

Endpoint State Transitions

This appendix lists and describes all of the state transitions that may occur at an endpoint. It includes these sections:

- Overview

Briefly describes the defined endpoint states.

- The State Transition Tables

Includes array tables that show how endpoint and current state are used to determine new endpoint states.

Overview

A machine-readable endpoint state transition table is interpreted by API routines to manage a state variable maintained for each endpoint. This state variable is used to control the execution sequence of API service functions. The state variable can be read with the TSTATE function, and is returned as part of a state word defined by the TSW dsect.

Defined Endpoint States

These nine endpoint states are defined:

Table A-1	Defined Endpoint States
TSCLOSED	Closed
TSOPENED	Opened
TSDSABLD	Disabled
TSENABLD	Enabled
TSINCONN	Connect indication pending
TSOUCONN	Connect in progress (awaiting confirm indication)
TSCONNCT	Connected (or associated)
TSINRLSE	Release indication pending
TSOURLSE	Release in progress (awaiting release indication)

The State Transition Tables

The tables in this section list the nine state transitions that may occur at an endpoint. Each state transition table is organized as an array where each row represents an event and each column represents one of the possible endpoint states. Given some event and the current state of the endpoint, the array element at the intersection of the row and column is the new state of the endpoint. If the array element is null (blank), the event is invalid for the current state.

Each table includes the same event state information in the EVENT columns, and three of the nine endpoint states in the CURRENT STATE columns.

Each event listed in the state table consists of the successful completion of a particular API service function, and various conditions that were in effect during its execution. Conditions listed in uppercase represent parameters or option codes provided with the service request. Conditions listed in lowercase apply to internal variables maintained by the API. Each event also lists the service type that must be in effect for the endpoint.

These are the variables:

<i>qlstn</i>	The negotiated size of the connect indication queue specified by the QLSTN parameter in a successful TBIND request.
<i>count</i>	The number of pending connect indications.

Note These notes correspond to the numbers (for example, 3) in the tables:

1 – Connectionless Transport Service (CLTS) service mode is valid only when using associations. TYPE=(CLTS,ASSOC) must have been specified when the endpoint was opened.

2 – Connection-Oriented Transport Service (COTS) service mode is valid only when orderly release is supported by the transport provider. TYPE=(COTS,ORDREL) must have been specified when the endpoint was opened.

3 – Control of the endpoint is passed to another task or address space. On completion of TOPEN, the state of the new endpoint is the same as the state of the old endpoint before it was closed.

4 – This event represents the state transition for the endpoint to which a connection is accepted when the endpoint is different from the one receiving the connect indication.

5 – The number of pending connect indications is incremented by one.

6 – The number of pending connect indications is decremented by one.

Endpoint States for TSCLOSED, TSOPENED, and TSDSABLED

This table lists the endpoint states for the TSCLOSED, TSOPENED, and TSDSABLED states:

Table A-2 Endpoint States for TSCLOSED, TSOPENED, and TSDASABLED

Event Function	Conditions	Service Type	Current State:		
			TSCLOSED	TSOPENED	TSDSABLD
TACCEPT	count=1, NEWEP=EP	COTS, CLTS, 1			
	count=1, NEWEP=EP	COTS, CLTS, 1			
	count>1, NEWEP=EP	COTS, CLTS, 1			
	4	COTS, CLTS, 1			TSCONNECT
TADDR	OPTCD=LOCAL	COTS, CLTS			TSDSABLD
	OPTCD=REMOTE	COTS, CLTS			
TBIND	QLSTN=0	COTS, CLTS		TSDSABLD	
	QLSTN>0	COTS, CLTS		TSENABLD	TSENABLD
TCLEAR	qlstn=0	COTS, CLTS, 1			
	qlstn>0, count=0	COTS, CLTS, 1			
	qlstn>0, count=1	COTS, CLTS, 1			
	qlstn>0, count>1	COTS, CLTS, 1			
TCLOSE	OPTCD=DELETE	COTS, CLTS		TSCLOSED	TSCLOSED
	OPTCD=PASS	COTS, CLTS		3	3
TCONFIRM		COTS, CLTS, 1			
TCONNECT		COTS, CLTS, 1			TSOUCONN
TDISCONN	qlstn=0	COTS, CLTS, 1			
	qlstn>0	COTS, CLTS, 1			
TINFO		COTS, CLTS		TSOPENED	TSDSABLD
TLISTEN	count<qlstn	COTS, CLTS, 1			
TOPEN	OPTCD=NEW	COTS, CLTS	TSOPENED		

Table A-2 Endpoint States for TSCLOSED, TSOPENED, and TSDASABLED (Continued)

Event		Service Type	Current State:		
Function	Conditions		TSCLOSED	TSOPENED	TSDSABLD
	OPTCD=OLD	COTS, CLTS	3		
TOPTION		COTS, CLTS		TSOPENED	TSDSABLD
TRECV		COTS, CLTS, 1			
TRECVERR		CLTS			TSDSABLD
TRECVFR		CLTS			TSDSABLD
TREJECT	count=1	COTS, CLTS, 1			
	count>1	COTS, CLTS, 1			
TRELACK	qlstn=0	COTS, 2			
	qlstn>0	COTS, 2			
TRELEASE	qlstn=0	COTS, 2			
	qlstn>0	COTS, 2			
TRETRACT		COTS, CLTS, 1			
TSEND		COTS, CLTS, 1			
TSENDTO		CLTS			TSDSABLD
TUNBIND		COTS, CLTS			TSOPENED
TUSER		COTS, CLTS		TSOPENED	TSDSABLD

Endpoint States for TSENABLD, TSINCONN, and TSOUCONN

This table lists the endpoint states for the TSENABLD, TSINCONN, and TSOUCONN states:

Table A-1 Endpoint States for TSENABLD, TSINCONN, and TSOUCONN

Event		Service Type	Current State:		
Function	Conditions		TSENABLD	TSINCONN	TSOUCONN
TACCEPT	count=1, NEWEP=EP	COTS, CLTS, 1		TSCONNECT, 6	
	count=1, NEWEP=EP	COTS, CLTS, 1		TSENABLD, 6	
	count>1, NEWEP=EP	COTS, CLTS, 1		TSINCONN, 6	
	4	COTS, CLTS, 1			
TADDR	OPTCD=LOCAL	COTS, CLTS	TSENABLD	TSINCONN	TSOUCONN
	OPTCD=REMOTE	COTS, CLTS			
TBIND	QLSTN=0	COTS, CLTS			
	QLSTN>0	COTS, CLTS			
TCLEAR	qlstn=0	COTS, CLTS, 1			TSDSABLD
	qlstn>0, count=0	COTS, CLTS, 1			
	qlstn>0, count=1	COTS, CLTS, 1		TSENABLD, 6	
	qlstn>0, count>1	COTS, CLTS, 1		TSINCONN, 6	
TCLOSE	OPTCD=DELETE	COTS, CLTS	TSCLOSED	TSCLOSED	TSCLOSED
	OPTCD=PASS	COTS, CLTS	3		

Table A-1 Endpoint States for TSENABLD, TSINCONN, and TSOUCONN (Continued)

Event			Current State:		
Function	Conditions	Service Type	TSENABLD	TSINCONN	TSOUCONN
TCONFIRM		COTS, CLTS, 1			TSCONNECT
TCONNECT		COTS, CLTS, 1			
TDISCONN	qlstn=0	COTS, CLTS, 1			TSDSABLD
	qlstn>0	COTS, CLTS, 1			
TINFO		COTS, CLTS	TSENABLD	TSINCON	TSOUCONN
TLISTEN	count<qlstn	COTS, CLTS, 1	TSINCONN, 5	TSINCONN, 5	
TOPEN	OPTCD=NEW	COTS, CLTS			
	OPTCD=OLD	COTS, CLTS			
TOPTION		COTS, CLTS	TSENABLD		
TRECV		COTS, CLTS, 1			
TRECVERR		CLTS			
TRECVFR		CLTS			
TREJECT	count=1	COTS, CLTS, 1		TSENABLD, 6	
	count>1	COTS, CLTS, 1		TSINCONN, 6	
TRELACK	qlstn=0	COTS, 2			
	qlstn>0	COTS, 2			
TRELEASE	qlstn=0	COTS, 2			
	qlstn>0	COTS, 2			
TRETRACT		COTS, CLTS, 1	TSENABLD	TSINCONN	
TSEND		COTS, CLTS, 1			
TSENDTO		CLTS			
TUNBIND		COTS, CLTS	TSOPENED		
TUSER		COTS, CLTS	TSENABLD		

Endpoint States for TSCONNECT, TSINRLSE, and TSOURLSE

This table lists the endpoint states for the TSCONNECT, TSINRLSE, and TSOURLSE states:

Table A-2 Endpoint States for TSCONNECT, TSINRLSE, and TSOURLSE

Event			Current State:		
Function	Conditions	Service Type	TSCONNECT	TSINRLSE	TSOURLSE
TACCEPT	count=1, NEWEP=EP	COTS, CLTS, 1			
	count=1, NEWEP=EP	COTS, CLTS, 1			
	count>1, NEWEP=EP	COTS, CLTS, 1			
	4	COTS, CLTS, 1			
TADDR	OPTCD=LOCAL	COTS, CLTS	TSCONNECT	TSINRLSE	TSOURLSE
	OPTCD=REMOTE	COTS, CLTS	TSCONNECT	TSINRLSE	TSOURLSE
TBIND	QLSTN=0	COTS, CLTS			

Table A-2 Endpoint States for TSCONNECT, TSINRLSE, and TSOURLSE (Continued)

Event		Service Type	Current State:		
Function	Conditions		TSCONNECT	TSINRLSE	TSOURLSE
	QLSTN>0	COTS, CLTS			
TCLEAR	qlstn=0	COTS, CLTS, 1	TSDSABLD	TSDSABLD	TSDSABLD
	qlstn>0, count=0	COTS, CLTS, 1	TSENABLD	TSENABLD	TSENABLD
	qlstn>0, count=1	COTS, CLTS, 1			
	qlstn>0, count>1	COTS, CLTS, 1			
TCLOSE	OPTCD=DELETE	COTS, CLTS	TSCLOSED	TSCLOSED	TSCLOSED
	OPTCD=PASS	COTS, CLTS	3		
TCONFIRM		COTS, CLTS, 1			
TCONNECT		COTS, CLTS, 1			
TDISCONN	qlstn=0	COTS, CLTS, 1	TSDSABLD	TSDSABLD	TSDSABLD
	qlstn>0	COTS, CLTS, 1	TSENABLD	TSENABLD	TSENABLD
TINFO		COTS, CLTS	TSCONNECT	TSINRLSE	TSOURLSE
TLISTEN	count<qlstn	COTS, CLTS, 1			
TOPEN	OPTCD=NEW	COTS, CLTS			
	OPTCD=OLD	COTS, CLTS			
TOPTION		COTS, CLTS	TSCONNECT		
TRECV		COTS, CLTS, 1	TSCONNECT		TSOURLSE
TRECVERR		CLTS			
TRECVFR		CLTS			
TREJECT	count=1	COTS, CLTS, 1			
	count>1	COTS, CLTS, 1			
TRELACK	qlstn=0	COTS, 2	TSINRLSE		TSDSABLD
	qlstn>0	COTS, 2	TSINRLSE		TSENABLD
TRELEASE	qlstn=0	COTS, 2	TSOURLSE	TSDSABLD	
	qlstn>0	COTS, 2	TSOURLSE	TSENABLD	
TRETRACT		COTS, CLTS, 1			
TSEND		COTS, CLTS, 1	TSCONNECT	TSINRLSE	
TSENDTO		CLTS			
TUNBIND		COTS, CLTS			
TUSER		COTS, CLTS	TSCONNECT		