



Managing agent states

This chapter includes the following topics:

- [What is an agent state?, page 1](#)
- [The causes of agent-state transitions, page 4](#)
- [Agent-State message summary descriptions, page 5](#)
- [Agent authentication without agent state change, page 6](#)
- [About forced agent logout and forced agent login, page 6](#)

What is an agent state?

An agent is a person who has a phone on his desktop and receives calls, transfers calls, ends calls, and so on. The state of this agent and his phone are represented within the Unified CCX system by agent states and agent state events.

The agent state is what is described by the last received agent state event. Actions performed by the agent and his phone eventually translate into updated agent states. For example, when an agent hangs up his phone after working on a call, his state changes from talking to ready. The change in the state of this agent is communicated with the system through the AGENT_STATE_EVENT message.

The possible agent states are listed in [Table 1: Agent states and their message values, on page 2](#). The AGENT_STATE_EVENT, the QUERY_AGENT_STATE_CONF, and the SET_AGENT_STATE_REQ messages indicate an agent state by the values listed in [Table 4: Example values in a SET_AGENT_STATE_REQ message, on page 6](#).

CCX maintains all agent states and may change an agent state based on various conditions such as the state of an agent phone.

Unified CCX CTI clients are also allowed to change agent states by a client using the SET_AGENT_STATE_REQ message. When Unified CCX receives this request, it processes the request based on the current state of the system. As a result, the SET_AGENT_STATE_REQ message may or may not actually change the agent state. For example, the client might request that an agent's state be changed from not ready to ready, but Unified CCX may not be able to change the agent's state if the agent has not yet logged in.

A Unified CCX CTI client must always monitor the AGENT_STATE_EVENT message or use the QUERY_AGENT_STATE_REQ message to obtain the current agent state.

Table 1: Agent states and their message values

State name	Description	Value
AGENT_STATE_LOGIN	There is no specific Agent Login state in Unified CCX. However, this is a request value specified while trying to login an agent.	0
AGENT_STATE_LOGOUT	The agent has logged out of the ACD and cannot accept any additional calls.	1
AGENT_STATE_NOT_READY	The agent is not available to accept a routed call.	2
AGENT_STATE_READY	The agent is available to accept a routed call.	3
AGENT_STATE_TALKING	The agent is currently talking on a call with a customer or another agent (inbound, outbound, or inside). This state is automatically set for the agent by the ACD.	4
AGENT_STATE_WORK	The agent is completing work from a previous call and is unavailable to receive routed calls. There are two (mutually exclusive) ways to put an agent into AGENT_STATE_WORK: <ul style="list-style-type: none"> Automatically, through CSQ configuration settings selected in the Unified CCX Administration web page. Through the SET_AGENT_STATE_REQ message. In this case, when the agent is in the AGENT_STATE_TALKING state, the client can select the work state (by setting the AgentState field to AGENT_STATE_WORK). Then when the call ends, the agent will be moved by the Unified CCX server to the Work state. 	5
BUSY_OTHER	This state signifies the agent state for a particular CSQ. This state is notified in the CSQ State field of QUERY_AGENT_STATE_CONF message only. The state of an agent for a CSQ will be BUSY_OTHER if that agent is handling calls from other CSQs.	7

State name	Description	Value
AGENT_STATE_RESERVED	<p>The agent is reserved for a call that will arrive at the ACD shortly.</p> <p>The agent is temporarily set aside to receive a specific call. The agent's state is changed to the Talking state when the agent answers the call.</p> <p>If the agent fails to answer the call within a time limit specified by the system administrator, the ACD places the agent in a Not Ready state.</p> <p>The Reserved state is automatically set for the agent by the ACD. The agent can be in this state without the phone ringing (if the agent is waiting for it to ring).</p>	8
AGENT_STATE_UNKNOWN	The associated agent state is unknown.	9

Table 2: Agent's internal states and their message values

State name	Description	Value
AGENT_STATE_LOGIN	<p>There is no specific Agent Login state in Unified CCX.</p> <p>However, this is a request value specified while trying to login an agent.</p>	0
AGENT_STATE_LOGOUT	The agent has logged out of the ACD and cannot accept any additional calls.	1
AGENT_STATE_NOT_READY	The agent is not available to accept a routed call.	2
AGENT_STATE_READY	The agent is available to accept a routed call.	3
AGENT_STATE_TALKING	<p>The agent is currently talking on a call with a customer or another agent (inbound, outbound, or inside).</p> <p>This state is automatically set for the agent by the ACD.</p>	4
AGENT_STATE_WORK	<p>The agent is completing work from a previous call and is unavailable to receive routed calls.</p> <p>There are two (mutually exclusive) ways to put an agent into AGENT_STATE_WORK:</p> <ul style="list-style-type: none"> Automatically, through CSQ configuration settings selected in the Unified CCX Administration web page. Through the SET_AGENT_STATE_REQ message. In this case, when the agent is in the AGENT_STATE_TALKING state, the client can select the work state (by setting the AgentState field to AGENT_STATE_WORK). Then when the call ends, the agent will be moved by the Unified CCX server to the Work state. 	5

State name	Description	Value
AGENT_STATE_WORK_READY	The agent is performing after call work, and will be ready to receive a call when completed.	6
BUSY_OTHER	This state signifies the agent state for a particular CSQ. This state is notified in the CSQ State field of QUERY_AGENT_STATE_CONF message only. The state of an agent for a CSQ will be BUSY_OTHER if that agent is handling calls from other CSQs.	7
AGENT_STATE_ACTIVE	The agent state is currently active.	11
AGENT_STATE_PAUSED	The agent state is currently paused.	12

The causes of agent-state transitions

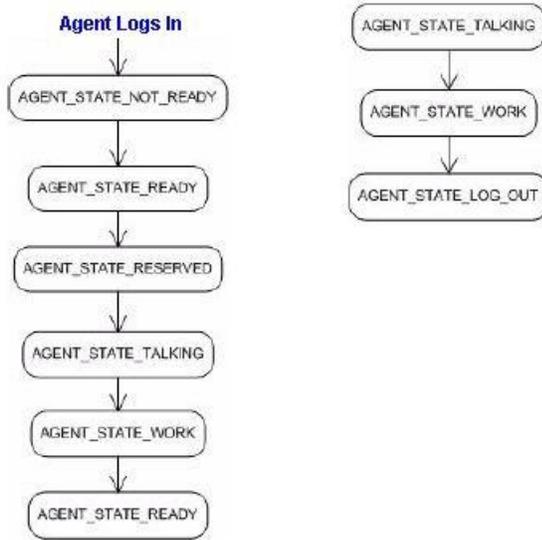
Call events and events from the Cisco Agent Desktop (CAD) and the agent IP phone change the agent state.

[Figure 1: Example Agent State Transitions, on page 5](#) contains two example agent state transitions, one at the beginning of the day when the agent logs in and one when the agent logs out. In that figure:

- 1 The agent logs in and is immediately recorded as Not Ready.
- 2 When the agent is Ready, the client sets the agent to this state by using the SET_AGENT_STATE_REQ message.
- 3 When Unified CCX sends a call to the agent, the agent's state becomes Reserved.
- 4 As soon as the agent answers the call, the agent's state becomes Talking.
- 5 The agent indicates any after call work by using the SET_AGENT_STATE_REQ message.

- 6 The client sets the agent state to Ready by using the SET_AGENT_STATE_REQ message with the Ready state when the agent is available for the next call.

Figure 1: Example Agent State Transitions



Agent-State message summary descriptions

Table 3: Agent-State messages, on page 5 lists the agent state messages. See the referenced links for the message definitions. If Unified CCX fails to process the SET_AGENT_STATE_REQ message, it responds with a CONTROL_FAILURE_CONF message.

Table 3: Agent-State messages

Message	Sent by	Purpose
AGENT_STATE_EVENT	Server	Notification of new agent state. AGENT_STATE_EVENTS are sent to all bridge-mode sockets and the socket through which the agent specified in the event is connected.
QUERY_AGENT_STATE_REQ	Client	Request to obtain the current state of an agent.
QUERY_AGENT_STATE_CONF	Server	Response to a QUERY_AGENT_STATE request.
SET_AGENT_STATE_REQ	Client	Request to alter the current state of an agent
SET_AGENT_STATE_CONF	Server	Response confirming a previous SET_AGENT_STATE_REQ request.

Agent authentication without agent state change

Typically, to authenticate an agent, the agent ID, password, and the agent's extension are required, and the agent state is changed.

However, if an agent has to be authenticated using just the agent ID and password without changing the agent state, the client must send a SET_AGENT_STATE_REQ with the value of the ForcedFlag field set to 2 and AgentInstrument set to Unknown. The SET_AGENT_STATE_CONF message confirms successful completion of the request.

[Table 4: Example values in a SET_AGENT_STATE_REQ message, on page 6](#) shows the values that must be set in the SET_AGENT_STATE_REQ message to allow for agent authentication without providing an extension.

Table 4: Example values in a SET_AGENT_STATE_REQ message

Field	Value
reserved	1
AgentState	AGENT_STATE_LOGIN (0)
reserved	0
reserved	0
EventReasonCode	0
ForcedFlag	2
AgentExtension	"unknown"
AgentID	"agentid" // Enter the agent ID.
AgentPassword	"password" // Enter the agent password.

About forced agent logout and forced agent login

In general, if an agent is in the talking state, that agent state cannot be changed to the logout state.

However there are cases when an agent logout is mandatory. In these cases, the forced flag must be set to 1 in the SET_AGENT_STATE_REQ message.

For example:

- When a windows-based client closes, regardless of the current state of the agent, the agent state must be changed to Logout.

- In a contact center environment, some agents may share the same phone extension since they work on different shifts. In this case, if agent A is talking to a customer, then agent B with the same extension is not able to set his or her state to login. Instead, agent B must set the force flag to 1 in the SET_AGENT_STATE_REQ message in order to set his or her state to login. This message also automatically logs out Agent A, though it does not terminate Agent A's phone call.



Note Even though Agent A is automatically logged out, that agent can still finish talking with the customer. However, Agent B is now listed as the Agent with that extension number and the next call for that extension goes to Agent B.
