blue diamond.

E

Earliest start time

The time before which the job or job stream cannot start. The earliest start time is an estimate based on previous experiences running the job or job stream. However, the job or job stream can start after the time you specify as long as all other dependencies are satisfied. In the timeline, the start time is represented by the beginning (left edge) of the navy blue activity bar. For job instances, the start time that OPC calculates is represented by a light blue bar. See also “Actual start time” and “Planned start time”.

Exclusionary run cycle

A run cycle that specifies the days a job stream cannot be run. Exclusionary run cycles take precedent over inclusionary run cycles.

Expanded database

A database that allows longer names for database objects such as jobs, job streams, workstations, domains, and users. Expanded databases are configured using the dbexpand command or as an option during installation. Do not expand your database before understanding the implications and impact of this command.

Extended agent

An agent used to integrate Tivoli Workload Scheduler's job control features with other operating systems (for example, MVS) and applications (for example, Oracle Applications, Peoplesoft, and Baan). Extended agents use scripts called access methods to communicate with external systems.

External job

A job from one job stream that is a predecessor for a job in another job stream. An external job is represented by a place holder icon in the Graph view of the job stream.

F

Fault-tolerant agent

An agent workstation in the Tivoli Workload Scheduler network capable of resolving local dependencies and launching its jobs in the absence of a domain manager.

Fence

The job fence is a master control over job execution on a workstation. The job fence is a priority level that a job or job stream's priority must exceed before it can execute. For example, setting the fence to 40 prevents jobs with priorities of 40 or less from being launched.

Final Job Stream

The last job stream that is executed in a production day. It contains a job that runs the script file Jnextday.

Follows dependency

A dependency where a job or job stream cannot begin execution until other jobs or job streams have completed successfully.

G

Global options

Options that apply to all the workstations of a TWS network. They are defined in the *globalopts* file on the master domain manager. See also "Local options".

H

Host

A Workload Scheduler workstation required by extended agents. It can be any TWS workstation except another extended agent.

I

Inclusionary Run Cycle

A run cycle that specifies the days a job stream is scheduled to run. Exclusionary run cycles take precedent over inclusionary run cycles.

Interactive jobs

A job that runs interactively on a Windows NT desktop.

Internal status

Reflects the current status of jobs and job streams in the TWS engine. Internal status is unique to TWS. See also Status.

Internetwork (INET) dependencies

A dependency between jobs or job streams in separate Tivoli Workload Scheduler networks. See also “Network agent”.

Internetwork (INET) job / job stream

A job or job stream from a remote Tivoli Workload Scheduler network that is a predecessor to a job or job stream in the local network. An Internetwork job is represented by a place holder icon in the Graph view of the job stream. See also “Network agent”.

J

Jnextday job

A job scheduled to run at the end of each day in order to fully automate pre- and post-production processing. A sample jnextday job is provided as *TWShome*\Jnextday. **Jnextday** does the following: sets up the next day’s processing (contained in the Symphony file), prints reports, carries forward unfinished job streams, and stops and restarts TWS.

Job

A unit of work that is processed at a workstation. The job definition consists of a unique job name in the TWS database along with other information necessary to run the job. When you add a job to a job stream, you can define its dependencies and its time restrictions such as the estimated start time and deadline.

Job Instance

A job scheduled for a specific run date in the plan. See also “Job”.

Job status

See “Status”.

Job Stream

A list of jobs that execute as a unit (such as a weekly backup application), along with times, priorities and other dependencies that determine the exact order of job execution.

Job stream instance

A job stream that is scheduled for a specific run date in the plan. See also “Job stream”.

L

Limit

A job limit that provides a means of allocating a specific number of job slots into which Tivoli Workload Scheduler is allowed to launch jobs. A job limit can be set for each job stream, and for each workstation. For example, setting the workstation job limit to 25 permits TWS to have no more than 25 jobs executing concurrently on the workstation.

List

A list that displays job scheduling objects. You must create separate lists for each job scheduling object. For each job scheduling object, there are two types of lists: one of definitions in the database and another of instances in the plan.

Local options

Options that apply only to the workstation on which they are defined. They are defined in the *localopts* file on each workstation of a Tivoli Workload Scheduler network. See also “Global options”.

M

Master Domain Manager

The workstation that maintains the files used to document the scheduling objects in a Tivoli Workload Scheduler network. It creates the plan at the start of each day, and performs all logging and reporting for the network.

N

Network agent

A type of extended agent used to create dependencies between jobs and job streams on separate Tivoli Workload Scheduler networks. See also “Internetwork (INET) dependency”.

P

Parameter

A parameter used to substitute values into your jobs and job streams. When using a parameter in a job script, the value is substituted at run time. In this case, the parameter must be defined on the workstation where it will be used. Parameters cannot be used when scripting extended agent jobs.

Plan

A procedure containing all job scheduling activity planned for a period of one day. In TWS, the plan is created every 24 hours and consists of all the jobs, job streams, and dependency objects that are scheduled to execute for that day. All job streams for which you have created run cycles are automatically scheduled and included in the plan. As the production cycle progresses, the jobs and job streams in the plan are executed according to their time restrictions and other dependencies. Any jobs or job streams that do not execute successfully are rolled over into the next day's plan.

Planned Start Time

The time that TWS estimates a job instance will start. This estimate is based on start times of previous executions.

Predecessor

A job that must complete successfully before successor jobs can begin execution.

Priority

A time preference in the TWS queuing system for running jobs and job streams in the plan. You can assign a priority level for each job and job stream from **0** to **101**. A priority of **0** will not execute.

Prompt

An object that can be used as a dependency for jobs and job streams. A Prompt must be answered affirmatively for the dependent job or job stream to launch. There are two types of prompts: predefined and ad hoc. An ad hoc prompt is defined within the properties of a job or job stream and is unique to that job or job stream. A predefined prompt is defined in the TWS database and can be used by any job or job stream.

R

Resource

An object representing either physical or logical resources on your system. Once defined in Tivoli Workload Scheduler database, resources can be used as dependencies for jobs and job streams. For example, you can define a resource named ″tapes″ with a unit value of two. Then, define jobs that require two available tape drives as a dependency. Jobs with this dependency cannot run concurrently because each time a job is run the "tapes" resource is in use.

Run cycle

A cycle that specifies the days that a job stream is scheduled to run. In TWS there are three types of run cycles you can specify for a job stream: a Simple run cycle, a Weekly run cycle, or a Calendar run cycle (commonly called a calendar). Note that each type of run cycle can be inclusionary or exclusionary. That is, each run cycle can define the days a job stream is included in the production cycle, or the days a job stream is excluded from the production cycle. When you define multiple run cycles to a job stream, and inclusionary and exclusionary run cycles specify the same days, the exclusionary run cycles take precedent.

S

Simple Run Cycle

A specific set of user-defined days a job stream is executed. A simple run cycle is defined for a specific job stream and cannot be used by multiple job streams. For more information see Run Cycle.

Status

Reflects the current job or job stream status within the Job Scheduling Console. The Job Scheduling Console status is common to TWS and OPC. See also Internal status.

stdlist file

A standard list file created for each job launched by Tivoli Workload Scheduler. Standard list files contain header and trailer banners, echoed commands, errors, and warnings. These files can be used to troubleshoot problems in job execution.

Successor

A job that cannot start until all of the predecessor jobs on which it is dependent are completed successfully.

Symphony file

A file containing the scheduling information needed by the Production Control process (batchman) to execute the plan. The file is built and loaded during the pre-production phase. During the production phase, it is continually updated to indicate the current status of production processing: work completed, work in progress, work to be done. To manage production processing, the contents of the Symphony file (plan) can be displayed and altered with the Job Scheduling console.

T

Time restrictions

Can be specified for both jobs and job streams. A time can be specified for execution to begin, or a time can be specified after which execution will not be attempted. By specifying both, you can define a window within which a job or job stream will execute. For jobs, you can also specify a repetition rate. For example, you can have Tivoli Workload Scheduler launch the same job every 30 minutes between the hours of 8:30 a.m. and 1:30 p.m.

Tivoli Management Framework (TMF)

The base software that is required to run the applications in the Tivoli product suite. This software infrastructure enables the integration of systems management applications from Tivoli Systems Inc. and the Tivoli Partners. The Tivoli Management Framework includes the following: •Object request broker (oserv) •Distributed object database •Basic administration functions •Basic application services •Basic desktop services such as the graphical user interface In a Tivoli environment, the Tivoli Management Framework is installed on every client and server. However, the TMR server is the only server that holds the full object database.

Tivoli Management Region (TMR)

In a Tivoli environment, a Tivoli server and the set of clients that it serves. An organization can have more than one TMR. A TMR addresses the physical connectivity of resources whereas a policy region addresses the logical organization of resources.

Tree view

The view on the left side of the Job Scheduling Console that displays the TWS or OPC server, groups of default lists, and groups of user created lists.

U

User

For Windows NT only, the user name specified in a job definition’s “Logon” field must have a matching user definition. The definitions furnish the user passwords required by Tivoli Workload Scheduler to launch jobs.

Utility commands

A set of command-line executables for managing Tivoli Workload Scheduler.

W

Weekly Run Cycle

A run cycle that specifies the days of the week that a job stream is executed. For example, a job stream can be specified to execute every Monday, Wednesday, and Friday using a weekly run cycle. A weekly run cycle is defined for a specific job stream and cannot be used by multiple job streams. For more information see Run Cycle.

Wildcards

The wildcards for Tivoli Workload Scheduler are: ? Replaces one alpha character. % Replaces one numeric character. * Replaces zero or more alphanumeric characters.

Wildcards are generally used to refine a search for one or more objects in the database. For example, if you want to display all workstations, you can enter the asterisk (*) wildcard. To get a listing of workstations site1 through site8, you can enter site%.

Workstation

Usually an individual computer on which jobs and job streams are executed. They are defined in the Tivoli Workload Scheduler database as a unique object. A workstation definition is required for every computer that executes jobs or job streams in the Workload Scheduler network.

Workstation class

A group of workstations. Any number of workstations can be placed in a class. Job streams and jobs can be assigned to execute on a workstation class. This makes replication of a job or job stream across many workstations easy.

X

X-agent

See “Extended agent”.

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