Compaq ACMS for OpenVMS Knowledge Modules

December 1999

This document provides an introduction to the *Compaq ACMS for OpenVMS* knowledge modules, which display information useful for managing an ACMS system.

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Software Version:	*Compaq ACMS for OpenVMS* Version 4.3

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The OpenVMS documentation set is available on CD-ROM.

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Preface

Intended Audience

This document describes the ACMS Knowledge Modules.

This manual is intended for anyone responsible for managing an ACMS system.

Document Structure

This document is organized as follows:

Chapter 1	Provides an overview of ACMS knowledge modules.
Chapter 2	Describes the stages of knowledge module operation.
Chapter 3	Lists the knowledge modules that are included in *Compaq ACMS for OpenVMS* and briefly describes their functions.
Chapter 4	Describes the conventions used to identivy the icons, collectors, and parameters of the ACMS knowledge modules.
Chapter 5	Describes briefly how the ACMS knowledge modules operate.
Chapter 6	Contains tables that list all ACMS knowledge module commands.
Chapter 7	Provides guidelines for modifying ACMS knowledge modules.
Chapter 8	Lists common problems and typical solutions.

ACMS Help

ACMS and its components provide extensive online help.

Note

Online Help for the ACMS knowledge modules is not available from with PATROL. Please refer to this document, which is available in PostScript, HTML, and PDF format.

- DCL level help

  Enter HELP ACMS at the DCL prompt for complete help about the ACMS command and qualifiers, and for other elements of ACMS for which independent help systems do not exist. DCL level help also provides brief help messages for elements of ACMS that contain independent help systems (such as the ACMS utilities) and for related products used by ACMS (such as DECforms or Oracle CDD/Repository).

- ACMS utilities help

  Each of the following ACMS utilities has an online help system:

  ACMS Debugger
  ACMSGEN Utility
  ACMS Queue Manager (ACMSQUEMGR)
  Application Definition Utility (ADU)
  Application Authorization Utility (AAU)
  Device Definition Utility (DDU)
  User Definition Utility (UDU)
  Audit Trail Report Utility (ATR)
  Software Event Log Utility Program (SWLUP)

  The two ways to get utility-specific help are:

  - Run the utility and type HELP at the utility prompt.
  - Use the DCL HELP command. At the ''Topic?'' prompt, type @ followed by the name of the utility. Use the ACMS prefix, even if the utility does not have an ACMS prefix (except for SWLUP). For example:

    ```
    Topic? @ACMSQUEMGR
    ```

    ```
    Topic? @ACMSADU
    ```

    However, do not use the ACMS prefix with SWLUP:

    ```
    Topic? @SWLUP
    ```

  Note that if you run the ACMS Debugger Utility and then type HELP, you must specify a file. If you ask for help from the DCL level with @, you do not need to specify a file.

- ACMSPARAM.COM and ACMEXCPAR.COM help

  Help for the command procedures that set parameters and quotas is a subset of the DCL level help. You have access to this help from the DCL prompt, or from within the command procedures.

- LSE help

  ACMS provides ACMS-specific help within the LSE templates that assist in the creation of applications, tasks, task groups, and menus. The ACMS-specific LSE help is a subset of the ADU help system. Within the LSE templates, this help is context-sensitive. Type HELP/IND (PF1-PF2) at any placeholder for which you want help.

- Error help

  ACMS and each of its utilities provide error message help. Use HELP ACMS ERRORS from the DCL prompt for ACMS error message help. Use HELP ERRORS from the individual utility prompts for error message help for that utility.

- Terminal user help

  At each menu within an ACMS application, ACMS provides help about terminal user commands, special key mappings, and general information about menus and how to select tasks from menus.

- Forms help

  For complete help for Compaq DECforms or Compaq TDMS, use the help systems for these products.

Related Documents

The following table lists the books in the *Compaq ACMS for OpenVMS* documentation set.

ACMS Information	Description
Compaq ACMS Version 4.3 for OpenVMS Release Notes†	Information about the latest release of the software
Compaq ACMS Version 4.3 for OpenVMS Installation Guide	Description of installation requirements, the installation procedure, and postinstallation tasks.
Compaq ACMS for OpenVMS Getting Started	Overview of ACMS software and documentation. Tutorial for developing a simple ACMS application. Description of the AVERTZ sample application.
Compaq ACMS for OpenVMS Concepts and Design Guidelines	Description of how to design an ACMS application.
Compaq ACMS for OpenVMS Writing Applications	Description of how to write task, task group, application, and menu definitions using the Application Definition Utility. Description of how to write and migrate ACMS applications on an OpenVMS Alpha system.
Compaq ACMS for OpenVMS Writing Server Procedures	Description of how to write programs to use with tasks and how to debug tasks and programs. Description of how ACMS works with the APPC/LU6.2 programming interface to communicate with IBM CICS applications. Description of how ACMS works with third-party database managers, with Oracle used as an example.
Compaq ACMS for OpenVMS Systems Interface Programming	Description of using Systems Interface (SI) Services to submit tasks to an ACMS system.
Compaq ACMS for OpenVMS ADU Reference Manual	Reference information about the ADU commands, phrases, and clauses.
Compaq ACMS for OpenVMS Quick Reference	List of ACMS syntax with brief descriptions.
Compaq ACMS for OpenVMS Managing Applications	Description of authorizing, running, and managing ACMS applications, and controlling the ACMS system.
Compaq ACMS for OpenVMS Remote Systems Management Guide	Description of the features of the Remote Manager for managing ACMS systems, how to use the features, and how to manage the Remote Manager.
Online help†	Online help about ACMS and its utilities.

†Available on line only.

For additional information on the compatibility of other software products with this version of ACMS, refer to the *Compaq ACMS for OpenVMS Software Product Description* (SPD 25.50.xx).

For additional information about the Open Systems Software Group (OSSG) products and services, access the following OpenVMS World Wide Web address:

`http://www.compaq.com/openvms`

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To reach the OpenVMS documentation website, click the Documentation link.

If you need help deciding which documentation best meets your needs, call 1–800–ATCOMPA.

Conventions

The following conventions are used in this manual:

Ctrl/*x*	A sequence such as Ctrl/*x* indicates that you must press and hold the key labeled Ctrl while you press another key or a pointing device button.
PF1 *x*	A sequence such as PF1 *x* indicates that you must first press and release the key labeled PF1 and then press and release another key or a pointing device button.
Return	In examples, a key name enclosed in a box indicates that you press a key on the keyboard. (In text, a key name is not enclosed in a box.) In the HTML version of this document, this convention appears as brackets rather than a box.
. . .	A horizontal ellipsis in examples indicates one of the following possibilities: • Additional optional arguments in a statement have been omitted. • The preceding item or items can be repeated one or more times. • Additional parameters, values, or other information can be entered.
. . .	A vertical ellipsis indicates the omission of items from a code example or command format; the items are omitted because they are not important to the topic being discussed.

`Monospace text`	Monospace type indicates code examples and interactive screen displays. In the C programming language, monospace type in text identifies the following elements: keywords, the names of independently compiled external functions and files, syntax summaries, and references to variables or identifiers introduced in an example. In the HMTL version of this document, this text style may appear as italics.
-	A hyphen at the end of a command format description, command line, or code line indicates that the command or statement continues on the following line.
numbers	All numbers in text are assumed to be decimal unless otherwise noted. Nondecimal radixes—binary, octal, or hexadecimal—are explicitly indicated.
bold text	Bold text represents the introduction of a new term or the name of an argument, an attribute, or a reason. In the HMTL version of this document, this text style may appear as italics.
italic text	Italic text indicates important information, complete titles of manuals, or variables. Variables include information that varies in system output (Internal error *number*), in command lines (/PRODUCER=*name*), and in command parameters in text (where *dd* represents the predefined code for the device type).
UPPERCASE	Uppercase text indicates the name of a routine, the name of a file, the name of a file protection code, or the abbreviation for a system privilege. In command format descriptions, uppercase text is an optional keyword.
UPPERCASE	In command format descriptions, uppercase text that is underlined is required. You must include it in the statement if the clause is used.
lowercase	In command format descriptions, a lowercase word indicates a required element.
<lowercase>	In command format descriptions, lowercase text in angle brackets indicates a required clause or phrase.
( )	In command format descriptions, parentheses indicate that you must enclose the options in parentheses if you choose more than one.
[|]	In command format descriptions, vertical bars within square brackets indicate that you can choose any combination of the enclosed options, but you can choose each option only once.
{ | }	In command format descriptions, vertical bars within braces indicate that you must choose one of the options listed, but you can use each option only once.

References to Products

The ACMS documentation set to which this manual belongs often refers to certain products by abbreviated names:

Abbreviation	Product
ACMS	*Compaq ACMS for OpenVMS* Alpha, and *Compaq ACMS for OpenVMS* VAX
Ada	DEC Ada for OpenVMS Alpha Systems, and DEC Ada for OpenVMS VAX Systems
BASIC	DEC BASIC for OpenVMS, and VAX BASIC
C	DEC C for OpenVMS Alpha Systems, and DEC C for OpenVMS VAX Systems
CDD	Oracle CDD/Administrator, and Oracle CDD/Repository
COBOL	DEC COBOL for OpenVMS Alpha Systems, and VAX COBOL for OpenVMS VAX Systems
DATATRIEVE	DEC DATATRIEVE for OpenVMS Alpha, and DEC DATATRIEVE for OpenVMS VAX
DBMS	Oracle CODASYL DBMS
DECforms	Compaq DECforms
FORTRAN	DEC Fortran for OpenVMS Alpha Systems, and DEC Fortran for OpenVMS VAX Systems
OpenVMS	The Compaq OpenVMS Alpha operating system, and the Compaq OpenVMS VAX operating system
Pascal	DEC Pascal, and VAX Pascal
PL/I	PL/I for VAX VMS
Rdb	Oracle Rdb
SQL	The SQL interface to Oracle Rdb
TDMS	Compaq TDMS

1
Overview

The PATROL product, developed by BMC Software, contains a generic GUI management console, which uses a customized Knowledge Module (KM) to collect and display information about a particular application. *Compaq ACMS for OpenVMS* supplies sample Knowledge Modules for monitoring ACMS processes. By using a PATROL Console, ACMS customers can monitor and manage many aspects of the ACMS environment. With the PATROL Developers Console, customers can customize portions of the ACMS Knowledge Modules to suit their needs. For customers already familiar with PATROL there is a short learning curve for using the ACMS Knowledge Modules.

PATROL Consoles connect to one or more PATROL agents. The PATROL agent connects to one or more ACMS front-end and/or back-end node(s). Although PATROL runs on several platforms, the ACMS KMs have been designed for and tested only on Windows NT Version 4.0 systems. The PATROL Agent does not have to be running on the same NT system as the PATROL Console. However, for simplicity, the rest of the document assumes that the console and agent are on the same system and that the console is connected to only one agent.

1.1 Requirements

In order to monitor ACMS systems, the OpenVMS system must meet the following requirements:

- ACMS V4.3 or later must be installed
- TCP/IP Services V4.2-8 or later must be installed
- ACMS Remote Management must be configured and running
- ACMS Remote Management SNMP interface must be enabled

The Windows NT system must have the following software installed:

- Windows NT Version 4.0
- PATROL Agent 3.3
- PATROL Console Version 3.3 or PATROL Developer Console Version 3.3

Note

Because the ACMS KMs use the SNMP interface to connect to OpenVMS systems, PATROL does not need to be installed or be running on OpenVMS.

Overview
1.1 Requirements

See Section 2.5.1 of the *Compaq ACMS for OpenVMS Remote Systems Management Guide* for information on enabling the Remote Management SNMP interface. See Chapter 5, Management Programming Using SNMP, in the ACMS Remote Systems Management Guide for more general information on SNMP. It is also assumed that the reader is familiar with the ACMS Remote System Management features.

2

Components of a Standard AMCS Knowledge Module

An ACMS knowledge module (KM) performs the following phases:

Initialization (Pre-Discovery Phase)

Runs once when a KM is loaded or when a PATROL agent connection is established.

Data Collection (Discovery Phase)

Runs at a customizable interval once the Pre-Discovery phase has completed.

Parameter Collection — parameter collectors run at customizable intervals whenever an application instance is active.

Note

In PATROL terminology, *application* refers to a knowledge module and not an ACMS application.

Parameter Definition — Code defines each data item that can be viewed. Parameters are defined as PATROL types including:

- gauges
- text
- booleans
- graphs

These parameters contain the data that is populated by the Parameter Collectors.

Parameter Display — An Info Box displays a group of parameters all at once in a table. Each ACMS knowledge module implements an Info Box that displays selected fields for an particular entity.

Knowledge Module Commands

Allow a user to modify the PATROL environment specific to ACMS KMs or to control the ACMS System that is being monitored. Each ACMS KM implements commands specific to that particular entity, and are discussed further below.

Note

Info Boxes and KM Commands are selected from the popup menu displayed by right-clicking the entity icon.

Components of a Standard AMCS Knowledge Module

The rest of this document contains information that is specific to the use of ACMS supplied Knowledge Modules. It is assumed that the reader is familiar with PATROL. Refer to PATROL Documentation for using PATROL Consoles, loading Knowledge Modules and connecting to PATROL Agents, also known as hosts in PATROL.

3

Description of ACMS Knowledge Modules

There are a total of eight Knowledge Modules (KMs) available for monitoring ACMS systems. The KMs can be used with PATROL Consoles or modified with PATROL Developer Consoles. A PATROL Developer Console is required in order to tune the KMs for your environment. Once modified, the updated KMs can be loaded by any PATROL agent and accessed by standard PATROL Consoles.

The following ACMS Entity KMs are available:

- ACMS-RM.KM : Monitors the Remote Manager Process
- ACMS-ACC.KM : Monitors the ACC Process
- ACMS-TSC.KM : Monitors the TSC Process
- ACMS-CP.KM : Monitors the CP Processes
- ACMS-QTI.KM : Monitors the QTI Process
- ACMS-EXC.KM : Monitors the EXC Processes
- ACMS-SER.KM : Monitors the Server Types for an EXC Process
- ACMS-GRP.KM : Monitors the Task Groups for an EXC Process

It is not necessary to load all of the KMs. You can load the KMs for ONLY the entities that you wish to monitor, however, there are some dependencies as shown below:

ACMS-RM.KM	Always Required.
ACMS-ACC.KM	Always Required.
ACMS-TSC.KM	Optional.
ACMS-CP.KM	Optional. If used, then ACMS-TSC is required.
ACMS-QTI.KM	Optional.
ACMS-EXC.KM	Optional.
ACMS-SER.KM	Optional. If used, then ACMS-EXC is required.
ACMS-GRP.KM	Optional. If used, then ACMS-EXC is required.

To load all the knowledge modules, load the file ACMS.KML.

3.1 Installing the ACMS Knowledge Modules

The installation procedure installs ACMS PATROL knowledge modules and documentation to any directory that you choose.

In order to use the knowledge modules with a PATROL Console, you must copy the files from the installation directory to the PATROL agent directory—%PATROL_HOME%\lib\knowledge—or to the PATROL development console library directory.

Description of ACMS Knowledge Modules
3.1 Installing the ACMS Knowledge Modules

See the BMC PATROL documentation for further information on loading and using Knowledge Modules.

4
Naming Conventions

The entity icons, parameter collectors and individual parameters for an ACMS Knowledge Module (KM) all follow the naming conventions described below.

4.1 Entity Icons

ACMS-RM, ACMS-ACC, ACMS-TSC, ACMS-CP and ACMS-QTI entity icon names have the following convention:

<node_name> <KM_name><instance_number>

The instance_number is included only on ACMS-CP entities and represents the same instance number that is found in the CP process name. That is, if the process name is ACMS01CP002000, the instance number is 002. For example, if you are connected to the ACMS node named "warp" with two CPs running, the entity icons would be named as follows:

warp RM
warp ACC
warp TSC
warp CP001
warp CP002
warp QTI

ACMS-EXC, ACMS-SER, ACMS-GRP entity icons have the following convention:

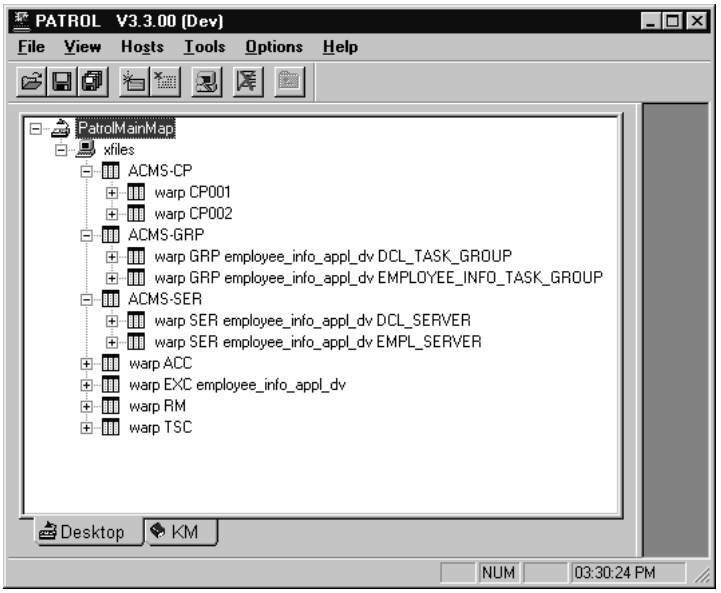
```
<node_name> <KM_name> <appl_name> <group_name | server_type>
```

If an ACMS node named warp is running an application named employee_ info_appl that contains task groups group_a and group_b, servers server_a and server_b, the following entity icon names are generated:

warp EXC employee_info_appl
warp GRP employee_info_appl GROUP_A
warp GRP employee_info_appl GROUP_B
warp SER employee_info_appl SERVER_A
warp SER employee_info_appl SERVER_B

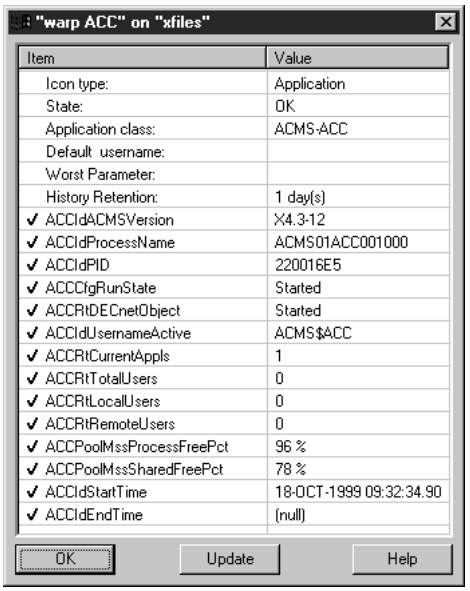
Figure 4–1 shows the hierarchy of node and entity icons.

Figure 4–1 Icon Hierarchy



Clicking on an icon displays the parameters for the entity represented by that icon. For example, Figure 4–2 shows the display that results from clicking warpACC in Figure 4–1.

Figure 4–2 Parameters for warpACC



4.2 Parameter Collectors

Parameter collector names have the following convention:

```
<KM_name><class>Collector
```

The ACMS-RM contains the collectors for the following classes:

[glossary: class]

Interface (IF), Parameter (Par). All other entities contain one or more of the classes: Configuration (Cfg), Runtime (Rt), Pool (Pool). An example of some collector names are:

RMIfCollector : Remote Manager Interface Class Collector
ACCCfgCollector : ACC Configuration Class Collector
TSCRtCollector : TSC Runtime Class Collector

4.3 Parameters

Parameter names have the following convention:

```
<KM_name><class><parameter_id>
```

The ACMS-RM contains the following classes: Status (Sts), Interface (IF), Parameter (Par). All other entities contain one or more of the classes: Identification (Id), Configuration (Cfg), Runtime (Rt), Pool (Pool). The parameter_id is a unique and descriptive name that identifies the data item it represents. The parameter_id is normally very similar to the names of the table parameters described in Chapter 7 of the *Compaq ACMS for OpenVMS Remote Systems Management Guide*. An example of some parameter names are:

ACCCfgRunState : Running State of the ACC (and ACMS system)
TSCRtCurrentUsers : Total Current CP Users handled by the TSC
QTIPoolMssProcessFree : QTI MSS Process Pool Free

Each parameter has a "Title" property associated with it. The title contains a short description of what the parameter represents. This can always be viewed by checking the properties of a parameter in the KM display. For parameter types such as booleans, graphs and gauges the title is shown in the parameter output display. For text parameters you can only see the title via the properties display for the parameter.

5

How the ACMS Knowledge Modules Operate

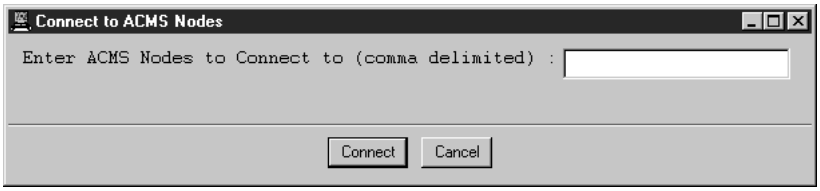
The following description assumes that all ACMS Knowledge Modules (KM) are loaded and that each ACMS node being monitored has ACMS started and the Remote Manager started with the SNMP interface enabled.

5.1 Prediscovery and Discovery Cycles

Prediscovery code is discovery code that is forced to execute immediately. The discovery cycle intervals are customizable. For more information on modifying the discovery intervals refer to Chapter 7.

When the ACMS-RM KM is initially loaded, or you select Update Connection from the PATROL agent icon on the Desktop, you'll be presented with a dialog box that prompts you to enter one or more ACMS nodes that you wish to monitor from this console. There may be a short delay (determined by the ACMS-RM discovery interval) between the selection of the command and the display of the dialog box. Press "Connect" to continue. Figure 5–1 shows the Connect to ACMS Nodes dialog.

Figure 5–1 Connect to ACMS Nodes Dialog



An ACMS-RM icon will be created for each node during the ACMS-RM discovery cycle. Shortly after the ACMS-RM discovery cycle, the ACMS-ACC discovery cycle creates an ACMS-ACC icon for each node. During the ACMS-QTI discovery cycle an ACMS-QTI icon will be created for each node on which the QTI is started.

During the ACMS-TSC discovery cycle an ACMS-TSC icon will be created for each node on which the Terminal Subsystem is started. During the ACMS-CP discovery cycle, if a ACMS-TSC icon exists for a node, then an ACMS-CP icon will be created for each CP process running on that node.

During the ACMS-EXC discovery cycle an ACMS-EXC icon will be created for each application running on each node. By default, the ACMS-EXC entity is set to the OFFLINE state. Use the "Enable EXC Display" or "Enable EXC, SER, GRP Displays" commands (described below) to set the state to ONLINE and to start populating the EXC parameters.

During the ACMS-SER discovery cycle, for each ACMS-EXC icon that exists, is ONLINE, and has EXCDisplayServerTypes enabled an ACMS-SER icon will be created for each server type that is defined in that application. The EXCDisplayServerTypes parameter can be viewed normally and is also displayed in the ACMS-EXC InfoBox. The EXCDisplayServerTypes parameter can be enabled with the "Enable EXC, SER, GRP Displays" or the "Server Types->Enable Display" ACMS-EXC KM commands.

During the ACMS-GRP discovery cycle, for each ACMS-EXC icon that exists, is ONLINE, and has EXCDisplayTaskGroups enabled an ACMS-GRP icon will be created for each task group defined in that application. The EXCDisplayTaskGroups parameter can be viewed normally and is also displayed in the ACMS-EXC InfoBox. The EXCDisplayTaskGroups parameter can be enabled with the "Enable EXC, SER, GRP Displays" or the "Task Groups->Enable Display" ACMS-EXC KM commands.

Note

The ACMS-EXC entities are all created and set to OFFLINE to prevent collection of data that may not be desired. If you want to monitor one or more applications then you can enable their display. The same reasoning applies to the ACMS-SER and ACMS-GRP entities. For these entities the icons are not created until their respective enable parameters have been set.

During the discovery cycle for each entity, the Identification (ID) parameters are updated. The one exception is for the ACMS-RM discovery where the Status parameters are updated. In subsequent discovery cycles, if the running state of the entity on the ACMS system is not started (or can't be determined) the entity's icon will be set to OFFLINE. The entity is then unavailable as indicated by the icon being grayed-out. This also means that if an entity has been stopped, and a new one with the same name has not been recreated, the icon will remain even though the entity is unavailable.

5.2 Parameter Collector Cycles

The parameters defined in each KM represent the same fields described in Chapter 7 (Tables) of the *Compaq ACMS for OpenVMS Remote Systems Management Guide* for each entity. In addition, there are a few parameters which are local to the PATROL session and are used internally by the KMs.

Each KM contains one or more parameter collectors which populate a class of parameters. Here is a list of parameter collectors for each KM:

- ACMS-RM : RMIfCollector, RMParCollector
- ACMS-ACC : ACCCfgCollector, ACCRtCollector, ACCPoolCollector
- ACMS-TSC : TSCCfgCollector, TSCRtCollector, TSCPoolCollector
- ACMS-CP : CPCfgCollector, CPRtCollector, CPPoolCollector
- ACMS-QTI : QTICfgCollector, QTIRtCollector, QTIPoolCollector
- ACMS-EXC : EXCCfgCollector, EXCRtCollector, EXCPoolCollector
- ACMS-SER : SERCfgCollector, SERRtCollector
- ACMS-GRP : GRPPoolCollector

All of the parameter collectors operate on a customizable interval. Note that parameter collectors are only scheduled for entities that are ONLINE. Therefore, if an entity is OFFLINE (unavailable) the collectors cannot update parameter values. If an individual parameter is unavailable, it means that the parameter has never been populated and can't be displayed. If the entity is OFFLINE and an individual parameter icon below it is still available, then the value can be displayed, however it represents the value at the last time the collector ran and may not reflect the current value. Each parameter has an info box associated with it which indicates when the last update was made. For more information on modifying the collector intervals see Chapter 7.

In order to be able to collect a class of parameters the class must be enabled on the ACMS system. Each collector first checks to see if its corresponding class is enabled, and if it is then it gets the rest of the parameters for the class. For example, if the runtime class has never been enabled for the ACC then the ACC runtime parameters will all be unavailable. If at one time the class was enabled and then disabled after the collector ran, parameters will be populated but no further updates will be made to them.

5.3 Icon Classes

There are two types of icons created for ACMS entities: entity instance icons and class icons. Some entities may have many instances even on just one node (for example, you can have to 127 CPs). In that case a generic class icon named ACMS-CP is created adding another level of hierarchy. The entity instance icons for each CP are created in the next lower level. This allows for a cleaner display which can be expanded as desired.

ACMS-CP, ACMS-SER and ACMS-GRP entities employ the class icon method. All other ACMS entities have entity instance icons. This behavior can be easily modified buy the user. For more information, see Chapter 7.

6

ACMS Knowledge Module Commands

Each ACMS Knowledge Module (KM) provides at least one command. To access the commands, right-click the entity icon and select KM Commands on the popup menu. A few commands affect only the PATROL display or operation. For example, every entity has a Disconnect command that removes the entity from the PATROL display but has no effect on the process that is running on the ACMS system.

Most of the commands do affect the ACMS system and are a subset of the ACMSMGR commands. For full descriptions of these commands, see Chapter 9 of the *Compaq ACMS for OpenVMS Remote Systems Management Guide*.

Because some commands translate directly into ACMS OPER commands, they can take quite a while to complete. Using SNMP, it is impossible to guarantee that a command will complete prior to incurring an SNMP timeout. The default SNMP session timeout has been set to 20 seconds. See Chapter 7 for information about changing this value. Because of to the timeout restriction, commands may complete with a message indicating that the command was issued but the result is unknown. You can usually determine the status of the command when the PATROL display is updated.

Some equivalent commands are available from more than one entity KM Command menu. This is because all KMs may not be loaded or perhaps no instances of an entity have been created yet. For instance, START & STOP QTI commands are available from the ACMS-ACC KM menu and are also available on the ACMS-QTI KM menu after it has been created.

Table 6–1 shows the commands available for each knowledge module.

Table 6–1 ACMS RM Commands

Command	Subcommand or Parameter	Function
Connect ACMS Remote Manager		Allows you to connect to another ACMS node after an initial connection has been completed.
Set Parameter		Equivalent to ACMSMGR SET PARAMETER
	DCL Manager Audit Level†	
	Login Credentials Lifetime†	
	MSS Collection Interval†	
	Manager Process Audit Level†	
	Max RPC Return Records†	

†See *Compaq ACMS for OpenVMS Remote Systems Management Guide* for details.

(continued on next page)

Table 6–1 (Cont.) ACMS RM Commands

Command	Subcommand or Parameter	Function
	Max Remote Manager Logins†	
	Message Processor Audit Level†	
	Process Monitor Audit Level†	
	Process Monitor Interval†	
	Proxy Credentials Lifetime†	
	RPC Audit Level†	
	RPC Priority†	
	RPC Stacksize†	
	SNMP Agent Timeout†	
	SNMP Are You There†	
	SNMP Audit Level†	
	SNMP Priority†	
	SNMP Select Timeout†	
	SNMP Stacksize†	
	Security Audit Level†	
	Timer Audit Level†	
	Timer Interval†	
	Trace Message Wait Time†	
	Trace Start Wait Time†	
	Trap Audit Level†	
	Workspace Collection Interval†	
RPC		Equivalent to ACMSMGR SET INTERFACE
	Enable†	
	Disable†	
Stop Remote Manager		Equivalent to ACMSMGR STOP MANAGER. Note that once executed PATROL can no longer communicate with the ACMS system.
Disconnect Remote Manager		Removes the ACMS-RM entity from the display. This can be useful for refreshing the display. Note that ACMS-RM and ACMS-ACC entities always exist in pairs so the ACMS-RM will be recreated during its next discovery cycle if the ACMS-ACC entity exists.
Disconnect All for this Node		Removes all entities for the specified node name from the display. Some entities are removed immediately and others will be removed during there next discovery cycle.
Show KM Version		Displays the version number of the RM knowledge module.

†See *Compaq ACMS for OpenVMS Remote Systems Management Guide* for details.

Table 6–2 ACMS-ACC Commands

Command	Subcommand or Parameter	Function
Set Active Parameter		Equivalent to ACMSMGR SET ACC/ACTIVE
	Username Default†	
	MSS Net Retry Timer†	
Set Stored Parameter		Equivalent to ACMSMGR SET ACC/STORED
	ACC Username†	
	ACC Priority†	
	Node Name†	
	Max Appl†	
	Username Default†	
	MSS Max Objects†	
	MSS Max Buf†	
	MSS Net Retry Timer†	
	MSS Process Pool†	
	MSS Poolsize (Shared Pool)†	
	WS Poolsize (Group & User)†	
	WSC Poolsize (Group & User)†	
	TWS Poolsize (Task Instance)†	
	TWSC Poolsize (Task Instance)†	
Start System/NoTerminals		Equivalent to ACMSMGR START SYS/NOTERM
Stop System/Cancel		Equivalent to ACMSMGR STOP SYS/CANCEL
Start Terminals		Equivalent to ACMSMGR START TERMINALS
Stop Terminals/Cancel		Equivalent to ACMSMGR STOP TERMINALS/CANCEL
Start QTI		Equivalent to ACMSMGR START QTI
Stop QTI/NoCancel		Equivalent to ACMSMGR START QTI. Note that the ACMSMGR START QTI does not have a /[NO]CANCEL switch however the default action is NOCANCEL.
Start Application		Equivalent to ACMSMGR START EXC/APPL. This command prompts for the application name.
Stop Application/Cancel		Equivalent to ACMSMGR STOP EXC/CANCEL/APPL. This command prompts for the application name.
Enable System Auditing		Equivalent to ACMSMGR SET ACC/AUDIT_ STATE=ENABLED
Disable System Auditing		Equivalent to ACMSMGR SET ACC/AUDIT_ STATE=DISABLED

†See *Compaq ACMS for OpenVMS Remote Systems Management Guide* for details.

(continued on next page)

Table 6–2 (Cont.) ACMS-ACC Commands

Command	Subcommand or Parameter	Function
Disconnect		Removes the ACMS-ACC entity from the display. This can be useful for refreshing the display. Note that ACMS-RM and ACMS-ACC entities always exist in pairs so the ACMS-ACC will be recreated during its next discovery cycle if the ACMS-RM entity exists.
Show KM Version		Displays the version number of the ACC knowledge module.

Table 6–3 ACMS-TSC Commands

Command	Subcommand or Parameter	Function
Set Active Parameter		Equivalent to ACMSMGR SET TSC/ACTIVE
	Perm CPs†	
	Min CPIs†	
	Max Logins†	
	Max TTs/CP†	
Set Stored Parameter		Equivalent to ACMSMGR SET TSC/STORED
	TSC Username†	
	TSC Priority†	
	CP Username†	
	CP Priority†	
	CP Slots†	
	Perm CPs†	
	Min CPIs†	
	Max Logins†	
	Max TTs/CP†	
Start Terminals		Equivalent to ACMSMGR START TERMINALS
Stop Terminals/Cancel		Equivalent to ACMSMGR STOP TERMINALS/CANCEL
Disconnect		Removes the ACMS-TSC entity from the display. If the ACMS-ACC entity exists and the TSC is started on the ACMS system then the entity will be recreated during the next ACMS-TSC discovery cycle.
Show KM Version		Displays the version number of the TSC knowledge module.

†See *Compaq ACMS for OpenVMS Remote Systems Management Guide* for details.

Table 6–4 ACMS-CP Commands

Command	Subcommand or Parameter	Function
Disconnect		Removes the ACMS-CPxxx entity from the display. If the ACMS-ACC entity exists and the TSC is started on the ACMS system then the entity will be recreated during the next ACMS-CP discovery cycle.
Show KM Version		Displays the version number of the CP knowledge module.

Table 6–5 ACMS-QTI Commands

Command	Subcommand or Parameter	Function
Set Active Parameter		Equivalent to ACMSMGR SET QTI/ACTIVE
	QTI Submitter Timeout†	
	QTI Retry Timer†	
	QTI Polling Timer†	
Set Stored Parameter		Equivalent to ACMSMGR SET QTI/STORED
	QTI Username†	
	QTI Priority†	
	QTI Submitter Timeout†	
	QTI Retry Timer†	
	QTI Polling Timer†	
Start QTI		Equivalent to ACMSMGR START QTI
Stop QTI/NoCancel		Equivalent to ACMSMGR START QTI. Note that the ACMSMGR START QTI does not have a /[NO]CANCEL switch however the default action is NOCANCEL.
Disconnect		Remove the ACMS-QTI entity from the display. If the ACMS-ACC entity exists and the QTI is started on the ACMS system then the entity will be recreated during the next ACMS-QTI discovery cycle.
Show KM Version		Displays the version number of the QTI knowledge module.

†See *Compaq ACMS for OpenVMS Remote Systems Management Guide* for details.

Table 6–6 ACMS-EXC Commands

Command	Subcommand or Parameter	Function
Enable EXC Display		Enables the display for this EXC but not for its associated SER and GRP entities. The default at entity creation is for the displays to be disabled.

(continued on next page)

Table 6–6 (Cont.) ACMS-EXC Commands

Command	Subcommand or Parameter	Function
Enable EXC, SER, GRP Displays		Enables the display for this EXC and its associated SER and GRP entities. The default at entity creation is for the displays to be disabled.
Disable EXC, SER, GRP Displays		Disables the display for this EXC and its associated SER and GRP entities. This is the default state for all entities.
Modify Appl		Equivalent to ACMSMGR SET EXC/APPL for the application name in the current entity.
	Enable Audit State†	
	Disable Audit State†	
	Max Tasks†	
	Max Servers†	
	Server Monitor Interval†	
	Transaction Timeout†	
Server Types		Enables or Disables the display for server types associated with the current EXC. The default is to disable the display.
	Enable Display†	
	Disable Display†	
Task Groups		Enables or Disables the display for task groups associated with the current EXC. The default is to disable the display.
	Enable Display†	
	Disable Display†	
Stop Application/Cancel		Equivalent to ACMSMGR STOP EXC/CANCEL/APPL for the application name of the current entity.
Disconnect		Removes the ACMS-EXC entity from the display. If the ACMS-ACC entity exists and the application is started on the ACMS system then the entity will be recreated during the next ACMS-EXC discovery cycle.
Show KM Version		Displays the version number of the EXC knowledge module.

†See *Compaq ACMS for OpenVMS Remote Systems Management Guide* for details.

Table 6–7 ACMS-SER Commands

Command	Subcommand or Parameter	Function
Replace Servers		Equivalent to ACMSMGR REPLACE SERVER/APPL for the application name of the current entity.

(continued on next page)

Table 6–7 (Cont.) ACMS-SER Commands

Command	Subcommand or Parameter	Function
Max Instances		Equivalent to ACMSMGR SET SERVER/MAX_INSTANCE for the server name of the current entity.
Min Instances		Equivalent to ACMSMGR SET SERVER/MIN_INSTANCE for the server name of the current entity.
Creation Delay		Equivalent to ACMSMGR SET SERVER/CREATION_DELAY for the server name of the current entity.
Creation Interval		Equivalent to ACMSMGR SET SERVER/CREATION_INTERVAL for the server name of the current entity.
Deletion Delay		Equivalent to ACMSMGR SET SERVER/DELETION_DELAY for the server name of the current entity.
Deletion Interval		Equivalent to ACMSMGR SET SERVER/DELETION_INTERVAL for the server name of the current entity.
Enable Process Dumps		Equivalent to ACMSMGR SET SERVER/SP_DUMP_FLAG=ENABLED for the server name of the current entity.
Disable Process Dumps		Equivalent to ACMSMGR SET SERVER/SP_DUMP_FLAG=DISABLED for the server name of the current entity.
Disconnect		Removes the ACMS-SER entity from the display. If the parent ACMS-SER exists, is started, is ONLINE, and has the EXCDisplayServerTypes parameter enabled then the entity will be recreated during the next ACMS-GRP discovery cycle.
Show KM Version		Displays the version number of the SER knowledge module.

Table 6–8 ACMS-GRP Commands

Command	Subcommand or Parameter	Function
Disconnect		Removes the ACMS-GRP entity from the display. If the parent ACMS-EXC exists, is started, is ONLINE, and has the EXCDisplayTaskGroups parameter enabled then the entity will be recreated during the next ACMS-GRP discovery cycle.
Show KM Version		Displays the version number of the GRP knowledge module.

7

Customizing ACMS Knowledge Modules

The ACMS Knowledge Modules (KM) allow customization of the amount of data being collected and of the frequency of the data collection. This allows you to control the data being displayed and the amount of network usage to suit your needs. In general, any customizations to the ACMS KMs must be made using the PATROL Developers Console environment.

The most important consideration is to decide which ACMS entities you need to monitor. You must load the ACMS-ACC KM and ACMS-RM KM for each ACMS node you wish to monitor, however, all the other KMs are optional. The dependencies are described in Chapter 3. You'll want to pay particular attention to the ACMS-CP KM. If you have a large number of CP Slots you'll be collection a lot of data that you may not require. You should at least consider modifying the discovery interval and parameter collector intervals.

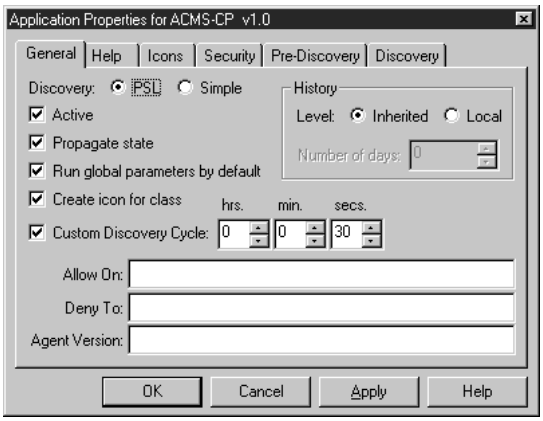
7.1 Custom Discovery Intervals

Each ACMS KM has a default discovery interval of 30 seconds. This allows entities to appear quickly at startup and to quickly reflect process changes on the ACMS system. This can generate a lot of network traffic at initial startup depending on how many systems you are monitoring simultaneously. Each KM can be customized to operate at a unique interval.

To modify the interval use the standard PATROL properties menu selection; right-click on the KM icon and select "Properties...". You'll find that "Custom Discovery Cycle" under the "General" tab is already checked and set to 30 seconds. Set the value to the desired interval and select OK.

Figure 7–1 show the Application Properties for ACMS-CP dialog.

Figure 7–1 Application Properties Dialog



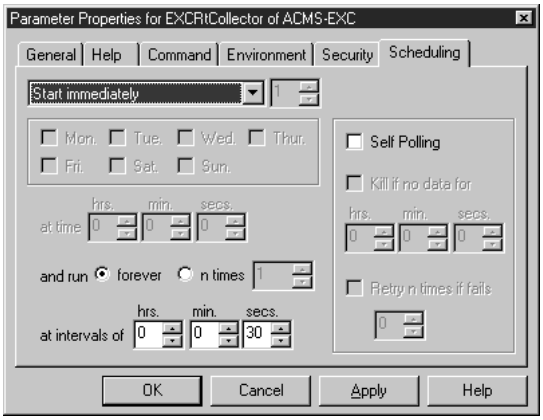
7.2 Custom Parameter Collector Intervals

Each parameter collector interval has a default of 30 seconds. Each collector interval can be customized using the standard PATROL properties menu selection; right-click on the desired parameter collector name and select "Properties...".

See Figure 7–2 shows the Parameter Properties for EXCRtCollector of ACMS-CP dialog.

Select the Scheduling tab and you'll see that "at intervals of" has a value of 30 seconds. Set the value to the desired interval and select OK. See Section 5.2 for the names of all of the individual parameter collectors.

Figure 7–2 Parameter Properties Display



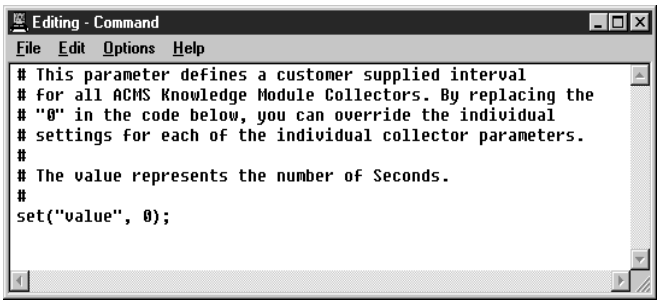
A method has been provided to easily modify the collector interval for all collectors at once. The ACMS-RM KM has a standard parameter named RMCustomerInterval. By default this parameter is set to zero which causes all the collectors to use their individual intervals set using the method previously described. If this parameter is set to a non-zero value then ALL of the ACMS KM parameter collectors will use the value for its next interval.

To set the RMCustomerInterval parameter to a new value, right-click on the parameter and select "Properties...". Then select the "Command" tab. There is one executable line of code:

set("value", 0);

Figure 7–3 contains the RMCustomerInterval parameter code.

Figure 7–3 Parameter Code



Change the "0" to the number of seconds desired for the new interval and select OK. Now when each parameter collector runs it will set its interval to the new value.

7.3 Custom SNMP Connection

There are two SNMP sessions opened for each ACMS node that is being monitored from a PATROL console; one for the ACMS-RM and one for the ACMS-ACC. The ACMS-ACC session is shared by all other ACMS KMs. The KMs have been designed to connect to the SNMP "public" community and specify a timeout value of 20 seconds.

If you choose to use an SNMP private community or wish to modify the timeout value you'll need to modify the snmp_open call in the code. For the ACMS-RM session you need to modify the following line in the Pre-Discovery and the Discovery code:

```
sessid = snmp_open(RMnode, "", "public", 20000);
```

For the ACMS-ACC session you need to modify the following line in the Discovery code:

```
sessid = snmp_open(ACCnode, "", "public", 20000);
```

Because the timeout value is specified in milliseconds, a value of 20000 results in a 20 second timeout.

7.4 Custom Icon Classes

The section "Icon Classes" describes the different type of entity icons that are created. You can customize the way icons are displayed for any of the ACMS KMs using the standard PATROL properties menu selection; right-click on the desired entity icon and select "Properties...". Then from the "General" tab you'll see a checkbox for "Create icon for class". If this is checked then all instances of that entity type will be contained in a level of hierarchy under an icon with the KM name. If it is unchecked then all entity icon instances will be displayed at the top level of the hierarchy. This feature only affects the way entities are displayed, it has no effect on the way parameters are collected.

7.5 Gauge Ranges and Alarms

Gauge type parameters have alarm range properties associated with them. Some gauges such as ACCPoolMSSObjects have default ranges set and are enabled to auto-scale. You may want to customize the range limit minimum and maximum values to better display the range that is commonly in use on your systems.

You can modify the alarm ranges using the standard PATROL properties menus selection; right-click on the desired gauge parameter and select "Properties...". Then select the "Alarm Ranges" tab. Enter your desired values in the "Range Limits" group box.

You can also choose to set up border and alarm values to be notified of when particular values are at critical levels. See the PATROL online help for more information on using alarms.

8

Trouble-Shooting ACMS Knowledge Modules

Common Knowledge Module (KM) errors and their solutions are described below:

Problem: After connecting to an ACMS node the ACMS-RM and ACMS-ACC entities are created but both icons are unavailable (OFFLINE).

Solution: The PATROL console cannot make an SNMP connection to the Remote Manager on the ACMS node. To complete the connection the ACMS system must have a TCP/IP stack running with SNMP enabled and a public community defined. Also, the Remote Manager must be started on the ACMS node and its SNMP interface must be enabled with a running state of started. Use the ACMSMGR SHOW INTERFACE command to verify the state.

Problem: After connecting to an ACMS node the ACMS-RM and ACMS-ACC entities are created but the ACMS-ACC icon is unavailable (OFFLINE).

Solution: The ACMS-ACC cannot find an ACC process running on the ACMS node. Verify that ACMS is started and that the system is in the started state. Use to ACMSMGR SHOW ACC command to ensure that the Remote Manager is able to collect data from the ACC process.

Problem: KM commands do not take effect on the ACMS system.

Solution: KM commands that affect the ACMS system require SNMP sets to be enabled on the community. Use the UCX SHOW CONFIG SNMP command to verify that the Flags field has Sets enabled.

It is also possible that the command is incurring an SNMP timeout. To increase the timeout value refer to Section 7.3.

Problem: Entity Icons randomly become unavailable (go OFFLINE) even though the processes on the ACMS system are running without interruption.

Solution: This occurs when a Knowledge Module cannot find an open SNMP session or cannot verify that the entity running state is STARTED. This normally indicates that an SNMP timeout occurred. To increase the timeout value refer to Section 7.3.

This may also indicate that the ACMS node or network cannot handle all of the SNMP traffic. It may be necessary to minimize the number of entities being monitored or to modify the Discovery and Parameter Collector intervals. Refer to Chapter 7.