

**Intelligent Transportation Systems**

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## CTMS/CTIS

### UC CTMS 5.12 - Configure Communications Port

Version 2.3

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## Revision History

Date	Version	Description	Author
April 22, 2004	1.0	Initial Version	Raj Chaudhuri
May 10, 2004	1.1	Added Logging	Raj Chaudhuri
June 30, 2004	1.2	Updated Data Elements	Raj Chaudhuri
July 6, 2004	1.3	Revised flows. Added Test Feature to check if Port is working. Removed Delete flow (modify is used to enable/disable). Deleted Special Requirements	Raj Chaudhuri
July 12, 2004	1.4	Clarified flows. Added basic flow. Updated data elements	Raj Chaudhuri
July 13, 2004	1.5	Added alarm tasks	Raj Chaudhuri
July 19, 2004	1.6	Added test steps for testing com port. Clarified actor section (only ITS Admin can perform this UC). Added special requirements	Raj Chaudhuri
August 18, 2004	1.6	Changed values of connection type	Raj Chaudhuri
August 23, 2004	1.7	Added Pool ID/Name to modify Port steps. Updated abstract Signed version	Raj Chaudhuri
September 2, 2004	1.8	Removed sort order. Changed Close to Cancel. Added wire-frames	Raj Chaudhuri
September 13, 2004	1.9	Removed entry points to Configure Com Pool due to usability reasons. Needed to simplify UI	Raj Chaudhuri
September 29, 2004	2.0	Updated data elements – added Initialization string. Updated wire-frames	Raj Chaudhuri
October 25, 2004	2.0	Terminal Server IP is not null now	Raj Chaudhuri
November 24, 2004	2.1	Added display of error message	Nancie Fay
January 6, 2005	2.3	Added system check to see if there is a communication pool association to the port before displaying the Edit window. If there is, the 'Connection Type' is disabled. Removed 'Test Port' button from Edit screen options. Changed Save to OK. Change 4.1 around edit. User must first select a port before Edit (not Modify) button is enabled. Removed references to the user being notified of errors with an error message window (2 occurrences under editing port and 2 under adding port)	Nancie Fay
January 18, 2005	2.3	Removed all references to alarms and Add Alarm UC. Added in system check for task window open before displaying error message.	Nancie Fay

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## 1. Use Case

### 1.1 Abstract

Only the ITS Administrator can Add, or Edit Communications Port. A Communications Port represents the physical port that a device is connected to (or accessed by). It cannot be deleted; instead it can only be enabled or disabled. A Communications Port must be associated with a Communications Pool in order for it to be used

### 1.2 Actor(s)

Actor	Description
Administrator (ITS only)	The System Administrator for the Colorado Transportation Management Center (CTMC)

## 2. Flow of Events

### 2.1 Basic Flow

1. The system has determined that the logged in user is the ITS Administrator (referred to as ITS admin for here on in this UC) and has enabled the Communications menu
2. The ITS admin has clicked on Manage > Communications > Communications Port
3. The system presents all the existing Communications Ports (Port ID – Port Name – Status). The system provides the ability to Add and Modify a Communications Port. The system provides the following additional buttons: Cancel
4. The ITS admin clicks the Add button
5. The system requests the following information: Port Name, Physical Port Name, Terminal Server IP, Status (list), Connection Type (list) and Initialization String. The system provides buttons to Save (OK), Test Communications Port and Cancel
6. The admin enters all the required information and presses the OK button
7. The system verifies that all the required data is present
8. The system generates a unique ID for the Communications Port and saves all the information
9. The system logs this event. It passes the following elements to UC Log User Activity: Task Name (Add Communications Port), Time (current time), Owner (logged in user), ID (Communications Port ID), Device Type (Communications Port), Message Text (blank), Username (blank), Instruction ID (blank), Notes (blank) (refer to UC Log User Activity for details)
10. The system displays same data elements as Step 3
11. The ITS admin clicks on Cancel
12. The system closes this window and returns the ITS admin to the desktop

### 2.2 Alternate Flow

1. The system has determined that the logged in user is the ITS Administrator (referred to as ITS admin for here on in this UC) and has enabled the Communications menu
2. The ITS admin has clicked on Manage > Communications > Communications Port
3. The system presents all the existing Communications Ports (Port ID – Port Name – Status). The system provides the ability to Add and Modify a Communications Port. The system provides the following additional buttons: Cancel
4. The ITS admin clicks the Add button

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- 4.1. The ITS admin selects a port and clicks Edit (the Edit button is disabled until a port is selected).
- 4.2. The system checks if the port is associated with a communication pool.
- 4.3. The system displays the following information in read only format: Port ID, Pool ID and Pool Name. The system provides the following fields in editable mode: Port Name, Physical Port Name, Server IP, Initialization String, Status (list), Connection Type (list).
  - 4.3.1. In the event the port is associated with a communication pool, the Connection Type will be displayed as Read Only. (See UC Configure Communication Pool for information on Port/Pool associations).
- 4.4. The system provides buttons for the following: OK and Cancel.
- 4.5. The ITS admin makes changes to information and presses the OK button.
  - 4.5.1. The ITS admin clicks Cancel.
  - 4.5.2. Go to step 3
    - 4.5.2.1. The ITS admin deletes some required information and presses the OK button.
    - 4.5.2.2. The system is unable to verify that all the information is present.
    - 4.5.2.3. The system informs the ITS admin that required information is missing (the system highlights the missing fields).
    - 4.5.2.4. Go to step 4.3.
- 4.6. The system verifies the changes and ensures that all the required information is present.
- 4.7. The system saves the information.
  - 4.7.1. In the event the system receives an error while attempting this task, the system logs this event with the additional data that this task was not successful.
  - 4.7.2. The database and statuses are updated appropriately (see above).
  - 4.7.3. In the event the Configure Communications Port window is still open, the system will display an error message. The system provides a button to acknowledge the error (OK).
  - 4.7.4. The user clicks OK.
  - 4.7.5. The system closes the error window.
  - 4.7.6. Go to step 4.3
    - 4.7.6.1. In the event the system does not receive a response within the specified time, the system logs this event with the additional data that this task was not successful (and it timed out).
    - 4.7.6.2. The database and statuses are updated appropriately (see above).
    - 4.7.6.3. In the event the Configure Communications Port window is still open, the system will display an error message. The system provides a button to acknowledge the error (OK).
    - 4.7.6.4. The user clicks OK.
    - 4.7.6.5. The system closes the error window.
    - 4.7.6.6. Go to step 4.3.
- 4.8. The system logs this event. It passes the following elements to UC Log User Activity: Task Name (Edit Communications Port), Time (current time), Owner (logged in user), ID (Communications Port ID), Device Type (Communications Port), Message Text (blank), Username (blank), Instruction ID (blank), Notes (blank) (refer to UC Log User Activity for details)
- 4.9. Go to step 3.
  - 4.9.1. The ITS admin clicks on Cancel.
  - 4.9.2. Go to end.

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5. The system requests the following information: Port Name, Physical Port Name, Terminal Server IP, Status (list), Connection Type (list) and Initialization String. The system provides buttons to Save (OK), Test Communications Port and Cancel.
6. The admin enters all the required information and presses the OK button.
  - 6.1. The ITS admin does not enter all the required information and presses the OK button.
  - 6.2. The system is unable to verify that all the information is present.
  - 6.3. The system informs the ITS admin that required information is missing (the system highlights the missing fields).
  - 6.4. Go to step 5.
    - 6.4.1. The ITS admin clicks the Test Communications Port button (see Special Requirements for Testing Steps).
    - 6.4.2. The system displays the message.
      - 6.4.2.1. In the event a message is not received, the system waits for 3 minutes and displays an error message.
    - 6.4.3. Go to step 5 (with all data provided earlier populated).
7. The system verifies that all the required data is present.
8. The system generates a unique ID for the Communications Port and saves all the information.
  - 8.1. The system receives an error when trying to save the information
  - 8.2. The system logs this event with the additional data that this task was not successful
  - 8.3. The database and statuses are updated appropriately (see above).
  - 8.4. In the event the Configure Communications Port window is still open, the system will display an error message. The system provides a button to acknowledge the error (OK).
  - 8.5. The user clicks OK.
  - 8.6. The system closes the error window.
  - 8.7. Go to step 3
    - 8.7.1. In the event there is a timeout when attempting this task, the system logs this event with the additional data that this task was not successful (timed out).
    - 8.7.2. The database and statuses are updated appropriately (see above).
    - 8.7.3. In the event the Configure Communications Port window is still open, the system will display an error message. The system provides a button to acknowledge the error (OK).
    - 8.7.4. The user clicks OK.
    - 8.7.5. The system closes the error window.
    - 8.7.6. Go to step 3
9. The system logs this event. It passes the following elements to UC Log User Activity: Task Name (Add Communications Port), Time (current time), Owner (logged in user), ID (Communications Port ID), Device Type (Communications Port), Message Text (blank), Username (blank), Instruction ID (blank), Notes (blank) (refer to UC Log User Activity for details).
10. The system displays same data elements as Step 3.
11. The ITS admin clicks on Cancel.
12. The system closes this window and returns the ITS admin to the desktop.

### 3. Special Requirements

1. Only ITS Administrators can add or modify the settings on a Communications Port
2. For Modem and Serial type ports, the testing steps are as follows:
  - a. Should be able to open a port making sure it's not occupied by any other

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- application
    - b. Once the port is opened, it should try to open the Input Streams and Output streams on the serial port
    - c. It should then send the AT command (InputStream) and should receive OK back (OutputStream)
    - d. Finally it should be able to release the port
  - 3. For UDP and TCP sockets, the following steps should be performed:
    - a. Open the IP address at a particular socket
    - b. Once the socket is opened, it should try to open the Input Streams and Output streams on the socket
    - c. If possible it should send a ping command similar to windows ping command
    - d. Finally it should be able to close the socket

#### 4. Assumptions

- 1. In order for a Communications Port to be used (by a device) it must be associated (assigned) to a Communications Pool

#### 5. Pre-Conditions

UC CTMS 2.00 – Navigate Desktop

#### 6. Post-Conditions

A new Communications Type is created. Or an existing Communications Type is modified

#### 7. Extension Points

UC CTMS 8.10 – Log User Activity

#### 8. Issues / Constraints / Questions

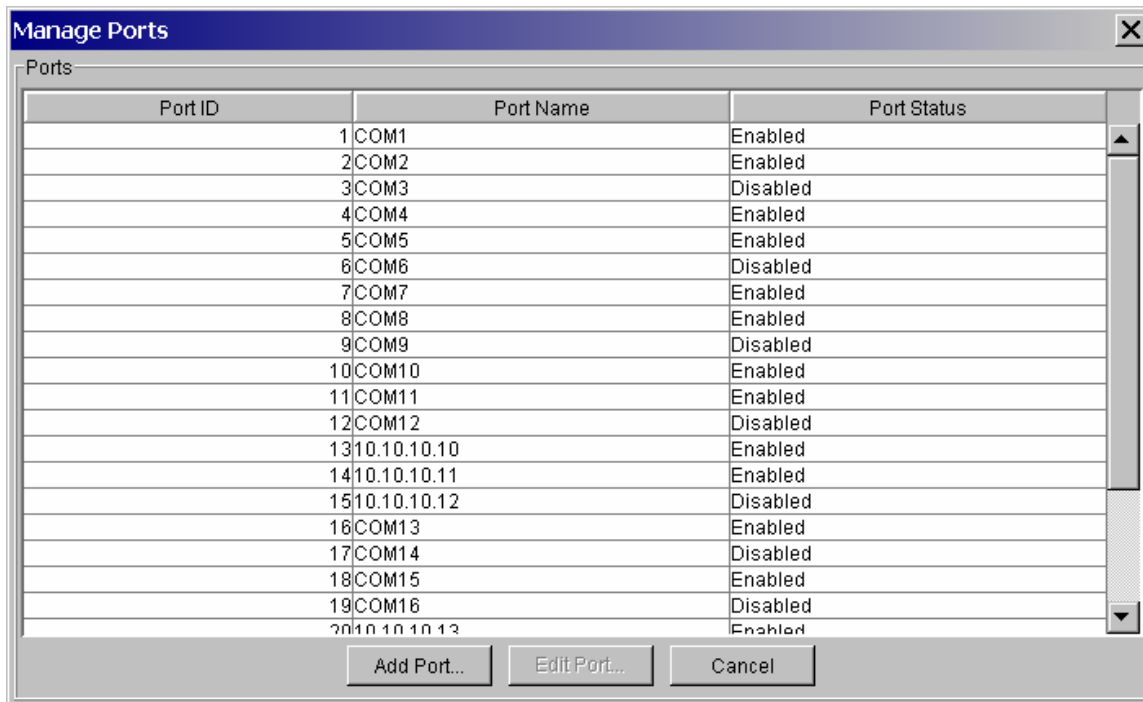
#### 9. Data Elements

Name	Description	Validation	Example
Port ID	Unique identifier for the port	Not null. Integer. Unique	1
Port Name	Descriptive Port Name	Not null. String. Size=32	COM 1
Status	Enabled or Disabled	Not null. Enumerated Type	
Physical Port Name	The name of the port on the terminal server	Not null.	TTY0
Terminal Server IP	IP address of the Terminal Server (e.g. Digibox) the Physical Port is on	Not null.	

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Communication Pool ID	FK to the Communication Pool entity. This is the Pool that this port belongs to. A Port can only belong to 1 Pool  Note – we ask for this data in the Comm Pool UC (and not here) and hence it needs to be nullable		
In Use	Indicates whether or not the application is using this Port	Boolean	
Connection Type	The kind of connection this port is required to perform.  The values include:  Dialup Fiber IP	Not null. Enumerated type	
Initialization String	Optional initialization string for a modem	String. Size=128	

## 10. Wire-frame



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**Add Port** [X]

Port Information

\* Port Name:

\* Physical Port Name:

Server IP:

Initialization String:

\* Status: Enabled [v]

\* Connection Type: Dialup [v]

\* Indicates required field

Test Port    OK    Cancel

**Edit Port** [X]

Port Information

\* Port ID:

Pool ID:

Pool Name:

\* Port Name:

\* Physical Port Name:

Server IP:

Initialization String:

\* Status: Enabled [v]

\* Connection Type: Dialup [v]

\* Indicates required field

Test Port    OK    Cancel