Compaq TP Desktop Connector for ACMS

Client Services Reference Manual

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This manual describes the services and commands needed to create and maintain TP Desktop Connector client programs that use the portable API.

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Preface

This manual provides reference information for the TP Desktop Connector client services, formerly known as the ACMS Desktop Portable API.

Intended Audience

This guide is intended for application programmers, application designers, and system managers.

Manual Structure

This manual has the following structure:

Chapter	Description
Chapter 1	Explains the format of the reference information.
Chapters 2, 3, 4, and 5	Contain the reference information on TP Desktop Connector client services, presentation procedures, action routines, and the Compaq OpenVMS based system management service.
Chapter 6	Lists the data compression monitor commands.
Appendix A	Lists the Compaq ACMS system status values that can be returned in the *err2* parameter.

Related Documents

For information on developing Compaq ACMS applications, refer to the following manuals:

- ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide*

  Provides information for designing, coding, and implementing a TP Desktop Connector solution.

- ***Compaq TP Desktop Connector for ACMS*** *Installation Guide*

  Provides the steps needed to install a TP Desktop Connector gateway on an OpenVMS system and the TP Desktop Connector software on the desktop client system.

- ***Compaq TP Desktop Connector for ACMS*** *Gateway Management Guide*

  Contains information about the system management and administration of the TP Desktop Connector gateway. It also includes information on the methodology of the use of network transports.

- ***Compaq TP Desktop Connector for ACMS*** *Getting Started*

  Provides a high-level discussion and examples of the activities to develop, install, and run a complete application.

If you are new to programming with ACMS software, Compaq recommends reading the following books before using the Compaq *TP Desktop Connector* for ACMS product:

- ***Compaq ACMS for OpenVMS*** *Writing Applications*

  Describes procedures to follow using the Application Development Utility (ADU).

- ***Compaq ACMS for OpenVMS*** *Writing Server Procedures*

  Describes how to write and debug procedures for ACMS applications. Also supplies reference information for application and system programming services.

For additional information on ACMS software, refer to the following manuals:

- ***Compaq ACMS for OpenVMS*** *Introduction*

  Describes basic concepts and terms concerning the ACMS environment.

- ***Compaq ACMS for OpenVMS*** *ADU Reference Manual*

  Describes the details of the syntax for the definitions you create and the commands you use to build the run-time components.

For information on OpenVMS programming tools, refer to this document:

- *Using DECset*

  Describes the OpenVMS programming environment, provides helpful hints about conducting a software project, and shows a case study of DECset tools. Provided with the DECset documentation set.

  The Compaq ACMS documentation also describes how you can use the DECset tools to create an effective development environment.

Conventions

This guide uses the following conventions and symbols:

TP Desktop Connector	Refers to the Compaq *TP Desktop Connector* for ACMS software.
`User Input`	In examples, user input is highlighted with **bold** type.
$	The dollar sign indicates a generic command line prompt. This prompt may be different on your system.
Return	A key name in a box indicates that you press that key on the keyboard.
Ctrl/x	Press the Ctrl (control) key and hold it down while pressing the specified key (indicated here by x).
WORD	Uppercase text indicates OpenVMS data types, commands, keywords, logical names, and routines or services; C files and data structures; Microsoft Windows data structures; or HyperCard data types.
word	In format descriptions, lowercase words indicate parameters, variables, services, or procedures.

italics	*Italics* are used for emphasis and for parameters in text. Titles of manuals are also italicized.
[ ]	In format descriptions, square brackets surround a choice of options; select none, one, several, or all of the choices.
. . .	A vertical ellipsis in an example means that information not directly related to the example has been omitted.
Windows	When used alone, Windows indicates any supported member of the family of Microsoft Windows operating systems. Where necessary, specific Windows operating systems are mentioned. For a list of Microsoft Windows operating systems supported by the TP Desktop Connector product, see the product's *Software Product Description* (SPD).

1
Service Format

This chapter describes the format and elements of the service descriptions provided in following chapters. This chapter also provides a list of the services and the appropriate session environments in which each service may be used.

1.1 Routine Names

The TP Desktop Connector service names and OpenVMS action routines are shown in C-language format. The OpenVMS system management services are shown in the OpenVMS services format.

1.2 Format

The format section describes the C functions as they are declared for the portable API in the include file ACMSDI.H in the ACMSDI$COMMON directory.

Square brackets ([]) indicate optional parameters in the call.

1.3 Parameters

This section contains details about each parameter listed in the format section. Parameters appear in the order in which they are shown in the format. The format shown in Table 1–1 describes each parameter.

Table 1–1 Services Description Parameters

Name	Description
Type	Data type of the parameter
Access	Method by which the called routine accesses the parameter
Mechanism	Method by which a parameter is passed to the called routine

The parameters section additionally contains a sentence or two describing the purpose of the parameter.

1.3.1 Type Entry

Table 1–2 lists the C-language data types used in the TP Desktop Connector services.

Table 1–2 Parameter Data Types

Data Type	Description
ACMSDI_CALL_ID	Identification returned by the acmsdi_call_task service
ACMSDI_FORM_RECORD	Structure defined in the ACMSDI.H include file (see Section 3.1.2)
ACMSDI_FORM_RECORD_ BIND	Structure defined in the ACMSDI.H and ACMSDI.BAS include files (see Section 4.1.1)
ACMSDI_FORMS_SESSION_ID	Structure defined in the ACMSDI.H include file (see Section 3.5)
ACMSDI_OPTION	Union to specify sign-in options (see Section 2.11)
ACMSDI_CALL_OPTIONS	Union to specify call task options
ACMSDI_SUBMITTER_ID	Structure defined in the ACMSDI.H include file (see Section 2.11)
ACMSDI_WORKSPACE	Array of structures defined in the ACMSDI.H include file to pass workspaces between the desktop system and the TP Desktop Connector gateway (see Section 2.4)
ACMSDI_WORKSPACE_BIND	Structure defined in the ACMSDI.H and ACMSDI.BAS include files (see Section 4.1.2)
ACMSDI_WORKSPACE_OPT	Array of structures defined in the ACMSDI.H include file to pass unidirectional workspaces between the desktop system and the TP Desktop Connector server
char *	Array of unsigned 8-bit integers
character string descriptor	Address of an OpenVMS string descriptor pointing to the character string to be passed
function address	Address of a function that complies with the prototype in ACMSDI.H for the completion routine
int	32-bit signed integer
long	Synonym for long int
long int	32-bit signed integer

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Table 1–2 (Cont.) Parameter Data Types

Data Type	Description
longword	32-bit unsigned integer
ptr	Longword pointer to data buffer
short	Synonym for short int
short int	16-bit signed integer
unsigned long int	32-bit unsigned integer
void *	Pointer to object of unknown type

1.3.2 Access

Access describes the way in which the called routine accesses the data specified by the parameter. The access methods are described in Table 1–3.

Table 1–3 Called Routine Access Methods

Access Method	Description
Read	Data needed by the called routine to perform its operation is read but not returned.
Write	Data that the called routine returns to the calling routine is written into a location accessible to the calling routine.
Modify	Data is both read and returned by the called routine; input data specified by the parameter is overwritten.

1.3.3 Mechanism

The parameter-passing mechanism is the way in which a parameter specifies the data to be used by the called routine. The passing mechanisms are described in Table 1–4.

Table 1–4 Parameter-Passing Mechanisms

Mechanism	Description
By value	The parameter contains a copy of the data to be used by the routine.
By reference	The parameter contains the address of the data to be used by the routine. The parameter is a pointer to the data. Because C supports only call by value, write parameters other than arrays and structures must be passed as pointers. References to names of arrays and structures are converted by the compiler to pointer expressions.

For information on whether the caller or the called routine allocates memory, see the discussions of the individual platforms.

1.4 Return Status

Each service returns a status value defined as follows:

Platform	Value
Windows	long int
OpenVMS	long int
Tru64 UNIX	long int

Only the status codes defined in the related reference sections are valid in the TP Desktop Connector client services. The definitions for the return status values are in include files as follows:

Type of Services	Include File
Portable client services	ACMSDI$COMMON:ACMSDI.H

1.5 Session Environments

Client services can be used in three different session environments, blocking, nonblocking, and forced nonblocking. In a blocking environment, service routines are completed in one procedure. In a nonblocking environment, service routines return control to the desktop client program as soon as a request is sent and then call the appropriate completion routine when the request is completed or call the appropriate presentation procedure when an exchange step is detected.

In a forced nonblocking environment, service routines provide a method of polling that is used to determine the type of message sent from the back-end server. This message type may then be used to determine the appropriate action (for example, process the call completion or exchange step). The forced nonblocking software provides additional routines to access call completion and exchange step arguments. These session environments are explained in more depth in Chapter 2 and in ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide.*

Table 1–5 lists the services and indicates the session environments in which you can use each call.

Table 1–5 Matrix of Services and Environments

Service	Availability within Environment		
	Blocking	Nonblocking	Forced Nonblocking
acmsdi_call_task See description in Section 2.6	yes	yes	yes
acmsdi_cancel See description in Section 2.7	-	yes	yes
acmsdi_complete_pp See description in Section 2.8	-	yes	yes
acmsdi_dispatch_message See description in Section 2.9	-	yes	-
acmsdi_return_pointer See description in Section 2.10	yes	-	yes
acmsdi_sign_in See description in Section 2.11	yes	yes	yes
acmsdi_sign_out See description in Section 2.12	yes	yes	yes
acmsdi_poll See description in Section 4.13	-	-	yes
acmsdi_complete_call See description in Section 4.2	-	-	yes
acmsdi_bind_enable_args See description in Section 4.3	-	-	yes
acmsdi_bind_send_args See description in Section 4.9	-	-	yes

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Table 1–5 (Cont.) Matrix of Services and Environments

Service	Availability within Environment		
	Blocking	Nonblocking	Forced Nonblocking
acmsdi_bind_receive_args See description in Section 4.5	-	-	yes
acmsdi_bind_transceive_args See description in Section 4.12	-	-	yes
acmsdi_bind_msg See description in Section 4.4	-	-	yes
acmsdi_bind_request_args See description in Section 4.7	-	-	yes
acmsdi_bind_session_id See description in Section 4.11	-	-	yes
acmsdi_bind_send_recs See description in Section 4.10	-	-	yes
acmsdi_bind_receive_recs See description in Section 4.6	-	-	yes
acmsdi_bind_request_wksps See description in Section 4.8	-	-	yes
Callbacks			
acmsdi_disable See description in Section 3.4	-	yes	-
acmsdi_enable See description in Section 3.5	-	yes	-
acmsdi_read_msg See description in Section 3.6	-	yes	-
acmsdi_receive See description in Section 3.7	-	yes	-
acmsdi_request See description in Section 3.8	-	yes	-
acmsdi_send See description in Section 3.9	-	yes	-

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Table 1–5 (Cont.) Matrix of Services and Environments

Service	Availability within Environment		
	Blocking	Nonblocking	Forced Nonblocking
Callbacks			
acmsdi_transceive See description in Section 3.10	-	yes	-
acmsdi_write_msg See description in Section 3.11	-	yes	-
acmsdi_check_version See description in Section 3.12.1	-	yes	-
acmsdi_get_version(back end) See description in Section 3.12.2	-	yes	yes

2

TP Desktop Connector Portable API Client Services

This chapter describes the Compaq TP Desktop Connector portable API client services available on the following desktop systems:

- Microsoft Windows
- Compaq OpenVMS
- Compaq Tru64 UNIX

2.1 Summary of Portable API Client Services

Similar to the Compaq ACMS Service Interface (SI) routines provided on the Compaq OpenVMS host, the TP Desktop Connector portable API client services allow you to write a desktop client program on desktop systems without extensive knowledge of network communications. Table 2–1 summarizes the TP Desktop Connector portable API client services.

Table 2–1 Summary of Portable API Client Services

Service	Description
acmsdi_call_task	Sends a request to the TP Desktop Connector gateway to start a task in a ACMS application. The TP Desktop Connector client service is either blocking or nonblocking. Exchange step processing during the task is handled by the TP Desktop Connector gateway calling customer-written generic presentation procedures in the desktop client program.
acmsdi_cancel	Used by nonblocking services only. Called by a desktop application to cancel a currently active ACMS task.

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Table 2–1 (Cont.) Summary of Portable API Client Services

Service	Description
acmsdi_complete_pp	Used by nonblocking environments only. Sends a response from a presentation procedure request to the TP Desktop Connector gateway.
acmsdi_dispatch_ message	Used by nonblocking environments only. Checks for and processes messages from the TP Desktop Connector gateway. If no messages have been received from the gateway, acmsdi_dispatch_message returns immediately.
acmsdi_return_pointer	Used by client programs written in Microsoft Visual Basic to create the workspace array for ACMS_CALL_TASK. Also used in the forced nonblocking environment to obtain reference pointers.
acmsdi_sign_in	Requests the TP Desktop Connector gateway to sign a user running a desktop client program in to a ACMS system.
acmsdi_sign_out	Requests the TP Desktop Connector gateway to sign a desktop client program out of a ACMS system.

These calls use the C-language argument-passing standards. Character strings are NULL-terminated and passed by reference. Workspaces are passed as structures composed of a length and a pointer field.

2.2 Parameter Memory Allocation

The caller of a TP Desktop Connector client service or a presentation procedure is responsible for allocating the memory for the parameters of that routine. For calls to the TP Desktop Connector client services, the desktop client program must allocate the memory for all parameters passed in, for example, submitter_id and call_context. For calls to the presentation procedures, the TP Desktop Connector client services allocate memory for all the parameters passed and for all workspaces.

2.3 Nonblocking Service Usage

The acmsdi_sign_in, acmsdi_call_task, and acmsdi_sign_out services can be either blocking, nonblocking, or forced nonblocking. If the desktop client program supplies the *completion_routine* parameter to the TP Desktop Connector client service, the service behaves in the nonblocking fashion. The TP Desktop Connector client service returns control to the desktop client program as soon as a request is sent to the TP Desktop Connector gateway. If the request is sent to the gateway successfully, the TP Desktop Connector

client service returns the ACMSDI_PENDING status. If a status other than ACMSDI_PENDING is returned, the completion routine is not called.

If nonblocking calls are active, use the acmsdi_dispatch_message service to poll for responses from the TP Desktop Connector gateway. When a response is received, acmsdi_dispatch_message calls the appropriate customer-supplied completion routine. If the desktop client program supplies the *completion_status* parameter on the initial TP Desktop Connector client service call, the TP Desktop Connector client services set the *completion_status* to the final completion status for the service and immediately call the completion routine. See ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for descriptions and examples.

The forced nonblocking services extend the portable API to support both exchange steps and nonblocking execution of task calls for development tools that do not support pointer data types or whose memory management routines relocate data. You can specify a forced nonblocking session with the acmsdi_sign_in service by using the ACMSDI_OPTION, ACMSDI_OPT_NONBLK. Do not specify a completion routine in a forced nonblocking session as this will result in an error. See Chapter 4 for more information.

2.3.1 Nonblocking and Blocking Restriction

All calls using the same desktop client program and TP Desktop Connector gateway connection must be either blocking, nonblocking, or forced nonblocking. These types of service calls cannot be mixed for a desktop client program and TP Desktop Connector gateway pair. See Table 1–5 for the list of service calls available for each type of session. If a desktop client program connects to two different TP Desktop Connector gateways, it can mix service call types, using blocking calls to interact with one TP Desktop Connector gateway and nonblocking calls to interact with the other TP Desktop Connector gateway.

2.3.2 Completion Routine Format

For nonblocking service requests, the acmsdi_dispatch_message service calls the customer-supplied completion routine when a response is received from the TP Desktop Connector gateway. The completion routine has the following format:

```
void completion_routine (call_context)
```

Parameters

call_context
Type: **void ***
Access: **read**
Mechanism: **by value**
Supplies application-specific context to the completion routine. If specified on acmsdi_call_task, acmsdi_sign_in, acmsdi_cancel, or acmsdi_sign_out service, the call_context is passed by the TP Desktop Connector client services to the completion routine.

Return Status

The customer-supplied completion routine does not return a status value.

2.4 Workspace Data Structures

This section describes the following workspace data structures:

ACMSDI_WORKSPACE
ACMSDI_WORKSPACE_OPT
ACMSDI_WORKSPACE_BIND
ACMSDI_FORM_RECORD_BIND

2.4.1 ACMSDI_WORKSPACE Structure and Initialization Macro

Defined in the ACMSDI.H file, the ACMSDI_WORKSPACE type declares workspaces passed to tasks using the acmsdi_call_task service and workspaces passed from tasks to acmsdi_request presentation procedures.

The code in Example 2–1 defines the ACMSDI_WORKSPACE type and an ACMSDI_INIT_WORKSPACE macro used to initialize the workspace structure.

Example 2–1 Workspace Structure Definition and Initialization

```
typedef struct {
    unsigned int length;        /** length of workspace **/
    void *data;                 /** pointer to workspace **/
} ACMSDI_WORKSPACE;
   .
   .
   .
#define ACMSDI_INIT_WORKSPACE(_wksp, _rec)\
{\
    _wksp.length = sizeof(_rec);\
    _wksp.record = &(_rec);\
}
```

To pass more than one workspace to a procedure, use an array of the ACMSDI_ WORKSPACE structures. Example 2–2 passes two workspaces.

Example 2–2 Passing Workspaces to a Procedure

```
ACMSDI_WORKSPACE  wksp_array[2];

struct {
    char ctrl_key[5];
    char error_message[80];
} control_wksp;

struct {
    int id_number;
    char first_name[15];
    char last_name[25];
} employee_record;

    ACMSDI_INIT_WORKSPACE (wksp_array[0], control_wksp);
    ACMSDI_INIT_WORKSPACE (wksp_array[1], employee_record);
```

The array wksp_array is defined with two elements of type ACMSDI_ WORKSPACE. The structure definitions control_wksp and employee_record define the elements of the array. The two macro ACMSDI_INIT_WORKSPACE calls initialize the array of structures.

2.4.2 ACMSDI_WORKSPACE_OPT Structure

The ACMSDI.H file contains the definition of the ACMSDI_WORKSPACE_OPT type you use to declare workspaces passed to tasks using the ACMSDI_CALL_TASK service. You can use ACMSDI_WORKSPACE_OPT instead of ACMSDI_WORKSPACE. Only task calls that use the ACMSDI_TASK_OPTIONS flag to indicate unidirectional workspaces can use this structure. Example 2–3 shows the ACMSDI_WORKSPACE_OPT type definition and the definition of a macro to initialize the workspace structure.

Example 2–3 ACMSDI_WORKSPACE_OPT Type Definition

```
#define ACMSDI_ACCESS_READ   '1'     /* read-only access */
#define ACMSDI_ACCESS_WRITE  '2'    /* write-only access */
#define ACMSDI_ACCESS_MODIFY '3'   /* modify (read and write) */
   .
   .
   .
typedef char ACMSDI_ACCESS_TYPE;
typedef struct {
    unsigned int length;
    ACMSDI_ACCESS_TYPE access;
    void *data;
} ACMSDI_WORKSPACE_OPT;
   .
   .
   .
#define ACMSDI_INIT_WORKSPACE_OPT(_wksp, _rec, _access)\
{\
   _wksp.length  = sizeof(_rec);\
   _wksp.access  = _access;\
   _wksp.data    = &(_rec);\
}
```

To pass more than one workspace to a procedure, use an array of the type ACMSDI_WORKSPACE_OPT. Example 2–4 passes two workspaces.

Example 2–4 Passing Two Workspaces

```
ACMSDI_WORKSPACE_OPT wksp_array[2];

struct {
    char ctrl_key[5];
    char error_message[80];
} control_wksp;
```

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Example 2–4 (Cont.) Passing Two Workspaces

```
struct {
    int id_number;
    char first_name[15];
    char last_name[25];
} employee_record;

    ACMSDI_INIT_WORKSPACE_OPT (wksp_array[0], control_wksp, ACMSDI_ACCESS_READ);
    ACMSDI_INIT_WORKSPACE_OPT (wksp_array[1], employee_record, ACMSDI_ACCESS_WRITE);
```

2.4.3 ACMSDI_WORKSPACE_BIND Structure

The ACMSDI_WORKSPACE_BIND structure locates workspace buffers and specifies the sizes of workspaces during acmsdi_bind_request_wksps operations. Like the ACMSDI_FORM_RECORD_BIND structure, the ACMSDI_WORKSPACE_BIND structure contains a field where the length of the TDMS exchange step workspace is returned. If the length differs from the buffer length, TP Desktop Connector truncates the resultant workspaces or buffers are not completely filled.

The following example shows the C language definition of this structure as it appears in the acmsdi.h file:

```
typedef struct {
  unsigned int buffer_len;          /* length of caller's buffer */
  unsigned int wksp_len;            /* actual length of the workspace */
  void          *data;
} ACMSDI_WORKSPACE_BIND;
```

2.4.4 ACMSDI_FORM_RECORD_BIND Structure

The ACMSDI_FORM_RECORD_BIND structure locates form record buffers and specifies their sizes during acmsdi_bind_send_recs and acmsdi_bind_receive_recs operations. ACMSDI_FORM_RECORD_BIND serves the same purpose as ACMSDI_FORM_RECORD with one additional feature. It contains an additional field, rec_len, with which the TP Desktop Connector client services return the actual length of the form record as it is returned from the back-end application. You can compare this length against the client application buffer length to see if the buffer is large enough, too large, or exactly the right size to contain the form record. If the buffer size is too small, the form record is truncated to fit the buffer. If the buffer size is too large, the buffer is not completely filled.

You can use the ACMSDI_FORM_RECORD_BIND structure to locate send control text and receive control text buffers. Both acmsdi_bind_send_args and acmsdi_bind_receive_args services contain arguments to specify whether or not to transfer control text. If you specify to transfer control text, the following rules apply:

- ACMSDI_FORM_RECORD_BIND structure for the control text must be the first one in the array of such structures passed on the call.
- After the call completes, the record length field (rec_len) contains the send control text count or the receive control text count instead of the length of the record.

The following example shows the C language definition of this structure as it appears in the acmsdi.h file:

```
typedef struct {
   unsigned int buffer_len;          /* length of caller's record buffer */
   unsigned int rec_len;             /* actual length of the form record */
   void          *data_record;
   unsigned int shadow_buffer_len;   /* length of caller's shadow buffer */
   unsigned int shadow_rec_len;      /* actual length of shadow record */
   void          *shadow_record;
} ACMSDI_FORM_RECORD_BIND;
```

2.5 ACMSDI_CALL_OPTION Union Structure

ACMSDI_CALL_OPTION union is a parameter that is passed to the ACMSDI_CALL_TASK service to enable TP Desktop Connector functions, such as optimizing unidirectional workspace traffic on the call to the acmsdi_call_task client service. The include file ACMSDI.H contains the definition for the ACMSDI_CALL_OPTION union.

ACMSDI_CALL_OPTION contains several structures with the option variables, whose values determine the type of option being selected. Specify the values for the option variable using the following constants defined in the ACMSDI.H include file:

Option	Description
ACMSDI_CALL_OPT_END_LIST	Ends options list
ACMSDI_CALL_OPT_OPTIMIZE_WKSPS	Enables unidirectional workspace optimization
ACMSDI_CALL_OPT_ENABLE	Pointer to enable function
ACMSDI_CALL_OPT_DISABLE	Pointer to disable function
ACMSDI_CALL_OPT_SEND	Pointer to send function
ACMSDI_CALL_OPT_RECEIVE	Pointer to receive function
ACMSDI_CALL_OPT_TDMS_READ	Pointer to TDMS read function
ACMSDI_CALL_OPT_TDMS_WRITE	Pointer to TDMS write function
ACMSDI_CALL_OPT_TRANSCEIVE	Pointer to transceive function
ACMSDI_CALL_OPT_REQUEST	Pointer to TDMS request function
ACMSDI_CALL_OPT_CHECK_VERSION	Version checking routine
ACMSDI_CALL_OPT_PASS_TID	TID of distributed transaction
ACMSDI_CALL_OPT_COMPRESS_WKSPS	Activate workspace compression

To select options:

1. Declare an array of at least two elements of the type ACMSDI_CALL_ OPTION.
2. Specify in the option variable the name for the structure being used.
3. Specify the address for the malloc routine or password expiring buffer, if these options are being used.
4. End an options list by assigning ACMSDI_CALL_OPT_END_LIST to the option variable in the last array element.

The following example shows the initialization of an options list used to enable unidirectional workspace handling:

```
ACMSDI_CALL_OPTION call_options[2];

    call_options[0].option = ACMSDI_CALL_OPT_OPTIMIZE_WKSPS;
    call_options[1].option = ACMSDI_CALL_OPT_END_LIST;
```

Caution

Use the ACMSDI_CALL_OPT_OPTIMIZE_WKSPS option and the ACMSDI_WORKSPACE_OPT type definition together to optimize unidirectional workspace traffic. Do not use one without the other. The acmsdi_call_task client service uses the presence or absence of the workspace optimization option to decide which data type has been passed in the workspaces argument. Using either one without the other produces unpredictable results.

2.5.1 ACMSDI_OPTION Array

ACMSDI_OPTION array is a parameter that is passed to the ACMSDI_ SIGN_IN service to enable TP Desktop Connector functions, such as enabling password expiration checking on the call to acmsdi_call_task client service. The include file ACMSDI.H contains the definition for the ACMSDI_OPTION array.

The ACMSDI_OPTION array is a union containing multiple structures and an option variable, the value of which defines the type of option being selected. Specify the values for the option variable using the following constants defined in the include file ACMSDI.H:

Constant	Description
ACMSDI_OPT_CHECK_VERSION	Enables version checking
ACMSDI_OPT_COMMID	Supplies communications device id or TCP/IP comm port
ACMSDI_OPT_END_LIST	Ends options list
ACMSDI_OPT_FREE_ROUTINE	Enables user-defined memory deallocation
ACMSDI_OPT_MALLOC_ROUTINE	Enables user-defined memory allocation
ACMSDI_OPT_NONBLK	Enables a forced nonblocking session
ACMSDI_OPT_PWD_EXPIRING	Enables checking for passwords that are about to expire

To select options:

1. Declare an array of at least two elements of the type ACMSDI_OPTION.
2. Specify in the option variable the name tag for the structure being used.
3. End an options list by assigning ACMSDI_OPT_END_LIST to the option variable in the last array element.

Example 2–5 initializes an options list to enable version checking, user-defined memory allocation, and password expiration checking.

Example 2–5 Initializing an Options List

```
void *my_malloc_routine(int size);
long pwd_exp_buffer;
void my_free_routine(void *ptr);
ACMSDI_OPTION options[5];

    options[0].option = ACMSDI_OPT_CHECK_VERSION;
    options[1].option = ACMSDI_OPT_MALLOC_ROUTINE;
    options[1].malloc_routine.address = my_malloc_routine;
    options[2].option = ACMSDI_OPT_FREE_ROUTINE;
    options[2].free_routine.address = my_free_routine;
    options[3].option = ACMSDI_OPT_PWD_EXPIRING;
    options[3].pwd_expiring_hrs.address = &pwd_exp_buffer;
    options[4].option = ACMSDI_OPT_END_LIST;
```

You can provide the TCP/IP port number during sign-in by using the ACMSDI_OPT_COMMID option. Example 2–6 shows how to do this in C.

Note

This option is usable with forced nonblocking calls only.

If the environmental variable ACMSDI_TCPIP_PORT_*host_node* is defined, the option specified on the acmsdi_sign_in call takes precedence. If neither the environmental variable nor the sign-in option is specified, the default TCP/IP port number, 1023, is used.

Example 2–6 Dynamically Specifying a TCP/IP Port Identifier

```
int status;
ACMSDI_SUBMITTER_ID subm_id;
long tcpip_port = 1000;
ACMSDI_OPTION options[2];
options[0].option = ACMSDI_OPT_COMMID;
options[0].CommID = tcpip_port;
options[1].option = ACMSDI_OPT_END_LIST;

status = acmsdi_sign_in ("N2001", /* ACMS Desktop Gateway node */
                         "HAL", /* username */
                         "HELLO_DAVE", /* password */
                          options, /* sign in options */
                          &subm_id, /* submitter id */
                          0, 0, 0);
```

2.6 acmsdi_call_task

TP Desktop Connector client programs call this service to execute a task in a ACMS application.

Format

```
acmsdi_call_task  (submitter_id,
                   [call_options],
                   task_name,
                   application_name,
                   selection_string,
                   status_message,
                   workspace_count,
                   [workspaces],
                   [call_id],
                   [completion_status],
                   [completion_routine], [1]
                   [call_context])
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The submitter_id returned by the acmsdi_sign_in service.

call_options
Type: **ACMSDI_CALL_OPTION**
Access: **read**
Mechanism: **by reference**
An array of ACMSDI_CALL_OPTION elements that either enables unidirectional workspace optimization or defines presentation procedure addresses. The include file ACMSDI.H contains the definition for the ACMSDI_CALL_OPTION type. If you use the options array to enable unidirectional workspaces, use the ACMSDI_WORKSPACE_OPT type in the workspace list. See Section 2.4.2 and Section 2.5 for more information.

[1] For nonblocking only, see Section 2.3.

task_name
Type: **char ***
Access: **read**
Mechanism: **by reference**
The name of the task to execute. Maximum length is 31.

application_name
Type: **char ***
Access: **read**
Mechanism: **by reference**
The specification of a ACMS application in which the task resides. The application name must be a valid application specification on the submitter node. It can take the form NODE::APPLICATION, or can be specified using a logical name that is translated by the ACMS Central Controller (ACC) on the submitter node. Maximum length is 80.

selection_string
Type: **char ***
Access: **read**
Mechanism: **by reference**
Used by the desktop client program to pass additional information to the task. Maximum length is 256.

status_message
Type: **char ***
Access: **write**
Mechanism: **by reference**
A buffer to receive the message text associated with the task completion status. The message text returned is either the text associated with a TP Desktop Connector error or the message text returned from a ACMS application. Required length is 80.

Caution

If the full space is not allocated, the TP Desktop Connector client services write past the end of the allocated string and can cause the application to fail. Ensure that the desktop client program allocates the required length of space.

workspace_count
Type: **long int**
Access: **read**
Mechanism: **by value**
The decimal number of workspaces being passed to the task.

workspaces
Type: **ACMSDI_WORKSPACE or ACMSDI_WORKSPACE_OPT array**
Access: **read/write**
Mechanism: **by reference**
One or more optional workspaces to be passed to the task. You need to typecast your array to void *. The workspaces must be specified in the same order as they are declared in the task definition, and must match the number specified in the *workspace_count* parameter. If you use the ACMSDI_WORKSPACE_OPT type, you must set the call_options parameter to allow unidirectional workspaces.

call_id
Type: **ACMSDI_CALL_ID**
Access: **write**
Mechanism: **by reference**
A structure defined in the ACMSDI.H include file into which the acmsdi_call_task service writes a newly created call identification, a handle used by the TP Desktop Connector client services to identify an active call for a submitter.

completion_status
Type: **int**
Access: **write**
Mechanism: **by reference**
The final status of the TP Desktop Connector client service. In the blocking environment, the *completion_status* parameter is set to zero when the service starts successfully.

When the service completes, the *completion_status* parameter contains the final status. See Table 2–2 for the list of return status values.

When a task is canceled, the TP Desktop Connector gateway reports a specific error, where possible. If the gateway cannot convert a ACMS error to a specific TP Desktop Connector status, it returns ACMSDI_TASK_FAILED to the desktop client program.

completion_routine
Type: **function address**[1]
Access: **read**
Mechanism: **by value**
Address of a function to be called when the service completes. The *completion_routine* is called by the acmsdi_dispatch_message service when the "End of Task" message is received from the TP Desktop Connector gateway.

call_context
Type: **void ***
Access: **read**
Mechanism: **by value**
Optional parameter passed to presentation procedures and completion routines to identify the call. Use this parameter to supply an application-specific context for the call.

Return Status

The status values returned by the acmsdi_call_task service are listed in Table 2–2.

Table 2–2 acmsdi_call_task Return Status Values

Status	Description
ACMSDI_APPLDEAD	Application stopped unexpectedly.
ACMSDI_CALLACTV	Call is already active.
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INTERNAL	Internal TP Desktop Connector error.
ACMSDI_INVOPTION	Invalid item in options list.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_MIXEDMODE	All calls on a connection must be either blocking or nonblocking.
ACMSDI_NOMEMORY	Insufficient memory to complete requests.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_NOSUCH_APPL	Application not found.

(continued on next page)

[1] For nonblocking only, see Section 2.3. Not applicable to forced nonblocking and will cause an error if supplied.

Table 2–2 (Cont.) acmsdi_call_task Return Status Values

Status	Description
ACMSDI_NOSUCH_TASK	Task not found.
ACMSDI_OPR_CANCELLED	Operator canceled task.
ACMSDI_PENDING	Successful operation pending nonblocking completion. The final status is in the completion status parameter.
ACMSDI_SECCHK	Task security check failed.
ACMSDI_SIGNINACTV	Request is invalid while the sign-in is active.
ACMSDI_SIGNOUTACTV	Request is invalid while the sign-out is active.
ACMSDI_SRVDEAD	Node name is invalid, or TP Desktop Connector gateway is not running on the specified node, or the network link terminated.
ACMSDI_TASK_ABORT	Task completed abnormally.
ACMSDI_TASK_CANCELLED	Task was canceled.
ACMSDI_TASK_FAILED	Task failed during execution.
ACMSDI_TASK_SP_DIED	Task was canceled when TP Desktop Connector gateway process died.

2.7 acmsdi_cancel

TP Desktop Connector client programs call this service in a nonblocking or forced nonblocking environment to cancel a currently active ACMS task. Use the acmsdi_cancel service only if you invoke a task using nonblocking services. Do not use the acmsdi_cancel service from a presentation procedure or from an asynchronous completion routine.

Format

```
acmsdi_cancel  (submitter id,
                call_id,
                [cancel_reason],
                reserved,
                [completion_status],
                completion_routine, [1]
                [call_context])
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The *submitter_id* for the session associated with the task that is being canceled.

call_id
Type: **ACMSDI_CALL_ID**
Access: **read**
Mechanism: **by reference**
The *call_id* for the task that is being canceled, which was passed back on the acmsdi_call_task service.

cancel_reason
Type: **long int**
Access: **read**
Mechanism: **by value**
Optional parameter containing the status value of the reason code for the cancel request. This value is passed to the Application Execution Controller (EXC) by the TP Desktop Connector gateway. The default is ACMSDI_CALL_ CANCELED, "the task was canceled by the task submitter".

[1] For nonblocking only, see Section 2.3.

reserved
Type:
Access:
Mechanism:
This parameter is reserved for future use. Specify as NULL.

completion_status
Type: **long int**
Access: **write**
Mechanism: **by reference**
Optional parameter to contain the final completion status of the service. The *completion_status* is set to ACMSDI_PENDING when the service starts successfully. When the service is successful, *completion_status* is set to 0.

completion_routine
Type: **function address**[1]
Access: **read**
Mechanism: **by value**
Address of a function to be called when the service completes. The *completion_routine* is called by the ACMSDI_DISPATCH_MESSAGE service when the appropriate reply is received from the TP Desktop Connector gateway on the OpenVMS system.

call_context
Type: **void***
Access: **read**
Mechanism: **by value**
Optional parameter that is passed to the *completion_routine* to identify the call. You can use this to supply application-specific context for the call that is being canceled.

Return Status

The status values returned by the acmsdi_cancel service are listed in Table 2–3.

[1] For nonblocking only, see Section 2.3. Not applicable to forced nonblocking and will cause an error if supplied.

Table 2–3 acmsdi_cancel Return Status Values

Status	Description
ACMSDI_CANCELACTV	Cancel already in progress.
ACMSDI_EXCHACTV	Service cannot be called from presentation procedure.
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INTERNAL	Internal ACMS error.
ACMSDI_INVCALLID	Invalid or obsolete call identification.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_NOMEMORY	Insufficient memory to complete requests.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_PENDING	Successful operation pending nonblocking completion. The final status is in the completion status parameter.
ACMSDISIGNINACTV	Request is invalid while the sign-in is active.
ACMSDISIGNOUTACTV	Request is invalid while sign-out is active.
ACMSDI_SRVDEAD	Node name is invalid, or the TP Desktop Connector gateway is not running on the specified node.

2.8 acmsdi_complete_pp

TP Desktop Connector client programs call this nonblocking service to complete exchange step processing for a submitter. An application must call this service to complete an outstanding presentation procedure request from the TP Desktop Connector gateway in a nonblocking or forced nonblocking environment (see ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide*.

Format

```
acmsdi_complete_pp  (call_id,
                     pp_status)
```

Parameters

call_id
Type: **ACMSDI_CALL_ID**
Access: **read**
Mechanism: **by reference**
The *call_id* parameter is passed back on the acmsdi_call_task service.

pp_status
Type: **long int**
Access: **read**
Mechanism: **by value**
The completion status of the presentation procedure. The *pp_status* parameter is returned to the ACMS task as the completion status for the current exchange step. A valid OpenVMS status value is returned to the task.

Return Status

The status values returned by the acmsdi_complete_pp service are listed in Table 2–4.

Table 2–4 acmsdi_complete_pp Return Status Values

Status	Description
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INTERNAL	Internal TP Desktop Connector error.
ACMSDI_INVCALLID	Invalid or obsolete call identification.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_NOMEMORY	Insufficient memory to complete requests.
ACMSDI_NOPPACTV	No presentation procedure active for this call.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_SRVDEAD	Node name is invalid, or the TP Desktop Connector gateway is not running on the specified node, or the network link terminated.

2.9 acmsdi_dispatch_message

TP Desktop Connector client programs call this nonblocking service to check for and process messages sent from a TP Desktop Connector gateway to an active submitter in the desktop application. The application must periodically call this service in a nonblocking environment to check for completion of outstanding acmsdi_sign_in, acmsdi_call_task, and acmsdi_sign_out requests. If no TP Desktop Connector messages are received, the service returns immediately. If a TP Desktop Connector message is received, the service calls the appropriate completion routine or presentation procedure and then returns (see ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide*.

Note that this call is not used in the forced nonblocking environment. See Section 4.13.

Format

acmsdi_dispatch_message ()

Parameters

No parameters are specified.

Return Status

The status values returned by the acmsdi_dispatch_message service are listed in Table 2–5.

Table 2–5 acmsdi_dispatch_message Return Status Values

Status	Description
ACMSDI_INTERNAL	Internal TP Desktop Connector error.
ACMSDI_NOMEMORY	Insufficient memory.

(continued on next page)

Table 2–5 (Cont.) acmsdi_dispatch_message Return Status Values

Status	Description
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_SRVDEAD	Node name is invalid, or TP Desktop Connector gateway is not running on the specified node, or the network link terminated.

2.10 acmsdi_return_pointer

TP Desktop Connector client programs written in Visual Basic use the ACMSDI_RETURN_POINTER service to create the workspace array for the ACMSDI_CALL_TASK routine. When passing a workspace, the ACMSDI_CALL_TASK service expects a data structure with the size and address of each workspace. The ACMSDI_RETURN_POINTER service assigns the address of a workspace argument to the contents of a pointer address argument. This service may be used in the forced nonblocking environment to obtain reference pointers to structures such as call_id.

Format

acmsdi_return_pointer (structure)

Parameters

structure
Type: **long int**
Access: **read**
Mechanism: **by reference**
The workspace or other structure for which a pointer is to be obtained.

Return Status

The return status value for acmsdi_return_pointer is the address of the structure passed as the parameter in the call.

2.11 acmsdi_sign_in

TP Desktop Connector client programs call this service to sign a user in to a ACMS system.

Format

```
acmsdi_sign_in  (submitter_node,
                 username,
                 password,
                 [options],
                 submitter_id,
                 [completion_status],
                 [completion_routine], [1]
                 [call_context])
```

Parameters

submitter_node
Type: **char ***
Access: **read**
Mechanism: **by reference**
The node name of the ACMS system where the user is to be signed in. Maximum length is 80.

username
Type: **char ***
Access: **read**
Mechanism: **by reference**
The name of the OpenVMS account of the user to be signed in. Maximum length is 80.

password
Type: **char ***
Access: **read**
Mechanism: **by reference**
The password of the user to be signed in. Maximum length is 80.

[1] For nonblocking only, see Section 2.3.

options
Type: **ACMSDI_OPTION array**
Access: **read**
Mechanism: **by reference**
Union containing multiple structures and an option variable, the value of which defines the type of option being selected (see Section 2.5.1).

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **write**
Mechanism: **by reference**
A structure into which the acmsdi_sign_in service writes a newly created submitter identification. Other services use the submitter identification as a handle to identify an active submitter. The ACMSDI_SUBMITTER_ID structure is defined in the ACMSDI.H include file.

completion_status
Type: **int**
Access: **write**
Mechanism: **by reference**
The final status of the service. In the blocking environment, the *completion_status* parameter is set to zero when the service starts successfully.

When the service completes, *completion_status* contains the final status. See Table 2–6 for a list of return status values.

completion_routine
Type: **function address**[1]
Access: **read**
Mechanism: **by value**
Address of a function to be called when the nonblocking service completes. The completion routine is called by the acmsdi_dispatch_message service when the reply is received from the TP Desktop Connector gateway.

call_context
Type: **void ***
Access: **read**
Mechanism: **by value**
Optional parameter passed to presentation procedures and completion routines to identify the call. Use this parameter to supply application-specific context for the call.

[1] For nonblocking only, see Section 2.3. Not applicable to forced nonblocking and will cause an error if supplied.

Return Status

The status values returned by the acmsdi_sign_in service are listed in Table 2–6.

Table 2–6 acmsdi_sign_in Return Status Values

Status	Description
ACMSDI_CALLACTV	Call is active.
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INTERNAL	Internal TP Desktop Connector error.
ACMSDI_INVLOGIN	Invalid login attempt.
ACMSDI_INVOPTION	Invalid item in options list.
ACMSDI_INVPROTOCOL	Mismatch in versions of TP Desktop Connector client and gateway software.
ACMSDI_MIXEDMODE	All calls on a connection must be either blocking or nonblocking.
ACMSDI_NOACMS	ACMS system not available.
ACMSDI_NOCOMPRESS	Gateway does not allow compression.
ACMSDI_NOMEMORY	Insufficient memory to complete requests.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_PENDING	Successful operation pending nonblocking completion. The final status is in the *completion_status* parameter.
ACMSDI_PWDEXPIRED	Password has expired.
ACMSDI_PWDEXPIRING	Password expiring in the number of hours specified in options array.
ACMSDI_SIGNINACTV	Sign-in active.
ACMSDI_SIGNOUTACTV	Sign-out active.
ACMSDI_SRVDEAD	Node name is invalid, or TP Desktop Connector gateway is not running on the specified node, or the network link terminated.

2.12 acmsdi_sign_out

TP Desktop Connector client programs call this service to terminate an active session with a ACMS system. To insure that all network links are properly shut down, the desktop client program calls the acmsdi_sign_out service before terminating.

Format

```
acmsdi_sign_out  (submitter_id,
                  [completion_status],
                  [completion_routine], [1]
                  [call_context])
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The submitter identification returned by the acmsdi_sign_in service.

completion_status
Type: **int**
Access: **write**
Mechanism: **by reference**
The final status of the service. In the blocking environment, the *completion_status* parameter is set to zero when the service starts successfully.

When the service completes, *completion_status* contains the final status. See Table 2–7 for a list of the return status values.

completion_routine
Type: **function address**[1]
Access: **read**
Mechanism: **by value**
Address of a function to be called when the nonblocking service completes. The completion routine is called by the acmsdi_dispatch_message service when the reply is received from the TP Desktop Connector gateway.

[1] For nonblocking only, see Section 2.3.

call_context
Type: **void ***
Access: **read**
Mechanism: **by value**
Optional parameter passed to presentation procedures and completion routines to identify the call. Use this parameter to supply application-specific context for the call.

Return Status

The status values returned by the acmsdi_sign_out service are listed in Table 2–7.

Table 2–7 acmsdi_sign_out Return Status Values

Status	Description
ACMSDI_CALLACTV	Request is invalid while task call is active.
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INTERNAL	Internal TP Desktop Connector error.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_MIXEDMODE	All calls on a connection must be either blocking or nonblocking.
ACMSDI_NOMEMORY	Insufficient memory to complete requests.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_PENDING	Successful operation pending nonblocking completion. The final status is in the *completion_status* parameter.
ACMSDI_SIGNINACTV	Request is invalid while sign-in is active.

(continued on next page)

Table 2–7 (Cont.) acmsdi_sign_out Return Status Values

Status	Description
ACMSDI_SIGNOUTACTV	Request is invalid while sign-out is active.
ACMSDI_SRVDEAD	Node name is invalid, or TP Desktop Connector gateway is not running on the specified node, or the network link terminated.

3
Portable API Presentation Procedures

This chapter describes the interface between the TP Desktop Connector gateway and customer-written presentation procedures. It also describes the interfaces on portable clients for customer-written action routines to perform version checking.

3.1 Summary of Portable API Presentation Procedures

Presentation procedures are customer-written routines that the TP Desktop Connector gateway calls when an exchange step occurs in a ACMS task with either the FORM I/O or REQUEST I/O attribute. Table 3–1 summarizes the presentation procedures available in a nonblocking session. These are not applicable to a forced nonblocking session. For more information on presentation procedures, refer to ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide.*

Table 3–1 Summary of Portable API Presentation Procedures

Customer-Supplied Procedure	Description
acmsdi_disable	Services a Compaq DECforms disable request, which disables a form.
acmsdi_enable	Services a DECforms enable request, which enables a form.
acmsdi_read_msg	Services a TDMS Read exchange, which displays the prompt, if any, sent from the ACMS task, and acquires the text from the form's message field.
acmsdi_receive	Services a DECforms receive request, which sends data from the form to the application program.

(continued on next page)

Table 3–1 (Cont.) Summary of Portable API Presentation Procedures

Customer-Supplied Procedure	Description
acmsdi_request	Services a TDMS Request exchange, which displays a form and transfers data between a form and the application program.
acmsdi_send	Services a DECforms send request, which sends data from the application program to the form.
acmsdi_transceive	Services a DECforms transceive request, which combines the actions of a send and a receive.
acmsdi_write_msg	Services a TDMS Write exchange, which displays the text sent from the form's message field or the ACMS task.

See ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for a description of sample client presentation procedures.

3.1.1 Return Status Values Expected from Presentation Procedures

The presentation procedure routines must return a long integer containing any valid OpenVMS status value, including DECforms, TDMS, and application-defined values. Return status values for nonblocking presentation procedures are returned using the acmsdi_complete_pp routine. The status value is passed to the ACMS Application Execution Controller (EXC) as the completion status for the exchange step. The EXC attempts to interpret the value as a standard OpenVMS status value. Unless the task definition for the exchange step specifies CONTINUE ON FAILURE, the EXC cancels the task for an error status returned.

The TP Desktop Connector kit provides include files that specify the return status values for DECforms and TDMS: FORMS.H and TDMS.H. If the return status values change, you can regenerate the include files with the command procedures, MAKE_FORMS_H.COM and MAKE_TDMS_H.COM, in the ACMSDI$EXAMPLES directory.

To handle errors, specify the exception-handler syntax in the task definition. To have a single ACMS application support both DECforms terminals and graphical desktop systems, code the task definition to check for a DECforms error status value.

3.1.2 ACMSDI_FORM_RECORD Structure and Macro Call

Defined in the ACMSDI.H file, the ACMSDI_FORM_RECORD type declares form records and shadow records passed to and from presentation procedures. The code in Example 3–1 defines the ACMSDI_FORM_RECORD type and a macro ACMSDI_INIT_FORM_RECORD to initialize the form record structure.

Example 3–1 Form Record Definition and Initialization Macro

```
typedef struct {
    int   data_length;          /** length of data record **/
    void *data_record;          /** pointer to data record **/
    int   shadow_length;        /** length of shadow record **/
    void *shadow_record;        /** pointer to shadow record **/
} ACMSDI_FORM_RECORD;

#define ACMSDI_INIT_FORM_RECORD (record, data, shadow)\
{\
    record.data_length = sizeof(data);\
    record.data_record = &data;\
    record.shadow_length = sizeof(shadow);\
    record.shadow_record = &shadow;\
}\
```

3.1.3 Prototypes and Code for Presentation Procedures and Version Routines

The ACMSDI.H file contains function prototypes for the presentation procedures and action routines that your code supplies. The file PPSTUBS.C contains stub modules you can use for linking your application (see ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide*).

3.2 Parameter Memory Allocation

The caller of a TP Desktop Connector service or presentation procedure is responsible for allocating the memory for the parameters of that routine. For calls to the TP Desktop Connector client services, the desktop client program must allocate the memory for all parameters passed in, for example, submitter_id and call_context. For the presentation procedures, the desktop client program can expect that TP Desktop Connector software allocates memory for all the parameters passed in and for all workspaces before it calls these procedures.

3.3 Blocking and Nonblocking Usage

Like the portable TP Desktop Connector client services, presentation procedures can be either blocking or nonblocking. If the desktop client program supplies the *completion_routine* parameter in the acmsdi_call_task call, the service behaves in the nonblocking environment (see Section 2.3). In a nonblocking environment, presentation procedures must behave in a way consistent with nonblocking services.

3.3.1 Presentation Procedures in a Nonblocking Environment

When nonblocking services are in use, presentation procedures are written in two parts:

- The first part handles the generic presentation procedure and dispatches to the application-specific presentation procedure to handle interaction with the user.
- The second part uses the acmsdi_complete_pp service to indicate that exchange step processing is completed.

The TP Desktop Connector client services return exchange step data and status to the TP Desktop Connector gateway when the desktop client program calls the acmsdi_complete_pp service.

3.3.2 Nonblocking and Blocking Restriction

All calls using the same desktop client program and TP Desktop Connector gateway connection must be either blocking, nonblocking, or forced nonblocking. These types of service calls cannot be mixed for a client/server pair. If a desktop client program connects to two different TP Desktop Connector gateways, it can mix service call types, using blocking calls to interact with one gateway and nonblocking calls to interact with the other gateway.

3.4 acmsdi_disable

TP Desktop Connector services call this procedure for each active forms session for a desktop submitter whenever the TP Desktop Connector client program calls acmsdi_sign_out to sign the submitter out of the ACMS system.

Format

```
acmsdi_disable  (forms_session,
                 call_id,
                 call_context)
```

Parameters

forms_session
Type: **ACMSDI_FORMS_SESSION_ID**
Access: **read**
Mechanism: **by reference**
An identification that associates the session with the form specified in the acmsdi_enable request (see Section 3.5).

call_id
Type: **ACMSDI_CALL_ID**
Access: **read**
Mechanism: **by reference**
The call identification used to complete the disable call when using nonblocking services. See the description of acmsdi_complete_pp (Section 2.8).

call_context
Type: **void ***
Access: **read**
Mechanism: **by value**
Application-specific context for the call. This is the same context that was passed by the application to the acmsdi_sign_out( ) call.

Return Status

The status values returned by the acmsdi_disable procedure are described in Section 3.1.1.

3.5 acmsdi_enable

TP Desktop Connector client services call this presentation procedure whenever a DECforms ENABLE request is received from the TP Desktop Connector gateway on the OpenVMS system.

Format

```
acmsdi_enable   (submitter_id,
                 forms_session,
                 file_specification,
                 form_specification,
                 forms_print_file,
                 forms_language,
                 call_id,
                 call_context)
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The value returned by the acmsdi_sign_in service (see Section 2.11).

forms_session
Type: **ACMSDI_FORMS_SESSION_ID**
Access: **write**
Mechanism: **by reference**
An identification that associates the session with the submitter identification. This is a write parameter that customer-supplied presentation procedures can fill. Presentation procedures (acmsdi_send, acmsdi_receive, acmsdi_transceive, and acmsdi_disable) can use the *forms_session* parameter to associate the session with the form specified in the enable request. The TP Desktop Connector run-time system passes this parameter to subsequent requests to specify which form to use.

file_specification
Type: **char ***
Access: **read**
Mechanism: **by reference**
The form file specification from the ACMS task group definition. Refer to ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for guidelines on specifying the form file specification.

form_specification
Type: **char ***
Access: **read**
Mechanism: **by reference**
The form name specified in the exchange step in the ACMS task definition. Refer to ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for guidelines on specifying the form name.

forms_print_file
Type: **char ***
Access: **read**
Mechanism: **by reference**
The DECforms specification for the user in ACMSUDF.DAT.

forms_language
Type: **char ***
Access: **read**
Mechanism: **by reference**
The DECforms specification for the user in ACMSUDF.DAT.

call_id
Type: **ACMSDI_CALL_ID**
Access: **read**
Mechanism: **by reference**
The call identification returned by the acmsdi_call_task service.

call_context
Type: **void ***
Access: **read**
Mechanism: **by value**
Application-specific context for the call. This is the same context that was passed by the application to the acmsdi_call_task( ) call.

Return Status

The status values returned by the acmsdi_enable procedure are described in Section 3.1.1.

3.6 acmsdi_read_msg

TP Desktop Connector client services call this presentation procedure when a TDMS Read exchange is received from the TP Desktop Connector gateway on the host OpenVMS system. Its function is to display the prompt (if any) sent from the ACMS task and then to acquire the text from the form's Message Field to be returned to ACMS.

Format

```
acmsdi_read_msg  (submitter_id,
                  msg_text,
                  prompt_text,
                  call_id,
                  call_context)
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The value returned by the acmsdi_sign_in service.

msg_text
Type: **char**
Access: **write**
Mechanism: **by reference**
A buffer into which the presentation procedure will write the text from the form's Message Field to be returned to the ACMS task. This is a C-style null-terminated string with a maximum length of 132 plus one for the null terminator.

prompt_text
Type: **char**
Access: **read**
Mechanism: **by reference**
Text to be displayed as a prompt to the terminal operator. This is a C-style null-terminated string with a maximum length of 132 plus one for the null terminator. There may be no prompt text to display in which case the length will be 0; that is, the null terminator will be in the first position.

call_id
Type: **ACMSDI_CALL_ID**
Access: **read**
Mechanism: **by reference**
The call identification returned by the acmsdi_call_task service which initiated the ACMS task associated with this exchange.

call_context
Type: **void ***
Access: **read**
Mechanism: **by value**
Application-specific context for the call. This is the same context that was passed by the application to the acmsdi_call_task service which initiated the ACMS task associated with this exchange.

Return Status

This function returns a ps32, defined in ACMSDI.H to be equivalent to a signed 32-bit integer. The value must be a valid TDMS status code. Valid TDMS statuses are defined in TDMS.H.

3.7 acmsdi_receive

The TP Desktop Connector client services call this presentation procedure whenever a DECforms RECEIVE request is received from the TP Desktop Connector gateway on the OpenVMS system.

Format

```
acmsdi_receive  (forms_session,
                 receive_record_identifier,
                 receive_record_count,
                 receive_control_text,
                 receive_control_text_count,
                 send_control_text,
                 send_control_text_count,
                 timeout,
                 call_id,
                 call_context,
                 receive_record)
```

Parameters

forms_session
Type: **ACMSDI_FORMS_SESSION_ID**
Access: **read**
Mechanism: **by reference**
An identification to associate the session with the form specified in the acmsdi_ enable request (see Section 3.5).

receive_record_identifier
Type: **char ***
Access: **read**
Mechanism: **by reference**
The form record name or record list name specified in the RECEIVE request in the ACMS task. Refer to ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for guidelines on specifying the form name.

receive_record_count
Type: **long int**
Access: **read**
Mechanism: **by value**
The number of receive record items sent from the ACMS task.

acmsdi_receive

receive_control_text
Type: **char ***
Access: **write**
Mechanism: **by reference**
A 25-character string that the customer-supplied request can use to return receive control text.

receive_control_text_count
Type: **long int**
Access: **write**
Mechanism: **by reference**
The number of receive control text items that the customer-supplied request returns.

send_control_text
Type: **char ***
Access: **read**
Mechanism: **by reference**
Send control text sent from the ACMS task.

send_control_text_count
Type: **long int**
Access: **read**
Mechanism: **by value**
The number of send control text items sent from the ACMS task.

timeout
Type: **short int**
Access: **read**
Mechanism: **by value**
A timeout value for user input processing sent from the ACMS task.

call_id
Type: **ACMSDI_CALL_ID**
Access: **read**
Mechanism: **by reference**
The call identification returned by the acmsdi_call_task service.

call_context
Type: **void ***
Access: **read**
Mechanism: **by value**
Application-specific context for the call. This is the same context that was passed by the application to the acmsdi_call_task( ) call.

receive_record
Type: **ACMSDI_FORM_RECORD array**
Access: **write**
Mechanism: **by reference**
An array of ACMSDI_FORM_RECORD structures pointing to buffers that store application data and shadow records from the request (see Section 3.1.2).

Return Status

The status values returned by the acmsdi_receive procedure are described in Section 3.1.1.

3.8 acmsdi_request

TP Desktop Connector client services call this presentation procedure whenever a TDMS Request exchange is received from the TP Desktop Connector gateway on the OpenVMS system.

Format

```
acmsdi_request  (submitter_id,
                 request_name,
                 workspace_count,
                 workspaces,
                 call_id,
                 call_context)
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The value returned by the acmsdi_sign_in service (see Section 2.11).

request_name
Type: **char ***
Access: **read**
Mechanism: **by reference**
The name of the *TDMS* request specified in the ACMS task.

workspace_count
Type: **long int**
Access: **read**
Mechanism: **by value**
The number of workspaces sent from the ACMS task.

workspaces
Type: **ACMSDI_WORKSPACE array**
Access: **read/write**
Mechanism: **by reference**
The workspace data sent from the ACMS task. One or more optional workspace arguments can be sent from the task (see Section 2.4).

call_id
Type: **ACMSDI_CALL_ID**
Access: **read**
Mechanism: **by reference**
The call identification returned by the acmsdi_call_task service.

call_context
Type: **void ***
Access: **read**
Mechanism: **by value**
Application-specific context for the call. This is the same context that was passed by the application to the acmsdi_call_task( ) call.

Return Status

The status values returned by the acmsdi_request procedure are described in Section 3.1.1.

3.9 acmsdi_send

TP Desktop Connector client services call this presentation procedure whenever a DECforms SEND request is received from the TP Desktop Connector gateway on the OpenVMS system.

Format

```
acmsdi_send  (forms_session,
              send_record_identifier,
              send_record_count,
              receive_control_text,
              receive_control_text_count,
              send_control_text,
              send_control_text_count,
              timeout,
              call_id,
              call_context,
              send_record)
```

Parameters

forms_session
Type: **ACMSDI_FORMS_SESSION_ID**
Access: **read**
Mechanism: **by reference**
An identification that associates the session with the form specified in the acmsdi_enable request (see Section 3.5).

send_record_identifier
Type: **char ***
Access: **read**
Mechanism: **by reference**
The form record name or record list name specified in the SEND request in the ACMS task. Refer to ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for guidelines on specifying the form name.

send_record_count
Type: **long int**
Access: **read**
Mechanism: **by value**
The number of send record items sent from the ACMS task.

receive_control_text
Type: **char ***
Access: **write**
Mechanism: **by reference**
A 25-character string that the customer-supplied request can use to return receive control text.

receive_control_text_count
Type: **long int**
Access: **write**
Mechanism: **by reference**
The number of receive control text items that the customer-supplied request returns.

send_control_text
Type: **char ***
Access: **read**
Mechanism: **by reference**
Send control text sent from the ACMS task.

send_control_text_count
Type: **long int**
Access: **read**
Mechanism: **by value**
The number of send control text items sent from the ACMS task.

timeout
Type: **short int**
Access: **read**
Mechanism: **by value**
A timeout value for user input processing, sent from the ACMS task.

call_id
Type: **ACMSDI_CALL_ID**
Access: **read**
Mechanism: **by reference**
The call identification returned by the acmsdi_call_task service.

call_context
Type: **void ***
Access: **read**
Mechanism: **by value**
Application-specific context for the call. This is the same context that was passed by the application to the acmsdi_call_task( ) call.

send_record
Type: **ACMSDI_FORM_RECORD array**
Access: **read**
Mechanism: **by reference**
An array of ACMSDI_FORM_RECORD structures pointing to buffers containing application data and shadow records sent from the ACMS task (see Section 3.1.2).

Return Status

The status values returned by the acmsdi_send procedure are described in Section 3.1.1.

3.10 acmsdi_transceive

TP Desktop Connector client services call this presentation procedure whenever a DECforms TRANSCEIVE request is received from the TP Desktop Connector gateway on the OpenVMS system.

Format

```
acmsdi_transceive  (forms_session,
                    send_record_identifier,
                    send_record_count,
                    receive_record_identifier,
                    receive_record_count,
                    receive_control_text,
                    receive_control_text_count,
                    send_control_text,
                    send_control_text_count,
                    timeout,
                    call_id,
                    call_context,
                    send_record,
                    receive_record)
```

Parameters

forms_session
Type: **ACMSDI_FORMS_SESSION_ID**
Access: **read**
Mechanism: **by reference**
An identification that associates the session with the form specified in the acmsdi_enable request (see Section 3.5).

send_record_identifier
Type: **char ***
Access: **read**
Mechanism: **by reference**
The form record name or record list name specified in the SEND request in the ACMS task. Refer to ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for guidelines on specifying the form name.

acmsdi_transceive

send_record_count
Type: **long int**
Access: **read**
Mechanism: **by value**
The number of send record items sent from the ACMS task.

receive_record_identifier
Type: **char ***
Access: **read**
Mechanism: **by reference**
The form record name or record list name specified in the RECEIVE request in the ACMS task. Refer to ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for guidelines on specifying the form name.

receive_record_count
Type: **long int**
Access: **read**
Mechanism: **by value**
The number of receive record items sent from the ACMS task.

receive_control_text
Type: **char ***
Access: **write**
Mechanism: **by reference**
A 25-character string that the customer-supplied request can use to return receive control text.

receive_control_text_count
Type: **long int**
Access: **write**
Mechanism: **by reference**
The number of receive control text items that the customer-supplied request returns.

send_control_text
Type: **char ***
Access: **read**
Mechanism: **by reference**
Send control text sent from the ACMS task.

send_control_text_count
Type: **long int**
Access: **read**
Mechanism: **by value**
The number of send control text items sent from the ACMS task.

timeout
Type: **short int**
Access: **read**
Mechanism: **by value**
A timeout value for user input processing, sent from the ACMS task.

call_id
Type: **ACMSDI_CALL_ID**
Access: **read**
Mechanism: **by reference**
The call identification returned by the acmsdi_call_task service.

call_context
Type: **void ***
Access: **read**
Mechanism: **by value**
Application-specific context for the call. This is the same context that was passed by the application to the acmsdi_call_task( ) call.

send_record
Type: **ACMSDI_FORM_RECORD array**
Access: **read**
Mechanism: **by reference**
An array of ACMSDI_FORM_RECORD structures pointing to buffers containing application data and shadow records sent from the ACMS task (see Section 3.1.2).

receive_record
Type: **ACMSDI_FORM_RECORD array**
Access: **write**
Mechanism: **by reference**
An array of ACMSDI_FORM_RECORD structures pointing to buffers to receive application data and shadow records from the request (see Section 3.1.2).

Return Status

The status values returned by the acmsdi_transceive procedure are described in Section 3.1.1.

3.11 acmsdi_write_msg

TP Desktop Connector client services call this presentation procedure when a TDMS Write exchange is received from the TP Desktop Connector gateway on the host OpenVMS system. Its function is to display the message text sent from the ACMS task in the form's Message Field.

Format

```
acmsdi_write_msg  (submitter_id,
                   msg_text,
                   call_id,
                   call_context)
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The value returned by the acmsdi_sign_in service.

msg_text
Type: **char**
Access: **read**
Mechanism: **by reference**
Text to be displayed in the form's Message Field. This is a C-style null-terminated string with a maximum length of 132 plus one for the null terminator.

call_id
Type: **ACMSDI_CALL_ID**
Access: **read**
Mechanism: **by reference**
The call identification returned by the acmsdi_call_task service which initiated the ACMS task associated with this exchange.

call_context
Type: **void ***
Access: **read**
Mechanism: **by value**
Application-specific context for the call. This is the same context that was passed by the application to the acmsdi_call_task service which initiated the ACMS task associated with this exchange.

Return Status

This function returns a ps32, defined in ACMSDI.H to be equivalent to a signed 32-bit integer. The value must be a valid TDMS status code. Valid TDMS statuses are defined in TDMS.H.

3.12 Version-Checking Routines

The following sections describe the version-checking routines. Version checking is supported on systems using FORM I/O tasks (see ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide*).

3.12.1 acmsdi_check_version

TP Desktop Connector client services call this routine whenever they receive an ENABLE request from the TP Desktop Connector gateway. The action routine can check the version string passed from the acmsdi_get_version routine on the submitter node and notify the desktop user of any inconsistency.

You request version checking during a sign-in (see ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide*).

Format

```
acmsdi_check_version  (form_file,
                       version)
```

Parameters

form_file
Type: **char ***
Access: **read**
Mechanism: **by reference**
Specification of a form file or a request library from the ACMS task group definition.

version
Type: **char ***
Access: **read**
Mechanism: **by reference**
Twenty-four bytes containing the version number or date supplied by the acmsdi_get_version routine on the OpenVMS system.

Return Status

The TP Desktop Connector service checks the status value returned and expects a valid OpenVMS status. If a failure status is returned, the TP Desktop Connector run-time system terminates the ENABLE request.

If the version-checking routine determines that software is not synchronized, it does one of the following:

- Returns an OpenVMS failure status that cancels the ENABLE request.
- Sets a flag that causes the acmsdi_enable routine to terminate with a failure status.

3.12.2 acmsdi_get_version

The TP Desktop Connector gateway calls this routine on the OpenVMS system whenever it receives an ENABLE request from the EXC. The action routine can return a version string that is then passed to the desktop client program, allowing a version comparison at the desktop system.

This service can also be used in a forced nonblocking environment, see Section 4.3. On a Windows system, version checking occurs during enable processing.

Format

```
acmsdi_get_version  (form_file,
                     version)
```

Parameters

form_file
Type: **char ***
Access: **read**
Mechanism: **by reference**
Form file or request library specification from the ACMS task group definition.

version
Type: **char ***
Access: **write**
Mechanism: **by reference**
Twenty-four bytes in which the routine writes the version number or date associated with the specified form file. The *version* parameter is passed to the desktop client program to be checked in the acmsdi_check_version routine.

Return Status

Always returns SUCCESS status.

4

Forced Nonblocking Client Services

This chapter describes the forced nonblocking interface between the TP Desktop Connector gateway and customer-written procedures.

4.1 Summary of Forced Nonblocking Procedures

Forced nonblocking client services extend the Portable API to support development tools that do not provide for callbacks, data pointers or consistent memory locations for data. (Such tools include Visual Basic and others.) You create a forced nonblocking session when you specify the ACMSDI_OPTION, ACMSDI_OPT_NONBLK, with the acmsdi_sign_in service and do not supply a completion address. In this session, all calls are nonblocking. Table 4–1 summarizes the forced nonblocking calls to the TP Desktop Connector API. For more information on forced nonblocking calls, refer to ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide.*

Table 4–1 Summary of Forced Nonblocking Procedures

Customer-Supplied Procedure	Description
acmsdi_complete_call	Returns the completion status. Can also provide the ACMS status message and task argument workspaces.
acmsdi_bind_enable_args	Retrieves write-only arguments in an enable exchange step request.
acmsdi_bind_enable_args	Retrieves write-only arguments in an enable exchange step request.
acmsdi_bind_msg	Sends or acquires the message text in TDMS Read or Write exchanges, respectively, or acquires the prompt text of a TDMS Read exchange.

(continued on next page)

Table 4–1 (Cont.) Summary of Forced Nonblocking Procedures

Customer-Supplied Procedure	Description
acmsdi_bind_receive_recs	Services receive and transceive exchange steps, which send data from the desktop client to the TP Desktop Connector gateway.
acmsdi_bind_request_args	Provides the client application with the request name and identifies the set of workspaces in a TDMS request exchange step.
acmsdi_bind_request_wksps	Services a TDMS exchange step, which transfers data between a desktop client and the TP Desktop Connector gateway.
acmsdi_bind_send_args	Provides the client application with the send record identifier and identifies the records to be received in a send exchange step.
acmsdi_bind_send_recs	Services send and transceive exchange steps, which send data from the TP Desktop Connector gateway to the desktop client.
acmsdi_bind_session_id	Sends the forms session identifier to the TP Desktop gateway during an enable exchange step.
acmsdi_bind_transceive_args	Provides the client application with the send and receive record identifiers and identifies the records to be passed in a transceive exchange step.
acmsdi_poll	Returns the message type of a message from the back end and a pointer to the call context from the client application.

4.1.1 ACMSDI_FORM_RECORD_BIND Structure

Defined in the ACMSDI.H and ACMSDI.BAS files, the ACMSDI_FORM_RECORD type declares form records and shadow records transferred. The code in Example 4–1 defines the ACMSDI_FORM_RECORD_BIND type for the C language.

Example 4–1 Form Record Definition

```
typedef struct {
   unsigned int   buffer_len;         /** length of caller's record buffer **/
   unsigned int   rec_len;            /** actual length of the form record **/
   void *data_record;                 /** pointer to data record **/
   unsigned int   shadow_buffer_len;  /** length of callers shadow buffer  **/
   unsigned int   shadow_rec_len;     /** actual length of shadow record **/
   void *shadow_record;               /** pointer to shadow record **/
} ACMSDI_FORM_RECORD_BIND;
```

4.1.2 ACMSDI_WORKSPACE_BIND Structure

Defined in the ACMSDI.H file, the ACMSDI_WORKSPACE_BIND type declares workspaces passed to tasks using the acmsdi_call_task service and workspaces passed from tasks to acmsdi_request presentation procedures.

The code in Example 4–2 defines the ACMSDI_WORKSPACE_BIND type structure.

Example 4–2 Workspace Structure Definition

```
typedef struct {
    unsigned int buffer_len;       /** length of caller's buffer **/
    unsigned int wksp_len;         /** actual length of the workspace  **/
    void *data;                    /** pointer to workspace **/
} ACMSDI_WORKSPACE_BIND;
```

4.2 acmsdi_complete_call

The acmsdi_complete_call service is a required call that obtains completion arguments for acsmdi_call_task, acsmdi_sign_in, acmsdi_sign_out, and acmsdi_cancel services. When acmsdi_poll detects completion, acmsdi_complete_call can obtain the completion status for these services. The acmsdi_complete_call can also obtain the ACMS status message and task argument workspaces sent from the back end for the acmsdi_call_task service.

Format

```
acmsdi_complete_call  (submitter_id,
                       completion_status,
                       [call_id],
                       [status_message],
                       [workspaces])
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The submitter_id returned by the acmsdi_sign_in service.

completion_status
Type: **int**
Access: **write**
Mechanism: **by reference**
The final status of the TP Desktop Connector client service. When the service completes, the *completion_status* parameter contains the final status. For the list of return status values, see Table 4–2.

When a task is canceled, the TP Desktop Connector gateway reports a specific error, where possible. If the gateway cannot convert a ACMS error to a specific TP Desktop Connector status, it returns ACMSDI_TASK_FAILED to the desktop client program.

call_id
Type: **ACMSDI_CALL_ID ***
Access: **read**
Mechanism: **by reference**

A structure defined in the ACMSDI.H include file into which the acmsdi_call_task service writes a newly created call identification, a handle used by the TP Desktop Connector client services to identify an active call for a submitter. This parameter is required when completing an acmsdi_call_task service.

status_message
Type: **char ***
Access: **write**
Mechanism: **by reference**
A buffer to receive the message text associated with the task completion status. The message text returned is either the text associated with a TP Desktop Connector error or the message text returned from a ACMS application. Required length is 80. You use this parameter only for the acmsdi_call_task service completion.

Caution

If the full space is not allocated, the TP Desktop Connector client services write past the end of the allocated string and can cause the application to fail. Ensure that the desktop client program allocates the required length of space.

workspaces
Type: **ACMSDI_WORKSPACE or ACMSDI_WORKSPACE_OPT array**
Access: **write**
Mechanism: **by reference**
One or more optional workspaces passed to the application from the back end. You need to typecast your array to void *. The workspaces must be specified in the same order as they are declared in the task definition, and must match the number specified in the *workspace_count* parameter. If you use the ACMSDI_WORKSPACE_OPT type, you must set the call_options parameter to allow unidirectional workspaces.

Because buffers may have been relocated by memory management, workspace pointers in the structures must be renewed using the acmsdi_return_pointer call just prior to issuing acmsdi_complete_call.

You use this parameter only for the acmsdi_call_task service completion.

Return Status

The status values returned by the acmsdi_complete_call procedure are described in Table 4–2.

Table 4–2 acmsdi_complete_call Return Status Values

Status	Description
ACMSDI_EXCHACTV	Request is invalid while exchange step processing is active.
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INTERNAL	Internal TP Desktop Connector error.
ACMSDI_INVCALLID	Invalid or obsolete call identification.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_MIXEDMODE	Not a forced nonblocking session.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_WRONG_STATE	Session is in the wrong state for this call.

4.3 acmsdi_bind_enable_args

The client application can call this service whenever acmsdi_poll returns ACMSDI_ENABLE_EXCH from the TP Desktop Connector gateway on the OpenVMS system. This service retrieves the write-only arguments passed from the TP Desktop Connector client services. This is an optional call.

Format

```
acmsdi_bind_enable_args  (submitter_id,
                          file_specification,
                          form_specification,
                          form_version,
                          forms_print_file,
                          forms_language,
                          call_id)
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The value returned by the acmsdi_sign_in service (see Section 2.11).

file_specification
Type: **char ***
Access: **write**
Mechanism: **by reference**
The form file specification from the ACMS task group definition. Refer to ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for guidelines on specifying the form file specification.

form_specification
Type: **char ***
Access: **write**
Mechanism: **by reference**
The form name specified in the exchange step in the ACMS task definition. Refer to ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for guidelines on specifying the form name.

form_version
Type: **char ***
Access: **write**
Mechanism: **by reference**
Twenty-four bytes containing the version number or date supplied by the acmsdi_get_version routine on the OpenVMS system. The argument provides for version checking by the client application. (The acmsdi_check_version is not available in a forced nonblocking session.)

forms_print_file
Type: **char ***
Access: **write**
Mechanism: **by reference**
The DECforms specification for the user in ACMSUDF.DAT.

forms_language
Type: **char ***
Access: **write**
Mechanism: **by reference**
The DECforms specification for the user in ACMSUDF.DAT.

call_id
Type: **ACMSDI_CALL_ID ***
Access: **write**
Mechanism: **by reference**
A pointer to the call identification returned by the acmsdi_call_task service. To identify the original task call, compare this pointer with a reference pointer to the call identifier obtained by acmsdi_return_pointer.

Return Status

The status values returned by the acmsdi_bind_enable_args procedure are described in Table 4–3.

Table 4–3 acmsdi_bind_enable_args Return Status Values

Status	Description
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_MIXEDMODE	Not a forced nonblocking session.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_WRONG_BIND	Trying to bind arguments for an exchange that is not in progress.

4.4 acmsdi_bind_msg

The client application can call this service when acmsdi_poll returns ACMSDI_TDMS_READ_EXCH (a TDMS Read exchange) or ACMSDI_TDMS_WRITE_EXCH (a TDMS Write exchange) from the TP Desktop Connector gateway on the host OpenVMS system. It performs one of the following functions:

- acquires the prompt text, if any, associated with a TDMS Read exchange
- sends the message text associated with a TDMS Read exchange.
- acquires the message text associated with a TDMS Write exchange.

If the prompt or message text is being acquired, the text is truncated when the buffer supplied is not large enough to hold the entire text. If the buffer is larger than the text being acquired, the text is left-justified in the buffer and right-filled with blank characters.

This is an optional call, that is, you are not required to issue this call. However, if you do not issue this call you will not be able to process arguments received from the server or to send arguments back to the server.

Format

```
acmsdi_bind_msg  (submitter_id,
                  direction,
                  length,
                  text,
                  call_id)
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The value returned by the acmsdi_sign_in service.

direction
Type: **short int**
Access: **read**
Mechanism: **by value**
The value indicates which direction the text is being sent. A value of 1 indicates that the prompt text from a TDMS Read exchange or the message text from a TDMS Write exchange is being copied into the application's memory

from ACMS. A value of 0 indicates that the message text for a TDMS Read exchange is being copied to ACMS from the application's memory.

length
Type: **short int**
Access: **read**
Mechanism: **by value**
The length of the text being sent or the length of the buffer to receive the text; specifically one of the following:

- the length of the buffer in the application's memory which is to receive the prompt text for a TDMS Read exchange.
- the length of the message text being sent to ACMS for a TDMS Read exchange.
- the length of the buffer in the application's memory which is to receive the message text for a TDMS Write exchange.

text
Type: **char**
Access: **read/write**
Mechanism: **by reference**
The text string being sent to ACMS or the buffer which is to hold the text string being acquired from ACMS.

call_id
Type: **ACMSDI_CALL_ID ***
Access: **write**
Mechanism: **by reference**
Pointer to the call identification returned by the acmsdi_call_task service. To identify the original task call, compare this pointer with a reference pointer to the call identifier obtained by acmsdi_return_pointer.

Return Status

This function returns an int value representing a valid TP Desktop Connector status code as defined in ACMSDI.H and described in Table 4–4.

Table 4–4 acmsdi_bind_msg Return Status Values

Status	Description
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_MIXEDMODE	Not a forced nonblocking session call.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_WRONG_BIND	Trying to bind arguments for an exchange that is not in progress.

4.5 acmsdi_bind_receive_args

The client application can call this service whenever an acmsdi_poll returns ACMSDI_RECV_EXCH from the TP Desktop Connector gateway on the OpenVMS system. This service retrieves the write-only arguments passed from the TP Desktop Connector client services. This provides the client application with the receive record identifier and identifies the appropriate set of forms records to send back to ACMS. See also Section 4.6 for information on calls for receive forms records and receive control text. This is an optional call.

Format

```
acmsdi_bind_receive_args  (submitter_id,
                           forms_session,
                           receive_record_identifier,
                           receive_record_count,
                           timeout,
                           call_id)
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The submitter_id returned by the acmsdi_sign_in service.

forms_session
Type: **ACMSDI_FORMS_SESSION_ID**
Access: **write**
Mechanism: **by reference**
An identification to associate the session with the form specified in the acmsdi_ enable request (see Section 4.11).

receive_record_identifier
Type: **char ***
Access: **write**
Mechanism: **by reference**
The form record name or record list name specified in the RECEIVE request in the ACMS task. Refer to ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for guidelines on specifying the form name.

receive_record_count
Type: **long int**
Access: **write**
Mechanism: **by reference**
The number of receive record items sent from the ACMS task. The TP Desktop Connector writes the receive_record_count into this location.

timeout
Type: **short int**
Access: **write**
Mechanism: **by reference**
A timeout value for user input processing sent from the ACMS task. TP Desktop Connector writes the timeout value into this location.

call_id
Type: **ACMSDI_CALL_ID ***
Access: **write**
Mechanism: **by reference**
A pointer to the call identification returned by the acmsdi_call_task service. To identify the original task call, compare this pointer with a reference pointer to the call identifier obtained by acmsdi_return_pointer.

Return Status

The status values returned by the acmsdi_bind_receive_args procedure are described in Table 4–5.

Table 4–5 acmsdi_bind_receive_args Return Status Values

Status	Description
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_MIXEDMODE	Not a forced nonblocking session call.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_WRONG_BIND	Trying to bind arguments for an exchange that is not in progress.

4.6 acmsdi_bind_receive_recs

The client application calls this service to send the client application's receive forms record data to the TP Desktop Connector gateway on the OpenVMS system. Use this service after you have retrieved the exchange step arguments that identify the forms records to be sent to the TP Desktop Connector gateway. This service can also be used to send receive control text to the TP Desktop Connector gateway. This is an optional call.

Format

```
acmsdi_bind_receive_recs  (submitter_id,
                           receive_control_text_flag,
                           receive_record)
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The value returned by the acmsdi_sign_in service (see Section 2.11).

receive_control_text_flag
Type: **short integer**
Access: **read**
Mechanism: **by value**
A value of 1 indicates that receive control text is to be sent to the TP Desktop Connector gateway. A value of 0 indicates that receive control text is not to be sent.

receive_record
Type: **ACMSDI_FORM_RECORD_BIND array**
Access: **read**
Mechanism: **by reference**
An array of ACMSDI_FORM_RECORD_BIND structures pointing to buffers that store application data and shadow records to be sent to the ACMS task, (see ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide*). If the send_control_text_flag contains a value of 1, the first ACMSDI_FORM_RECORD_BIND structure in the array must point to the receive control text buffer. No shadow record is associated with receive control text.

Return Status

The status values returned by the acmsdi_bind_receive_recs service are described in Table 4–6.

Table 4–6 acmsdi_bind_receive_recs Return Status Values

Status	Description
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_MIXEDMODE	Not a forced nonblocking session.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_WRONG_BIND	Trying to bind arguments for an exchange that is not in progress.

4.7 acmsdi_bind_request_args

The client application can call this service whenever acmsdi_poll returns ACMSDI_REQUEST_EXCH (a TDMS exchange step) from the TP Desktop Connector gateway on the OpenVMS system. This service retrieves the write-only arguments passed from the TP Desktop Connector client services. This provides the client application with the request name and and identifies the set of workspaces to be received from and then sent back to ACMS. This is an optional call.

Format

```
acmsdi_bind_request_args  (submitter_id,
                           request_name,
                           workspace_count,
                           call_id)
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The value returned by the acmsdi_sign_in service (see Section 2.11).

request_name
Type: **char ***
Access: **write**
Mechanism: **by reference**
The name of the *TDMS* request specified in the ACMS task.

workspace_count
Type: **long int**
Access: **write**
Mechanism: **by reference**
The number of workspaces sent from the ACMS task. TP Desktop Connector writes this workspace count into this location.

call_id
Type: **ACMSDI_CALL_ID ***
Access: **write**
Mechanism: **by reference**
The call identification returned by the acmsdi_call_task service. To identify the original task call, compare this pointer with a reference pointer to the call identifier obtained by acmsdi_return_pointer.

Return Status

The status values returned by the acmsdi_bind_request_args service are described in Table 4–7.

Table 4–7 acmsdi_bind_request_args Return Status Values

Status	Description
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_MIXEDMODE	Not a forced nonblocking session.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_WRONG_BIND	Trying to bind arguments for an exchange that is not in progress.

4.8 acmsdi_bind_request_wksps

The client application calls this service to copy request workspace data between the client application and the ACMS during a TDMS exchange. Use the acmsdi_bind_request_wksps call to copy request workspace data from TP Desktop Connector gateway to the client application memory. After modification, use this call again to copy the modified contents back to the TP Desktop Connector gateway. Use this service after you have retrieved the exchange step arguments that identify the workspaces from the TP Desktop Connector gateway. This is an optional call.

Format

```
acmsdi_enable   (submitter_id,
                 direction,
                 req_wksp_array)
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The value returned by the acmsdi_sign_in service (see Section 2.11).

direction
Type: **short int**
Access: **read**
Mechanism: **by value**
The value indicates which direction the workspaces are being sent. A value of 1 indicates that the workspaces are being copied into the application's memory from ACMS. A value of 0 indicates that the workspaces are being copied to ACMS from the application's memory.

workspaces
Type: **ACMSDI_WORKSPACE_BIND array**
Access: **read/write**
Mechanism: **by reference**
The workspace data sent from the ACMS task. One or more workspace arguments can be sent from and returned to the task (see ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide*).

Return Status

The status values returned by the acmsdi_bind_request_wksps service are described in Table 4–8.

Table 4–8 acmsdi_bind_request_wksps Return Status Values

Status	Description
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_MIXEDMODE	Not a forced nonblocking session.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_WRONG_BIND	Trying to bind arguments for an exchange that is not in progress.

4.9 acmsdi_bind_send_args

The client application can call this service whenever an acmsdi_poll returns ACMSDI_SEND_EXCH from the TP Desktop Connector gateway on the OpenVMS system. This service retrieves the write-only arguments passed from the TP Desktop Connector client services. This provides the client application with the send record identifier and identifies the set of forms records it receives from ACMS. See also Section 4.10 for information on calls for send forms records and send control text. This is an optional call.

Format

```
acmsdi_bind_send_args  (submitter_id,
                        forms_session,
                        send_record_identifier,
                        send_record_count,
                        timeout,
                        call_id)
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The submitter_id returned by the acmsdi_sign_in service.

forms_session
Type: **ACMSDI_FORMS_SESSION_ID**
Access: **write**
Mechanism: **by reference**
An identification that associates the session with the form specified in the acmsdi_enable request (see Section 4.11).

send_record_identifier
Type: **char ***
Access: **write**
Mechanism: **by reference**
The form record name or record list name specified in the SEND request in the ACMS task. Refer to ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for guidelines on specifying the form name.

send_record_count
Type: **long int**
Access: **write**
Mechanism: **by reference**
The number of send record items sent from the ACMS task. TP Desktop Connector writes the send_record_count into this location.

timeout
Type: **short int**
Access: **write**
Mechanism: **by reference**
A timeout value for user input processing, sent from the ACMS task. TP Desktop Connector writes the timeout value into this location.

call_id
Type: **ACMSDI_CALL_ID ***
Access: **write**
Mechanism: **by reference**
A pointer to the call identification returned by the acmsdi_call_task service. To identify the original task call, compare this pointer with a reference pointer to the call identifier obtained by acmsdi_return_pointer.

Return Status

The status values returned by the acmsdi_bind_send_args procedure are described in Table 4–9.

Table 4–9 acmsdi_bind_send_args Return Status Values

Status	Description
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_MIXEDMODE	Not a forced nonblocking session.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_WRONG_BIND	Trying to bind arguments for an exchange that is not in progress.

4.10 acmsdi_bind_send_recs

The client application calls this service to retrieve send forms record data from the TP Desktop Connector gateway on the OpenVMS system. Use this service after you have retrieved the exchange step arguments that identify the forms records required from the TP Desktop Connector gateway. This service can also be used to retrieve send control text from the TP Desktop Connector gateway. This is an optional call.

Format

```
acmsdi_bind_send_recs  (submitter_id,
                        send_control_text_flag,
                        send_record)
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The value returned by the acmsdi_sign_in service (see Section 2.11).

send_control_text_flag
Type: **short integer**
Access: **read**
Mechanism: **by value**
A value of 1 indicates that send control text is to be copied from the ACMS task. A value of 0 indicates that send control text is not to be copied.

send_record
Type: **ACMSDI_FORM_RECORD_BIND array**
Access: **write**
Mechanism: **by reference**
An array of ACMSDI_FORM_RECORD_BIND structures pointing to buffers containing application data and shadow records sent from the ACMS task (see ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide*). If the send_control_text_flag contains a value of 1, the first ACMSDI_FORM_RECORD_BIND structure in the array must point to the send control text buffer. There is no shadow record associated with send control text.

Return Status

The status values returned by the acmsdi_bind_send_recs service are described in Table 4–10.

Table 4–10 acmsdi_bind_send_recs Return Status Values

Status	Description
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_MIXEDMODE	Not a forced nonblocking session.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_WRONG_BIND	Trying to bind arguments for an exchange that is not in progress.

4.11 acmsdi_bind_session_id

You can issue the acmsdi_bind_session_id service to send the forms session ID argument to ACMS during an enable exchange step. This is an optional call.

Format

```
acmsdi_bind_session_id  (submitter_id,
                         forms_session)
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The value returned by the acmsdi_sign_in service (see Section 2.11).

forms_session
Type: **ACMSDI_FORMS_SESSION_ID**
Access: **read**
Mechanism: **by reference**
An identification that associates the session with the submitter identification. The user-written application can use the *forms_session* parameter to associate the session with the form specified in the enable request. The TP Desktop Connector run-time system passes this parameter to subsequent requests to specify which form to use.

Return Status

The status values returned by the acmsdi_bind_session_id procedure are described in Table 4–11.

Table 4–11 acmsdi_bind_session_id Return Status Values

Status	Description
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_MIXEDMODE	Not a forced nonblocking session.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_WRONG_BIND	Trying to bind arguments for an exchange that is not in progress.

4.12 acmsdi_bind_transceive_args

The client application can call this service whenever an acmsdi_poll returns ACMSDI_TRCV_EXCH from the TP Desktop Connector gateway on the OpenVMS system. This service retrieves the write-only arguments passed from the TP Desktop Connector client services. This provides the client application with the send and receive record identifiers and identifies the set of forms records to be received from and sent to ACMS. See Section 4.6 for information on calls for receive forms records and receive control text. See Section 4.10 for information on calls for send forms records and send control text. This is an optional call.

Format

```
acmsdi_bind_transceive_args  submitter_id,
                             forms_session,
                             send_record_identifier,
                             send_record_count,
                             receive_record_identifier,
                             receive_record_count,
                             timeout,
                             call_id )
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The submitter_id returned by the acmsdi_sign_in service.

forms_session
Type: **ACMSDI_FORMS_SESSION_ID**
Access: **write**
Mechanism: **by reference**
An identification to associate the session with the form specified in the acmsdi_ enable request (see Section 4.11).

acmsdi_bind_transceive_args

send_record_identifier
Type: **char ***
Access: **write**
Mechanism: **by reference**
The form record name or record list name specified in the SEND request in the ACMS task. Refer to ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for guidelines on specifying the form name.

send_record_count
Type: **long int**
Access: **write**
Mechanism: **by reference**
The number of send record items sent from the ACMS task. TP Desktop Connector writes the send_record_count into this location.

receive_record_identifier
Type: **char ***
Access: **write**
Mechanism: **by reference**
The form record name or record list name specified in the RECEIVE request in the ACMS task. Refer to ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for guidelines on specifying the form name.

receive_record_count
Type: **long int**
Access: **write**
Mechanism: **by reference**
The number of receive record items sent from the ACMS task. TP Desktop Connector writes the receive_record_count into this location.

timeout
Type: **short int**
Access: **write**
Mechanism: **by reference**
A timeout value for user input processing, sent from the ACMS task. TP Desktop Connector writes the timeout value into this location.

call_id
Type: **ACMSDI_CALL_ID ***
Access: **write**
Mechanism: **by reference**
A pointer to the call identification returned by the acmsdi_call_task service. To identify the original task call, compare this pointer with a reference pointer to the call identifier obtained by acmsdi_return_pointer.

Return Status

The status values returned by the acmsdi_bind_transceive_args service are described in Table 4–12.

Table 4–12 acmsdi_bind_transceive_args Return Status Values

Status	Description
ACMSDI_INSUFPRM	Insufficient parameters.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_MIXEDMODE	Not a forced nonblocking session.
ACMSDI_NORMAL	Normal successful completion.
ACMSDI_WRONG_BIND	Trying to bind arguments for an exchange that is not in progress.

4.13 acmsdi_poll

TP Desktop Connector client programs call this nonblocking service to check for and process messages sent from a TP Desktop Connector gateway to an active submitter in the desktop application. The application must periodically call this service in a forced nonblocking environment to check for completion of outstanding acmsdi_sign_in, acmsdi_call_task, acmsdi_cancel, and acmsdi_sign_out requests. The acmsdi_poll call also checks for the arrival of an exchange step from the back end. (For more information, see ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide*).

The acmsdi_poll service returns a pointer to the call context acquired from the user application when the just-completed call was issued. Storage for this 32-bit integer must exist in the client application's memory. The client application can compare this pointer with that returned by the acmsdi_return_pointer service to identify the completed call. The call context is identified by matching the values.

Format

```
acmsdi_poll   (submitter_id,
               call-context)
```

Parameters

submitter_id
Type: **ACMSDI_SUBMITTER_ID**
Access: **read**
Mechanism: **by reference**
The submitter_id returned by the acmsdi_sign_in service. The submitter identifier is used to identify the submitter for which the call is being issued. The acmsdi_poll service passes the submitter identifier as a read-only argument. TP Desktop responds with either the message type received from the back end for that submitter or a return code indicating that there is no message.

call_context
Type: **void ***
Access: **write**
Mechanism: **by reference**
This call writes the pointer to the call context into this optional parameter. This context identifies the call message that has arrived from the back end.

For example, if an acmsdi_call_task completion message is sent from the back end, this is a pointer to the context supplied on the acmsdi_call_task call.

This pointer to a structure in the client application's memory is treated as a 32-bit integer. To determine the structure being referenced, the client application compares this value with the values returned by the acmsdi_return_pointer service. Because data can be moved by memory management, acmsdi_return_pointer calls must be issued within the same procedure as the original call.

Return Status

The status values returned by the acmsdi_poll service are listed in Table 4–13.

Table 4–13 acmsdi_poll Return Status Values

Status	Description
ACMSDI_CANCEL_DONE	Task cancel call complete.
ACMSDI_DONE	Sign-in, sign-out, or task call complete.
ACMSDI_ENABLE_EXCH	Enable exchange step has arrived.
ACMSDI_EXCHACTV	Request is invalid while exchange step processing is active.
ACMSDI_EXEC	No message from the back-end available; call still executing.
ACMSDI_INSUFPRM	Insufficient or conflicting parameters.
ACMSDI_INVSUBID	Invalid or obsolete submitter identification.
ACMSDI_INTERNAL	Internal TP Desktop Connector error.
ACMSDI_MIXEDMODE	Not a forced nonblocking session call.
ACMSDI_NOMEMORY	Insufficient memory.
ACMSDI_READY	No message from the back-end available; no call executing.
ACMSDI_RECV_EXCH	Receive exchange step has arrived.
ACMSDI_REQUEST_EXCH	TDMS Request exchange step has arrived.
ACMSDI_SEND_EXCH	Send exchange step has arrived.

(continued on next page)

Table 4–13 (Cont.) acmsdi_poll Return Status Values

Status	Description
ACMSDI_SRVDEAD	TP Desktop Connector gateway is not running on the server node, or the network link has been terminated.
ACMSDI_TDMS_READ_EXCH	TDMS Read exchange has arrived
ACMSDI_TDMS_WRITE_EXCH	TDMS Write exchange has arrived
ACMSDI_TRCV_EXCH	Transceive exchange step has arrived.

5

System Management Service on OpenVMS

This chapter describes the system management service available on systems running the TP Desktop Connector gateway. The ACMSDI$GET_SUBMITTER_INFO service returns information about the status of TP Desktop Connector gateway processing on the submitter node.

5.1 ACMSDI$GET_SUBMITTER_INFO

This service returns information regarding desktop users signed in to the Compaq ACMS system. The service reports only those users signed in to the TP Desktop Connector gateway running on the same node as the program calling the ACMSDI$GET_SUBMITTER_INFO routine. See ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for coding and building guidelines.

The C-language function prototype and definitions for the item codes are in the file ACMSDI.H in the ACMSDI$COMMON directory.

The ACMSDI$EXAMPLES directory contains a program, SHOW_DESKTOP_USERS.EXE, that uses the ACMSDI$GET_SUBMITTER_INFO service, the source file (.C), and the build command procedure (.COM). See ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for more information about this program.

Note

A program using the ACMSDI$GET_SUBMITTER_INFO service that was compiled and linked with TP Desktop Connector Version 3.2 works with only TP Desktop Connector Version 3.2.

Format

```
ACMSDI$GET_SUBMITTER_INFO  (user_context,
                            itmlst,
                            [target_submitter_ID],
                            [target_desktop_ID],
                            [target_username])
```

Parameters

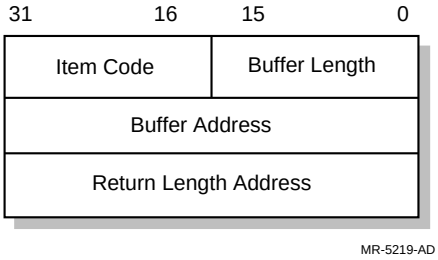
user_context
Type: **longword (unsigned)**
Access: **read write**
Mechanism: **by reference**
A context variable acting as a placeholder while the program reports on multiple submitters. Before calling ACMSDI$GET_SUBMITTER_INFO initially, the program must set the user context variable to zero. On

ACMSDI$GET_SUBMITTER_INFO calls, if the service returns the status ACMSDI$_NORMAL, the program does not modify the variable value.

itmlst
Type: **longword (unsigned)**
Access: **read**
Mechanism: **by reference**
Item list describing the information to be reported. *Itmlst* is the address of a list of item descriptors, each of which specifies or controls an item of information to be returned. The list of item descriptors is terminated by an item code of zero.

Figure 5–1 shows the item descriptor format.

Figure 5–1 Submitter Item Descriptor Format



The valid item codes are described in Table 5–1.

Table 5–1 Submitter Information Item Codes

Code Name	
ACMSDI$K_LATEST_MSG_TIME	
Action:	Returns the OpenVMS absolute date and time at which the desktop submitter most recently sent a message to the TP Desktop Connector gateway.
Description:	The *buffer address* field of the item descriptor is the address of a quadword in which the ACMSDI$GET_SUBMITTER_INFO service writes this time.

(continued on next page)

Table 5–1 (Cont.) Submitter Information Item Codes

Code Name	
ACMSDI$K_DESKTOP_ID	
Action:	Returns the desktop gateway submitter identification assigned internally by the TP Desktop Connector gateway.
Description:	The *buffer address* field in the item descriptor is the address of a two-longword structure. ACMSDI$GET_SUBMITTER_INFO writes the desktop gateway submitter number into the first field in the target_desktop_ID array, and the instance into the second field. These two values make up the complete desktop gateway submitter identification.
ACMSDI$K_NODENAME	
Action:	Returns the name of the network node from which the desktop submitter is signed in to the ACMS system.
Description:	The *buffer address* field in the item descriptor points to a user-provided buffer into which ACMSDI$GET_SUBMITTER_INFO writes the name. The *return length address* field of the item descriptor points to a word into which ACMSDI$GET_SUBMITTER_INFO writes the length of the node name in bytes.
ACMSDI$K_SIGN_IN_TIME	
Action:	Returns the OpenVMS absolute date and time at which the desktop submitter signed in to the TP Desktop Connector gateway.
Description:	The *buffer address* field of the item descriptor is the address of a quadword in which the ACMSDI$GET_SUBMITTER_INFO service writes this time.

(continued on next page)

Table 5–1 (Cont.) Submitter Information Item Codes

Code Name	
ACMSDI$K_SUBMITTER_ID	
Action:	Returns the ACMS submitter_ID of the desktop submitter.
Description:	The *buffer address* field in the item descriptor is the address in which the ACMSDI$GET_SUBMITTER_INFO service writes the submitter_ID.
ACMSDI$K_TRANSPORT	
Action:	Returns an enumerated longword value corresponding to the name of the transport used for the submitter sign-in.
Description:	The *buffer address* field of the item descriptor is the address of a longword in which ACMSDI$GET_SUBMITTER_INFO writes this value.
ACMSDI$K_USERNAME	
Action:	Returns the user name under which the desktop submitter is signed in.
Description:	The *buffer address* field in the item descriptor points to a user-provided buffer into which the ACMSDI$GET_ SUBMITTER_INFO service writes the user name. The *return length address* field of the item descriptor points to a word into which the ACMSDI$GET_SUBMITTER_INFO service writes the length of the user name in bytes.

target_submitter_ID
Type: **unsigned Long Int**
Access: **read**
Mechanism: **by reference**
The ACMS submitter identification as displayed in the ACMS/SHOW USERS command.

target_desktop_ID
Type: **unsigned Long Int [2]**
Access: **read**
Mechanism: **by reference**
The desktop gateway submitter identification, ACMS$DESKTOP_ID, on which to report. The first long int contains the desktop gateway submitter number and the second long int contains the instance.

target_username
Type: **character string descriptor**
Access: **read**
Mechanism: **by descriptor**
The user name on which to report.

Return Status

The status values returned by the ACMSDI$GET_SUBMITTER_INFO service are listed in Table 5–2.

Table 5–2 ACMSDI$GET_SUBMITTER_INFO Return Status Values

Status	Description
ACMSDI$_ILLITEMCODE	An illegal item code appears in the item list. No information is reported.
ACMSDI$_NOMATCHSUBS	No matching submitter. No submitter matches the selection criteria.
ACMSDI$_NOMORESUBS	No more submitters to report. No information was reported by this call, because no more submitters match the selection criteria. The snapshot is consistent with the current set of submitters.
ACMSDI$_NORMAL	Normal successful completion. Information specified by the item list has been reported about a matching submitter. Additional matching submitters can remain to be reported.
ACMSDI$_OBSINFOREP	Obsolete information reported. No information was returned, because no more submitters match the selection criteria. The snapshot is not consistent with the current set of submitters.

6

Data Compression Monitor Commands

This chapter provides a description of the Data Compression Monitor commands that you can use to monitor compression activity. You can shorten all commands and keywords to the smallest unambiguous abbreviation, which is at most three characters.

See ***Compaq TP Desktop Connector for ACMS*** *Client Application Programming Guide* for more information on using the Data Compression Monitor.

6.1 EXIT

This command exits the Compression Monitor Activity reporting program.

Format

EXIT

6.2 HELP

Displays the help file, SYS$HLP:ACMSDI$DCM_REPORTER_HLP.TXT.

Format

HELP

6.3 LIST

This command generates a report, which you can display on the screen or write to a file.

Format

LIST [/qualifier]

Qualifiers

/APPLICATION=application
Allows you to select detailed records associated with the application(s) specified. The *application* specification can be an ACMS application name or a list of application names. If you specify a list, separate the names with a comma and enclose the list within parentheses. The asterisk (*) wild card character is permitted in application name specifications. If you do not specify /APPLICATION, records for all applications are selected unless you set default application(s) with the SET command.

Specifying /APPLICATION with the LIST command overrides any default applications that you previously set. Specifying /APPLICATION=* on the LIST command selects records for all applications, overriding any defaults that are set.

/BEFORE[=date-time]
Selects detailed records that were written before the date and time specified. The *date-time* specification is optional. If you omit it, records written earlier than the current date are selected. Specify date and time in the OpenVMS standard format *dd-mmm-yyyy:hh-mm-ss*.

/DETAILS
Specifies that the report should contain details of all calls. This is the default, unless you specify /SUMMARY in the SET command. Specifying /DETAILS with the LIST command overrides SET/SUMMARY.

/INPUT=file
Specifies a source file from which records for the report are to be read. If you do not specify a source file, the latest version of SYS$ERRORLOG: ACMSDI$COMPRESSION.LOG is used, unless you have previously specified a default input file using the SET command. To override a default input file setting, use /INPUT=* on the LIST command.

/NODE=(node-identifier[,...])
Selects detailed records associated with task calls originating from the client node(s) specified. The *node-identifier* can be a DECnet node name, TCP/IP address, or a list of same. If you specify a list, separate the identifiers with commas and enclose the list within parentheses. If you specify a single identifier, you do not need the comma and parentheses. The asterisk (*) wild card character is permitted in node identifiers. If you do not specify /NODE, records for all nodes are selected unless you set default node(s) with the SET command.

Specifying /NODE with the LIST command overrides any default nodes that you may have set. Specifying /NODE=* with the LIST command specifies that records for all nodes are to be selected, overriding any defaults that you may have set.

/OUTPUT=file
Directs the report to a file. The *file* specification must be a valid OpenVMS file specification. Displaying the report on the screen is the default, unless you specify the /OUTPUT qualifier with the SET command. Specifying /OUTPUT=* with the LIST command, displays any reports on the screen, overriding any defaults that may be set.

/SINCE[=date-time]
Selects detailed records that were written on or after the date and time specified. The *date-time* specification is optional. If you omit it, the records written on the current date are selected. Specify the date and time in the OpenVMS format, *dd-mmm-yyyy:hh:mm:ss*.

/SUMMARY
Specifies that a summary report, omitting details, be written. The default is a detailed report containing all calls be written. You can set your own default with the SET command. Summary reports show totals of the uncompressed workspace sizes, the compressed workspace sizes, and the number of bytes saved by data compression.

/TASK=task-name
Selects detailed records associated with ACMS task calls for the task name(s) specified, including any exchange steps associated with the task calls. The *task-name* specification can be a valid ACMS task name or a list of task names. If you specify a list, separate the names with a comma and enclose the list within parentheses. You can use the asterisk (*) wild-card character in the task-name specification. If you do not specify the /TASK qualifier, records for all tasks are selected, unless you have specified another default with the SET command. If you specify /TASK=* with the LIST command, records for

all tasks are selected. If tasks specified are part of more than one ACMS application, matching task details for all applications are selected, unless you narrow the selection further with the /APPLICATION qualifier.

/USER=user-identifier
Selects detailed records associated with ACMS task calls executed for the signed-in user session(s) specified. The *user-identifier* specification can be a user identifier or a list of user identifiers. If you specify a list, separate the identifiers with a comma and enclose the list within parentheses. The asterisk (*) wild card character is permitted in user identifier specifications. If /USER is not specified, records for all users are selected, unless default user identifier(s) have been selected with the SET command. Specifying /USER on the LIST command overrides any default user identifiers that may have been set. Specifying /USER=* on the LIST command specifies that records for all user sessions are selected, overriding any defaults that may have been set.

Examples

1. `/APPLICATION=LARRY`

   Selects records for application LARRY.

2. `/APPLICATION=(KURT,SARAH)`

   Selects records for applications KURT and SARAH.

3. `/APPLICATION=*DEC*`

   Selects records for applications that contain DEC in their names.

4. `/BEFORE`

   Selects records written yesterday and earlier.

5. `/BEFORE=12-JUN`

   Selects records written prior to June 12th of this year.

6. `/BEFORE=16:30`

   Selects records written prior to today at 4:30 p.m.

7. `/BEFORE=12-JUN-2002:9:15:30`

   Selects records written prior to 30 seconds after 9:15 a.m. on June 12, 2002.

8. /NODE=ALPHA1

   Selects all records for task calls from node ALPHA1.

9. /NODE=(LION,TIGER,PANTHR)

   Selects all records for task calls from nodes LION, TIGER, and PANTHR.

10. /NODE=*CPQ*

    Selects all records for task calls from nodes that contain CPQ in their names.

11. /OUTPUT=DAILY_COMPRESSION.REP

    Directs the report to a file named DAILY_COMPRESSION.REP in the current directory.

12. /SINCE

    Selects records written today (after midnight yesterday, or 0:00 today).

13. /SINCE=13-JUN

    Selects records written after midnight, June 12th of the current year.

14. /SINCE=11:25

    Selects records written at or after 11:25 this morning.

15. /SINCE=12-OCT-2001:8:0:45

    Selects records written at or after 45 seconds after 8 a.m. on October 12, 2001.

16. /TASK=HYACINTH

    Selects records for task calls for ACMS task HYACINTH.

17. /TASK=(APRIL,MAY,JUNE)

    Selects records for task calls for ACMS tasks APRIL, MAY, and JUNE.

18. /TASK=*DEF

    Selects all records for task calls associated with tasks with names ending in DEF.

19. /USER=MAIN-PLANT

    Selects all records for sessions established for user identifier MAIN-PLANT.

20. /USER=(SCHMIDT,MASELLA,RAJIV,SWEENEY)

    Selects all records for sessions established for user identifiers SCHMIDT, MASELLA, RAJIV, and SWEENEY.

21. /USER=SITE3*

    Selects all records for sessions established for user identifiers that begin with SITE3.

6.4 RENEW

This command closes the current log file and opens a new one. The new log file is a new version of ACMSDI$COMPRESSION.LOG.

Format

RENEW

6.5 SELECT

This command selects records from the log file and writes them to a file from which you can generate customized reports. If you do not specify a qualifier, all records are selected.

Format

SELECT file [/qualifier]

Parameters

file
Is a required parameter that specifies the name of the file to which the selected records are written.

Qualifiers

/APPLICATION=application
Allows you to select detailed records associated with the application(s) specified. The *application* specification can be an ACMS application name or a list of application names. If you specify a list, separate the names with a comma and enclose the list within parentheses. The asterisk (*) wild card character is permitted in application name specifications. If you do not specify /APPLICATION, records for all applications are selected unless you set default application(s) with the SET command.

Specifying /APPLICATION with the SELECT command overrides any default applications that you previously set. Specifying /APPLICATION=* on the SELECT command selects records for all applications, overriding any defaults that are set.

/BEFORE[=date-time]
Selects detailed records that were written before the date and time specified. The *date-time* specification is optional. If you omit it, records written earlier than the current date are selected. Specify date and time in the OpenVMS standard format *dd-mmm-yyyy:hh-mm-ss*.

/INPUT=file
Specifies a source file from which records for the report are to be read. If you do not specify a source file, the latest version of SYS$ERRORLOG: ACMSDI$COMPRESSION.LOG is used, unless you have previously specified

a default input file using the SET command. To override a default input file setting, use /INPUT=* on the LIST command.

/NODE=(node-identifier[,...])
Selects detailed records associated with task calls originating from the client node(s) specified. The *node-identifier* can be a DECnet node name, TCP/IP address, or a list of same. If you specify a list, separate the identifiers with commas and enclose the list within parentheses. If you specify a single identifier, you do not need the comma and parentheses. The asterisk (*) wild card character is permitted in node identifiers. If you do not specify /NODE, records for all nodes are selected unless you set default node(s) with the SET command.

Specifying /NODE with the SELECT commands overrides any default nodes that you may have set. Specifying /NODE=* with the SELECT commands specifies that records for all nodes are to be selected, overriding any defaults that you may have set.

/SINCE[=date-time]
Selects detailed records that were written on or after the date and time specified. The *date-time* specification is optional. If you omit it, the records written on the current date are selected. Specify the date and time in the OpenVMS format, *dd-mmm-yyyy:hh:mm:ss*.

/TASK=task-name
Selects detailed records associated with ACMS task calls for the task name(s) specified, including any exchange steps associated with the task calls. The *task-name* specification can be a valid ACMS task name or a list of task names. If you specify a list, separate the names with a comma and enclose the list within parentheses. You can use the asterisk (*) wild-card character in the task-name specification. If you do not specify the /TASK qualifier, records for all tasks are selected, unless you have specified another default with the SET command. If you specify /TASK=* with the SELECT command, records for all tasks are selected. If tasks specified are part of more than one ACMS application, matching task details for all applications are selected, unless you narrow the selection further with the /APPLICATION qualifier.

/USER=user-identifier
Selects detailed records associated with ACMS task calls executed for the signed-in user session(s) specified. The *user-identifier* specification can be a user identifier or a list of user identifiers. If you specify a list, separate the identifiers with a comma and enclose the list within parentheses. The asterisk (*) wild card character is permitted in user identifier specifications. If /USER is not specified, records for all users are selected, unless default user

identifier(s) have been selected with the SET command. Specifying /USER with the SELECT command overrides any default user identifiers that may have been set. Specifying /USER=* with the SELECT command specifies that records for all user sessions are selected, overriding any defaults that may have been set.

6.6 SET

This command sets default values for the LIST and SELECT commands. All qualifiers, except /BEFORE and /SINCE, can have a default value. You can use the SHOW command to display the current default settings. When you set a default, it applies to all reports you request with the LIST command and to all records you select with the SELECT command. However, you can override these default settings on the command line by specifying certain qualifiers.

Format

SET /qualifier

Qualifiers

/APPLICATION=application
Allows you to select detailed records associated with the application(s) specified. The *application* specification can be an ACMS application name or a list of application names. If you specify a list, separate the names with a comma and enclose the list within parentheses. The asterisk (*) wild card character is permitted in application name specifications. If you do not specify /APPLICATION, records for all applications are selected.

/DETAILS
This default is applicable to the LIST command only. It specifies that the report is to contain detailed information for all calls. This is the standard default.

/INPUT=file
Specifies a source file from which records for the report are to be read. If you do not specify a source file, the latest version of SYS$ERRORLOG: ACMSDI$COMPRESSION.LOG is used, unless you have previously specified a default input file using the SET command. To override a default input file setting, use /INPUT=* on the LIST command.

/NODE=(node-identifier[,...])
Selects detailed records associated with task calls originating from the client node(s) specified. The *node-identifier* can be a DECnet node name, TCP/IP address, or a list of same. If you specify a list, separate the identifiers with commas and enclose the list within parentheses. If you specify a single identifier, you do not need the comma and parentheses. The asterisk (*) wild card character is permitted in node identifiers.

SET

/OUTPUT=file
Directs the report to a file. The *file* specification must be a valid OpenVMS file specification. Displaying the report on the screen is the default, unless you specify the /OUTPUT qualifier with the SET command. Specifying /OUTPUT=* with the LIST command, displays any reports on the screen, overriding any defaults that may be set.

/SUMMARY
Specifies that a summary report, omitting details, be written. The default is a detailed report containing all calls be written. You can set your own default with the SET command. Summary reports show totals of the uncompressed workspace sizes, the compressed workspace sizes, and the number of bytes saved by data compression.

/TASK=task-name
Selects detailed records associated with ACMS task calls for the task name(s) specified, including any exchange steps associated with the task calls. The *task-name* specification can be a valid ACMS task name or a list of task names. If you specify a list, separate the names with a comma and enclose the list within parentheses. You can use the asterisk (*) wild-card character in the task-name specification. If you specify /TASK=*, records for all tasks are selected. If tasks specified are part of more than one ACMS application, matching task details for all applications are selected, unless you narrow the selection further with the /APPLICATION qualifier.

/USER=user-identifier
Selects detailed records associated with ACMS task calls executed for the signed-in user session(s) specified. The *user-identifier* specification can be a user identifier or a list of user identifiers. If you specify a list, separate the identifiers with a comma and enclose the list within parentheses. The asterisk (*) wild card character is permitted in user identifier specifications. Specifying /USER=*, selects records for all users.

6.7 SHOW

This command displays the default values for qualifiers of the LIST and SELECT commands, which you have set with the SET command. All command qualifiers, except /BEFORE and /SINCE, can have a default value. Specifying SHOW without any qualifiers displays all defaults.

Format

SHOW [/qualifier]

Qualifiers

/APPLICATION
Displays the default for /APPLICATION qualifier.

/DETAILS
Displays /DETAILS if /DETAILS is the default; displays /SUMMARY if /SUMMARY is the default. /DETAILS and /SUMMARY are mutually exclusive.

/INPUT
Displays the default for the /INPUT qualifier.

/NODE
Displays the default for the /NODE qualifier.

/OUTPUT
Displays the default for the /OUTPUT qualifier.

/SUMMARY
Displays /SUMMARY if /SUMMARY is the default; displays /DETAILS if /DETAILS is the default. /SUMMARY and /DETAILS are mutually exclusive.

/TASK
Displays the default for the /TASK qualifier.

/USER
Displays the default for the /USER qualifier.

A

Compaq ACMS System Status Values

Table A–1 lists the ACMS system status values and their corresponding numeric values as defined in ACMSDI.H and returned in the *err2* parameter, with corresponding symbols.

Table A–1 ACMS System Status Values

Symbol	Value	Text
ACMSDI_NORMAL	0	Normal completion
ACMSDI_APPLDEAD	–3001	ACMS application not started
ACMSDI_CALLACTV	–3002	Call active — cannot start new operation
ACMSDI_INSUFPRM	–3003	Insufficient parameters
ACMSDI_INTERNAL	–3004	Internal error
ACMSDI_INVCALLID	–3005	Invalid call identification
ACMSDI_INVLOGIN	–3006	Invalid login attempt
ACMSDI_INVOPTION	–3007	Invalid submitter option
ACMSDI_INVSUBID	–3008	Invalid submitter identification
ACMSDI_MIXEDMODE	–3009	Using both blocking & non-blocking modes
ACMSDI_NOACMS	–3010	ACMS not active
ACMSDI_NOMEMORY	–3011	Low memory resource
ACMSDI_NOPPACTV	–3012	No active presentation procedure
ACMSDI_NOSUCH_APPL	–3013	ACMS application not found
ACMSDI_NOSUCH_TASK	–3014	Invalid task code
ACMSDI_OPR_CANCELLED	–3015	Operator canceled ACMS user

(continued on next page)

Table A–1 (Cont.) ACMS System Status Values

Symbol	Value	Text
ACMSDI_PENDING	–3016	Operation started
ACMSDI_SECCHK	–3017	ACMS task ACL failure
ACMSDI_SIGNINACTV	–3018	Sign-in in process
ACMSDI_SIGNOUTACTV	–3019	Sign-out in process
ACMSDI_SRVDEAD	–3020	TP Desktop Connector server has died
ACMSDI_TASK_ABORT	–3021	Task has aborted
ACMSDI_TASK_CANCELLED	–3022	Task canceled by operator
ACMSDI_TASK_SP_DIED	–3023	Task procedure server process has died
ACMSDI_TASK_FAILED	–3024	Task failed to complete normally
ACMSDI_INVPROTOCOL	–3025	Protocol versions of the DDEV and the TP Desktop Connector server do not match
ACMSDI_BADNODENAME	–3026	Invalid node name
ACMSDI_PWDEXPIRED	–3027	Password has expired
ACMSDI_CANCELACTV	–3028	Client-initiated cancel in progress
ACMSD_EXCHACTV	–3029	User-written presentation procedure not completed
ACMSDI_DISPATCHACTV	–3030	ACMSDI_DISPATCH_ MESSAGE call in process
ACMSDI_UNSUPPORTED	–3031	Unsupported option requested on acmsdi_sign_in or acmsdi_ call_task
ACMSDI_PWDEXPIRING	–3100	Number of hours returned until password expires
ACMSDI_CALL_CANCELED	–3101	The task was canceled by the task submitter

Descriptions of client messages and server messages are provided in the following files:

- SYS$HELP:ACMSDI$CLIENT_MESSAGES.TXT
- SYS$HELP:ACMSDI$SERVER_MESSAGES.TXT

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