

Tivoli Operations Planning and Control



# Getting Started with Tivoli OPC

*Version 2 Release 3*



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*Version 2 Release 3*

**Note**

Before using this information and the product it supports, be sure to read the general information under "Notices" on page vii.

**ISO 9001 Certification**

This product was developed using an ISO 9001 certified quality system.

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**Third Edition (December 1999)**

This is a major revision of, and obsoletes, SH19-4481-01.

This edition applies to Version 2 Release 3 Modification Level 0 of Tivoli Operations Planning and Control, Program Number 5697-OPC, and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters. See the "Summary of Tivoli OPC Version 2 Release 3 Enhancements" on page xiii for the changes made to this manual. Technical changes or additions to the text to describe the Tivoli Job Scheduling Console Support are indicated by a vertical line to the left of the change. Make sure you are using the correct edition for the level of the product.

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## Preface

This book shows you how to define your installation data to Tivoli Operations Planning and Control (Tivoli OPC) and how to create and modify plans. Throughout this book, Tivoli Operations Planning and Control is referred to as Tivoli OPC.

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### Who Should Read This Book

This book is intended for new users of Tivoli OPC. It introduces Tivoli OPC terms and shows you how to define installation data to Tivoli OPC and create plans.

Your workload can run on various platforms, but you control it from a central MVS/ESA\* system that runs the Tivoli OPC controller feature.

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### Required Product Knowledge

You must know how to use ISPF and TSO.

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### How to Use This Book

Read Chapter 1, "Introduction" on page 1 to get familiar with Tivoli OPC concepts and terminology. This chapter introduces terms that are used throughout the book and summarizes the role of Tivoli OPC in the production department.

Chapter 2, "Communicating with Tivoli OPC" on page 5 introduces and describes techniques for navigating through Tivoli OPC dialogs.

Chapter 3, "Describing Your Environment" on page 13 through Chapter 8, "Modifying the Current Plan (MCP)" on page 57 describe and explain basic setup and monitoring tasks for inexperienced users of Tivoli OPC.

---

### Style Conventions

To make the book easy to use, certain conventions have been followed to help you distinguish different types of information. They are:

Information type	Style convention	Example
Commands	All capital letters	CREATE
References in the text to a panel title	Small capital letters	LIST OF SPECIAL RESOURCES
References in the text to fields on panels	Gothic font, capitalization as on the panel	QUANTITY
Input you should type in panel fields	Bold, Gothic font	<b>MYAPPLICATION</b>
PF keys	Bold	<b>PF3</b>
First time new term introduced	Italics	<i>Application</i>

## Tivoli OPC Publications

This book is part of an extensive Tivoli OPC library. These books can help you use Tivoli OPC more effectively:

Task	Publication	Order number
Evaluating Tivoli OPC	<i>General Fact Sheet</i>	GH19-4370
Evaluating Tracker Agents	<i>Tracker Agent Features Fact Sheet</i>	GH19-4371
Planning Tivoli OPC	<i>Licensed Program Specifications</i>	GH19-4373
Understanding Tivoli OPC	<i>General Information</i>	GH19-4372
Learning Tivoli OPC concepts and terminology	<i>Getting Started with Tivoli OPC</i>	SH19-4481
Using the Java GUI	<i>Tivoli Job Scheduling Console Guide for OPC Users</i>	GC32-0402
Using the Java GUI	<i>Tivoli Job Scheduling Console Release Notes</i>	GI10-9233
Interpreting messages and codes	<i>Messages and Codes</i>	SH19-4480
Installing Tivoli OPC	<i>Installation Guide</i>	SH19-4379
Customizing and tuning Tivoli OPC	<i>Customization and Tuning</i>	SH19-4380
Planning and scheduling the workload	<i>Planning and Scheduling the Workload</i>	SH19-4376
Controlling and monitoring the current plan	<i>Controlling and Monitoring the Workload</i>	SH19-4377
Using Workload Monitor/2	<i>Workload Monitor/2 User's Guide</i>	SH19-4482
Writing application programs	<i>Programming Interfaces</i>	SH19-4378
Quick reference	<i>Quick Reference</i>	GH19-4374
Diagnosing failures	<i>Diagnosis Guide and Reference</i>	LY19-6405
Controlling the AIX, UNIX**, VMS, OS/390 Open Edition workload	<i>Tracker Agents for AIX, UNIX, VMS, OS/390 Open Edition Installation and Operation</i>	SH19-4484
Controlling the OS/2 and NT workload	<i>Tracker Agents for OS/2 and Windows NT Installation and Operation</i>	SH19-4483
Controlling the OS/400 workload	<i>Tracker Agent for OS/400 Installation and Operation</i>	SH19-4485

A *Master Index*, SH19-4375, is published for the Tivoli OPC library.

*Maximizing Your OPC Throughput*, SG24-2130, contains useful information for tuning the OPC installation.

## Tivoli OPC Online Books

All the books in the Tivoli OPC library, except the licensed publications, are available in displayable softcopy form on CD-ROM in the following Softcopy Collection Kit:

- OS/390, SK2T-6700

You can read the softcopy books on CD-ROMs using these IBM licensed programs:

- BookManager READ/2 (program number 5601-454)
- BookManager READ/DOS (program number 5601-453)
- BookManager READ/6000 (program number 5765-086)

All the BookManager programs need a personal computer equipped with a CD-ROM disk drive (capable of reading disks formatted in the ISO 9660 standard) and a matching adapter and cable. For additional hardware and software information, refer to the documentation for the specific BookManager product you are using.

Updates to books between releases are provided in softcopy only.

## Online Message Facility

The Online Message Facility (OMF) is an OS/2 program that provides online access to information from BookManager softcopy books. It helps you diagnose problems without interrupting your work. You can retrieve the description of a message by clicking on a message number in a Communications Manager emulator window. Additional information about OMF is available on the Messages and Codes CD-ROM.



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# Summary of Tivoli OPC Version 2 Release 3 Enhancements

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## Job Scheduling Console

The new Tivoli Job Scheduling Console (JSC) is a Java-based, client/server application. The key advantages of the JSC are the ability to perform administration and operation tasks in a graphical manner and the ability to access multiple OPC controllers from a single console.

The JSC can:

- Display lists of objects already defined to OPC, from the database and from the current plan, by using flexible filtering criteria
- Work with application descriptions including jobs and their dependencies, time restrictions (input arrival time, deadline, duration), and run cycles
- Work with special resource and workstation definitions
- Modify occurrences, workstation status, and special resource information from the current plan.

The JSC retains the OPC security model. Each data access request is validated by the controller as it is done currently for ISPF users.

The JSC is a real-time interface with OPC and can be used concurrently with the ISPF interface. It is available for various UNIX platforms, Windows NT, and Windows 98. The OPC Connector, which is a backend component supporting the JSC, is available for various UNIX platforms and Windows NT.

---

## Catalog Management — Data Availability

The new Catalog Management – Data Availability feature improves OPC performance for job restart and job log retrieval functions. Job runtime information, for example, the sysout datasets, is maintained locally on the tracked system. The controller retrieves this information only when needed for catalog management actions, eliminating the network and processing overhead associated with the transmission of superfluous data. The runtime information at the tracked system is managed by a new component, the OPC Data Store. Using the OPC Data Store, OPC Tracker processes are bypassed and are dedicated to the time-critical job submission and tracking tasks. A new feature is provided to selectively determine how long job runtime information is kept in the Data Store. This new feature is especially useful when a joblog archiving product is used concurrently with OPC.

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## OS/390 Workload Manager Support

OS/390 Workload Manager, when used in goal mode, provides a new, policy-based management of deadlines for critical jobs. Some CPU-type operations can now be marked as critical in OPC. When such a critical operation is late, according to the specified policy, OPC interfaces with Workload Manager to move the associated job to a higher performance service class. Thus the job receives appropriate additional system resource to reduce or eliminate the delay. Several policies are available to

decide when a job is late, considering characteristics such as duration, deadline time, and latest start time.

---

## OS/390 Automatic Restart Manager Support

OS/390 Automatic Restart Manager increases the availability of OPC components. In the event of program failure, OPC components, for example, the Controller, the OS/390 Tracker and the Server can now be restarted automatically by the Automatic Restart Manager.

---

## Program Interface (PIF) Enhancements

The Program Interface (PIF) has been extended to increase the flexibility of OPC, allowing users to have extended access to OPC data from other application programs. Tivoli OPC Version 2 Release 3 significantly enhances the ability to access current plan data from the PIF by providing:

- Full support for special resources data
- Read access to special resource usage information for operations
- The ability to modify the workstation open intervals
- The ability to modify the successor information for an operation.

New resource codes have been added to the Program Interface (PIF):

### **CPOPSRU**

Current plan operation segment with information for the operation in relation to a special resource

**CPSUC** Current plan successor segment

**CSR** Current plan special resources

**CSRCOM** Current plan special resource common segment

**IVL** Current plan workstation interval segment

---

## Enhancements for Non-OS/390 Tracker Agents

The OPC Tracker Agents for non-OS/390 platforms have been enhanced:

- A new version of the OPC Tracker Agent for OpenVMS is available. This new version runs in the native OpenVMS environment, thus removing the requirement to install the POSIX shell.
- The security features for the UNIX OPC Tracker Agents have been enhanced. Stricter file permissions are now used for temporary work files.
- The installation process of the OPC Tracker Agent for OS/390 UNIX System Services has been simplified.



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## Usability Enhancements

New features increase the overall usability of the product, thus increasing user productivity:

- OPC can perform variable substitution within inline procedures, thus increasing the flexibility of the job setup feature. It is possible to customize OPC so that jobs are submitted also when variables are not defined in the OPC variable tables. This means that, when variables are substituted outside OPC, duplicate variable definitions are avoided.
- During Catalog Management actions, OPC can delete datasets with an expiration date.
- A new Modify command (JSUACT) has been provided to start or stop the job submission function. This feature enables automation products, for example, Tivoli NetView to have control over the OPC job submission activity.
- The Mass Update utility has been enhanced with a new sample job This downloads all the applications belonging to a group in a sequential file for use as input to the Batch Loader utility, thus easing the management of group applications from the batch administration.
- The sample library now contains the DSECT sections for the Program Interface (PIF) data areas. This eases the process of writing PIF applications and the migration of existing PIF applications to new OPC releases.

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## New and Changed Installation Exits

User exit EQQUX001 has three new parameters:

**NEWREC** Number of JCL lines in new JCLAREA

**NEWJCL** New JCLAREA

**USDREC** Number of JCL lines used in new JCLAREA

User exit EQQUX007 has the new extended status (PEXSTAT) as part of its parameters set.

The Job Submission exit (installation exit 1) now allows changes to the size of JCL being processed. This enhancement gives users more flexibility to customize their operating environment.

The Operation Status Change exit (installation exit 7) has been enhanced to receive extended status information. This means that full status information is available within this exit to allow more detailed processing.

The samples set has two new samples: EQQCMX01 and EQQCMX05.

---

## New and Changed Initialization Statements

Two initialization statements have been added to enhance the JCL variable substitution:

**VARFAIL** If VARFAIL is specified, JCL variable substitution error is bypassed for the specified types and variables are left unresolved in the submitted JCL.

**VARPROC**

Specifies whether or not the variables must be resolved also in the inline procedures.

Three initialization statements have been added to handle the OPC Data Store options:

**FLOPTS** Defines the options for the FL (Fetch Job Log) task. A Controller uses this statement when OPCOPTS DSTTASK (YES) is specified.

**DSTOPTS**

Specifies options for the OPC Data Store.

**DSTUTIL** Specifies options for the Data Store batch utilities and the clean up subtask.

Parameters have been added to, or changed in, the JOBOPTS statement so as to handle the new Data Store options:

**JOBLOGRETRIEVAL**

A new value DELAYEDST has been added to this keyword for specifying that the job log is to be retrieved by means of the OPC Data Store.

**DSTCLASS**

A new parameter to define the reserved held class that is to be used by the OPC Data Store associated with this tracker.

**DSTFILTER**

A new parameter to specify if the job-completion checker (JCC) requeues to the reserved Data Store classes only the sysouts belonging to these classes.

Parameters have been added to, or changed in, the OPCOPTS statement so as to handle the new catalog management functions:

**DSTTASK**

Specifies whether or not the OPC Data Store is to be used.

**JCCTASK**

A new DST value has been added to specify if the JCC function is not needed, but the Data Store is used.

A parameter has been added to the OPCOPTS and the SERVOPTS statements:

**ARM** Activates automatic restart (via the Automatic Restart Manager) of a failed OPC component.

A parameter has been added to the OPCOPTS statement for the Workload Manager (WLM) support:

**WLM** Defines the WLM options, that is, the generic profile for a critical job. The profile contains the WLM service class and policy.

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## Version 2 Release 2 Summary

### Instrumentation for Tivoli Global Enterprise Manager

Tivoli Global Enterprise Manager (GEM) is the industry's first solution for unifying the management of cross-platform business applications that run businesses and make them competitive. Tivoli GEM helps you to manage strategic applications from a unique business systems perspective, focusing your IT resources on keeping these systems working properly and productively. Tivoli OPC has been enhanced to support the Job Scheduling Business System of the Tivoli GEM Systems Management Business System. From the Tivoli GEM console, which provides a single point of management, a Tivoli OPC user has complete control of all the Tivoli OPC components, regardless of the platform on which they run. In more detail, the Tivoli OPC instrumentation for Tivoli GEM enables you to do the following:

- Show all the Tivoli OPC components, including controllers, stand-by controllers, OS/390 trackers, AS/400 tracker agents, TCP/IP connected tracker agents.
- Show the different links between the above components. This provides, at a glance, a check on the health of the connections. For example, an OS/390 tracker might be running but might have no connection to the controller.
- For each component, manage a set of status parameters (monitors) specific to that component. These monitors might report the status of some vital OPC controller data sets such as database, current plan, and long-term plan)
- Manage this set of monitors graphically. You can:
  - Ask for value of the monitor
  - Be notified when the value of the monitor changes
  - Associate a severity (such as normal, warning, severe, or critical) with each monitor value
- Start or stop Tivoli OPC trackers without logging them on.
- Know at a glance, in a sysplex environment, which is the active controller and which the stand-by.
- Execute commands on Tivoli OPC components, from a single point of control, regardless of the platform and operating system used for that component.

### SAP R/3 support

Tivoli OPC has been enhanced to exploit the Extended Agent technology of the Tivoli Workload Scheduler product. This technology enables Tivoli OPC to interface with a number of third party applications that can perform scheduling. By using this technology, you can now start and track a SAP R/3 job from Tivoli OPC. You can also retrieve and display the job log at the Tivoli OPC controller. This function requires the Tivoli OPC Tracker Agent for one of the following platforms:

- AIX
- Digital UNIX
- Sun Solaris
- Windows NT
- HP-UX

### **TCP/IP communication improvements**

The TCP/IP communication component that enables the controller to communicate with the TCP/IP connected tracker agents has been restructured to use the standard TCP/IP C–Socket interface. This change enables Tivoli OPC for the latest OS/390 releases and provides for the use of the standard TCP/IP features, such as the KEEPALIVE option.

### **Catalog management enhancements**

The logic that Tivoli OPC uses when determining which catalog management actions to perform has been extended to manage the following situations:

- Some steps in a job are not executed, but are flushed. The datasets referred to in those steps are ignored by the catalog management function.
- A dataset referred to with disposition NEW in one step is also referred to in other steps. Logic to determine the action to perform in these cases has been added to the Catalog Management function.

### **Dataset Delete function (EQQDELDS) improvements**

The Dataset Delete function has been enhanced to determine the correct action when a dataset referred to with disposition NEW in one step is also referred to in other steps. Logic to determine the correct action to perform in these cases has been added to the Dataset Delete function. The Dataset Delete function has also been improved to do the following:

- Delete datasets for which an expiration date was specified.
- Issue diagnostic information when the IDCAMS DELETE command or the DFHSM ARCHDEL command fails to delete a dataset.

### **Current plan occurrence limit removal**

The maximum number of occurrences in the current plan has been increased from 32767 to 9999999. This enhancement enables you to manage the current plan more flexibly when you have large workloads.

### **Operations in AD limit removal**

You can now define up to 255 operations in each Application Description. This enhancement provides for more flexibility in the definition of the workload.

### **AD and OI consistency check**

The consistency between the Application Description and the Operator Instruction OPC databases is now enforced by OPC. For instance, whenever an operation is deleted the associated operator instructions is also deleted. Some usability enhancements have also been implemented in the Application Description dialogs when defining operator instructions. For instance, you can now also access temporary operator instructions.

### **JCL editing from Application Description dialogs**

You can now customize the Tivoli OPC dialogs so that a library management application used in the customer's environment to manage the production jobs can be invoked from the Application Description OPC dialogs, thus increasing user productivity. New row commands have been added to invoke such an application from the Operation List panel while working with an Application Description.

### **OPC Control Language tool**

The OPC Control Language (OCL) tool enables you to access and manipulate Tivoli OPC data by using a REXX-like language. Several

macro-functions are made available that perform, in a single action, what would require several invocations of the OPC Program Interface functions. The OCL tool acts as an extension to the REXX language processor. Therefore, normal REXX statements can be coded together with OCL statements. This tool runs in a batch TSO session.

### Tracker agents

New Tracker Agents are provided to control the workload on:

- Digital UNIX
- OS/390 Open Edition

### SmartBatch coexistence

Tivoli OPC has been extensively tested to make sure that all the features continue to work correctly when the production workload is under SmartBatch control.

### Other enhancements to functions

- EQQZSUBX 16 MB limit removal: because it is no longer necessary to move the JCL buffer below the 16 MB line before submitting it to JES2 or JES3, this processing has been removed from Tivoli OPC.
- To improve the robustness of Tivoli OPC, the STIMER macro is now invoked, wherever the STIMER macro was previously invoked.
- Tivoli OPC Job-Submit user exit (EQQUX001) has been improved by adding two new parameters: WorkstationID and ErrorCode. When ErrorCode is set, Tivoli OPC will not submit the job.
- Tivoli OPC Operation-Status-Change user exit (EQQUX007) has been improved by adding the procstep name to the JOBAREA parameter. This enhancement provides for fully automated problem management.
- Debugging aids for performance problems: new statistics are now produced by Tivoli OPC to trace all the activities performed during the job submission process. These statistics are especially useful when you tune your systems to maximize job throughput in Tivoli OPC. You can dynamically activate and deactivate these statistics by means of new MODIFY commands.

### New and changed installation exits

User exit EQQUX001 has two new parameters:

**RETCO**      The error code  
**WSNAME**     The workstation name of submission process

User Exit EQQUX007 has a new field in the JobArea called procedure step name.

### Changes to commands

The following modify commands have been added:

**CPQSTA**     Activates or deactivates CP lock statistic messaging  
**EVELIM**     Sets a new value for the EVELIM keyword of the JTOPTS statement  
**EVESTA**     Activates or deactivates EVENT statistic messaging  
**GENSTA**     Activates or deactivates GS task statistic messaging  
**HB**         Issues a heartbeat message for an OPC controller or for all trackers connected to that controller  
**JCLDBG**     Activates or deactivates the JCL debugging trace

<b>QUELEN</b>	Sets a new value for the QUEELEN keyword of the JTOPTS statement
<b>STATIM</b>	Sets a new value for the STATIM keyword of the JTOPTS statement
<b>STATUS</b>	Returns status information about the OPC controller and the tracker agents connected to it.
<b>WSASTA</b>	Activates or deactivates WSA task statistic messaging

#### **New and changed initialization statements**

The following values have been added to the STATMSG keyword of the JTOPTS statement:

<b>EVELIM</b>	Makes customizable the event number criterion for statistic messaging.
<b>STATIM</b>	Uses an interval time criterion to issue statistics messaging.
<b>WSATASK</b>	Activates new statistics for WSA task.

The following new values have been added to the SUBFAILURE keyword of the JTOPTS statement:

#### **XC, XE and XR**

To specify how OPC must handle values returned by the Job Submission Exit (EQQUX001) for the RETCO parameter.

A new keyword has been added to the BATCHOPT statement:

<b>MAXOCCNUM</b>	Set the maximum number of occurrences in the current plan for the daily planning function.
------------------	--

A new keyword has been added to the JTOPTS statement:

<b>MAXOCCNUM</b>	Set the maximum number of occurrences in the Current Plan for the dialog, ETT, Automatic Recovery and PIF functions.
------------------	--

#### **Changes to programming interfaces**

The OPC Programming Interface (PIF) has been extended as follows:

- A new subsegment has been added to the Workstation record called the Workstation Access Method Information (WSAM).
- A new keyword, ADOICLK, has been added to the OPTIONS request to activate the consistency check between Application Description and Operator Instruction records.

---

## **Version 2 Release 1 Summary**

Tivoli OPC Version 2 Release 1 became generally available in March 1997. Major enhancements compared to OPC/ESA Release 3.1 are described in the following sections.

#### **Tracker agents**

New Tracker Agents are provided to control the workload on:

- Digital OpenVMS
- Pyramid MIPS ABI

#### **Shared parm library in Sysplex environment**

MVS controllers and trackers can share common controller and tracker initialization statements and started task JCLs, making it easier to install many OPC subsystems inside an MVS/ESA sysplex environment.

### **Controller configuration in Sysplex environment**

Tivoli OPC support of MVS/ESA sysplex (base and parallel) has been extended to enable any one of many cloned controllers on different MVS images to switch from standby to active status. An OPC controller is started on each member of the XCF group. The first potential controller that becomes active is the active controller and the others are standby controllers. If the active controller fails, a standby controller running in another MVS/ESA image of the sysplex environment takes over automatically as the active controller.

### **Single system image**

This enhancement allows OPC TSO dialog users and PIF users to be on a different MVS/ESA image from the OPC controller. Dialog users and PIF applications can also be on MVS systems outside the sysplex where the controller runs. Remote communication is based on APPC.

### **Extended dialog filter**

The dialog filter has been extended to allow more specific search arguments and to define the interpretation of wildcard characters.

### **Reparsing of NOERROR**

New operator commands allow the operator to dynamically update the NOERROR table using the NOERROR initialization statements defined by the OPC PARMLIB member, and to read the statements from a member of the EQQPARM DD concatenated libraries. In addition a new initialization statement allows the inclusion of NOERROR statements from members of the EQQPARM DD concatenated libraries.

### **PIF extension**

Program Interface has been greatly extended to support almost all OPC database record types.

### **Job tracking log**

This enhancement provides to user exit 11 job tracking records on which an effective disaster recovery procedure can be based. The customer through exit 11 receives job tracking records, and can send this data to a remote controller that, in case of failure of the active controller, will take over as controller.

### **GMT clock support improvement**

The GMTOFFSET keyword in the OPCOPTS statement lets the user define an offset between the GMT time set in the MVS system and the actual GMT time. The OPC controller uses the GMT clock to validate an OPC Tracker Agent trying to connect; this improvement addresses the need of some users to have the MVS GMT clock independent of the actual GMT time, while keeping the ability to use Tracker Agents.

### **Batch command interface tool**

A batch command interface tool is supplied to perform most of the actions supported by the PIF interface by means of a batch command interface.

### **New and changed initialization statements**

Initialization statements have been added and changed in Tivoli OPC Version 2. The following sections summarize the differences.

#### **The INCLUDE statement**

Added in Tivoli OPC Version 2, the INCLUDE statement lets you reduce the size of the parameter library member that contains the

OPCOPTS and JTOPTS statements and reduce the associated maintenance activities.

<i>Table 1. The INCLUDE Statement</i>	
<b>Keyword</b>	<b>Short description</b>
NOERROR	Specifies to read NOERROR information from other members of the EQQPARM library.

### The INIT statement

Added in OPC/ESA Release 3.1, the INIT statement lets you define run-time options for processing requests from a PIF application. These settings override the values set by the INTFOPTS statement in EQQPARM. The statement is defined in a second parameter file that is identified by the EQQYPARM DD statement in the JCL procedure of the PIF application. In Tivoli OPC Version 2 the LUNAME keyword has been added.

<i>Table 2. The INIT Statement</i>	
<b>Keyword</b>	<b>Short description</b>
CWBASE	Specifies the origin for the century window used by the PIF application
HIGHDATE	Specifies the high date presented to the PIF application in valid-to fields
LUNAME	Specifies a server or controller LU name for the PIF application
SUBSYS	Identifies the Tivoli OPC subsystem controller
TRACE	Specifies the level of trace information to write to the diagnostic file.

### Changes to commands

These modify commands have been added:

**NEWNOERR** Requests that the NOERROR statements be reprocessed.

**NOERRMEM**

**(member)** Requests that the NOERROR information be read from the specified member.

The MODIFY command has been extended to accept stop and start of the server started tasks:

F ssname, P=SERV

S ssname, P=SERV

### Changes to programming interfaces

The Programming Interface is extended as follows:

UPDATE is supported for calendars, periods, workstations, and all workstations closed.

BROWSE and UPDATE are supported for ETT and special resources.



The LIST request has been extended to support a new keyword, MATCHTYP, to specify whether generic search arguments (\* and % are to be treated as normal characters.

A new keyword, ADVERS, has been added to the OPTIONS request, to activate the support of AD versioning.

### **New and changed installation exits**

Table 3 summarizes the changes to installation exits in Tivoli OPC Version 2.

<i>Table 3. Changes to Installation Exits</i>	
<b>Exit name</b>	<b>Short description of change</b>
EQQUX001	Tivoli OPC Version 2 now also supports the addressing modes RMODE(24) and AMODE(31).
EQQUX011	Sample job tracking log write exit.

### **Messages**

Messages have been changed, deleted, and added in Tivoli OPC Version 2. Refer to *Tivoli OPC Messages and Codes* for the complete message text and descriptions. Note that in Version 2 the message text and explanations refer to the product as OPC/ESA.



---

## Chapter 1. Introduction

This chapter briefly describes Tivoli OPC and introduces basic Tivoli OPC concepts and terminology.

---

### What Is Tivoli OPC?

The Tivoli Operations Planning and Control (Tivoli OPC) licensed program is IBM's foundation for enterprise workload management. Tivoli OPC provides a comprehensive set of services for managing and automating the workload. Whether you manage a single-image MVS system or multivendor networks and systems from a single point of control, Tivoli OPC helps you manage and automate the production workload.

---

### How Tivoli OPC Manages Your Production Workload

Tivoli OPC builds operating *plans* from your descriptions of the production workload.

Tivoli OPC consists of a base product, the *tracker* and a number of features. All the systems in your complex require the base product. The tracker is the link between the system that it runs on and the Tivoli OPC *controller*.

One MVS system in your complex is designated the controlling system and runs the controller feature. From this system, you can automatically plan, control, and monitor your production workload. Only one controller feature is required, even when you want to start standby controllers on other MVS systems in a sysplex.

The *Tracker Agent for OS/400* feature lets you centrally manage the AS/400\* workload from the controlling system. The *Tracker Agent for AIX* feature lets you centrally manage the workload on AIX/6000 systems.

The workload on other operating environments can also be controlled with the open interfaces provided with Tivoli OPC. Sample programs show you how you can control the workload on environments that have no OPC Tracker Agent feature today.

---

### Concepts and Terminology

Tivoli OPC uses these important concepts:

#### Plans

Tivoli OPC builds operating plans from your descriptions of the production workload. First a *long-term plan* (LTP) is created, which shows (for typically one or two months) the applications that should be run each day, and the dependencies between applications. Then a more detailed *current plan* is created. The current plan is used by Tivoli OPC to submit and control operations.

You can simulate the effects of changes to your production workload, calendar, and installation, by generating *trial plans*.

### Applications

An *application* is a description of a unit of production work. It includes a list of the *operations* (related tasks) associated with that unit of work. For example, a payroll application might include a manual task where an operator prepares a job, several computer-processing tasks where programs are run to read a database, update employee records, and write payroll information to an output file, and a print task that prints pay checks.

### Workstations

Tivoli OPC supports a range of work process types, called *workstations*, that map the processing needs of any task in your production workload. Each workstation supports one type of activity. This gives you the flexibility to schedule, monitor, and control *any* DP activity, including:

- Job setup—both manual and automatic
- Jobs
- Started tasks
- NetView\* communication
- Print operations
- Manual preprocessing or postprocessing activity.

### Special resources

You can use Tivoli OPC *special resources* to represent any type of limited resource, such as tape drives, communication lines, or a database. A special resource can be used to serialize access to a dataset or to limit the number of file transfers on a network link. The resource does not have to represent a physical object in your configuration, although often it does.

### Dependencies

Most data processing activities need to occur in a specific order. Activities performed out of order can create invalid output or corrupt your corporate data. This results in costly reruns, missed deadlines, and dissatisfied customers.

In Tivoli OPC, you can specify *dependencies* for operations when a specific processing order is required.

### Calendars

Tivoli OPC uses calendar information so that applications are not scheduled to run on days when processing resources are not available (for example, Sundays and holidays). This information is stored in a Tivoli OPC *calendar*. Tivoli OPC supports multiple calendars for enterprises where different departments have different work days and free days or when multiple data centers in different states or regions are controlled from a single site.

## Business processing cycles

Tivoli OPC uses business processing cycles, or *periods*, to calculate when your applications should be run. When you create an application, you specify when it should be planned using a *run cycle*. You can use *rule-based* run cycles to specify run days using *rules* such as “Third Thursday in July,” or “Every work day in week 40,” where you select the words from a multiple-choice panel.

---

## Using This Book

If you are new to Tivoli OPC and it is your first time through this book, use this checklist before starting:

- You have a TSO user ID that is authorized to access the Tivoli OPC subsystem.
- The Tivoli OPC subsystem is started.
- You are authorized to update these Tivoli OPC databases:
  - Workstation
  - Calendar
  - Application description
  - Job description.
- You are authorized to use these Tivoli OPC functions:
  - Long-term planning
  - Daily planning
  - Workstation communication
  - Modify current plan
  - Query current plan.

---

## About the Examples in This Book

Some examples show how to create and modify data elements in Tivoli OPC databases. Before doing any modify or create task, discuss it with your Tivoli OPC administrator.

Examples of tasks that result in Tivoli OPC displaying the same panel multiple times have been simplified to show the panel only once. For those examples with multiple input fields, such as CREATING GENERAL INFORMATION FOR A WORKSTATION (Figure 9 on page 14), you see a completed panel with highlighted reference numbers next to applicable input fields.



---

## Chapter 2. Communicating with Tivoli OPC

To perform most tasks, you use the Tivoli OPC dialogs, which run under Interactive System Productivity Facility (ISPF).

This chapter shows how to:

- Set options for your Tivoli OPC dialog sessions.
- Concatenate options.
- Set PF keys and ISPF options.
- Use filter panels to reduce the amount of data displayed in lists.
- Use the CANCEL, SORT, and LOCATE commands.

You can reach all the Tivoli OPC controller dialogs from the Tivoli OPC main menu:

```
EQQOPCAP ----- OPERATIONS PLANNING AND CONTROL/ESA -----
Welcome to OPC/ESA. You are communicating with OPCO via Server ISIMEOPV
Select one of the following options and press ENTER.

0 OPTIONS          - Define OPC/ESA dialog user parameters and options
1 DATABASE         - Display or update OPC/ESA data base information
2 LTP              - Long Term Plan query and update
3 DAILY PLANNING   - Produce daily plans, real and trial
4 WORK STATIONS    - Work station communication
5 MCP              - Modify the Current Plan
6 QCP              - Query the status of work in progress
7 OLD OPERATIONS  - Restart old operations from the DB2 repository

9 SERVICE FUNC     - Perform OPC/ESA service functions
X EXIT            - Exit from the OPC/ESA dialog
```

Figure 1. Tivoli OPC Main Menu

Like all ISPF applications, Tivoli OPC displays messages in the upper-right corner of dialog panels. Use **PF1** (HELP) to see the long message text. You can also use **PF1** to get more information about input fields if you need help in the dialogs. To cancel a dialog function, use the CANCEL command, which you can abbreviate to CAN. No data is saved when you enter the CANCEL command.

---

### Setting Options

The options, and many of the parameters that you enter in the dialogs, are saved when you leave ISPF (though not if the session is not terminated normally) and will be the default next time.

The Tivoli OPC controller subsystem manages the dialogs, so you must communicate with the correct subsystem. This section shows how to set the Tivoli OPC controller subsystem name and the date and time format for your dialog sessions.

## Specifying the Subsystem Name

- 1 Select **0** on the Tivoli OPC main menu to display the DEFINING OPC/ESA PARAMETERS AND OPTIONS menu.
- 2 To display the panel on which you set the subsystem name, select option **1** from the DEFINING OPC/ESA PARAMETERS AND OPTIONS menu. You see this panel:

```

EQQXLUSL ----- OPC/ESA CONTROLLERS AND SERVER LU NAMES -- Row 1 to 3 of 3
Command ==>                                     Scroll ==> CSR

Change data in the rows, and/or enter any of the following row commands
I(nn) - Insert, R(nn),RR(nn) - Repeat, D(nn),DD(nn) - Delete

Row   Con-
cmd  S troller Server LU name  Description
''' / OPCO  IS1MEOPV           On other_____
'''  _ OPCO   SEIBM200.IS1MEOPV
'''  _ OPCX   _____      OPC on same MVS
    
```

Figure 2. Setting Tivoli OPC Subsystem Name

- 3 Select a subsystem from the list by typing a slash in the S column of the list panel.

If the subsystem you want to connect to is not on the list, you can add new rows or change existing ones. If the subsystem is running on another MVS system, enter the LU name of the server associated to that controller in the Server LU name column. If the server is on another network, the fully-qualified LU name must be entered in the form NETWORKID.LUNAME.

In the example shown here the subsystem is OPCO running in another MVS system, and the associate server LU name is IS1MEOPV.

- 4 Press **PF4** (RETURN) to save the change and return to the Tivoli OPC main menu.

## Setting Date and Time Formats

To set the date and time formats, you enter **0.2** from the Tivoli OPC main menu. You see this panel:

```

EQQXDATP ----- SETTING OPC/ESA DATE AND TIME FORMAT -----
Command ==>

Enter/change data below:

DATE-FORMAT      ==> YYMMDD__  Combine the characters for
                                     year( YY ), month( MM ) and day( DD ).
                                     Optionally separated by any character.
                                     Alternatively only year( YY ) and Julian
                                     day number( DDD ) can be specified.

TIME-FORMAT      ==> HH.MM     Combine the characters for
                                     hours( HH ) and minutes( MM ).
                                     Optionally separated by any character.

LOCAL TIME OFFSET ==> 0__      Specify local time offset in minutes.
                                     The value must be in the range 0 to 1439.

TIME OFFSET SIGN ==> +        Specify - if local time is before OPC/ESA.
                                     Specify + if local time is after OPC/ESA .

CALENDAR ID      ==> default_____ Default calendar information
    
```

Figure 3. Setting Tivoli OPC Date and Time Format



In the DATE-FORMAT field, you can combine the characters YY (year), MM (month), and DD (day) in any order. The Julian calendar format of YY (year) and DDD (day) is also supported. Any character except D, M, or Y can be used as a delimiter. YYMMDD is the format used in examples in this book.

In the TIME-FORMAT field, you combine the characters HH (hour) and MM (minute). The delimiter character, shown as a period (.) in Figure 3 on page 6, is optional and can be any character other than H or M. HH.MM is the format used in examples in this book.

Tivoli OPC uses the calendar that you specify for dialog functions, such as the long-term plan dialog and the GENDAYS command for checking run cycles.

You use the LOCAL TIME OFFSET field and the TIME OFFSET SIGN field when you are working in a different time zone from the Tivoli OPC controller.

Save the changes and return to the Tivoli OPC main menu by pressing **PF4** (RETURN).

---

## Concatenating Options and Setting PF Keys

This section shows how to use common dialog commands and facilities and how to set program function (PF) keys to move quickly through Tivoli OPC dialogs.

### Concatenating Options

Tivoli OPC lets you enter concatenated options in the standard ISPF manner on the command line and in row command input fields. For example, you display the LIST OF APPLICATIONS panel without going through intermediate panels by entering **1.4.3.0** from the Tivoli OPC main menu.

You can also use the ISPF command delimiter (;) to concatenate options in the Tivoli OPC dialog. When you use the ISPF command delimiter, you pass through confirmation panels without displaying them. This can make completing or deleting a long list of applications or occurrences much faster.

### Quick return command

You can use the ISPF quick return command (=) as a fast path through the dialog. For example, to return to the ready list from wherever you are in the Tivoli OPC dialog, enter **=4.1.0** on the command line.

### Setting PF Keys

The Tivoli OPC dialog maintains separate PF keys from your normal ISPF key assignments. As with all ISPF applications, the END command (**PF3**) returns you to the previously displayed panel. The RETURN command (**PF4**) takes you directly to the main menu.

To display or change the key assignments, enter **=0.4.3** at the command prompt. Tivoli OPC displays this panel:

```
ISPOPT3B ----- PF KEY DEFINITIONS AND LABELS - PRIMARY KEYS -----
COMMAND ==>

NUMBER OF PF KEYS ==> 24                                TERMINAL TYPE ==> 3278

PF13 ==> ;=4.1.oper
PF14 ==> ;=4.1.cpu1
PF15 ==> ;=5.4.0
PF16 ==> ;=5.1
PF17 ==> ;=5.2
PF18 ==> ;=6.1
PF19 ==> ;=6.3
PF20 ==> ;=3.1
PF21 ==> ;=3.2
PF22 ==> ;=2.1
PF23 ==> ;=2.2
PF24 ==> ;=1.4.1

PF13 LABEL ==> r1_oper  PF14 LABEL ==> r1_cpu1  PF15 LABEL ==> errors
PF16 LABEL ==> mcp_add  PF17 LABEL ==> mcp_mod  PF18 LABEL ==> qcp_app1
PF19 LABEL ==> qcp_job  PF20 LABEL ==> dpreplan  PF21 LABEL ==> dpextend
PF22 LABEL ==> ltp_look  PF23 LABEL ==> ltpbatch  PF24 LABEL ==> ad_look

Press ENTER key to display alternate keys.  Enter END command to exit.

F13=r1_oper  F14=r1_cpu1  F15=errors  F16=mcp_add  F17=mcp_mod  F18=qcp_app1
F19=qcp_oper  F20=dpreplan  F21=dpextend  F22=ltp_look  F23=ltpbatch  F24=ad_look
```

Figure 4. PF Key Definitions and Labels

In this example, PF keys 13 to 24 are set, and a label is assigned to each PF key. A label is used for display in place of the corresponding PF key assignment when you issue the PFSHOW command. Assigning labels to PF key definitions is optional.

The PF key settings in this example are valid for all Tivoli OPC panels except those panels where you override these settings. To override or change PF key settings for a single panel, enter the KEYS command. Tivoli OPC displays the panel shown in Figure 4. Any PF key changes you make affect only the panel from which you issued the KEYS command.

It is recommended that you do not alter the key assignments for **PF1** (HELP) or **PF12** (RETRIEVE). **PF12** (RETRIEVE) returns the command last executed to the command prompt. A stack of approximately 25 commands is maintained.

---

## Using Filter Panels

Throughout the Tivoli OPC dialog, options are provided to let you list data elements. This section shows how to use selection criteria to filter and limit the amount of data displayed in lists.

You use selection criteria to specify the contents of lists in the Tivoli OPC dialog. Figure 5 on page 9 shows an example of a selection criteria panel. You can display this panel by entering **5.3** from the Tivoli OPC main menu.

```

EQQSOPFP ----- SELECTING OPERATIONS -----
Command ==>

Specify selection criteria below and press ENTER to create an operation list.

JOBNAME          ==> P*
FAST PATH        ==> Y 1          Valid only along with jobname
                                      Y Yes, N No
APPLICATION ID    ==> _____
OWNER ID         ==> _____
AUTHORITY GROUP  ==> _____
WORK STATION NAME ==> _____
PRIORITY         ==> -           Low priority limit
MANUALLY HELD   ==> -           Y Yes, N No
STATUS          ==> _____   List of status codes:
                                      A R * S I C E W U and D

Input arrival in format YY/MM/DD HH.MM
FROM            ==> _____
TO              ==> _____

GROUP DEFINITION ==> _____
    
```

Figure 5. Selecting Operations

On this and other selection criteria panels, you can use blanks, complete names, IDs, or generic search arguments in the input fields.

To reduce overhead during searches, use the fast-path option when it is available on selection criteria panels (see **1** Figure 5).

## Using Generic Search Arguments

Many input fields in the Tivoli OPC dialog accept generic search arguments. You specify a generic search argument by entering either an asterisk (\*) or a percent sign (%) in an input field. You can enter these characters by themselves or in combination with other characters.

Use an asterisk (\*) to represent any character string or a null string. The percent sign (%) represents any single character.

If you want to select all applications whose first three letters are PAY, enter these characters in the input field:

```
APPLICATION ID ==> PAY*_____
```

If you want to select all applications where P is the first letter and Y is the third letter, you enter:

```
APPLICATION ID ==> P%Y*_____
```

The percent sign in this example results in a search for application identifiers where there is any single character between P and Y.

Some selection panels contain the:

```
TYPE OF MATCH ==>
```

field. Using this field you can specify the type of match that should be applied for filters, allowing wild characters (\* and %) to be treated as normal characters. If the field is left blank, then standard generic matching is done.

## Using the HELP Command

Wherever you are in an Tivoli OPC dialog, you can get help using the **PF1** (HELP) key. In help panels, scroll forward by pressing Enter. If you keep pressing Enter, you eventually get the first screen of help again—it wraps round.

## Using the SORT and LOCATE Commands

This section shows how to use the SORT and LOCATE commands to manipulate lists of data displayed by Tivoli OPC.

### Sorting List Output

In all list displays, you can enter the SORT command at the command prompt to display a panel where you can specify the order of the list items. The panel for sorting a list of applications is shown in Figure 6.

```

EQQXSRTL ----- SORTING A LIST ----- ROW 1 TO 14 OF 17
Command ==>                               Scroll ==> PAGE

Enter/change data in rows
or enter DELETE in the command field to delete the active sort:
Sort order = 1-9, where 1 is the first sort field.
Direction = A for ascending (default) or D for descending.

Sort  Direction
order Asc/Desc  Title of field      Description of field
  1      A      Application         Application ID
  2      D      Type               Application type
  3      A      Status             Application status
  -      -      Application text    Verbal description of the application
  -      -      Calendar           Calendar name
  -      -      Group def          Group definition
  -      -      Group id           Authorization group ID
  -      -      Owner              Application owner ID
  -      -      Owner text         Verbal description of application owner
  -      -      Priority           Application priority
  -      -      Tot oper           Total number of operations
  -      -      Tot run            Total number of run cycles
  -      -      Upd-Date           Date in user format of last update
  -      -      Upd-Time           Time in user format of last update
    
```

Figure 6. Sorting a List

There are different sort options for different types of lists. The sort order you request remains in effect for that specific list type until changed.

These steps show how to set sort options for lists. The example uses options for a list of applications.

- 1 In the Sort order column, specify a number to tell Tivoli OPC the order of precedence for the field you select.  
In this example, Application ID is the primary sort field.
- 2 In the Direction column of the same field, specify **A** or a **D** to set the sort sequence.  
In this example, Application ID is to be sorted in ascending order.
- 3 Press Enter to confirm your selections. Tivoli OPC moves the selected fields to the top of the list.
- 4 You return to the list items panel by pressing **PF3** (END).

Tivoli OPC displays the list items in the new sequence.

**Note:** If you sort a list on date fields, use a date format that has the year first. For information on specifying the date format, see page 7.

### Locating Data Strings in List Output

You can enter LOCATE (or LOC) at the command prompt on any list display panel to find a particular data string in the primary sort field. The command also supports generic search strings. For example, if you enter **LOC ABC\*** to find any item in the list beginning with ABC, the list scrolls to the specified field. If the field is not found, the list is displayed starting with the entry before which the specified field would have occurred.

If application name is the primary sort field, request LOCATE applname; similarly, if jobname is the primary sort field, request LOCATE jobname. If you need to issue a LOCATE command against a list of items that is not sorted by the item you want to locate, you can change the sort order by entering the SORT command.



---

## Chapter 3. Describing Your Environment

This chapter shows how to describe your data processing environment to Tivoli OPC. The topics include:

- Creating workstations
- Creating a calendar
- Creating special resources.

Environment data is stored in Tivoli OPC databases. Option 1 on the Tivoli OPC main menu displays this menu:

```
EQQQDBSP ----- MAINTAINING OPC/ESA DATA BASES -----
Option ==>

Select one of the following:

1 WS           - Work station descriptions
2 CALENDAR    - Calendar descriptions
3 PERIOD      - Period descriptions
4 AD          - Application descriptions
5 OI          - Operator instructions
6 SPECRES     - Special resource descriptions
7 ETT        - Event triggered tracking criteria
8 JD         - Job descriptions
9 JCLVAR      - JCL variable tables
```

Figure 7. Maintaining Tivoli OPC Databases

---

### Creating Workstations

Each operation controlled by Tivoli OPC, whether a job, started task, or other activity, must be associated with a *workstation*. The workstation defines where in your installation the activity is performed. There are three workstation types:

- Computer workstations
- Printer workstations
- General workstations.

Of these, the most commonly used are computer and general workstations. Computer workstations are used for batch job and started task operations. You should define at least one job computer workstation and one started-task workstation, even though these may be the same physical processor.

General workstations let you control operations that are normally not automatic, such as manual job preparation.

### Creating a Workstation

These steps show how to create a workstation:

- 1 Access the workstation dialog by selecting option **1 (WS)** on the MAINTAINING OPC/ESA DATABASES menu. Tivoli OPC displays the MAINTAINING WORKSTATION DESCRIPTIONS menu.

## Setting Up the Environment

- 2 Select option 2 (LIST) to display the SPECIFYING WORK STATION LIST CRITERIA panel.
- 3 Enter your search criteria to see the workstations that you want to list. You see this panel:

```
EQQMMLSL ----- LIST OF WORKSTATION DESCRIPTIONS ---- ROW 1 TO 5 Of 5
Command ==>>                                SCROLL ==>> PAGE

Enter the CREATE command above to create a workstation description or enter
any of the following row commands:
B - Browse, D - Delete, M - Modify, C - Copy.

Row  Work station      Type  Last update
cmd  name  description          user  date
'    CPU1 Main JES processor      C    XRAYNER  940128
'    PRT1 Printer pool            P    XRAYNER  940128
'    SETP Used to prepare JCL      G    XRAYNER  940128
'    STC1 Processor for started tasks C    XRAYNER  940128
'    WTO1 Messages for NetView    G    XRAYNER  940128
***** BOTTOM OF DATA *****
```

Figure 8. List of Workstation Descriptions

- 4 To create a workstation, either copy and modify an existing workstation description or use the CREATE command. In both cases, Tivoli OPC displays the panel you see in Figure 9.

```
EQQWCGEP ----- CREATING GENERAL INFORMATION ABOUT A WORK STATION -----
Command ==>>

Enter the command R for resources, A for availability, or M for
access method
above,
or enter/change data below:

WORK STATION NAME  ==>> CPUA 1
DESCRIPTION        ==>> System A-local processor 2
WORK STATION TYPE  ==>> C 3      G General, C Computer, P Printer
REPORTING ATTR     ==>> A 4      A Automatic, S Manual start and completion
                   C Completion only, N Non reporting
PRINTOUT ROUTING   ==>> SYSPRINT The ddname of daily plan printout data set
SERVER USAGE       ==>> B 5      Parallel server usage, B, N, P, or C

Options:
SPLITTABLE        ==>> N      Interruption of operation allowed, Y or N
JOB SETUP          ==>> N      Editing of JCL allowed, Y or N
STARTED TASK, STC ==>> N      Started task support, Y or N
WTO               ==>> N      Automatic WTO, Y or N
DESTINATION        ==>> _____ Name of destination

Defaults:
TRANSPORT TIME    ==>> 00.00   Time from previous work station HH.MM
DURATION          ==>> 00.15 6  Duration for a normal operation HH.MM
```

Figure 9. General Information for a Computer Workstation

- 5 Specify the workstation details on the panel.

Figure 9 shows these values for a computer workstation:

WORK STATION NAME  
CPUA 1.

DESCRIPTION The text in 2 is a brief description of the workstation.

WORK STATION TYPE  
C 3 describes the workstation as a computer workstation.

REPORTING ATTR (attribute)

Every operation in the Tivoli OPC current plan is assigned a *status*, which describes its current condition. When all processing for an operation is finished, the operation is assigned status C (complete).



Before it completes, the operation will have many different statuses as it progresses through the system. The sequence of statuses that an operation is assigned and the mechanism used for reporting status updates depends on the *reporting attribute* **4** of the workstation. In this example, **A** means that the status of operations at this workstation is automatically updated by Tivoli OPC as the operation progresses through the system.

### SERVER USAGE

This is a resource that limits the number of operations that can run at the same time. For workstations representing MVS systems, a parallel server is usually a JES initiator. **B** (Both planning and control) in the SERVER USAGE field **5** tells Tivoli OPC to:

- Consider the number of servers when creating plans
- Submit jobs in the current plan, only up to the limit of the number of servers defined to the workstation.

This means that Tivoli OPC takes the number of parallel servers into account when it develops plans for this workstation and submits work to be processed at this workstation. For example, if Tivoli OPC has 10 jobs to start and there are only 5 servers available, Tivoli OPC starts 5 jobs first, then starts each of the remaining 5 as servers become available.

### DURATION

**00.15** (15 minutes) **6** is the default estimated processing time for operations on this workstation. When creating a current plan, Tivoli OPC uses the estimated duration to work out a timetable for the operations. It is not necessary to give an accurate figure for duration because Tivoli OPC can adjust this figure automatically, using actual durations. Putting a value in this field can save you time when creating operations that run at this workstation (see “Creating Operations” on page 28).

### DESTINATION

When this field is blank, as shown in Figure 9 on page 14, jobs and started tasks are submitted on the system where the Tivoli OPC controller subsystem is started. Tivoli OPC trackers and Tracker Agents can connect to the controller using a variety of communication methods. The destination can be an XCF member name, a VTAM\* logical unit, the ddname of a shared dataset, a TCP/IP address, or an APPC partner logical unit.

## Specifying workstation availability

Tivoli OPC can schedule work on the workstation only when it is available (open for processing work). When you specify workstation availability, create open intervals for each day of the week and specify the number of servers and workstation resources that are available during the open intervals. You can also specify an alternate workstation that Tivoli OPC uses when the normal workstation is not available.

## Setting Up the Environment

These steps show how to specify availability for a computer workstation.

- 1 From the CREATING GENERAL INFORMATION ABOUT A WORKSTATION panel, type **A** on the command line and press Enter. You see this panel:

```
EQQWAVL ----- AVAILABILITY OF A WORK STATION ----- ROW 1 TO 8 OF 8
Command ==> Scroll ==> PAGE

Work station      : CPUA          System A-Local processor

Enter the ALL command above to get all open time intervals or
change data in the rows, and/or enter any of the following row commands:
I(nn) - Insert, R(nn),RR(nn) - Repeat, D(nn),DD - Delete
C - Close a day/date, S - Define open intervals for a day/date

Row  Day of week or  Status      Description of day
cmd  YYMMDD
**** STANDARD _____ DEFINED _____
**** MONDAY _____ STANDARD _____
**** TUESDAY _____ STANDARD _____
**** WEDNESDAY _____ STANDARD _____
**** THURSDAY _____ STANDARD _____
**** FRIDAY _____ STANDARD _____
**** SATURDAY _____ STANDARD _____
**** SUNDAY _____ STANDARD _____
***** BOTTOM OF DATA *****
```

Figure 10. Availability of a Workstation

Figure 10 shows one open interval definition, STANDARD, that is used for all days of the week. The example on this panel is the default for any workstation you create.

- 2 To display or modify the availability of this workstation, enter the ALL command. You see this panel:

```
EQQWMATL ----- ALL OPEN TIME INTERVALS ----- ROW 1 OF 7
Command ==> Scroll ==> PAGE

Work station      : CPUA          System A-Local processor

Change data in the rows, and/or enter any of the following row commands:
I(nn) - Insert, R(nn),RR(nn) - Repeat, D(nn),DD - Delete

Row  Day of week or  Open time interval  Parallel  Resources  Alt.
cmd  YYMMDD         HH.MM - HH.MM     servers   R1  R2  WS
**** STANDARD _____ 00.00 - 06.00 1 25  99 99 _____
**** STANDARD _____ 06.00 - 22.00 10  99 99 _____
**** STANDARD _____ 22.00 - 24.00 99  99 99 _____
***** BOTTOM OF DATA *****
```

Figure 11. All Open Time Intervals

On this panel, you specify when the workstation is open for processing, the number of parallel servers that are available during the intervals specified, resources, and alternate workstations to assume the workload if this workstation fails or goes offline. The defaults for the open time interval, number of parallel servers, and resources are shown in the standard interval **2**.

The example in Figure 11 uses the default number of resources and no alternate workstation. As shown, you can specify multiple open time intervals and vary the number of servers for each interval. The number of parallel servers assigned to Tivoli OPC for the open interval between midnight and 6 a.m. is 25 **1**. The number of servers assigned to the 6 a.m. to midnight interval is 10.

**Note:** If you leave a gap in the intervals that you create for a workstation, the workstation is closed for that time.

- 3 Save the workstation description by pressing **PF3** (END) until you see the message WS CREATED or pressing **PF4** (RETURN) to return to the Tivoli OPC main menu.

## Creating a General Job Setup Workstation

This section shows how to create a new workstation description by copying an existing one.

A *job setup* workstation lets you manually prepare the input stream for an operation. Follow these steps to create a job setup workstation:

- 1 Display the list of workstations by entering =1.1.2 on the command line.
- 2 On the LIST OF WORKSTATION DESCRIPTIONS panel, type **C** next to one of the workstations in the list, and press Enter. Tivoli OPC displays general information for the workstation you are copying.

```

EQQMCGEP ----- CREATING GENERAL INFORMATION ABOUT A WORK STATION -----
Command ==>

Enter the command R for resources or A for availability above, or enter/change
data below:

WORK STATION NAME  ==> JCL1 1
DESCRIPTION        ==> Job setup workstation 2
WORK STATION TYPE  ==> G 3      G General, C Computer, P Printer
REPORTING ATTR     ==> S 4      A Automatic, S Manual start and completion
                                C Completion only, N Non reporting
PRINTOUT ROUTING   ==> SYSPRINT The ddname of daily plan printout data set
SERVER USAGE       ==> N 5      Parallel server usage, B, N, P, or C

Options:
SPLITTABLE         ==> Y 6      Interruption of operation allowed, Y or N
JOB SETUP          ==> Y 7      Editing of JCL allowed, Y or N
STARTED TASK, STC ==> N      Started task support, Y or N
WTO                ==> N      Automatic WTO, Y or N
DESTINATION        ==> _____ Name of destination

Defaults:
TRANSPORT TIME     ==> 00.00    Time from previous work station HH.MM
DURATION           ==> 00.05 8  Duration for a normal operation HH.MM
    
```

Figure 12. General Information for a Job Setup Workstation

- 3 Type the workstation name **1** and update the description **2**.
- 4 Type **G** **3** in the WORK STATION TYPE field.
- 5 Change the reporting attribute **4** because at a manual job setup workstation, you control the start and end of the operation. The **S** tells Tivoli OPC that the status change of operations at this workstation is normally reported manually by an operator from the Ready List dialog. Tivoli OPC lets you manually prepare JCL at a workstation with this attribute.
- 6 Server usage **5** is changed to **N** (neither planning nor control) to allow unlimited concurrent operations.
- 7 Specify **Y** in the SPLITTABLE field **6**. *Splittable* means that you can interrupt the preparation of an input stream by entering the TSAVE (temporary save) command. Tivoli OPC sets the operation status to I (Interrupted). Any changes made to the job are saved but the job is not submitted. You can continue job preparation later.
- 8 Because this workstation is for job setup, change the JOB SETUP field **7** to **Y**. The default for all workstations is **N**.

- Change the duration **8** to the average job preparation time. In this example, it is 5 minutes.

## Creating Calendars

Tivoli OPC uses calendars, periods, and run cycles to automatically include applications in the long-term plan on the dates that you specify.

A Tivoli OPC calendar specifies the status of each day and the work day end time. The status of each day is set to either W, work day or F, free day. A *work day* is a normal business day. *Free days* are nonbusiness days, such as weekends and public holidays. You can create several calendars, but name your primary calendar DEFAULT.

To create or modify a calendar:

- Select option **1.2.2** on the Tivoli OPC main menu. You see this panel:

```

EQQTCAML ----- MODIFYING CALENDARS ----- ROW 1 TO 1 OF 1
Command ==>                               Scroll ==> PAGE

Enter the CREATE command above to create a new calendar or
enter any of the following row commands:
B - Browse, C - Copy, D - Delete, M - Modify,
or G to display a calendar graphically

Row Calendar      Description                Last update
cmd id           user      date      time
' COUNTRYX       Different holidays calendar  JOHN  B  940130  11.10
***** BOTTOM OF DATA *****
    
```

Figure 13. Modifying Calendars

- Type **C** next to an existing calendar, or type the CREATE command, and press Enter. Tivoli OPC displays this panel:

```

EQQTCCAL ----- CREATING A CALENDAR ----- ROW 1 TO 9 OF 9
Command ==>                               Scroll ==> CSR

Enter/change data below and in the rows,
and/or enter any of the following row commands:
I(nn) - Insert, R(nn),RR(nn) - Repeat, D(nn),DD - Delete

CALENDAR ID      ==> DEFAULT
DESCRIPTION      ==> OPC default calendar
WORK DAY END TIME ==> 00.00

Row Weekday or  Comments                Status
cmd date YYYYMMDD
' ' ' ' MONDAY                _____ W
' ' ' ' TUESDAY               _____ W
' ' ' ' WEDNESDAY             _____ W
' ' ' ' THURSDAY              _____ W
' ' ' ' FRIDAY                _____ W
' ' ' ' SATURDAY              _____ F
' ' ' ' SUNDAY                _____ F
' ' ' ' 940126                Australia Day _____ F
' ' ' ' 940204                Chinese New Year _____ F
    
```

Figure 14. Creating a Calendar

Figure 14 shows a calendar with 5 days of the week specified as work days, 2 days of the week specified as free days, and 2 holidays specified as free days.

- Specify the new calendar name in the CALENDAR ID field.

- 4 Specify the default, **00.00**, in the WORK DAY END TIME field.
- 5 Specify the week days as work or free days. In the status column, W identifies work days, and F identifies free days.
- 6 Enter or change the dates of any holidays observed by your production department. The status that you assign to a date overrides the status for the corresponding day of the week. Identify each date with a comment.

## Creating Special Resources

You can use Tivoli OPC special resources to represent any resource in your environment. For example, you can create special resources to represent your tape drives or a database.

Follow these steps to create a special resource called TAPES:

- 1 Select option **1.6** from the Tivoli OPC main menu. You see the MAINTAINING SPECIAL RESOURCES menu.
- 2 Select option **3 (LIST)** from the menu to display the SPECIFYING SPECIAL RESOURCE LIST CRITERIA panel.
- 3 From this panel, you can display a list of the resources that already exist in the database. To do this, type **\*** in the SPECIAL RESOURCE and SPECRES GROUP ID fields, leave the TYPE OF MATCH field blank, and press Enter. You see this panel:

```

EQQDLSL ----- LIST OF SPECIAL RESOURCES ----- ROW 1 TO 4 OF 4
Command ==> create                               Scroll ==> PAGE

Enter the CREATE command above to create a new resource, or,
enter any of the row commands below:
B - Browse, M - Modify, C - Copy, D - Delete

Row Special                               Specres A Qty   Num
cmd Resource                               group ID                               Iv1
''' HEIDE.ISPF.PROFILE                     Y 1   1
''' HEIDE.OPCESA.EQQDUMP                   Y 1   1
''' PAYROLL.DATABASE                       Y 1   1
''' RITZMAN.DSCLOSE.TEST                   Y 1   1
***** BOTTOM OF DATA *****

```

Figure 15. List of Special Resources

- 4 Enter the CREATE command. Tivoli OPC displays this panel:

```
EQQQDCRP ----- CREATING A SPECIAL RESOURCE -----
Option ==>

Select one of the following:

1 INTERVALS - Specify intervals
2 WS       - Modify default connected work stations

SPECIAL RESOURCE ==> tapes_____
TEXT            ==> tape drives_____
SPECRES GROUP ID ==> sample_____
Hiperbatch      ==> N      DLF object Y or N
USED FOR        ==> B      Planning and control C , P , B or N
ON ERROR        ==> f_     On error action F , FS , FX , K or blank

Defaults
QUANTITY        ==> 8      Number available 1-999999
AVAILABLE       ==> Y      Available Y or N
```

Figure 16. Creating a Special Resource

### 5 Use these fields to create a resource:

#### SPECIAL RESOURCE

The name of the resource (up to 44 characters) is translated to uppercase. You can include national characters in the name, but do not use % and \* because Tivoli OPC uses these for filtering and searching in the dialogs.

#### TEXT

A description of the resource, up to 54 characters.

#### SPECRES GROUP ID

The resource group up to 8 characters. The group ID is for selecting subsets of resources in the dialog (a list filter).

#### Hiperbatch\*

Whether the resource represents a data lookaside facility (DLF) object. Type N.

#### USED FOR

Whether the resource is used for:

- P (planning, when the current plan is built)
- C (control, when Tivoli OPC starts an operation)
- B (both)
- N (neither).

#### ON ERROR

What happens if an operation that allocates this resource ends in error (and does not have an overriding keep-on-error specification in the operation definition).

You may want critical jobs to keep their allocated resources even when they fail (for example, so that there is no delay waiting for resources when they are restarted).

- F (free any resource allocated)
- FS (free its full shared allocation of this resource)
- FX (free its full exclusive allocation of this resource)
- K (keep its full allocation of this resource)
- Blank (use the installation default).

The next two fields, QUANTITY and AVAILABLE, are default values. They apply to intervals where quantity or availability is not specified, and apply also to time ranges where there is no interval specified. You can save time by

specifying the normal quantity and availability here and specifying only the *exceptions* in intervals.

QUANTITY 1 to 999 999.

AVAILABLE Available (Y) or unavailable (N). If a resource is not available, an operation that needs the resource cannot be started.

- To specify the default-connected workstations, select option 2 (WS) on the CREATING A SPECIAL RESOURCE panel. You see this panel:

```

EQQQDWML - MODIFYING CONNECTED WORK STATIONS FOR A SPECIAL RE  ROW 1 TO 2 OF 2
Command ==>>                                         Scroll ==>> PAGE

Enter/Change data in the rows, and/or enter any of the following
row commands:
I(nn) - Insert, R(nn),RR(nn) - Repeat, D(nn),DD - Delete

Special resource : TAPES
Text             : tape drives on CPU1 and STC1
Interval        : Default

Row Ws  1
cmd
''' CPU1
''' STC1
***** BOTTOM OF DATA *****

```

Figure 17. Modifying Connected Workstations for a Special Resource

- An asterisk (\*) in the Ws column 1 means that the resource is connected by default to all workstations. If you want to restrict the resource to specific workstations, specify them as shown in Figure 17.
- Save the connected workstations by pressing PF3 (END).
- To create availability intervals, select option 1 (INTERVALS) from the CREATING A SPECIAL RESOURCE panel. You see this panel:

```

EQQQDIML ----- MODIFYING INTERVALS FOR A SPECIAL RESOURCE  ROW 1 TO 3 OF 3
Command ==>>                                         Scroll ==>> PAGE

Enter any of the row commands below:
I(nn) - Insert, R(nn),RR(nn) - Repeat, D(nn),DD - Delete, or,
S - Work stations

Special resource : TAPES
Text             : tape drives on CPU1 and STC1

Row Day of      From To Qty  A
cmd week or Date Time Time
''' STANDARD    08.00 22.00 6  _
''' SATURDAY    00.00 24.00  _  _
''' SUNDAY      08.00 10.00  _  N
***** BOTTOM OF DATA *****

```

Figure 18. Modifying Intervals for a Special Resource

**10** Specify values for each interval where you do not want the default values:

Day of week or Date

Specify a day of the week, a specific date, or STANDARD (days or dates not specified).

From Time, To Time

Specify a time range.

Qty The quantity in the time interval specified. The default quantity and availability are those specified on page 21.

A Available (Y) or unavailable (N).

**11** If you want to modify the connected workstation for a certain interval, select the interval by typing the **S** row command. For example, to specify that only operations on the CPU1 workstation can use the TAPES resource on Saturday, type **S** beside the SATURDAY interval row. You see this panel:

```
EQQQDWML - MODIFYING CONNECTED WORK STATIONS FOR A SPECIAL RE  ROW 1 TO 1 OF 1
Command ==>                                         Scroll ==> PAGE

Enter/Change data in the rows, and/or enter any of the following
row commands:
I(nn) - Insert, R(nn),RR(nn) - Repeat, D(nn),DD - Delete

Special resource : TAPES
Text             : tape drives on CPU1 and STC1
Interval        : SATURDAY      00.00  24.00

Row Ws
cmd
''' CPU1
***** BOTTOM OF DATA *****
```

Figure 19. Modifying Connected Workstations for a Special Resource

**12** Specify the workstation that can use the resource in the Ws column. For this example, type **CPU1**.

**13** Press **PF3** (END) to return to the MODIFYING INTERVALS FOR A SPECIAL RESOURCE panel. When you have specified all the intervals, press **PF3** (END) to return to the CREATING A SPECIAL RESOURCE panel.



---

## Chapter 4. Creating Tivoli OPC Applications

This chapter describes how to create and schedule Tivoli OPC applications and job descriptions.

A Tivoli OPC application is a set of related jobs or tasks. The result of these may be an output listing, a set of invoices, consolidations, or updates which in turn are used by other applications. A Tivoli OPC application can range from a single operation with no dependencies to a maximum of 99 operations at computer, general, and printer workstations. These operations can have complex links within the application and also to other applications. Most applications are run regularly with the required frequency specified when the applications are created.

You can group applications that run together to form an *application group*. With an application group, you specify the run cycles in the *group definition* and not in individual applications. By doing this, you avoid having to specify the same calendar and run-policy information for each application. The use of application groups can save you time in the initial specification of your work to Tivoli OPC and in ongoing maintenance to the applications. You can also use groups in the Modify Current Plan dialog to add, delete, and complete all or part of an application group in the current plan.

A standard Tivoli OPC application can have up to three parts:

### General information

where you specify the application name and other general information that describes the application.

### Run cycles

where you specify when the application is to run. This is optional.

### Operations

where you specify the work to be done.

When creating an application, you must specify general information and operations.

Applications are kept in a database. From the Tivoli OPC main menu, display the application database menu by typing **1.4** on the command line and pressing Enter. You see this panel:

```
EQQASUBP ----- MAINTAINING APPLICATION DESCRIPTIONS -----
Option ==>>

Select one of the following:

1 BROWSE      - Browse applications
2 CREATE      - Create an application
3 LIST        - List applications for further processing
               (browse, modify, copy, delete, print,
               calculate and print run days, modify LTP)
4 PRINT       - Perform printing of applications
5 MASS UPDATE - Perform mass updating of applications
```

Figure 20. Maintaining Application Descriptions

Use option 2 (CREATE) on this panel to create applications and application groups. Job descriptions are created from a different panel. Creating job descriptions is described in “Creating a Job Description” on page 33.

## Creating an Application

This section shows you how to create and schedule an application. It covers the following tasks:

- Specifying general information
- Creating a rule-based run cycle
- Creating operations.

## Specifying General Information

When creating an application, you must specify general information before you can create the operations or run cycles.

- 1 Enter **1.4.2** on the Tivoli OPC main menu. You see this panel:

```

EQQACGPP ----- CREATING AN APPLICATION -----
Command ==>

Enter/Change data below:
Enter the RUN command above to select run cycles or enter the OPER command
to select operations.

Application:
ID          ==> MYAPPLICATION 1
TEXT       ==> A sample application 2 Descriptive text
TYPE       ==> A 3 A - Application, G - Group definition
Owner:
ID         ==> SAMPLE 4
TEXT      ==> Pay Office 5 Descriptive text of application owner
PRIORITY  ==> 5 6 A digit 1 to 9, 1=low, 8=high, 9=urgent
VALID FROM ==> 940501 7 Date in the format YY/MM/DD
STATUS    ==> A 8 A - Active, P - Pending
AUTHORITY GROUP ID ==> Authorization group ID
CALENDAR ID ==> 9 For calculation of work and free days
GROUP DEFINITION ==> Group definition id 10

```

Figure 21. Creating an Application

Figure 21 shows general information for a standard application.

- 2 Specify the Application ID **1**. This can be a name from 1 to 16 characters. The first character must be either an alphabetic or national character. All other characters must be alphanumeric. This is a required input field.
- 3 Enter up to 24 characters of descriptive text in the Application TEXT field **2**.
- 4 The same panel is used to create application groups. In the TYPE field **3**, you must specify if this is an application or application group definition.
- 5 In the Owner ID field **4**, type the name of the owner of the application. It can be a department name, such as PAYROLL. This field can be used to control access to the application. It is a required input field.
- 6 In the Owner TEXT field **5**, you can enter up to 24 characters of descriptive text.
- 7 Type a value from 1 (low) to 9 (high) in the PRIORITY field **6**. This is a required input field for applications, but is blank for application groups.
- 8 VALID FROM **7** is the date from which your application is eligible to be included in the long-term and current plans. The default is the application creation date. This field allows you to create several versions of the same application with different valid-from dates. Tivoli OPC picks the correct version for the day it is planning. For example, on July 25 1994, you are

asked to change the sequence of operations in an application that is run daily, and to make the change effective from August 1 1994. To do this:

- a. Copy the application.
- b. Change the valid-from date of the copy to 940801.
- c. Make the requested changes.
- d. Change the in effect and out of effect dates on the run cycles of the copied and the original application. See “Creating a Rule-Based Run Cycle.”
- e. Update the Tivoli OPC long-term plan.

Tivoli OPC will automatically use the new version from August 1.

- 9** Type **A** in the STATUS field **8** if you want to include your application in the long-term and current plans. Setting the status of an application to P (Pending) is a simple way to prevent Tivoli OPC from scheduling an application that you want to keep out of the plan temporarily. Tivoli OPC disregards Pending applications when it is creating plans. This is a required input field.
- 10** When calculating the run dates for an application, Tivoli OPC uses the calendar that you specify in the CALENDAR ID field **9**. If you do not specify a calendar, Tivoli OPC uses the default calendar.
- 11** If the application is part of a group, specify the group name in the GROUP DEFINITION field **10**.
- 12** After filling in the general information, verify your entries by pressing Enter.

## Creating a Rule-Based Run Cycle

For an application to be automatically included in the long-term plan (LTP), it must contain at least one run cycle specified either in the application itself or in a group definition. The run cycle must also be in effect for the duration of the LTP (that is, the *in-effect date* of the run cycle must be within the range of time covered by the LTP).

When creating a rule-based run cycle you:

1. Specify general information on the RUN CYCLES panel.
2. Specify the run policy on the MODIFYING A RULE panel.

The example in this section shows how to use rules to create a run cycle for scheduling an application to run on the second Thursday of every month.

- 1 Display the RUN CYCLES panel by entering RUN on the CREATING AN APPLICATION panel. You see this panel:

```

EQQAMRPL ----- RUN CYCLES ----- ROW 1 OF 1
Command ==>                               Scroll ==> PAGE

Enter/Change data in the rows, and/or enter any of the following
row commands:
I(nn) - Insert, R(nn),RR(nn) - Repeat, D(nn),DD - Delete
S - Specify run days/Modify rule

Application      : MYAPPLICATION___ A sample application
  Name of        In      Out of
Row period/rule Input Deadline   F day effect  Effect
cmd  Text       HH.MM day HH.MM Type rule  YYMMDD YYMMDD Variable table

s''' RULE01_    21.00 01 06.00 R   4   940129 991231 _____
  Run ONLY on the second Thursday of every month.
    
```

Figure 22. Run Cycles

- 2 In the Name of period/rule column, specify a name for the rule. In the example, it is **RULE01**.
- 3 In the Input HH.MM column, specify the application input arrival time on the day it is scheduled to run. In the example, the input arrival time is **21.00**.

Each instance of an application in the long-term or current plan is called an *occurrence*. Input arrival time forms part of the key that uniquely identifies each occurrence of the application in the plans; it is *not* the time that Tivoli OPC starts the application, unless the first operation is time-dependent (creating a time-dependent operation is described in “Specifying operation details” on page 30).

When the daily planning process is selecting occurrences from the long-term plan, it selects only those occurrences with input arrival times that fall within the planning period.

- 4 In the Deadline day and Deadline HH.MM columns, specify the deadline day and time for completion of the last operation in the application. In this example the deadline day is **1**, and the deadline time is **06.00**. This means that relative to the input arrival date for the occurrence, all operations in the application must be completed by 6 a.m. on the first work day after the occurrence is added to the current plan.
- 5 Press Enter, and Tivoli OPC supplies the fields in the TYPE, F day rule, and In effect and Out of effect columns with default values. Figure 22 shows the default values.

The fields can contain these values:

TYPE

There are two types of rule-based run cycles:

- R Regular rule, which specifies when to run the application.
- E Exclusion rule, which specifies when *not* to run the application. Use this rule to suppress runs that are generated by regular run cycles. For example, if the regular rule specifies “Every Thursday in the Year,” you may want a rule that excludes the “Last Thursday in April.”

F day rule

Free-day rules provide the flexibility to schedule your applications precisely when they are required. You use free-day rules to tell Tivoli OPC what to do if an application run date falls on a free day. There are five free-day rule options:

- E Count only work days, and exclude free days. If the rule is “Every tenth day in the month,” for example, Tivoli OPC generates every tenth work day, whereas the other options consider every tenth calendar day and then decide what to do if it is free.
- 1 Reschedule the application on the closest work day *before* the free day.
- 2 Reschedule the application on the closest work day *after* the free day.
- 3 Schedule the application *on* the free day.
- 4 *Do not* schedule the application at all. This is the default for rule-based run cycles.

In effect, Out of effect

The in-effect and out-of-effect dates specify the period of time when Tivoli OPC uses this run cycle.

- 6 It is a good practice to document each run cycle with explanatory text. Tivoli OPC provides the space to do this on the line below the other fields ( **1** in Figure 22 on page 26).

After filling in the fields, you specify the dates for the run cycle.

**Specifying the run dates**

The following steps show how to specify the dates for the run cycle:

- 1 On the RUN CYCLES panel, enter the S row command next to the run cycle. You see this panel:

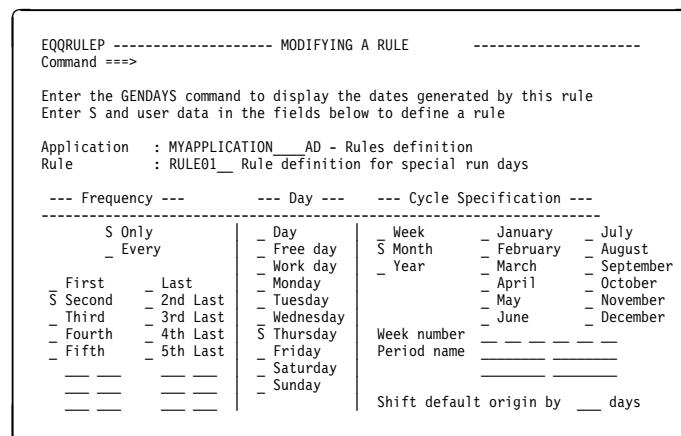


Figure 23. Modifying a Rule

**2** Select or specify values for each of these columns:

- Frequency
- Day
- Cycle Specifications.

The panel shows the selections for scheduling this application on the second Thursday of each month.

**3** Check your definition by displaying the dates that the rule generates. To do this, enter the GENDAYS command on the command line, and return to the MODIFYING A RULE panel by pressing **PF3** (END).

**4** Press **PF3** (END) to return to the RUN CYCLES panel.

**5** Press **PF3** (END) once more to return to the CREATING AN APPLICATION panel.

Now you create operations for the application.

## Creating Operations

The type of workstation depends on the operation task:

- Batch jobs run on computer workstations.
- Started-tasks run on computer workstations that have the STC attribute.
- Job setup operations for jobs and started tasks are created on general workstations that have the SETUP attribute.
- Print operations are created on printer workstations.
- Write-to-operator (WTO) operations are created on a general workstation that has the WTO attribute.
- Dummy operations, which are used to simplify dependencies, are created on nonreporting general workstations.
- Other tasks that you want to be represented by Tivoli OPC operations are usually created on general workstations.

Creating operations for an application includes these tasks:

- Specifying values on the OPERATIONS panel
- Specifying operation predecessors
- Specifying operation details.

The following sections explain how to perform each task.

### Specifying values on the OPERATIONS panel

From the CREATING AN APPLICATION panel, enter the OPER command to display either the OPERATIONS panel on which you enter operations with predecessors (Figure 25 on page 30) or one on which you enter operations with text (Figure 24 on page 29). To switch between these two panels, enter TEXT to display the OPERATIONS panel for specifying text and PRED to display the OPERATIONS panel for specifying predecessors.

```

EQQAMOPL ----- OPERATIONS ----- ROW 1 TO 4
Command ==> Scroll ==>

Enter/Change data in the rows, and/or enter any of the following
row commands:
I(nn) - Insert, R(nn),RR(nn) - Repeat, D(nn),DD - Delete
S - Select operation details, J - Edit JCL
Enter the PRED command above to include predecessors in this list, or,
enter the GRAPH command to view the list graphically.

Application          : MYAPPLICATION      A sample application

Row Oper      Duration Job name  Operation text
cmd ws  no.    HH.MM
'''' NONR 001  00.01          Time dependent
'''' CPUT 005  00.15  TESTJOB1  Depends on pred 001
'''' CPUT 010  00.15  TESTJOB2  Depends on pred 001
'''' WTO1 015  00.01          Please setup TESTJOB3
'''' JCL1 020  00.05  TESTJOB3  Setup oper. for TESTJOB3
'''' CPUT 025  00.15  TESTJOB3  Depends on preds 020,010
***** BOTTOM OF DATA *****

```

Figure 24. Operations, Text Mode

Specify values for the fields on the OPERATIONS panel. Figure 24 shows values that describe each operation in this example application.

**Oper ws** For each operation, specify the name of the workstation where the task will be performed. In the example, the first operation is at a workstation called **NONR**.

**Oper no** Each operation number *must* be unique because these numbers specify required links between operations in the application. The number of the first operation in the example is **001**.

**Duration** Specify either the estimated duration for each operation or leave blank to use the default specified in the workstation definition. The duration of the first operation is set to the minimum of 1 minute, **00.01**.

**Job name** Specify the name of the job the operation represents. Tivoli OPC uses this name to find JCL for the job or started task.

Because operation **001** is at a nonreporting workstation, it does not need a job name. However, for each job setup (**JCL1** in this example), computer (**CPUT** in this example), and printer workstation operation, you must specify a job name. The job name for a setup or print operation must be the same as the associated computer operation.

Operation **015** is a WTO operation. No job name is required for operations at WTO or nonreporting workstations.

**Operation text**

The operation text forms part of a WTO message EQQW775I that is issued on the system console.

## Specifying operation predecessors

In applications with multiple operations, each operation *must* be linked to at least one other operation within the application. If there are any unlinked operations, Tivoli OPC displays the error message APPLICATION INCONSISTENT when you try to save the application.

Display the OPERATIONS panel for specifying dependencies by entering the PRED command on the OPERATIONS, TEXT MODE panel. Tivoli OPC displays the panel in Figure 25.

```

EQQAMOSL ----- OPERATIONS ----- ROW 1 TO 3 OF 3
Command ==>                               Scroll ==> PAGE

Enter/Change data in the rows, and/or enter any of the following
row commands:
I(nn) - Insert, R(nn),RR(nn) - Repeat, D(nn),DD - Delete
S - Select operation details, J - Edit JCL
Enter the PRED command above to include predecessors in this list, or,
enter the GRAPH command to view the list graphically.

Application          : MYAPPLICATION      A sample application

Row Oper   Duration Job name  Internal predecessors          More preds
cmd ws  no.   HH.MM  -----
**** NONR 001   0.01          TESTJOB1  1----- 0 0
**** CPUTA 005   0.05          TESTJOB2  1----- 0 0
**** CPUTA 010   0.10          TESTJOB2  1----- 0 0
**** WTO1 015   0.01          TESTJOB3  15----- 0 0
**** JCL1 020   0.03          TESTJOB3  10 20----- 0 0
**** CPUTA 025   0.05          TESTJOB3  10 20----- 0 0
***** BOTTOM OF DATA *****
  
```

Figure 25. Operations, Predecessor Mode

You specify the links between operations to describe the flow of work to Tivoli OPC. In the application defined in Figure 25, operation 10 at workstation CPUTA must be completed before operation 25 at the same workstation can be started. In addition, operation 20 at workstation JCL1 must be completed before operation 25 can be started. Therefore, operation 25 in this example has two internal prerequisite operations or internal *predecessors*; internal, because the linked operations are all in the same application. This relationship between operations is called a *dependency*.

You can specify up to eight internal predecessors on the panel in Figure 25. You can specify more predecessors on the OPERATION DETAILS panel.

The operations in Figure 25 have the following dependencies:

- Operation 1 has no predecessor.
- Operations 5 and 10 both have operation 1 as their predecessor.
- Operation 15 has no predecessor.
- Operation 20 has operation 15 as a predecessor.
- Operation 25 has two predecessors, operations 10 and 20. Operation 25 is dependent on 20 because a job setup operation must be an immediate predecessor of the related computer workstation operation. Also, both operations must have the same job name.

### Specifying operation details

For each operation in an application, you can specify external predecessors, additional internal predecessors, and additional requirements such as time dependency. To do this, select the operation from the OPERATIONS panel by typing **S** next to the operation and pressing Enter. You see this panel:



```

EQQAMSDP ----- OPERATION DETAILS -----
Option ==>

Select one of the following:

1 PREDECESSORS      - List of predecessors
2 WS RES AND SERVERS - Work station resources and servers
3 SPECIAL RESOURCES - List of special resources
4 AUTOMATIC OPTIONS  - Job, WTO, and print options
5 FEEDBACK          - Feedback options
6 TIME              - Time specifications
7 OP INSTRUCTIONS   - Operator instructions
8 JCL EDIT          - Edit JCL

Application          : MYAPPLICATION      A sample application
Operation            : NONR 001
Duration             : 0.01
Jobname              :
Number of int preds  : 0
Number of ext preds  : 0

```

Figure 26. Operation Details

The steps in this example show how to use operation details to make an operation time dependent, and also dependent on another application, ANOTHERAPPL.

- 1 To make an operation time dependent, select option 4 (AUTOMATIC OPTIONS). You see this panel:

```

EQQAMJBP ----- JOB, WTO, AND PRINT OPTIONS -----
Command ==>

Enter/Change data below:
Application          : MYAPPLICATION      A sample application
Operation            : NONR 001
Job name             :

JOB CLASS           ==> _      Job class of corresponding job
ERROR TRACKING      ==> Y      Y means error automatically tracked
HIGHEST RETURNCODE ==> _      Highest return code not in error
CATALOG MANAGEMENT ==> N      Catalog Management action if error status
CRITICAL ==> N POLICY ==> C    WLM critical job (Y/N) and assist policy
Job release options: Answer Y or N for options below:
SUBMIT              ==> Y      Automatically submitted
HOLD/RELEASE        ==> Y      Automatically held and released
TIME DEPENDENT      ==> Y      Run the job at specified time 1
SUPPRESS IF LATE    ==> N      Suppress the job if not on time
DEADLINE WTO        ==> N      Deadline WTO, Y or N

WS fail options:
RESTARTABLE         ==> _      Operation is restartable
REROUTEABLE         ==> _      Operation is eligible for reroute
Print options:
FORM NUMBER         ==> _
SYSOUT CLASS        ==> _

```

Figure 27. Job, WTO, and Print Options

- 2 To tell Tivoli OPC to start this operation at or after a specific time, change the value for TIME DEPENDENT to Y **1**.
- 3 Save the change by pressing PF3 (END).
- 4 Now select option 6 (TIME) on the OPERATION DETAILS menu. You see the panel in Figure 28.

```

EQQAMTMP ----- TIME SPECIFICATIONS -----
Command ==>

Enter/Change data below:

Application time specifications:
Input arrival time   : 21.00 1
Deadline day/time   : 01 06.00

Operation           : NONR 001

Operation input arrival:
DAY                ==> 00 2      The day the input arrives for operation,
                                relative to application start day
                                (0 means the start day).
TIME               ==> 21.30 3    Arrival time of the input
                                in the format HH.MM

Operation deadline:
DAY                ==> _        Deadline day for operation completion,
                                relative to application start day
                                (0 means the start day).
TIME               ==> _        Deadline time of deadline day
                                in the format HH.MM
    
```

Figure 28. Time Specifications

5 Specify the start day (Operation input arrival DAY) and time (Operation input arrival TIME) for the operation.

The fields DAY 2 and TIME 3 show the time specifications for this example. If no input arrival day or time is specified, Tivoli OPC uses the input arrival time on the Application time specifications 1 (specified on the run cycle).

6 Save the job options and return by pressing PF3 (END).

7 To make the application dependent on another one, select option 1 (PREDECESSORS). You see this panel:

```

EQQAMPDL ----- PREDECESSORS ----- ROW 1 TO 1
Command ==> Scroll ==>

Enter/Change data in the rows, and/or enter any of the following
row commands:
I(nn) - Insert, R(nn),RR(nn) - Repeat, D(nn),DD - Delete
S - Description of external dependency

Application : APP0          test variable subst
Operation   : CPU1 010  JOB0      textforjob0

Row Oper      Transport time  Application id      Jobname
cmd  ws  no.      HH.MM          (for ext pred only)
'''  cpu* 000          another*             *
***** BOTTOM OF DATA *****
    
```

Figure 29. Predecessors

8 If you do not remember the full details of the external application, you can use the asterisk (\*) and percent (%) characters, as shown. Tivoli OPC searches the database for operations that match and gives you a list to select from.

9 After all operation details are specified, save the application and return to the Tivoli OPC main menu by pressing PF4 (RETURN). You see the message APPLICATION CREATED in the upper-right corner of the panel.

## Creating a Job Description

A *job description* is a Tivoli OPC application consisting of a single job, started task, or WTO main operation, and an internal predecessor job preparation, a manual preparation operation, or both. The name of the job description is automatically set to the same name as the main operation.

If your application satisfies these restrictions, you can use the Job Description dialog, which compresses most of the function of the Application Description dialog into one panel by making some assumptions about the application you are creating.

You display the CREATING A JOB panel by entering **1.8.2** on the Tivoli OPC main menu. The panel is displayed with the settings from the previous job description that you created or modified.

The panel shown in Figure 30 shows settings for an example job description.

```

EQQJCGPP ----- CREATING A JOB -----
Command ==>

Edit data below:
Enter the RUN command above to select run cycles or enter the DETAILS
command to specify job details.

JOBNAME - TEXT    ==> TESTJOB1    - _____
OWNER: ID - TEXT  ==> SAMPLE      - _____
CALENDAR ID      ==> _____  AUTHORITY GROUP ID ==> _____
VALID FROM - to  ==> 940501 - 991231  DURATION           ==> 0.15
RUN TIME FROM - TO ==> _____  TIME DEPENDENT     ==> N
WORK STATION     ==> CPUTA          PRIORITY           ==> 5
JCL PREPARATION  ==> N JCL WS ==> _____  HIGHEST RETURN CODE ==> 0000
MANUAL INTERACTION ==> _____  MANUAL WS ==> _____
RUN CYCLES       ==> _____  - _____  - _____  - _____
PREDECESSORS     ==> _____  - _____  - _____  - _____
RESOURCE 1       ==> _____  - _____  - _____  - _____
                ==> 2           - _____  - _____  - _____
                ==> 3           - _____  - _____  - _____
GROUP DEFINITION ==> _____

```

Figure 30. Creating a Job

You must specify values for these fields:

- JOBNAME
- OWNER ID
- WORK STATION
- VALID FROM
- DURATION
- PRIORITY.

From this panel, you have the option to specify more operation details and additional run cycles. You must use the RUN command to add rule-based run cycles.



---

## Chapter 5. Creating and Using the Long-Term Plan

After you have described your installation to Tivoli OPC in the databases, you must build two plans to control your production workload. They are the *long-term* and *current* plans. This chapter covers the following long-term-plan topics:

- Creating the long-term plan
- Adding an occurrence to the long-term plan
- Batch updating of the long-term plan occurrences
- Browsing long-term plan occurrences.

The long-term plan (LTP) contains a high-level description of work scheduled for the coming weeks or months. The LTP typically spans 1 to 2 months. You create the long-term plan once, before a current plan has been created. After the first creation, the LTP is continually extended. You cannot *create* a long-term plan if a current plan already exists. If a current plan exists, you *extend* the LTP.

You build the LTP using Tivoli OPC batch jobs that use data from the application description database, the calendar and period definitions, and the old LTP, if one exists.

---

### Creating a Long-Term Plan

The Tivoli OPC long-term plan batch jobs are usually submitted from the Tivoli OPC dialog. Tivoli OPC uses ISPF file-tailoring to generate JCL for these batch jobs. Skeleton JCL for these batch jobs is stored in a dataset that must be allocated to ddname ISPSLIB in your TSO logon procedure. If the skeleton JCL dataset is not allocated, you see the message NO JCL GENERATED when you try to submit an Tivoli OPC batch job.

The steps in this section describe how to create a long-term plan using the dialog.

- 1 On the Tivoli OPC main menu, type **2.2** and press Enter to display the long-term plan batch-job menu:

```
EQQLBATP ----- SELECTING LONG TERM PLAN BATCH JOB -----
Option ==>

Select one of the following:

1 MODIFY          - Modify the long term plan for all applications
2 MODIFY ONE     - Modify the long term plan for one application
3 EXTEND         - Extend the long term plan
4 TRIAL          - Make a trial long term plan
5 PRINT          - Print the long term plan for all applications
6 PRINT ONE      - Print the long term plan for one application
7 CREATE         - Create a new long term plan
```

Figure 31. Selecting Long Term Plan Batch Job

- 2 Select option **7** (CREATE) to create a new plan. If a long-term plan or current plan already exists for your subsystem, select option **3** (EXTEND). The panels for extending are similar to the ones for creating. However, when you extend, you do not specify a start date; specify just an end date, or the number of days you want to extend for.

```

EQQLCREP ----- CREATING THE LONG TERM PLAN -----
Command ==>

Enter/Change data below:

Long term plan:

START          ==> 940513__  Date in format YYYYMMDD
END            ==> 940518__  Date in format YYYYMMDD
    
```

Figure 32. Creating the Long-Term Plan

On this panel, you specify the length of the LTP you are creating.

- 3 Type a start date and end date, and press Enter. Tivoli OPC displays this panel:

```

EQXSUBP ----- GENERATING JCL FOR A BATCH JOB -----
Command ==>

Enter/change data below and press ENTER to submit/edit the JCL.

JCL to be generated for: CREATE A NEW LONG TERM PLAN

SYSOUT CLASS   ==> - 1 (Used only if output to system printer)
LOCAL PRINTER NAME ==> 2 (Used only if output on local printer)
                  (Used only if CLASS is blank)
DATASET NAME   ==> JOHN.B.OPIC.LTCRE.LIST 3
                  (Used only if CLASS and LOCAL PRINTER
                  are both blank). If blank default name
                  used is JOHN.B.OPIC.LTCRE.LIST

SUBMIT/EDIT JOB ==> S 4 S to submit JOB, E to edit

Job statement :
==> 5 //OPCDPCR JOB (ACCTCDE),'LTP CREATE',
==> 6 // CLASS=A,MSGCLASS=Q,MSGLEVEL=(1,1),NOTIFY=JOHNB
==> 7
==> 8
    
```

Figure 33. Generating JCL for a Batch Job

On this panel, you supply data for Tivoli OPC to prepare the LTP create batch job.

- 4 If you want to send the report that Tivoli OPC generates from the long-term planning process to SYSOUT, specify a class **1**.
- 5 If you want to send the report to a local printer, specify the local printer name **2**.  
If you do not specify a class or LOCAL PRINTER NAME, Tivoli OPC creates a dataset with your TSO user ID as the first qualifier of the dataset name **3**.
- 6 To submit the batch job from this panel, type **S** in the SUBMIT/EDIT JOB field **4**.  
You can edit and save the generated JCL by placing **E** in the SUBMIT/EDIT JOB field.

- 7 If this is the first time that you are using the Tivoli OPC batch job functions with your current TSO user ID, Job statement lines **5**, **6**, **7**, and **8** are blank. On the Job statement lines, type valid job card information.
- 8 After filling in the applicable fields, press Enter. If you selected the SUBMIT option, Tivoli OPC submits the job, then redisplay the panel from which you started your LTP create action. If you selected the EDIT option, you see the JCL. Use the TSO SUBMIT command to submit the job.

Tivoli OPC saves the information you supply for items **1**, **2**, **4**, **5**, **6**, **7**, and **8**. The next time you invoke an Tivoli OPC batch function, it retrieves the information.

## Adding An Occurrence to the Long-Term Plan

Tivoli OPC lets you manually add and remove occurrences and external dependencies in the LTP. In this section, the examples show how to add an occurrence and modify a dependency in the LTP. An occurrence of MYAPPLICATION is added, and an existing occurrence of TESTJOB1 is made an external predecessor to the new occurrence.

To make the steps easier to follow, the names of intermediate panels are mentioned but the panels are not shown.

- 1 On the Tivoli OPC main menu, type **2.1** (LTP.ONLINE) and press Enter to display the SPECIFYING LTP OCCURRENCE LIST CRITERIA panel.
- 2 On the criteria panel, press Enter to display this panel:

```

EQLSTOL ----- LONG TERM PLAN OCCURRENCES ----- ROW 1 TO 6 OF 6
Command ==>                                         Scroll ===== PAGE

Enter the CREATE command above to create a new occurrence or
enter the GRAPH command above to view occurrences graphically, or,
enter any of the commands below:
B - Browse, D - Delete, J - Job setup, M - Modify, RG - Remove from Group

Row Application id  Owner id      Input arrival  Deadline      P C Pre Suc
cmd                date          time date      time
''' TESTJOB1      SAMPLE       940513 08.00 940513 08.30 5 N 0 0
''' TESTJOB1      SAMPLE       940514 08.00 940514 08.30 5 N 0 0
''' TESTJOB1      SAMPLE       940515 08.00 940515 08.30 5 N 0 0
''' TESTJOB1      SAMPLE       940516 08.00 940516 08.30 5 N 0 0
''' TESTJOB1      SAMPLE       940526 08.00 940526 08.30 5 N 0 0
***** BOTTOM OF DATA *****

```

Figure 34. Long-Term Plan Occurrences

**3** You can add extra occurrences to the LTP. Enter the CREATE command to display this panel:

```

EQLLADDP ----- CREATING AN OCCURRENCE -----
Command ==>

Enter/Change data below and press ENTER to create an occurrence.

APPLICATION ID   ==> MYAPPLICATION 1

Input arrival:
DATE            ==> 940513 2 Date in format YYYYDD
TIME           ==> 11.00   Time in format HH.MM

Deadline:
DATE            ==> 940514 3 Date in format YYYYDD
TIME           ==> 06.00   Time in format HH.MM

PRIORITY        ==> 5      1-9 where 1=low, 8=high and 9=urgent
ERROR CODE     ==> _____ Comment on daily plan report
VARIABLE TABLE ==> _____ JCL variable table id
GROUP DEFINITION ==> _____ Group definition id

MORE DETAIL     ==> Y 4   Enter Y to specify further data before
                        creating this occurrence.
    
```

Figure 35. Creating an Occurrence

**4** Now you specify the new occurrence. In this example, these fields are specified:

APPLICATION ID **1**  
 The name of the application you are adding.

Input arrival DATE, TIME **2**  
 The input arrival date and time for the new occurrence. In this example, a new occurrence of MYAPPLICATION is added as a successor to an existing occurrence (TESTJOB1 940513 08.30); so the input arrival date and time of the new occurrence must be on or after the input arrival date and time of its predecessor.

Deadline DATE, TIME **3**  
 The deadline date and time for the new occurrence.

MORE DETAIL **4**  
 Because a dependency is being created for the new occurrence, the MORE DETAIL field has Y.

**5** After specifying more detail, press Enter to display this panel:

```

EQLSELFP ----- SPECIFYING FURTHER OCCURRENCE DATA -----
Option ==>

Select one of the following:

1 OPERATIONS      - Modify operation data
2 DEPENDENCIES    - Modify dependencies
3 OCCURRENCE      - Modify general data
4 JOB SETUP       - Edit JCL
5 BROWSE          - Browse the occurrence

Application       : MYAPPLICATION   A test application
Input arrival     : 940513 11.00
Deadline         : 940514 06.00
Owner            : SAMPLE           Pay Office
Priority          : 5
Error code       :

Variable table    :
Successors       : 0
Predecessors     : 0
    
```

Figure 36. Specifying Further Occurrence Data



- 6 Select option 2 (DEPENDENCIES) to display the MODIFYING DEPENDENCIES panel, where Tivoli OPC displays any existing external dependencies.
- 7 On the MODIFYING DEPENDENCIES panel, enter the CREATE command to display this panel:

```

EQQLCADP ----- CREATING A DEPENDENCY -----
Command ==>

Enter/Change data below:

Application      : MYAPPLICATION    A test application
Input arrival   : 940513  11.00

DEPENDENCY TYPE ==> P          P - Predecessor
                                   S - Successor

If more than one occurrence meet the following criteria
data will be selected from the long term plan.

APPLICATION ID  ==> TESTJOB*_____
Input arrival:
DATE           ==> _____    Date in format YYYYMMDD
TIME          ==> _____    Time in format HH.MM
    
```

Figure 37. Creating a Dependency

In this example, the application TESTJOB1 is made a predecessor to MYAPPLICATION.

- 8 To create a dependency, specify these fields on the panel:

**DEPENDENCY TYPE**

Type **P** or **S** to specify the type of dependency.

**APPLICATION ID**

Type the name of the predecessor application (or use \* if you do not remember the exact name), and press Enter. You see a list of occurrences for the application on the SELECTING AN OCCURRENCE TO CREATE A DEPENDENCY panel. Select a predecessor occurrence from the list. Tivoli OPC redisplay the MODIFYING DEPENDENCIES panel with the dependency information that you specified.

**Input arrival date, time**

If the input arrival date and time of the predecessor application are known, you can skip a step by filling in the date and time fields on this panel.

- 9 After filling in the fields on the CREATING A DEPENDENCY panel, press Enter. Tivoli OPC redisplay this panel:

```

EQQLCDPL ----- MODIFYING DEPENDENCIES -----
Command ==>

Enter the CREATE command above to create a new dependency or
enter any of the commands below:
B - Browse, D - Delete

Application      : MYAPPLICATION    A test application
Input arrival   : 940513  11.00
Deadline        : 940514  06.00

Row Dep  Application id  Input arrival  Complete  Manually Deleted
cmd Type                date    time           Created
'  P      TESTJOB1     940513  08.00  N          Y 1      N
***** BOTTOM OF DATA *****
    
```

Figure 38. Modifying Dependencies

Although this panel shows that the new predecessor was manually created **1**, the modification is not yet saved. If the predecessor occurrence displayed is not the one you want, you can enter the CANCEL command to exit from this panel.

- 10** You save the newly added predecessor by pressing **PF3** (END). Tivoli OPC redisplay the LONG TERM PLAN OCCURRENCES panel with the message CREATED in the upper-right corner of the panel.

---

## Using the LTP Modify Batch Function

After the LTP is created, you use either the LTP *modify one* or the LTP *modify all* function to update the LTP. The LTP modify all automatically resolves external dependencies but the LTP modify one does not.

In the previous section, an external predecessor dependency was manually created for an occurrence. To make the relationship between the two occurrences complete, the predecessor must have a matching successor dependency link. In this section, the LTP modify all option is used to create a successor dependency.

To update the long term plan and resolve external dependencies:

- 1** Enter **2.2.1** from the Tivoli OPC main menu to display the GENERATING JCL FOR A BATCH JOB panel.

On this panel, you see that Tivoli OPC retained the job statement information that you typed when you created the LTP. You also see a different output dataset name. The third qualifier in the dataset name has been changed to reflect the LTP modify all function.

- 2** Type **S** in the SUBMIT/EDIT JOB field, and press Enter to submit the batch job. Tivoli OPC redisplay the main menu.

---

## Browsing Occurrences in the LTP

You use the ONLINE LTP option to browse occurrences in the LTP.

- 1** On the Tivoli OPC main menu, type **2.1** and press Enter to display the SPECIFYING LTP OCCURRENCE LIST CRITERIA panel.
- 2** Enter your search criteria to see the occurrences that you want to list. You see this panel:

```
EQQLSTOL ----- LONG TERM PLAN OCCURRENCES ----- ROW 1 TO 6 OF 6
Command ==>                               Scroll ==

Enter the CREATE command above to create a new occurrence or
enter the GRAPH command above to view occurrences graphically, or,
enter any of the commands below:
B - Browse, D - Delete, J - Job setup, M - Modify, RG - Remove from Group

Row Application id  Owner id      Input arrival  Deadline      P C Pre Suc
cmd              date    time  date    time
*** TESTJOB1      SAMPLE      940513  08.00  940513  08.30  5 N  0  1
*** MYAPPLICATION SAMPLE      940513  11.00  940514  06.00  5 N  1  0
***** BOTTOM OF DATA *****
```

Figure 39. Long Term Plan Occurrences

This panel shows the occurrences. In the Suc (external successor) column of TESTJOB1, you see the number 1. This means that this occurrence has one external successor. The LTP modify all batch function updated this occurrence.

- 3 To browse an occurrence, type **B** (BROWSE) next to the occurrence, and press Enter. You see this panel:

```

EQLBOCP ----- BROWSING AN OCCURRENCE -----
Option ==>

Select one of the following:

1 OPERATIONS      - Browse operations
2 APPLICATION DEP - Browse dependencies (application level)
3 OPERATION DEP  - Browse dependencies (operation level)

Application      : MYAPPLICATION      A test application
Input arrival    : 940513  11.00
Deadline        : 940514  06.00
Owner           : SAMPLE              Pay Office
Priority         : 5
Error code      :

Variable table  :
Successors     : 0
Predecessors   : 1
Manually created : Yes
Group Definition :
    
```

Figure 40. Browsing an Occurrence

- 4 You can display external dependencies for the occurrence by selecting option 2 (APPLICATION DEP) on this menu. You see this panel:

```

EQLBBDL ----- BROWSING DEPENDENCIES ----- ROW 1 TO 1 OF 1
Command ==>                                     Scroll ==> PAGE

View data below:

Application      : MYAPPLICATION      A test application
Input arrival    : 940513  11.00
Deadline        : 940514  06.00

Dep   Application id  Input arrival  Complete  Manually Deleted
Type  date           time                created
P     TESTJOB1       940513  08.00  N         Y         N
***** BOTTOM OF DATA *****
    
```

Figure 41. Browsing Dependencies

In Figure 41, you see that MYAPPLICATION has an external predecessor that was manually created.

5 To browse the operations in an occurrence, select option 1 on the BROWSING AN OCCURRENCE menu. You see this panel:

```
EQQLBOPL ----- BROWSING OPERATION DATA ----- ROW 1 TO 6 OF 6
Command ==>                                         Scroll ==> PAGE

Enter the row command S to select operation details.

Application      : MYAPPLICATION   A test application
Input arrival    : 940513   11.00
Deadline         : 940514   06.00

Row Operation                               Jobname  Input arrival  Duration
cmd ws  no. text                             date         time
'  NONR 001 Time dependent                    940513   21.30   0.01
'  CPUT 005 Depends on pred 001 TESTJOB1      0.05
'  CPUT 010 Depends on pred 001 TESTJOB2      0.10
'  WTOP 015 Setup req. for TESTJOB3 940513   11.00   0.01
'  JCL1 020 Setup oper. for TESTJOB3 TESTJOB3  0.03
'  CPUT 025 Depends on preds 020,010 TESTJOB3  0.05
***** BOTTOM OF DATA *****
```

Figure 42. Browsing Operation Data

In the example in Figure 42, you see that although the input arrival time for the occurrence is 11.00, Tivoli OPC will not start operation 001 until 21.30 because the operation is time-dependent.

The input arrival time of 11.00 for operation 015 is taken from the input arrival time of the application.

## Chapter 6. Producing the Current Plan

This chapter covers topics which include:

- Creating a current plan
- Extending the current plan
- Querying the current plan.

Before Tivoli OPC can schedule work, you must produce a detailed plan called the *current plan*. The current plan (CP) is the heart of Tivoli OPC processing. It drives your production workload and provides feedback about the current status of the workload. The current plan is derived from a section of the LTP and contains the work that Tivoli OPC will run. It typically covers a period of 24 hours.

### Creating the Current Plan

The process of producing the current plan is called *daily planning*. The task of creating the CP is normally done once. After creation, the plan is continually extended using batch functions.

When the CP is created or extended, Tivoli OPC brings in from the LTP all occurrences with an input arrival time that is within the interval you specify. Tivoli OPC creates a detailed schedule for the operations that are contained in these occurrences. When you extend the current plan, the planning process carries forward any uncompleted occurrences into the new plan and updates the LTP with completed occurrence information. Completed occurrences are *not* carried forward into the new plan.

These steps show how to create the current plan using Tivoli OPC dialogs.

- 1 Select option 3 (DAILY PLANNING) on the Tivoli OPC main menu to display the PRODUCING OPC/ESA DAILY PLANS menu.
- 2 To create or extend the current plan, select option 2 (EXTEND) from the PRODUCING TIVOLI OPC DAILY PLANS menu. Tivoli OPC displays this panel:

```
EQQDPEXP ----- EXTENDING CURRENT PLAN PERIOD -----
Command ==>>

Enter/change data below and press ENTER

Current plan end date :

START DATE      ==>> 940513  1  YYMMDD  If no current plan exists
TIME           ==>> 07.00  2  HH.MM   HH.MM
END DATE       ==>> _____ 3  YYMMDD  Specific END date
TIME          ==>> _____ 4  HH.MM   HH.MM   Specific END time
EXTENSION LENGTH ==>> 02400  3  HHHMM  Extend plan by
TYPE          ==>> A      4  A - includes all days
              W - includes only work days in the
              extension length above

Report selection : 5  Y if report wanted, otherwise N
WS SUMMARY      ==>> Y      Summary for all work stations
OPERATING PLAN  ==>> Y      Daily operation plan
WS PLANS        ==>> Y      Plans for all work stations
INPUT ARRIVAL   ==>> Y      List of input arrival operations
NON REPORTING   ==>> Y      Plans for non reporting work station
CURRENT PERIOD  ==>> Y      Print current period results
PLANNED RESOURCE ==>> Y      Planned resource utilization
ACTUAL RESOURCE ==>> Y      Actual resource utilization
```

Figure 43. Extending Current Plan Period

## Creating and Querying the Current Plan

- 3 Specify the length of the current plan and the reports that you want.

**1**, **2**, and **3** in Figure 43 on page 43 show input for creating a 24-hour CP which starts at 7 a.m. on May 13, 1994. This is the most commonly used format for specifying the length of the CP. If no current plan exists, Tivoli OPC uses the current date and time as the default for **1** and **2**. You can change both fields to suit your needs if no CP exists. When extending the CP, change only the extension length **3**, if necessary.

The EXTENSION TYPE field **4** specifies whether both work days and free days (A) or work days only (W) are included when calculating the extension. For example, assume that Saturdays and Sundays are free days in your calendar and you extend the CP by 24 hours at 7 a.m. on Friday. If you include all days by specifying A, the CP extension ends at 7 a.m. on Saturday. If, however, you specify W, the CP is extended to 7 a.m. on Monday. Extension type A is used in the example in Figure 43 on page 43.

When extending the CP, you have the option of producing reports about the contents of the plan (see **5** in Figure 43 on page 43). Tivoli OPC puts the generated reports into a dataset with your user ID as the first qualifier if you do not specify SYSOUT or a local printer on the GENERATING JCL FOR A BATCH JOB panel (see Figure 33 on page 36).

- 4 After specifying the CP length and selecting the reports that you want, press Enter to display the GENERATING JCL FOR A BATCH JOB panel (see Figure 33 on page 36).
- 5 Press Enter to submit the current plan batch job. Tivoli OPC redisplay the daily planning menu with the message JOB SUBMITTED.

---

## Creating a Batch Job to Extend the Current Plan

When you extend the current plan you can duplicate the steps in “Creating the Current Plan” on page 43 or you can automate the process by following these steps:

- 1 Display the EXTENDING CURRENT PLAN PERIOD panel and specify the length of the extension.
- 2 Press Enter to display the GENERATING JCL FOR A BATCH JOB panel.
- 3 Type E in the SUBMIT/EDIT Batch Job field, then press Enter. Tivoli OPC displays the JCL for the current plan batch job.
- 4 Type the copy command C9999 next to the first line of JCL.

- 5 Create a new member in the Tivoli OPC job library by entering the **CREATE** command on the command line of the GENERATING JCL FOR A BATCH JOB panel. You see this ISPF panel:

```

----- EDIT - CREATE -----
COMMAND ==>
"CURRENT" DATA SET: SYS94163.T100711.RA000.JOHN.B.R0000002

TO ISPF LIBRARY:
PROJECT ==>
GROUP   ==>
TYPE    ==>
MEMBER  ==>

TO OTHER PARTITIONED DATA SET MEMBER:
DATA SET NAME ==> 'dataset(member)' 1
VOLUME SERIAL ==> (If not cataloged)

DATA SET PASSWORD ==> (If password protected)

SPECIFY PACK OPTION FOR "CREATE" DATA SET ==> NO (YES or NO)

Press ENTER key to create.
Enter END command to cancel create.
  
```

Figure 44. Creating a Current Plan Extend Job

- 6 In the DATA SET NAME field **1**, type the name of your Tivoli OPC job library dataset and the name of the member you are creating, and press Enter.
- 7 After creating the batch job, create a job or application description for extending the current plan.

## Querying the Current Plan (QCP)

The Query Current Plan (QCP) dialog provides answers to your production status queries. You can request detailed or summary information on individual applications, operations, or workstations, and summary information concerning all the operations. The QCP dialog looks at the current plan, which is continuously updated as the operations are processed.

You can invoke QCP functions from many places in the Tivoli OPC dialog. For example, if you enter row command I (Information) next to an operation in the ready list (covered in Chapter 7, “Communicating with Workstations” on page 51), the SELECTING APPLICATION OCCURRENCE AND OPERATION INFORMATION panel (Figure 49 on page 49) is displayed. This can save time because you do not need to leave an area of the dialog to get information.

To display the CURRENT PLAN AND STATUS INQUIRY menu (Figure 45 on page 46), select option **6** (QCP) on the Tivoli OPC main menu or enter **=6** from anywhere in the Tivoli OPC dialogs.

## Creating and Querying the Current Plan

```
EQQSTOPP ----- CURRENT PLAN AND STATUS INQUIRY -----
Option ==>

Select one of the following:

1 APPLICATIONS - Query application occurrences
2 MOST CRITICAL - Query most critical uncompleted application occurrences

3 OPERATIONS - Query operations (jobs)
4 ENDED IN ERROR - Query operations ended in error

5 WORK STATIONS - Query work station activities

6 GENERAL - Query general information about current plan
```

Figure 45. Current Plan and Status Inquiry

## Querying Application Occurrences

This section shows how to use the QCP dialog to check information about occurrences in the current plan. The topics include:

- Browsing application occurrences in the CP
- Displaying detailed information about an occurrence
- Displaying detailed operation information.

### Browsing application occurrences in the CP

To see details about occurrences:

- 1 Start by displaying the CURRENT PLAN AND STATUS INQUIRY panel (Figure 45).
- 2 Select option 1 (APPLICATIONS) to display the SELECTING APPLICATION OCCURRENCES filtering panel, where you specify the selection criteria.

On this panel, if the STATUS field is left blank, all occurrences that have a status of W (Waiting), S (Started), C (Complete), E (Ended-in-error), or U (Undecided) are displayed. Deleted applications are displayed only when you specifically request applications in D status.

- 3 After specifying selection criteria, press Enter to display the list of occurrences. You see this panel:

```
EQQSA01L ----- BROWSING APPLICATION OCCURRENCES (left part) ROW 1 TO 2 OF 2
Command ==> Scroll ==> PAGE

Enter the GRAPH command above to view occurrences graphically or
scroll right or enter the row command S to select an occurrence for details.

Row Application          Input   Started   Status P Add
cmd id      text      arrival  at
''' TESTJOB1      A job description      13 08.00      W   5
''' MYAPPLICATION  A test application     13 11.00  13 13.02  S   5
***** BOTTOM OF DATA *****
```

Figure 46. Browsing Application Occurrences (left part)

You can tell from the title line that this panel has a left part and a right part. To see the right part, press **PF11** (SCROLL RIGHT).

This example shows that:

- TESTJOB1 has a status W (Waiting).



- MYAPPLICATION was started at 13:02 on day 13 of the current month (Started at column).
- Both applications have an input arrival time on day 13 of the current month.
- Both occurrences were added by a CP batch job function; the Add func (Add function) column is blank.

To find out more about an occurrence, type **S** next to the occurrence, and press Enter to display this panel:

```

EQQSAOSP ----- SELECTING APPLICATION OCCURRENCE INFORMATION -----
Option ==>

Select one of the following:

1 APPLICATION      - Detailed information
2 OPERATION LIST   - Operations of the application occurrence
3 EXTERNAL DEPS    - External dependencies of the occurrence

Application        : MYAPPLICATION      A sample application
Owner              : SAMPLE            Pay Office
Status             : Started
Priority           : 5
Variable table     :

Input arrival time:
Planned            : 940513  11.00
Actual            : 940513  13.02

Group Definition   :
    
```

Figure 47. Selecting Application Occurrence Information

From this panel, you can request detailed information about the occurrence, the operations defined in the occurrence, or the external dependencies established with the occurrence.

### Requesting detailed information about an occurrence

To display detailed information about an occurrence, select option **1** (APPLICATION) on the SELECTING APPLICATION OCCURRENCE INFORMATION menu. You see the panel shown in Figure 48.

```

EQQSAODP ----- BROWSING APPLICATION OCCURRENCE DETAILS -----
Command ==>

Application        : MYAPPLICATION      A sample application
Owner              : SAMPLE            Pay Office
Authority group    :
Status            1: Started
Priority           : 5
Group Definition   :

Date and time for: 2
Input arrival      : 940513  11.00    940513  13.02
Deadline          : 940514  06.00

Remaining on critical path:
No. of operations 3 : 3
Duration          4 : 0.16
First critical oper : NONR 1          Time dependent
Latest start      : 940514  05.44

Occurrence added by 5 : Daily Plan batch run
Rerun              6 : No
    
```

Figure 48. Browsing Application Occurrence Details

On this panel, you see:

- The Status of the application **1**

## Creating and Querying the Current Plan

- Planned and actual start and end times for the occurrence **2**
- The number of uncompleted critical operations **3**
- The estimated duration for the uncompleted operations in the occurrence **4**
- The method used to add the occurrence to the current plan **5**
- If the occurrence is a rerun **6**
- Other application information.

### Getting detailed operation information

Sometimes you need to know why a certain operation is not started. Here are some reasons why a computer workstation operation may not be started:

- The workstation is not open.
- Predecessors are not complete.
- No parallel server is available.
- The workstation is offline or has failed and no rerouting is in effect.
- Not enough workstation resources are available.
- Not all the required special resources are available.
- The operation is waiting for a specific time of day.
- The operation has been manually held.
- The automatic-job-submission option is set to N0 for the operation.
- There was an error during job submission.

These steps show how to get detailed information to determine why an operation is not started:

- 1** Select option **2** (OPERATION LIST) from the SELECTING APPLICATION OCCURRENCE INFORMATION menu (Figure 47 on page 47). Tivoli OPC displays the BROWSING OPERATIONS panel, which lists all operations in the occurrence.

2 On the BROWSING OPERATIONS panel, type S next to the operation you want to check, and press Enter. Tivoli OPC displays this panel:

```

EQQSOPSP  SELECTING APPLICATION OCCURRENCE AND OPERATION INFORMATION -----
Option ==>

Select one of the following:
1 APPLICATION      - Detailed application occurrence information
2 OPERATION        - Detailed operation information
3 OPERATION LIST   - Operations of the application occurrence
4 DEPENDENCIES    - Immediate predecessor and successor information
5 RESOURCES        - List of resources used by the operation
6 JCL              - Browse the JCL
7 OPERATOR INSTR  - Operator instructions
8 EXTERNAL DEPS   - Immediate external dependencies of the occurrence
9 ALL DEPS        - All dependencies of this operation

Application       : MYAPPLICATION      A test application
Operation         : CPUA 025          Depends on preds 020,010
Jobname and jobid : TESTJOB3
Status of operation : Ready 1         Waiting for time 2
on Work Station   :
Priority of operation : 5

Planned input arrival: 940513 11.00
Actual input arrival:
    
```

Figure 49. Selecting Application Occurrence and Operation Information

You can reach this menu from almost anywhere in the modify current plan (MCP), QCP, or workstation communication dialogs. The example in Figure 49 shows why a selected operation is not started. It is Ready **1** but Waiting for time **2**. Refer to *Controlling and Monitoring the Workload* for a complete list of status codes.

Option 9 (ALL DEPS) can be helpful when you want to know why an operation has not started. You can use this option to find out what outstanding predecessors remain before an operation will start and to see the impact of its being late or failing.

To list all dependencies:

1 Select option 9 (ALL DEPS). You see this panel:

```

EQQSOPGD ----- SELECTING ALL DEPENDENCIES -----
Command ==>

Specify selection criteria below and press ENTER to create a dependency list

TYPE OF SELECTION  ==> AP          AP - All predecessor operations
                                      NP - Non-completed predecessors only
                                      AS - All successor operations
                                      NS - Non-waiting successors only

NUMBER OF NESTINGS ==> 999        A digit 1 to 999
    
```

Figure 50. Selecting All Dependencies

2 Specify the type of dependencies you want to see, then press Enter. In the example, AP is selected, which lists all predecessors for the selected operation (Figure 51 on page 50).

```

EQQSPG1L ----- ALL DEPENDENCIES OF AN OPERATION (left part) ROW 1 TO 5 OF 5
Command ==>> Scroll ==>> PAGE

Enter the GRAPH command above to view operations graphically or
scroll right or enter the row command S to select an operation for details.

Application      : MYAPPLICATION      A sample application
Operation       : CPUA 25 1          Depends on preds 020,010
Jobname        : TESTJOB3

Row Lev Ty Operation                               Jobname  Application id  Status
cmd          ws no. text
''' 1 P CPUA 010 Depends on pred 001      TESTJOB2 MYAPPLICATION   W
''' 1 P JCL1 020 Setup oper. for TESTJOB3 TESTJOB3 MYAPPLICATION   W
''' 2 P NONR 001 Time dependent           MYAPPLICATION   W
''' 2 P WTO1 015 Setup req. for TESTJOB3  MYAPPLICATION   S
''' 3 P CPUA 015                               TESTJOB1 TESTJOB1 2   A
***** BOTTOM OF DATA *****

```

Figure 51. All Dependencies of an Operation

On this panel, the operation dependencies are shown by type (Ty) and level (Lev). A P in the type column indicates that the operation in the list is a predecessor to the operation you are checking **1**; S indicates that it is a successor.

If the listed operation is linked directly to the operation you are checking, its level is 1. A direct link from the level 1 operation to another operation is a level 2 dependency. This example shows 3 levels with the highest level being an operation in a different application **2**.

From this panel, you can investigate further by selecting details for any of the operations in the list.

## Querying Late and Uncompleted Occurrences

You can display the applications that are most critical and those that have missed, or are close to missing, the defined deadline.

From the Tivoli OPC main menu, you enter **6.2.0** to display a list of critical, uncompleted occurrences. You see the panel shown in Figure 52:

```

EQQSMC1L ----- BROWSING MOST CRITICAL OCCURRENCES (left part) ROW 1 TO 2 OF 2
Command ==>> Scroll ==>> PAGE

Enter the GRAPH command above to view occurrences graphically or
scroll right or enter the row command S to select an occurrence for details.

Row L Application                               S P First critical oper
cmd 1 id      text                               ws no. stat latest start
''' Y TESTJOB1 A job description                W 5 CPUA 015 A 13 08.25
''' MYAPPLICATION A sample application         S 5 NONR 001 W 14 05.44
***** BOTTOM OF DATA *****

```

Figure 52. Browsing Most Critical Occurrences

On this panel, Tivoli OPC displays occurrences sorted by the latest start time. For any occurrence that contains operations that are not yet started and their latest start times have passed, Tivoli OPC puts Y in the L (Late) column (see **1** in Figure 52). Late operations are at the top of the list.

---

## Chapter 7. Communicating with Workstations

An Tivoli OPC workstation is the place where work is done. All operations in the current plan are associated with a workstation. For an overall view of operations, you use the Query Current Plan dialog. However, if you want to find out which operations are due to start or are already started at a workstation, use the workstation *ready list*. This chapter describes how to:

- Use the ready list dialog.
- Select a ready list layout.
- Use the ready list to:
  - View operator instructions.
  - Prepare jobs at a setup workstation.

---

### Using the Ready List Dialog

The ready list contains operations that have no outstanding predecessors, operations defined to the workstation that are waiting for a particular time or resource, operations that have already started, and operations that have ended in error. The status codes of operations in the ready list can be:

- A Arriving—ready for processing; no predecessors were defined.
- I Interrupted.
- R Ready for processing; all predecessors are complete.
- \* Ready—at least one predecessor is defined on a nonreporting workstation; all predecessors are complete.
- S Started.
- E Ended-in-error.

The ready list can also include one operation in C (Complete) status; the last operation that you manually set to complete. This operation is maintained on the ready list to give you an opportunity to *reset* the operation if you change your mind.

Select option 4 (WORK STATIONS) from the Tivoli OPC main menu to display this menu:

```
EQQRTOPP ----- --- COMMUNICATING WITH WORK STATIONS -----
Option ==>>

Select one of the following:

1 READY LIST      - Using the ready list
2 WAITING LIST    - Review submitted jobs that have a waiting status
3 JOB SETUP       - Setup the JCL for jobs
4 WORK STATIONS   - Review the status of work stations
9 DEFINE RL      - Define alternative ready list layouts
```

Figure 53. Communicating with Workstations

To use ready list functions, select option 1 (READY LIST). Tivoli OPC displays this panel:

```
EQQRSRLP ----- SPECIFYING READY LIST CRITERIA -----
Command ==>

Enter/Change data below and press ENTER to create a ready list.

WORK STATION NAME ==> JCL1 1 (Blank presents a list.)
LAYOUT ID ==> * 2 An id, blank for default, * for a list

Selection criteria:
APPLICATION ID ==> _____
OWNER ID ==> _____
JOB NAME ==> _____
LOWEST PRIORITY ==> - Lowest priority to be selected.
OPERATION STATUS ==> _____ List of status codes, A R * S I E or blank

Latest input arrival:
DATE ==> _____ Select only operations with input
TIME ==> _____ arrival before this date and time.
(Format YYYYDD and HH.MM )

Status sort order ==> CES List of status codes, A R * S I E or C
(Any three must be selected, or all blank)
```

Figure 54. Specifying Ready List Criteria

On this panel, you specify the name of a workstation. You can display the ready list for only one workstation at a time. You also specify criteria to select which operations are included in the ready list.

The ready list displays information about the selected operations. There are up to 90 fields of information that you can select for display. You use *ready list layouts* to identify the fields of information you want to see. Ready list layouts contain the titles of selected fields of information in the order that they are displayed. Several ready list layouts are supplied with Tivoli OPC, each for a different workstation type. You can also create your own ready list layouts.

---

## Selecting a Ready List Layout

To display the ready list layout for a workstation, follow these steps:

- 1 On the panel shown in Figure 54, specify the workstation name in the WORK STATION NAME field 1.

When you select the ready list for a workstation for the first time, you must specify the layout to use for the list. If you have not specified a layout for the workstation that you have selected, Tivoli OPC displays the list of layouts that are available. Tivoli OPC stores your preferred layout for each workstation in your ISPF profile.

- To display all the ready list layouts, type \* in the LAYOUT ID field **2** on the SPECIFYING READY LIST CRITERIA panel, and press Enter. You see the panel displayed in Figure 55.

```

EQQRLYSL ----- SELECTING A READY LIST LAYOUT ----- ROW 1 TO 6 OF 6
Command ==> Scroll ==> PAGE

Enter the CREATE command to create a new layout or
enter any of the row commands below:
S - select a layout, C - create a copy of a layout

Row Layout id Description Owner Last update
cmd Header
1 C1 Layout 1 for CPU work station LEIFT02 860915 08.21
St no. Jobname Operation text Job id Application Oi U
2 C2 Layout 2 for CPU - times LEIFT02 860913 13.12
St no. Jobname Last out time Pl start time E dur Plan end time Oi U
3 C3 Layout 3 for CPU - options LEIFT02 860913 13.19
St no. Jobname Job id Rdr date Rdr t R1# R2# SR# SU# A C H T P Oi U
ID1 Identification layout1 - texts LEIFT02 860913 13.24
St Application Application text no. Ia date Ia time Oi U
ID2 Identification layout2 - texts LEIFT02 860913 13.29
St Application Ia date Ia time no. Operation text Oi U
1 S1 Layout for setup work station LEIFT02 860913 13.37
2 St no. Operation text Ia day Ia time Jobname Lo time Oi U
***** BOTTOM OF DATA *****
    
```

Figure 55. Selecting a Ready List Layout

This figure shows the layouts that are supplied. Each layout occupies 2 lines. The first line **1** contains the name of the layout (Layout id), a description (Description), the ID of the person who created the layout (Owner), and the date and time it was last updated (Last update). The second line **2** contains the titles (Header) of the fields that have been selected for the layout. Refer to *Controlling and Monitoring the Workload* for a complete list of the fields.

- To select a layout for the workstation, type S next to the layout, and press Enter. Tivoli OPC displays the workstation ready list with the layout selected.

```

EQQRRLRM ----- READY LIST ----- ROW 1 TO 1 OF 1
Command ==> Scroll ==> PAGE

Enter any of the following row commands:
N - Set next logical status, N-x - Set specific status( x ),
R - Reset status, O - Operator Instructions, I - Information about operation,
MH manual hold operation, MR manual release operation, NP nop operation,
UN un-nop operation, EX execute operation.

WORK STATION ==> JCL1 Change to switch work station
LAYOUT ID ==> S1 Change to switch layout id

Cmd St no. Operation text Ia day Ia time Jobname Lo time Oi U
''' R 20 Setup oper. for TESTJOB3 06 21.00 TESTJOB3 07 05.53 +
***** BOTTOM OF DATA *****
    
```

Figure 56. Ready List for Job Setup Workstation

## Using the Ready List

You use the row commands that are displayed on the READY LIST panel to do various tasks. The items in Table 4 show some of the tasks and the applicable row commands that you can use.

<i>Table 4. Tasks and row commands on the Ready List</i>	
<b>Task</b>	<b>Row command</b>
Diagnose delays	I (Information about an operation)
Set the status of an operation	N-x (Set specific status x) and N (Set next logical status)
Reset an operation to its previous state	R (Reset status)
Interrupt an operation	N-I (Set specific status)
Set an operation to ended-in-error	N-E (Set specific status)
Read operator instructions	O (Operator Instructions)
Prepare JCL at a setup workstation	N (Set next logical status)
Delay an operation, then release it	MH (manual hold) and MR (manual release)
Make the operation a non-operation, which means that Tivoli OPC passes over it without running it, and continues with its successors. Reverse this by making the operation executable again.	NP (NOP operation) and UN (un-NOP operation)
Run an operation immediately with EXECUTE	EX (execute operation)  <b>Note:</b> Tivoli OPC takes account of predecessors, but otherwise ignores other reasons for waiting (NOP, Held, job submission inactive, time not reached, resources unavailable, job not automatically submittable, workstation is being shut down).

The next sections in this chapter show examples of how to use the O and N row commands on the ready list.



## Viewing Operator Instructions

Some operations might require specific instructions about how they are to be handled. These instructions are called *operator instructions*. You can tell whether instructions exist for an operation by looking at the code in the 0i ready-list field (see **1** in Figure 56 on page 53). The three operator instruction codes displayed in the 0i ready-list field are:

- N There are no operator instructions.
- Y There are operator instructions.
- + Some operator instructions have been changed recently. The default is 30 days, but the definition of “recent” depends on installation parameters.

- 1 To browse operator instructions for an operation, type the letter **O** next to the operation on the READY LIST panel, and press Enter. Tivoli OPC displays the instructions using the ISPF/PDF browse function.
- 2 To return to the READY LIST panel, press **PF3** (END).

## Preparing Jobs at a Setup Workstation

A setup workstation is a general workstation used for preparing jobs manually, when this is necessary. The operation that runs the job on the computer workstation can be started as soon as job setup is complete, if it is not waiting for other conditions to be met.

- 1 To display the JCL for editing, type **N** (set next logical status) next to the operation, and press Enter. When you set the next logical status for an operation at a job setup workstation, Tivoli OPC sets the status of the setup operation to S (Started). The action that Tivoli OPC takes depends on whether it finds unresolved promptable variables in the job.

Tivoli OPC displays the input stream on this panel:

```

EQQRJCLE ----- EDITING JCL FOR AN OPERATION -----
Command ==>                                         Scroll ==> HALF

Edit JCL below and press END to complete, CANCEL to reject and reset,
or TSAVE to save changes and interrupt the operation.

Application      : MY#APPLICATION#2  A test application
Operation       : CPUA 025           Depends on preds 020,010
Jobname         : TESTJOB3          JCL last updated by: JOHNB

***** ***** TOP OF DATA *****
000001 //TESTJOB3 JOB (account_field),'JOB3',
000002 //                MSGLEVEL=(1,1),NOTIFY=notify_field,
000003 //                MSGCLASS=Q,CLASS=init_class,REGION=4094K
000004 //*
000005 //BR14 EXEC PGM=IEFBR14
000006 //
***** ***** BOTTOM OF DATA *****

```

Figure 57. Editing JCL for an Operation

When you edit the job using the Ready List or MCP dialogs, you edit the latest job from the JCL repository (JS file), which is where Tivoli OPC places modified jobs. The original job is always left unaltered in the partitioned dataset allocated to the ddname EQQJBLIB (JBLIB). This ensures that the master JCL is protected from temporary changes and that reruns of the job use the same JCL as in the original run. To force Tivoli OPC to read a fresh copy of the job from JBLIB, delete all the lines, and end the edit.

To temporarily save changes you make to the job, enter the TSAVE (temporary save) command. Tivoli OPC sets the operation status to I (Interrupted) and saves the JCL but does not submit the job. You redisplay the job by typing N next to the operation and pressing Enter.

- 2** To save the edited JCL, press **PF3** (END). Tivoli OPC sets the status of the operation to C (Complete) and redisplay the READY LIST panel.

---

## Chapter 8. Modifying the Current Plan (MCP)

After the current plan is built, you might need to make changes to it if, for example, a processor becomes unavailable, or you need an extra run of an application. To perform these tasks, you use the Modify Current Plan (MCP) dialog. This chapter shows how to use the MCP dialog to:

- Add an occurrence to the current plan.
- Change the details of operations in the current plan.
- Correct and restart operations that ended in error.
- Rerun an occurrence from a specific operation.

To access the MCP dialog, select option 5 from the Tivoli OPC main menu. You see this menu:

```
EQQMTOPP ----- MODIFYING THE CURRENT PLAN -----
Option ==>

Select one of the following:

1 ADD          - Add a new occurrence to the current plan
2 LIST        - List existing occurrences for further processing

3 OPERATIONS  - List existing operations for further processing
4 ERROR HANDLING - Handle operations in error
5 WORK STATIONS - Change status and open interval of work stations

6 JOB SETUP   - Prepare JCL for jobs in the current plan

7 SPECRES     - Special resource monitor

9 DEFINE EL   - Define alternative error list layouts
```

Figure 58. Modifying the Current Plan

---

### Adding an Occurrence to the Current Plan

You can add on-request work to the current plan using the MCP dialog. Before you can add an application occurrence to the plan, however, a description of the application must exist in the application description database.

If your installation frequently adds work to the plan that does not have an application description defined for it, consider creating dummy model applications that match the work most commonly added. The simplest model application consists of one computer workstation operation. The job names in these model applications should be dummy names indicating that they are only models.

**Note:** To stop the planning programs adding occurrences for these applications, create them without run cycles, or with run cycles that never generate occurrences.

These steps show how to add an occurrence to the CP. In the example, the application MYAPPLICATION is added to the CP.

- 1 Select option 1 from the MODIFYING THE CURRENT PLAN panel, or enter =5.1 from the command prompt in any other part of the Tivoli OPC dialog.

## Modify Current Plan

```
EQQMADDP ----- ADDING APPLICATIONS TO THE CURRENT PLAN -----
Command ==>

Specify the information below and press ENTER to add the occurrence,
or specify selection criteria to create a list of applications.

APPLICATION ID   ==> MY* _____

Input arrival:
DATE            ==> 940513      Date in format YYYYMMDD
TIME            ==> _____  Time in format HH.MM

Deadline:
DATE            ==> _____  Date in format YYYYMMDD
TIME            ==> _____  Time in format HH.MM

PRIORITY         ==> -          1-9
ERROR CODE       ==> _____ If rerun of occurrence

AUTOMATIC DEP    ==> Y          Automatic dependency add,   Y P S or N
RESOLVE REQUIRED  ==> Y          Auto deps must be resolved, Y or N
GROUP DEFINITION ==> _____ Group Definition filter
```

Figure 59. Adding Applications to the Current Plan

The AUTOMATIC DEP and RESOLVE REQUIRED fields on this panel affect how Tivoli OPC adds the occurrence. These fields and the APPLICATION ID field retain the values from the last occurrence you added. Tivoli OPC always puts the current date in the Input arrival DATE field.

- 2 In this example, a generic application ID is entered so that Tivoli OPC displays a selection list on the SELECTING APPLICATIONS TO ADD TO THE CP panel (Figure 60).

You can save time by entering the full application name on the criteria panel. Tivoli OPC then displays the ADDING AN APPLICATION TO THE CURRENT PLAN panel (Figure 61 on page 59).

```
EQQMAADL ----- SELECTING APPLICATIONS TO ADD TO THE CP - ROW 1 TO 1 OF 1
Command ==>                               Scroll ==> PAGE

Enter the row command A to add an application
or G to add an application group to the Current Plan,

Row Application      description      Group      Owner
cmd id              A sample application  id         Identity
' MYAPPLICATION
***** BOTTOM OF DATA *****
```

Figure 60. Selecting Applications to Add to the CP

- 3 Type **A** next to the application you are adding, and press Enter. Tivoli OPC displays this panel:

```

EQQMAOCP ----- ADDING AN APPLICATION TO THE CURRENT PLAN -----
Command ==>

Enter the DEP command above to verify automatic dependency resolution, or,
enter the OPER command to modify operations.

Application      : MYAPPLICATION      A sample application
Owner           : SAMPLE              Pay Office
Operations       : 6
External predecessors : 0

AUTOMATIC DEP   ==> Y                Automatic resolution of external
                                         dependencies, Y P S or N

Input arrival:
DATE            ==> 940513            Date in format YYMMDD
TIME            ==> 21.00            Time in format HH.MM
Deadline:
DATE            ==> 940514            Date in format YYMMDD
TIME            ==> 06.00            Time in format HH.MM
VARIABLE TABLE ==> _____      JCL variable table to be used
GROUP DEFINITION ==> _____
PRIORITY        ==> 5                 1-9
ERROR CODE      ==> _____      If this is a rerun
    
```

Figure 61. Adding an Application to the Current Plan

- 4 If you are adding an occurrence for an application with no run cycle, you must fill in the input arrival TIME, and deadline DATE and TIME.

The input arrival and deadline DATES and TIMES are filled in by Tivoli OPC if the application has a run cycle. You can modify these fields to:

- Suit the on-request run times
- Change the input arrival TIME if you are adding another occurrence of the application.

- 5 When you press **PF3** (END) to create the new occurrence, Tivoli OPC displays the SELECTING APPLICATIONS TO ADD TO THE CP panel, with the message OCCURRENCE ADDED in the upper-right corner of the panel.

---

## Changing Details of an Operation in the Current Plan

Use the MCP dialog to change the details of operations in the CP. These steps show how to activate automatic submission, and how to remove the time dependency from an operation:

- 1 Select **2** (LIST) on the MODIFYING THE CURRENT PLAN menu (Figure 58 on page 57) to display the SPECIFYING MCP OCCURRENCE LIST CRITERIA panel.
- 2 Specify selection criteria and press Enter. You see this panel:

## Modify Current Plan

```

EQMOCCL ----- MODIFYING OCCURRENCES IN THE CURRENT PLAN   ROW 1 TO 3 OF 3
Command ==>                                         Scroll ==> PAGE

Enter the CREATE command to add a new occurrence or
enter the GRAPH command to display occurrence list graphically or
enter any of the row commands below:
B - Browse, D - Delete, M - Modify, RG - Remove from group, DG - Delete Group,
C - Complete, W -Set to Waiting, R - Rerun, CG - Complete Group

Row Application          Input arrival  S  P  G  Add
cmd id                  text           date    time
''' MYAPPLICATION      A sample application  940513  11.00 S  5  N
''' MYAPPLICATION      A sample application  940513  21.00 S  5  N D
''' TESTJOB1          A job description    940513  08.00 W  5  N
***** BOTTOM OF DATA *****

```

Figure 62. Modifying Occurrences in the Current Plan

**3** Type **M (Modify)** next to the occurrence, and press Enter. Tivoli OPC displays this panel:

```

EQMMOCP ----- MODIFYING AN OCCURRENCE IN THE CURRENT PLAN -----
Command ==>

Enter/change data below:
Enter the DEP command above to verify external dependencies, or,
enter the OPER command to modify operations.

Application          : TESTJOB1          A job description
Owner                : SAMPLE              Pay Office
Status               : Waiting
Operations            : 1
External predecessors : 0

Input arrival:
DATE                 ==> 940513      Date in format YYMMDD
TIME                 ==> 08.00      Time in format HH.MM
Deadline:
DATE                 ==> 940513      Date in format YYMMDD
TIME                 ==> 08.30      Time in format HH.MM

VARIABLE TABLE     ==> _____ JCL variable table id
PRIORITY             ==> 5           1-9
GROUP DEFINITION    ==> _____ Group definition id

```

Figure 63. Modifying an Occurrence in the Current Plan

**4** On this panel, enter **OPER** to display this panel:

```

EQMMOPL ----- MODIFYING OPERATIONS IN THE CURRENT PLAN -   ROW 1 TO 1 OF 1
Command ==>                                         Scroll ==> PAGE

Enter the GRAPH command above to view operations graphically or
change data in the rows, and/or enter any of the following row commands:
I(nn) - Insert, R(nn),RR(nn) - Repeat, D(nn),DD - Delete
J - Edit JCL, O - Browse operator instructions, S - Modify operation details
A - Catalog Management actions, L -Browse joblog

Application          : TESTJOB1          A job description
Owner                : SAMPLE              Pay Office
Input arrival        : 940513      08.00
Status               : Waiting

Row Operation          Jobname  PS Dura- Opt Ext Res  Status
cmd ws no. text        tion    S T S/P S R1 R2 New Cu
''' CPUA 015 _____ TESTJOB1 1 0.05 N N Y   0 0 - A
***** BOTTOM OF DATA *****

```

Figure 64. Modifying Operations in the Current Plan

In this example, occurrence TESTJOB1 is being modified. In the Opt S (SUBMIT) column, you see **N**. This means that automatic job submission is deactivated for the operation in TESTJOB1.

- 5 To activate automatic job submission for this operation, change the N to Y and press **PF3** (END). Tivoli OPC redisplay the panel in Figure 63 on page 60.
- 6 Press **PF3** (END) once more to return to the panel in Figure 62 on page 60. Tivoli OPC displays the message OCCURRENCE MODIFIED.  
Time-dependent operations have Y in the Opt T (Time Dependent) column on this panel.
- 7 To remove time-dependency from an operation, change the Y to N and save the change. If there are no other dependencies, Tivoli OPC starts the operation immediately.

## Correcting and Restarting Failed Operations

When an operation under the control of Tivoli OPC does not complete successfully, it is reported as having ended in error. Tivoli OPC automatically reports failures of jobs or started tasks, and you can manually report failures of other operations using the dialog.

Tivoli OPC keeps an *error list*, which is a list of all operations that have ended in error. You can display this list using either the MCP dialog, which lets you take some action on the operation, or the QCP dialog, where you can only browse the operation.

When you use the HANDLING OPERATIONS ENDED IN ERROR panel (Figure 66 on page 62) in the MCP dialog, you have access to these options:

- Restarting the operation
- Completing or deleting the operation or the occurrence
- Requesting automatic recovery for the operation
- Completing or deleting an occurrence group
- Initiating, discarding, or displaying catalog-management actions
- Browsing the job log.

The steps in this section show how to display the error list:

- 1 Select option 4 (ERROR HANDLING) from the MCP menu. You see this panel:

```

EQQMERRP ----- SPECIFYING ENDED IN ERROR LIST CRITERIA -----
Command ==>

Specify selection criteria below and press ENTER to create a list
of operations that have ended in error.

LAYOUT ID      ==> OPCESA  1      Id of layout, * for a list
JOBNAME        ==> _____
APPLICATION ID  ==> _____
OWNER ID       ==> _____
AUTHORITY GROUP ID ==> _____
WORK STATION NAME ==> _____
ERROR CODE     ==> _____
GROUP DEFINITION ==> _____
    
```

Figure 65. Specifying Ended in Error List Criteria

- 2 On this panel, you specify selection criteria to display only the list items you want to examine. Tivoli OPC uses an error list layout to display selected fields of information about the operation that ended in error. You can create your own error layout or use the supplied layout OPCESA **1**.

### 3 Press Enter to display this panel:

```
EQQMEP1L ----- HANDLING OPERATIONS ENDED IN ERROR (left part ROW 1 TO 1 OF 1
Command ==>                               Scroll ==> PAGE

Scroll right or enter the SUPPRESS command to suppress full row command
information or enter any of the row commands below:

OPERATION RELATED COMMANDS :
I query information, O browse operator instructions, J edit JCL,
C complete, MH manual hold, MR manual release, CAT List Datasets
SR Steplevel restart, JR Joblevel restart, L Browse joblog

OCCURRENCE RELATED COMMANDS:
RER rerun, ARC attempt automatic recovery, WOC reset to waiting, CMP complete
MOD modify, DEL delete, RG Remove from Group, DG Delete Group, or
CG Complete Group

LAYOUT ID          ==> OPCESA__  Change to switch layout id

Cmd Ended   time Application   ws  no. Jobname Errc
''' 940513  14.14 MYAPPLICATION   CPUA 10 TESTJOB2 JCLI
```

Figure 66. Handling Operations Ended in Error

You use the row commands on this panel to act on operations in the error list. Figure 66 shows extended explanatory text for the row commands. Tivoli OPC displays this text when you enter the EXTEND command on this panel. You can suppress the text using the SUPPRESS command.

## Correcting Ended-in-Error Operations

Figure 66 shows job TESTJOB2 ended with a JCL interpreter error; the error code (Errc) is JCLI. Follow these steps to correct the JCL:

- 1 To display the JCL for an ended-in-error operation, type **J** (JCL edit) next to the operation, and press Enter. Tivoli OPC displays the JCL on the EDITING JCL FOR A COMPUTER OPERATION panel.

Tivoli OPC keeps a separate copy of the job for each run. The job you edit using the J row command is always the job that was used during the failing run of the job (unless you have edited it since the failure).

- 2 To save the edited JCL, press **PF3** (END). Tivoli OPC saves the modified job in the JCL repository and redisplay the error list.

Editing and saving the JCL does not cause the operation to be restarted; restart the operation using either the SR (Step-level restart) or the JR (Job-level restart) row command.

Use the SR row command to select the job step where Tivoli OPC will restart the job. Tivoli OPC rebuilds the job for you. Use the JR row command to restart the job at the beginning.

Tivoli OPC can delete and uncatalog datasets that were created in the job, and catalog datasets that were uncataloged. This function is called *catalog management*, and is an installation option.



## Restarting the Operation

The simplest way to restart an operation is to enter the restart row command next to the operation. Tivoli OPC then resets the operation status to ready, and the job or started task is resubmitted when all conditions are met. You would normally choose this way to restart an operation after the cause of the error is corrected.

## Rerunning an Occurrence from a Specific Operation

Sometimes you need to rerun an occurrence either from the first operation or from a specific operation in the sequence. In this section, a sample application called MYAPPLICATION is used to demonstrate how to set up and rerun an application.

- 1 Type **R** (Rerun) next to an occurrence on the MODIFYING OCCURRENCES IN THE CURRENT PLAN panel (Figure 62 on page 60) to display the panel shown in Figure 67.

```

EQQMROCL ----- RERUNNING AN OCCURRENCE IN THE CURRENT PLAN  ROW 1 TO 6 OF 6
Command ==>                                           Scroll ==> PAGE

Enter/change data below and/or enter any of the following row commands:

S - Set restart point, A - Catalog Management actions, L - Browse joblog,
J - Edit JCL, O - Browse operator instructions, MH - Manual HOLD oper,
MR - Manual RELEASE oper, NP - NOP oper, or UN - Undo NOP oper

Application      : MYAPPLICATION      A sample application
Input arrival    : 940513  11.00

DEADLINE DATE    ==> 940514      Date in format YYYYDD
DEADLINE TIME    ==> 06.00      Time in format HH.MM
PRIORITY         ==> 5          1-9 where 1=low, 8=high and 9=urgent
ERROR CODE       ==> _____ For reporting purposes

Row  Operation                               Jobname  Status  Error  Man  Nop  Cat  Log
cmd  ws  no. text                                     code   Hid   A  S  Stat
'   '   '   '
'  NONR 001 Time dependent                       C           N  N  N
'  CPUTA 005 Depends on pred 001  TESTJOB1  C           N  N  N
s  CPUTA 010 Depends on pred 001  TESTJOB2  C           N  N  N
'  WTOP1 015 Setup req. for TESTJOB3             C           N  N  N
'  JCL1 020 Setup oper. for TESTJOB3  TESTJOB3  C           N  N  N
'  CPUTA 025 Depends on preds 020,010  TESTJOB3  C           N  N  N
    
```

Figure 67. Rerunning an Occurrence in the Current Plan

- 2 On this panel, you set the restart point in the application by entering the **S** row command next to the operation where you want to start the rerun.

If there are external dependencies defined to the operation, they are included on the LIST DEPENDENCY STATUS CHANGE panel, which Tivoli OPC displays automatically; if not, the RERUNNING AN OCCURRENCE panel is updated to show the changes in operation status (see Figure 68 on page 64).

```

EQQMROCL ----- RERUNNING AN OCCURRENCE IN THE CURRENT PLAN ROW 1 TO 6 OF 6
Command ==> Scroll ==> PAGE

Enter/change data below and/or enter any of the following row commands:

S - Set restart point, A - Catalog Management actions, L - Browse joblog,
J - Edit JCL, O - Browse operator instructions, MH - Manual HOLD oper,
MR - Manual RELEASE oper, NP - NOP oper, or UN - Undo NOP oper

Application      : MYAPPLICATION      A sample application
Input arrival    : 940513 11.00

DEADLINE DATE    ==> 940514      Date in format YYYYDD
DEADLINE TIME    ==> 06.00      Time in format HH.MM
PRIORITY         ==> 5          1-9 where 1=low, 8=high and 9=urgent
ERROR CODE       ==> _____ For reporting purposes

Row  Operation                               Jobname  Status  Error  Man  Nop  Cat  Log
cmd  ws  no. text                                     code    code   Hld   A  S  Stat
'   '   '   '   '
'  NONR 001 Time dependent                       C          N   N   N
'  CPUTA 005 Depends on pred 001 TESTJOB1 C          N   N   N
'  CPUTA 010 Depends on pred 001 TESTJOB2 R  1          N   N   N
'  WTOP1 015 Setup req. for TESTJOB3             C          N   N   N
'  JCL1 020 Setup oper. for TESTJOB3 TESTJOB3 C          N   N   N
'  CPUTA 025 Depends on preds 020,010 TESTJOB3 W  2          N   N   N

```

Figure 68. Rerunning an Occurrence in the Current Plan

Figure 68 shows that Tivoli OPC set the status of the restart point operation to R **1** and the status of its successor dependency to W **2**. The completed operations at the general workstations and all predecessor operations are set to status C (Complete).

- 3 After setting the restart point, confirm the rerun request. Press **PF3** (END) to display this panel:

```

EQQMCSTL ----- CONFIRM RERUN OF AN OCCURRENCE -----
Command ==> Scroll ==> PAGE

Enter Y in the command field to confirm rerun or
enter N to reject rerun.

Application      : MYAPPLICATION      A sample application
Input arrival    : 940513 11.00
Owner           : SAMPLE
Status          : C

Error code       :
Userfield       :
Reason for restart ==> _____
                  _____
                  _____
                  _____

```

Figure 69. Confirm Rerun of an Occurrence

- 4 On this panel, you confirm or reject the rerun request. You must enter a reason for the restart. Tivoli OPC redisplay the MODIFYING OCCURRENCES IN THE CURRENT PLAN panel with the message STATUS SET TO RERUN.

If you use the MCP dialog to browse details of the occurrence, you see Yes in the Rerun field of the BROWSING APPLICATION OCCURRENCE DETAILS panel (see Figure 48 on page 47).

---

# Glossary

## A

**ABARS.** See *Aggregate Backup and Recovery Support*.

**active application description.** An application description that is complete and ready for use in planning or scheduling.

**actual duration.** At a workstation, the actual time in hours and minutes it takes to process an operation from start to finish.

**adjusted quantity.** The current quantity of a special resource, taking the deviation into account.

**AD.** See *application description*.

**Aggregate Backup and Recovery Support (ABARS).** A DFHSM facility that manages backup and recovery of user-defined data set groups (aggregates). Aggregate backup copies and related control information are written as portable data and control files on 3480 or 3420 volumes.

**Advanced Program-to-Program Communications (APPC).** An implementation of the Systems Network Architecture (SNA), logical unit (LU) 6.2 protocol that allows interconnected systems to communicate and share the processing of programs.

**all-days cyclic period.** A cyclic period where all days are counted when calculating the interval.

**alert.** Two Workload Monitor/2 objects, Operations List and Workstations List, can be used to monitor a Tivoli OPC subsystem and notify you if alert conditions are met. The alert can be a sound (Beep), or a message in a window (Message). The Details view of the Plan object must be open to monitor for plan alerts. The List or Icons views of the Operations List object must be open to monitor for operation alerts.

**APAR.** Authorized program analysis report. A report of a problem that is suspected to be caused by a defect in a current, unaltered release of a program.

**API.** See *application programming interface*.

**APPC.** See *Advanced Program-to-Program Communications*.

**application.** A measurable and controllable unit of work that completes a specific user task, such as the running of payroll or financial statements. The smallest

entity that an application can be broken down into is an operation. Generally, several related operations make up an application.

**application description (AD).** A database description of an application.

**application group.** Type of application description which holds run cycle and calendar information for standard applications or job descriptions which have been defined as a member of the group.

**application ID.** The name of an application. (For example, PAYROLL or DAILYJOBS.)

**application programming interface (API).** A formally-defined programming language interface between an IBM system control program or a licensed program and the user of a program.

**application transaction program (ATP).** A program that uses the Advanced Program-to-Program Communications (APPC) application programming interface (API) to communicate with a partner program at a remote node.

**application version.** See *versions*.

**ATP.** See *application transaction program*.

**authority.** The ability to access a protected resource.

**authority group.** A name used to generate a RACF resource name for authority checking.

**automatic events.** Events recognized by or triggered by an executing program. Automatic events are usually generated by Tivoli OPC tracking programs but can also be created by a user-defined program.

**automatic hold/release.** Function used to control jobs that are submitted outside Tivoli OPC. It allows you to define whether such jobs should be automatically released at the appropriate time if placed in HOLD status when submitted.

**automatic job and started-task recovery.** A Tivoli OPC function that lets you specify, in advance, alternative recovery strategies for operations that end in error.

**automatic-reporting workstation.** A workstation (for example, a processor or printer) that reports events (the starting and stopping of operations) in real time to Tivoli OPC.

**availability.** The degree to which a system (and in Tivoli OPC, an application) or resource is ready when needed to process data.

## B

**batch loader.** A Tivoli OPC batch program that you can use to create and update information in the application-description and operator-instruction databases.

**buffer.** A memory area reserved for performing input/output (I/O) operations.

**BMP.** Batch message processing.

## C

**calendar.** The data that defines the operation department's work time in terms of work days and free days.

**capacity.** The actual number of parallel servers and workstation resources available during a specified open interval.

**capacity ceiling.** The maximum number of operations that a workstation can handle simultaneously.

**catalog.** A directory of files and libraries, with reference to their locations. A catalog may contain other information such as the types of devices in which the files are stored, passwords, blocking factors.

**catalog management.** Catalog management is a recovery function of Tivoli OPC, which handles the deleting or uncataloging of datasets created in a job operation that ends in error.

**CICS.** Customer Information Control System.

**closed workstation.** A workstation that is unavailable to process work for a specific time, day, or period.

**Common Programming Interface (CPI).** A consistent set of specifications for languages, commands, and calls to enable applications to be developed across all Systems Application Architecture (SAA) environments.

**complete (C).** The status of an operation indicating that it has finished processing.

**completion code.** A Tivoli OPC system code that indicates how the processing of an operation ended at a workstation. See *error code*.

**complex of processors.** A JES2 Multi-Access Spool system or a JES3 system with more than one processor.

**computer workstation.** (1) A workstation that performs MVS processing of jobs and started-task operations, and that usually reports status to Tivoli OPC automatically. (2) A processor used as a workstation. It can refer to single processors or multiprocessor complexes serving a single job queue (for example, JES2 or JES3 systems).

**contingency plan.** A plan for emergency response, backup procedures, and post-disaster recovery. Synonymous with disaster recovery plan, emergency plan.

**controller.** The Tivoli OPC component that runs on the controlling system, and that contains the Tivoli OPC tasks that manage the Tivoli OPC plans and databases.

**controlling system.** The system that the controller runs on.

**control on servers.** If a workstation is defined with control on servers, OPC/ESA will not start more operations at the workstation than there are available servers.

**conversation.** In Advanced Program-to-Program Communications (APPC), a connection between two transaction programs over a logical unit-logical unit (LU-LU) session that allows them to communicate with each other while processing a transaction.

**conversation verb.** In Advanced Program-to-Program Communications (APPC), one of the verbs a transaction program issues to perform transactions with a remote program.

**CP.** See *current plan*.

**CPI.** See *Common Programming Interface*.

**CPI-C.** Common Programming Interface for Communications. See also *Common Programming Interface*.

**cross-system coupling facility (XCF).** MVS components and licensed programs use the XCF services to provide additional functions in a SYSPLEX.

**critical path.** The route, within a network, with the least slack time.

**current plan (CP).** A detailed plan of system activity that covers a period of at least 1 minute, and not more than 21 days. A current plan typically covers 1 or 2 days.

**cyclic interval.** The number of days in a cyclic period.

**cyclic period.** A period that represents a constant number of days. There are two types of cyclic periods:

- Work-days-only cyclic period, where only the work days are counted when calculating the number of days in the period.
- All-days cyclic period, where all days are counted.

## D

**daily planning.** The process of creating a current plan.

**DASD.** Direct access storage device.

**database.** A collection of data that is fundamental to a system. Tivoli OPC uses six databases: calendar, period, workstation description, JCL variable table, application description, and operator instruction.

**Data Facility Hierarchical Storage Manager (DFHSM).** A licensed MVS program which provides automatic and command functions that manage user storage space and data recovery.

**Data Facility Systems Management Subsystem/MVS (DFSMS/MVS).** A group of licensed MVS programs which transform system environments from user-managed DASD volumes to administrator-controlled, system-managed data sets.

**Data Lookaside Facility (DLF).** The MVS/ESA component that manages Hiperbatch objects.

**data processing center (DP center).** A center or department, including computer systems and associated personnel, that performs input, processing, storage, output, and control functions to accomplish a sequence of operations on data.

**Data Store.** The Tivoli OPC component managing the job runtime information at the tracked system. It is dedicated to the storing and possible retrieval of sysout datasets belonging to OPC-submitted jobs, to optimize the sysout availability.

**DB2.** DATABASE 2.

**DBCS.** Double-byte character set.

**ddname.** Data definition name.

**deadline.** See *deadline date* and *deadline time*.

**deadline date.** The latest date by which an occurrence must be complete.

**deadline time.** The latest time by which an occurrence must be complete.

**deadline WTO message.** You can specify that Tivoli OPC issue an operator message (EQQW776I) when a started operation has not been marked as completed before the deadline time. In addition to the standard message, the user-defined text that describes the operation is issued as part of the WTO.

**default calendar.** (1) A calendar that you have defined for Tivoli OPC to use when you do not specify a calendar in an application description. (2) A calendar that Tivoli OPC uses if you have neither specified a calendar in an application description, nor defined your own default calendar.

**dependency.** A relationship between two operations in which the first operation must successfully finish before the second operation can begin.

**descriptive text.** User-written text describing the operation. This text is also issued as part of the write-to-operator message if the operation has been started, exceeds its deadline, and has the deadline write-to-operator (WTO) option specified.

**Details notebook.** See Details view.

**Details view.** A view of a Workload Monitor/2 object showing details about the object. The Details view of the Plan object shows information about the current plan. The Details view of the Operation object shows information about the selected operation. The Details view of the Workstation object shows information about the selected workstation.

**deviation.** A temporary variation in the quantity of a special resource.

**DFHSM.** See *Data Facility Hierarchical Storage Manager*.

**DFSMS/MVS.** See *Data Facility Storage Management Subsystem*.

**dialog.** The user's online interface with Tivoli OPC.

**Disaster Recovery Plan (DRP).** A plan for emergency response, backup procedures, and post-disaster recovery. Synonymous with contingency plan, emergency plan.

**DLF.** See *Data Lookaside Facility*.

**DP center.** See *data processing center*.

**DRP.** See *Disaster Recovery Plan*.

**duration.** The length of time an operation is active at a workstation.

## E

**end user.** A person who uses the services of the data processing center.

**ended-in-error (E).** The Tivoli OPC reporting status for an operation that has ended in error at a workstation.

**error code.** A code set by Tivoli OPC to describe how the processing of an operation ended at a computer workstation.

**ETT.** See *event-triggered tracking*.

**estimated duration.** The estimated length of time an operation will use a workstation. This is initially based on a value that is provided when the operation is defined, but can be adjusted automatically by Tivoli OPC's feedback mechanism to reflect actual durations.

**event.** An action that changes an operation's status and changes the current plan.

**event manager.** The Tivoli OPC function that processes all tracking events and determines which of these are Tivoli OPC-related.

**event reader.** A Tivoli OPC task that reads event records from an event dataset.

**event tracking.** A function of Tivoli OPC that follows events in the operations department in real time and records status changes in the current plan.

**event-triggered tracking (ETT).** A component of Tivoli OPC that waits for specific events to occur, and then adds a predefined application to the current plan. ETT recognizes two types of events: the reader event, which occurs when a job enters the JES reader, and the resource event, which occurs when the availability status of a special resource is set to "yes".

**event writer.** A Tivoli OPC task that writes event records in an event dataset.

**exclusive resource.** A resource that can be used by only one operation at a time.

**expected arrival time.** The time when an operation is expected to arrive at a workstation. It can be calculated by daily planning or specified in the long-term plan.

**extended status code.** Together with the normal status codes, Tivoli OPC maintains extended status codes that provide additional information about the status of operations. The extended status code is not always present.

**external dependency.** A relationship between two occurrences, in which an operation in the first

occurrence (the predecessor) must successfully finish before an operation in the second occurrence (the successor) can begin processing.

## F

**feedback limit.** A numeric value in the range 100–999 that defines the limits within which actual data that is collected in tracking is fed back and used by Tivoli OPC.

**filter criteria.** Input values that are used to limit the mass update of applications to only those specified. This term is used in the Tivoli OPC ISPF dialogs.

**first critical operation.** An operation of an occurrence that has the earliest latest-start-time. The first critical operation of an occurrence determines the critical path.

**first operation.** (1) An operation in an occurrence that has no internal predecessor. (2) The start node in a network.

**fixed resources.** A set of resource names used to check the authority of users to access the Tivoli OPC dialogs.

**form number.** A user-defined code that identifies the type of paper to be used for an operation on a printer workstation. Tivoli OPC can use the form number to identify the different print operations belonging to one job.

**free day.** Any day that is not a work day.

**free-day rule.** A rule that determines how Tivoli OPC will treat free days when the application run day falls on a free day.

## G

**general workstation.** A workstation where activities other than printing and processing are carried out. A general workstation reporting to Tivoli OPC is usually manual, but it can also be automatic. Manual activities can include data entry and job setup.

**generic alert.** An alert that is broadcast by Tivoli OPC, and collected by NetView, when an operation ends in error. You can specify this as an option when defining application descriptions.

**global search character.** In Tivoli OPC, a percent sign (%), which represents any single character, or an asterisk (\*), which represents any character string of any length.

**global variable table.** The JCL variable table that Tivoli OPC checks for a variable substitution value if no

value is found in the specific JCL variable table that is associated with the operation.

**Graph view.** (1) A view of the Workload Monitor/2 Workstation object. Shows the total number of operations with different statuses for a single workstation. (2) In the Graphical User Interface for Application Description, a view of the operations that make up an application. It shows the workstation where each operation is run, and dependencies between the operations.

**Graphs view.** A view of the Workload Monitor/2 Workstations List object. Shows the total number of operations with different statuses for each of the workstations that are included in the object.

**group definition.** The application group to which the application description or job description is a member.

## H

**highest return code.** A numeric value in the range 0–4095. If this return code is exceeded during job processing, the job will be reported as ended-in-error.

**Hiperbatch.** The MVS/ESA facility that stores VSAM and QSAM data in Hiperspace for access by multiple jobs. The facility can significantly reduce the execution time of certain batch streams that access VSAM and QSAM data sets.

**Hot standby.** Using the MVS/ESA cross-system coupling facility (XCF), you can include one or more standby controllers in your configuration. A standby system can take over the functions of a controller if the controller fails or if the MVS/ESA system that it was active on fails.

## I

**Icons view.** The Workload Monitor/2 objects, Workstations List and Operations List, contain other objects. The Icons view shows an icon for each contained object.

**IMS.** Information Management System.

**incident log.** An optional function available under the job completion checker.

**initiator/terminator.** The job scheduler function that selects jobs and job steps to be executed, allocates input/output devices for them, places them under task control, and at completion of the job, supplies control information for writing job output on a system output unit.

**in-progress operation.** An operation with a status of A, R, \*, I, E, or S.

**input arrival time (IAT).** The user-defined date and time when an operation or an application is planned to be ready for processing.

**intermediate start.** The date and time an operation started after processing was interrupted.

**internal date.** Internally, Tivoli OPC uses a two-digit year format when handling dates. In order to handle dates before and after 31 December 1999 correctly, Tivoli OPC uses an origin year of 72 for the internal century window. This means that internally the year 1972 is represented as 00 and 2071 is represented as 99.

**internal dependency.** A relationship between two operations within an occurrence, in which the first operation (the predecessor) must successfully finish before the second operation (the successor) can begin.

**interrupted (I).** A Tivoli OPC reporting status for an operation that indicates that the operation has been interrupted while processing.

**ISPF.** Interactive System Productivity Facility.

## J

**JCC.** See *job completion checker*.

**JCL.** Job control language. A problem-oriented language designed to express statements in a job that are used to identify the job or describe its requirements to an operating system.

**JCL tailoring.** Tivoli OPC provides automatic JCL tailoring facilities, which enable jobs to be automatically edited using information that is provided at job setup or submit.

**JCL variable table.** A group of related JCL variables. See *variable table*.

**JES.** Job entry subsystem. A system facility for spooling, job queuing, and managing I/O.

**job.** (1) A set of data that completely defines a unit of work for a computer. A job usually includes all necessary computer programs, linkages, files, and instructions to the operating system. (2) In Tivoli OPC, an operation performed at a computer workstation.

**job class.** Any one of a number of job categories that can be defined. By classifying jobs and directing initiators to initiate specific classes of jobs, it is possible to control a mixture of jobs that can be run concurrently.

**job-completion checker (JCC).** An optional function of Tivoli OPC that allows extended checking of the results from CPU operations.

**job description.** A single processor (job or started-task) operation and its dependencies.

**Job Description dialog.** The ISPF dialog used to create job descriptions.

**job ID.** The JES job ID of the job associated with the operation.

**job name.** The name of the job associated with an operation. The job name is assigned in the JOB statement of a job. It identifies the job to the system.

**job preparation.** Job preparation involves modifying jobs in preparation for processing. This can be performed manually, by a job preparer, or automatically by Tivoli OPC JCL tailoring functions.

**job setup.** The preparation of a set of JCL statements for a job at a job setup workstation. Job setup can be performed manually by an operator, or automatically by Tivoli OPC.

**job setup workstation.** A general workstation defined with the job setup option. A job setup workstation lets you modify your job or STC JCL before execution.

**job submission.** A Tivoli OPC process that presents jobs to MVS for running on a Tivoli OPC-defined workstation once the scheduling criteria for the operation is met.

**job tracking.** A Tivoli OPC process that communicates with operating systems that control computer workstations.

**JS.** The JCL repository dataset.

## K

**kanji.** A character set for the Japanese language.

## L

**last operation.** (1) An operation in an occurrence that has no internal successor. (2) The terminating node in a network.

**latest out time.** See *latest start*.

**latest start.** The latest day and time (calculated by Tivoli OPC) that an operation can start and still meet the deadline specified for the operation and any successor operations. The latest out time for an operation is identical to the latest start time.

**layout.** In the Graphical User Interface for Application Description, a user-created file that determines which information about each application is displayed when you view a list of application descriptions. An application description contains many details about the application, such as application ID, valid to date, application status, and last user. A layout specifies which details the user wishes to view.

**layout ID.** A unique name that identifies a specific ready or error list layout.

**limit for feedback.** See *feedback limit*.

**list, application.** In the Graphical User Interface for Application Description, a list of application definitions from which the user can select one to work with. It consists of application definitions selected according to user-specified criteria.

**List view.** The Workload Monitor/2 objects Workstations List and Operations List contain other objects. The List view shows a list of the contained object and displays data about each contained object.

**local.** Synonym for channel-attached.

**local processor.** (1) In a complex of processors under JES3, a processor that executes users' jobs and that can assume global functions if the global processor fails. (2) In Tivoli OPC, a processor in the same installation that communicates with the controlling Tivoli OPC processor through shared DASD or XCF communication links.

**logical unit (LU).** In Systems Network Architecture (SNA), a port through which an end user accesses the SNA network in order to communicate with another end user and through which the end user accesses the functions provided by system services control points (SSCPs).

**logical unit 6.2 (LU 6.2).** A type of Systems Network Architecture (SNA) logical unit (LU) for communication between peer systems. Synonymous with APPC protocol, see *Advanced Program-to-Program Communications (APPC)*.

**long-term plan (LTP).** A high-level plan of system activity that covers a period of at least 1 day, and not more than 4 years. It serves as the basis for a service level agreement with your users, and as input to daily planning.

**LU.** See *logical unit*.

**LU-LU session type 6.2.** See *logical unit 6.2*.

**LTP.** See *long-term plan*.



## M

**manipulation button.** One of the two mouse buttons. With default mouse settings, the manipulation button is mouse button 2, the button on the right. You press and hold this button to move an object, for example, to drag an object to a printer. Pressing the manipulation button once when the pointer is on an object, opens the object's pop-menu.

**manual reporting.** A type of workstation reporting in which events, once they have taken place, are manually reported to Tivoli OPC. This type of reporting requires that some action be taken by a workstation operator. Manual reporting is usually performed from a list of ready operations.

**mass updating.** A function of the Application Description dialog in which a large update to the application database can be requested.

**MCU.** Multiple Console Support.

**Merged Graph view.** A view of the Workload Monitor/2 Workstations List object. Shows the total number of operations with different statuses for all the workstations that are included in the object. The information is shown in a single graph.

**modify current plan (MCP).** A Tivoli OPC dialog function used to dynamically change the contents of the current plan to respond to changes in the operation environment. Examples of special events that would cause alteration of the current plan are: a rerun, a deadline change, or the arrival of an unplanned application.

**most critical application occurrences.** Those unfinished applications whose latest start time is less than or equal to the current time.

## N

**NCF.** See *Network Communication Function*.

**NCP.** Network Control Program.

**NetView operations.** Operations that consist of an operator instruction that Tivoli OPC passes to NetView. These operations are run at a general workstation with the WTO option specified.

**Network Communication Function (NCF).** A VTAM application that submits work to remote systems and passes events back to the Tivoli OPC tracker subsystem on the Tivoli OPC controlling system.

**noncyclic period.** A period that does not represent a constant number of days or work days. Examples: quarter, academic semester.

**nonreporting.** A reporting attribute of a workstation, which means that information is not fed back to Tivoli OPC.

## O

**occurrence.** An instance of an application in the long-term plan or current plan.

An application occurrence is one attempt to process that application. Occurrences are distinguished from one another by run date, input arrival time, and application ID. For example, an application that runs four times a day is said to have four occurrences per day.

**occurrence group.** Consists of one or more application occurrences added to the long-term plan or current plan, where such occurrences are defined as belonging to a particular application group specified in the group definition field of the application description or job description.

**offset.** Values, in the ranges 1 to 999 and -1 to -999, that indicate which days of a calendar period an application runs on. This is sometimes called displacement.

**OI.** See *operator instruction*.

**OPC/ESA.** Operations Planning and Control/ESA

**OPC host.** The processor where Tivoli OPC updates the current plan database.

**OPC local processor.** A processor that connects to the Tivoli OPC host or remote processor through shared event datasets or XCF communication links.

**OPC remote processor.** A processor connected to the Tivoli OPC host processor via an SNA network. A Tivoli OPC event writer and an event transmitter (Tivoli OPC Network Communication Function) are installed on the remote processor and transmit events to the Tivoli OPC host processor via VTAM.

**open interval.** The time interval during which a workstation is active and can process work.

**operation.** A unit of work that is part of an application and that is processed at a workstation.

**operation deadline.** The latest time when the operation must be complete.

**operation latest out.** For an operation that has predecessors, the latest out date and time are the latest

start time for the first critical operation in the application occurrence. If the first critical operation has not started by this date and time, then the operation is flagged as late, because it will be impossible for it to start on time based on the sum of the planned durations of all the operations on its critical path.

**operation number.** The number of the operation. This uniquely identifies each operation in an application.

**Operation object.** An object contained in the Workload Monitor/2 Operations List object. It represents one operation in the current plan.

**operation status.** The status of an operation at a workstation.

**operation waiting for arrival.** The status of an operation that cannot begin processing because the necessary input has not arrived at a workstation. This status is applicable only for operations without predecessors.

**Operations List object.** A Workload Monitor/2 object that can be used to display information about operations in the current plan. It contains Operation objects.

**operator instruction (OI).** An instruction that an operator can view when the operator must manually intervene in Tivoli OPC operations.

**origin date.** The date that a period (cyclic or noncyclic) starts on.

**owner ID.** Owner ID is an identifier that represents the application owner.

## P

**parallel operations.** Operations that are not dependent on one another and that can, therefore, run at the same time.

**parallel servers.** These represent the number of operations that can be processed concurrently by that workstation.

**partner transaction program.** An Advanced Program-to-Program Communications (APPC) transaction program located at the remote partner.

**PDF.** Program Development Facility.

**pending application description.** An application description that is incomplete and not ready for use in planning or scheduling. See active application description.

**pending occurrence.** The dummy occurrence created by the daily planning process to honor a dependency that has been resolved in the long-term plan but cannot be resolved in the current plan because the predecessor's input arrival time is not within the current plan end time.

**pending predecessor.** A predecessor dependency to an occurrence which is defined in the long-term plan but not yet included in the current plan. See also *pending occurrence*.

**period.** A time period defined in the Tivoli OPC calendar.

**personal workstation.** In Tivoli OPC documentation this term is used to refer to a computer that runs IBM Operating System/2.

**PIF.** See *program interface (PIF)*.

**plan.** See *current plan*.

**Plan object.** A Workload Monitor/2 object that can be used to get information about the status of the current plan. When the Details view of the Plan object is open, the object monitors for current plan alerts if alert conditions have been specified.

**predecessor.** An operation in an internal or external dependency that must finish successfully before its successor operation can begin.

**print workstation.** A workstation that prints output and usually reports status to Tivoli OPC automatically.

**printout routing.** The ddname of the daily planning printout dataset.

**priority.** The priority of an operation is a value from 1 to 9 (where 1=low, 8=high, and 9=urgent). It is one of the factors that determines how Tivoli OPC schedules applications.

**program interface (PIF).** A Tivoli OPC interface that lets user-written programs issue various requests to Tivoli OPC.

## Q

**query current plan (QCP) dialog.** An ISPF dialog that displays information taken directly from the current plan. The information includes information on operations, workstations, and application occurrences.

**QSAM.** Queued Sequential Access Method.

## R

**RACF.** Resource Access Control Facility.

**read authority.** Access authority that lets a user read the contents of a dataset, file, or storage area, but not change it.

**ready (R).** The status of an operation indicating that predecessor operations are complete and that the operation is ready for processing.

**ready list.** An ISPF display list of all the operations ready to be processed at a workstation. Ready lists are the means by which workstation operators manually report on the progress of work.

**receive.** (1) To obtain a message or file from another computer. Contrast with *send*. (2) In Communications Manager, the command used to transfer a file from a host.

**record format.** The definition of how data is structured in the records contained within a file. The definition includes record names, field names, and field attributes, such as length and data type.

**recovery.** See *automatic job and started-task recovery*.

**remote job tracking.** The function of tracking jobs on remote processors connected by VTAM links to a Tivoli OPC controlling processor. This function enables a central site to control the submitting, scheduling, and tracking of jobs at remote sites.

**remote processor.** A processor connected to the Tivoli OPC host processor via a VTAM network.

**replan current period.** A Tivoli OPC function that recalculates planned start times for all occurrences to reflect the actual situation.

**reporting attribute.** A code that specifies how a workstation will report events to Tivoli OPC. A workstation can have one of four reporting attributes:

- A** Automatic
- C** Completion only
- N** Nonreporting
- S** Manual start and completion.

**reroutable.** Tivoli OPC can reroute operations if the workstation that they are scheduled to run on is inactive. An example of this can be if communication links to the system where the workstation is located fail. This option applies to operations only when they have status R (ready) or W (waiting). When you define an operation, you can specify one of the following reroutable options:

**Y** The operation is eligible to be rerouted if the workstation becomes inactive.

**N** The operation will not be rerouted, even though the workstation has an alternate destination.

**blank** The operation will be rerouted according to the WSFAILURE parameter on the JTOPTS initialization statement. This is the default.

**rerun.** A Tivoli OPC function that lets an application or part of an application that ended in error be run again.

**Resource Object Data Manager.** A licensed program that monitors resources and informs subscribing applications of their availability.

**restartable.** If an operation is defined as restartable, Tivoli OPC can automatically restart that operation if the workstation that it is using becomes inactive. This option applies only to the operation while it has status S (started). The operation will be reset to status R (ready).

**return code.** An error code that is issued by Tivoli OPC for automatic-reporting workstations.

**RODM.** See *Resource Object Data Manager*.

**row command.** An ISPF dialog command used to manipulate data in a table.

**rule.** A named definition of a run cycle that determines when an application will run.

**run cycle.** A specification of when an application is to run. The specification may be in the form of a rule or as a combination of period and offset.

## S

**SAA.** See *Systems Application Architecture*.

**SAF.** System Authorization Facility.

**schedule.** (1) The current or long-term plan. (2) To determine the input arrival date and time of an occurrence or operation.

**selection button.** One of the two mouse buttons. With default mouse settings, the selection button is mouse button 1, the button on the left. You use this button to select windows, menu choices, pages in a notebook, and buttons. Pressing the selection button twice when the pointer is on an object opens the object to the default view.

**send.** (1) To send a message or file to another computer. Contrast with *receive*. (2) In

Communications Manager, the command used to transfer a file to the host.

**server.** The optional Tivoli OPC component that runs on the controlling system and handles requests from remote ISPF dialogs, remote PIF applications, and the Graphical User Interface for Application Description.

**service functions.** Functions of Tivoli OPC that let the user deal with exceptional conditions, such as investigating problems, preparing APAR tapes, and testing Tivoli OPC during implementation.

**service level agreement.** An agreement made between the data processing center and its user groups indicating the service hours and levels, as well as the kind of service the DP center will provide.

**Settings notebook.** See Settings view

**Settings view.** A view of an object that is used to specify properties of the object itself.

**shared DASD.** Direct access storage devices that can be accessed from more than one processor.

**shared resource.** A special resource or workstation resource that can be used simultaneously by more than one operation.

**slack.** Refers to 'spare' time. This extra time can be calculated for the critical path by taking 'Deadline less the Input Arrival less the sum of Operation Durations'.

**SMF.** System Management Facilities. An MVS component that collects and records system and job-related information.

**smoothing factor.** A value in the range 0-100 that controls the extent to which actual durations are fed back into the application description database.

**SMP.** System Modification Program.

**SNA.** See *Systems Network Architecture*.

**special resource.** A resource that is not associated with a particular workstation, such as a dataset.

**splittable.** Refers to a workstation where operations can be interrupted while being processed.

**standard.** User-specified open intervals for a typical day at a workstation.

**started (S).** A Tivoli OPC reporting status, for an operation or an application, indicating that an operation or an occurrence is started.

**started-task computer workstation.** You can specify that a computer workstation will support started tasks by giving the workstation the *STC* option. Operations defined to this workstation will be treated as started tasks, not as jobs.

**started-task operations.** Operations that start or stop started tasks. These operations are run at a computer workstation with the *STC* option specified.

**status.** The current state of an operation or occurrence.

**status code.** Codes that represent the current state of an operation. The status code is often associated with an extended status code.

The status of an operation can be one of the following:

- A** The operation is waiting for input to arrive.
- R** The operation is ready for processing (all predecessors have been reported as complete).
- S** Operation processing has started.
- C** Operation processing has completed.
- D** The operation has been deleted from the current plan.
- I** Operation processing has been interrupted.
- \*** The operation is ready for processing. There is a predecessor at a nonreporting workstation, but all other predecessors are reported as complete.
- E** The operation has ended in error.
- W** The operation is waiting for a predecessor to complete.
- U** The operation status is not known.

**submit/release dataset.** A dataset shared between the Tivoli OPC host and a local Tivoli OPC processor that is used to send job-stream data and job-release commands from the host to the local processor.

**subresources.** A set of resource names and rules for the construction of resource names. Tivoli OPC uses these names when checking a user's authority to access individual Tivoli OPC data records.

**subsystem.** A secondary or subordinate system, usually capable of operating independently of, or asynchronously with, a controlling system.

**successor.** An operation in an internal or external dependency that cannot begin until its predecessor completes processing.

**SYSOUT.** A system output stream, also an indicator used in data definition statements to signify that a dataset is to be written on a system output unit.

**SYSOUT class.** An indicator used in data definition statements to signify that a dataset is to be written on a system output unit. It applies only to print workstations.

**SYSPLEX.** An MVS/ESA systems complex provides systems management enhancements for coordinating and controlling the data processing facility across multiple systems, while minimizing complexity. Implemented using the 9037 Sysplex Timer and the cross-system coupling facility (XCF) component of MVS/ESA.

**Systems Application Architecture (SAA).** A formal set of rules that enable applications to be run without modification, in different computer environments.

**Systems Network Architecture (SNA).** The description of the logical structure, formats, protocols, and operational sequences for transmitting information units through the networks and also operation sequences for controlling the configuration and operations of networks.

## T

**tail plan.** Created during the daily planning process, includes only tail work; that is, work that started during or before the current planning period and that extends beyond its end.

**TCP/IP.** Transmission Control Protocol/Internet Protocol. A set of communication protocols that support peer-to-peer connectivity functions for both local and wide-area networks.

**temporary operator instructions.** Operator instructions that have a specific time limit during which they are valid. They will be displayed to the workstation operator only during that time period.

**time dependent.** Tivoli OPC attempts to start operations as soon as possible, when all dependencies have been resolved and processing resources are available. However, you can specify that an operation is time-dependent, so Tivoli OPC will not start it until a specific time.

**time zone support.** A feature of Tivoli OPC that lets applications be planned and run with respect to the local time of the processor that runs the application. Some networks might have processors in different time zones. The controlling processor will make allowances for differences in time during planning activities to ensure that interacting activities are correctly coordinated.

**TP.** See *application transaction program*.

**tracker.** The Tivoli OPC component that runs on every system in your complex. It acts as the communication

link between the MVS system that it runs on and the controller.

**tracking event log.** A log of job-tracking events and updates to the current schedule.

**transport time.** The time allotted for transporting materials from the workstation where the preceding operation took place to the workstation where the current operation is to occur. The transport time is used only for planning purposes. Operations will be started irrespective of the transport time specified.

**TSO.** Time Sharing Option.

**turnover.** A subfunction of Tivoli OPC that is activated when Tivoli OPC creates an updated version of the current plan.

## U

**undecided (U).** A Tivoli OPC reporting status, for an operation or an application, indicating that the status is not known.

**update authority.** (1) Access authority to use the ISPF/PDF edit functions of the Tivoli OPC dialog. The authority is given to the user via RACF. (2) Access authority to modify a master file or dataset with the current information.

## V

**validity period.** The time interval defined by an origin date and an end date within which a run cycle or an application description is valid.

**variable table.** A group of related JCL variables. Tivoli OPC can check these variable tables for substitution values for variables that occur in JCL. This substitution can occur during job setup or at job submit.

**versions.** Applications with the same ID but different validity dates.

**VSAM.** Virtual Storage Access Method.

**VTAM.** Virtual Telecommunications Access Method.

## W

**waiting (W).** A status indicating that an application is waiting for a predecessor operation to complete.

**waiting list.** A list of jobs that have been submitted but still have uncompleted predecessors. Operations will be included in the waiting list if the JCL is not

submitted by the Tivoli OPC controller and the Tivoli OPC tracker has been started with HOLDJOB(YES).

**work day.** A day on which applications can normally be scheduled to start.

**work-days-only cyclic period.** A cyclic period where only work days are counted when calculating the interval.

**work-day end time.** The time when one Tivoli OPC work day ends and the next day begins. By default, this time is midnight.

For example, if the work-day end time is 02:00, work for Friday can continue until 02:00 on Saturday morning, even if Saturday is a free day. If Saturday and Sunday are free days, no new work will be started until 02:00 on Monday.

**Workload Monitor/2.** A part of Tivoli OPC. It runs on OS/2 Version 2 (or later) and communicates with a Tivoli OPC controller subsystem. It carries data about the subsystem's current plan from the host to a workstation, and can update operation status.

**workstation.** (1) A unit, place, or group that performs a specific data processing function. (2) A logical place where work occurs in an operations department.

Tivoli OPC requires that you define the following characteristics for each workstation: the type of work it does, the quantity of work it can handle at any particular time, and the times it is active. The activity that occurs at each workstation is called an operation. (3) See also *personal workstation*.

**workstation description database.** A Tivoli OPC database containing descriptions of the Tivoli OPC workstations in the operations department.

**workstation resource.** A physical resource, such as a tape drive, that must be allocated among jobs. When you define a workstation, you can specify the quantity of each of two resources (R1 and R2) that are available to operations. When defining operations to that workstation, you can specify the number of these resources that must be available for the operation to start on that workstation.

**workstation type.** Each workstation can be one of three types: computer, printer, or general.

**write-to-operator workstation.** A general workstation that lets you use Tivoli OPC scheduling facilities to issue a write-to-operator (WTO) message at a specific operator console defined by the workstation destination. NetView can intercept the WTO message and take necessary action.

**WTO message.** Write-to-operator message.

**WTO operations.** Operations that consist of an operator instruction that Tivoli OPC passes to NetView. These operations are run at a general workstation with the WTO option specified.

## X

**XCF.** MVS/ESA cross-system coupling facility.

**XRF.** Extended recovery facility.

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