

**Intelligent Transportation Systems**

700 Kipling Street, Suite 2500  
Lakewood, Colorado 80215  
Phone (303) 512-5834  
FAX (303) 239-0848



## CTMS/CTIS

### UC CTMS 3.30 - Adjust Brightness

Version 2.0

**Approved By**

John Nelson  
CDOT ITS Office

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Frank Kinder  
CDOT ITS Office

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

CTMS/CTIS	Version: 2.0
UC CTMS 3.30 - Adjust Brightness	Date: April 19, 2005

## Revision History

Date	Version	Description	Author
March 22, 2004	1.0	Initial Version	Raj Chaudhuri
April 6, 2004	1.1	Added Error handling to generate an alarm	Raj Chaudhuri
April 12, 2004	1.1	Changed text in actors table	Raj Chaudhuri
April 22, 2004	1.2	Updated flow and data elements section to match NTCIP spec	Raj Chaudhuri
April 29, 2004	1.2	Added Bookmarks (Name, Abstract)	Raj Chaudhuri
May 4, 2004	1.3	Added Logging. Added step to Flow to receive successful message. Updated Data Elements section	Raj Chaudhuri
June 7, 2004	1.4	Added NTCIP elements to data section	Raj Chaudhuri
July 19, 2004	1.5	Added check for Security Group permission when starting this task. Added instruction priority	Raj Chaudhuri
July 21, 2004	1.5	Added online attribute special requirement	Raj Chaudhuri
July 27, 2004	1.6	Change Online attribute to Offline status	Raj Chaudhuri
August 17, 2004	1.6	Add New to Special Requirement #3	Raj Chaudhuri
August 23, 2004	1.7	Removed Operator from UC. Updated flows accordingly	Raj Chaudhuri
November 3, 2004	1.8	Updated MIBs and % calculation based on feedback from Dan Vanada (Skyline). Added Current Brightness Light Output status. Updated Flows accordingly. Updated field sizes	Raj Chaudhuri
November 10, 2004	1.9	Updated % calculation to include max levels that are possible to set on the sign	Raj Chaudhuri
November 17, 2004	2.0	Added wire frame; Updated elements being displayed in window; changed Brightness Output to %.	Nancie Fay
November 18, 2004	2.0	Updated wire-frame	Raj Chaudhuri
January 14, 2005	2.0	Removed all references to alarms and UC Add Alarm.	Nancie Fay
January 25, 2005	2.0	Removed setting of Status to Failed	Raj Chaudhuri

CTMS/CTIS	Version: 2.0
UC CTMS 3.30 - Adjust Brightness	Date: April 19, 2005

## Table of Contents

1.	Use Case	1
	1.1 Abstract	1
	1.2 Actor(s)	1
2.	Flow of Events	1
	2.1 Basic Flow	1
	2.2 Alternate Flow	1
3.	Special Requirements	2
4.	Assumptions	2
5.	Pre-Conditions	2
6.	Post-Conditions	2
7.	Extension Points	3
8.	Issues / Constraints / Questions	3
9.	Data Elements	3
10.	Wire-Frame	4

CTMS/CTIS	Version: 2.0
UC CTMS 3.30 - Adjust Brightness	Date: April 19, 2005

# UC CTMS 3.30 - Adjust Brightness

## 1. Use Case

### 1.1 Abstract

An Administrator or Maintenance adjusts the brightness on a DMS

### 1.2 Actor(s)

Actor	Description
Administrator	The System Administrator for the Colorado Transportation Management Center (CTMC)
Maintenance	The Maintenance person on duty for the Colorado Transportation Management Center (CTMC)

## 2. Flow of Events

### 2.1 Basic Flow

1. The Administrator or Maintenance (referred to as admin) selects Adjust Brightness for a DMS from the Navigate Desktop
2. The system verifies the DMS belongs to the admin's Security Group
3. The system displays the: Current Brightness Mode (Auto or Manual), Current Brightness Level (in %), and the Current Brightness Light Output (in %) (read-only from the UI). The system has gotten these values from the latest Poll
4. The system allows the user to select the Brightness Mode (from Auto or Manual). It will default the selection to what is currently on the sign. For a manual entry, the system requests the brightness level (in %) (see data elements for more). The system provides buttons to do the following: Adjust, Cancel
5. The admin enters the requested data and presses the Adjust button
6. The system verifies that the data entered is valid
7. The system sends a request to adjust the brightness the device (refer to UC Issue Device Instruction for details)
8. The system displays the Navigate Desktop screen (see pre-condition)
9. The system receives a successful message
10. The system logs this event. It passes the following elements to UC Log User Activity: Task Name (Adjust Brightness), Time (current time), Owner (logged in user), ID (DMS Device ID), Device Type (DMS Device Type), Message Text (Message Text), Username (blank), Instruction ID (Task instruction ID), Notes (blank) (refer to UC Log User Activity for details)

### 2.2 Alternate Flow

1. The Administrator or Maintenance (referred to as admin) selects Adjust Brightness for a DMS from the Navigate Desktop
2. The system verifies the DMS belongs to the admin's Security Group
  - 2.1. In the event the DMS does not belong to the admin's Security Group, the system displays the following message: "The following DMS does not belong to your Security Group – [ Device ID – Device Common Name ] and this task cannot be performed on it."
  - 2.2. The system present a button 'OK' to acknowledge this message

CTMS/CTIS	Version: 2.0
UC CTMS 3.30 - Adjust Brightness	Date: April 19, 2005

- 2.3. The admin clicks on OK
- 2.4. Go to end
3. The system displays the: Current Brightness Mode (Auto or Manual), Current Brightness Level (in %), and the Current Brightness Light Output (in %) (read-only from the UI). The system has gotten these values from the latest Poll
4. The system allows the user to select the Brightness Mode (from Auto or Manual). It will default the selection to what is currently on the sign. For a manual entry, the system requests the brightness level (in %) (see data elements for more). The system provides buttons to do the following: Adjust, Cancel
5. The admin enters the requested data and presses the Adjust button
  - 5.1. The admin clicks on Cancel
  - 5.2. Go to end
6. The system verifies that the data entered is valid
  - 6.1. In the event the system determines that data is missing, the system informs the user that data is missing. The system displays the following text: "You must enter a brightness amount if you choose Manual." The system presents an 'OK' button
  - 6.2. The admin clicks on 'OK'
  - 6.3. Go to step 3
7. The system sends a request to adjust the brightness the device (refer to UC Issue Device Instruction for details)
8. The system displays the Navigate Desktop screen (see pre-condition)
9. The system receives a successful message
  - 9.1. In the event there is an error generated when trying to adjust the brightness, the system logs this event with the additional data that this task was not successful
    - 9.1.1. In the event the instruction does not return within the timeout period, the system logs this event with the additional data that this task was not successful
10. The system logs this event. It passes the following elements to UC Log User Activity: Task Name (Adjust Brightness), Time (current time), Owner (logged in user), ID (DMS Device ID), Device Type (DMS Device Type), Message Text (Message Text), Username (blank), Instruction ID (Task instruction ID), Notes (blank) (refer to UC Log User Activity for details)

### 3. Special Requirements

1. The admin can adjust the brightness on only 1 DMS at a time
2. This task will always have the priority of 'medium' when issued by a user
3. This task can only be performed on devices whose status is NOT Offline and NOT New

### 4. Assumptions

### 5. Pre-Conditions

- UC CTMS 2.00 – Navigate Desktop
- UC CTMS 3.10 – Find DMS
- UC CTMS 8.10 – Log User Activity

### 6. Post-Conditions

The adjust brightness is set to automatic or to the manual figure specified by user

CTMS/CTIS	Version: 2.0
UC CTMS 3.30 - Adjust Brightness	Date: April 19, 2005

## 7. Extension Points

## 8. Issues / Constraints / Questions

## 9. Data Elements

Refer to the DMS Object Definition guide for more details

Name	Description	Validation	Standard NTCIP Tag?	NTCIP / Skyline Tag Name & MIB info
Device ID	DMS Device ID	Not null	n/a	
Brightness Control	<p>Indicates the brightness control mode of the sign. The choices are:</p> <p>1=other 2=auto (photocell) 3=timer 4=manual</p> <p>Note – Skyline refers to Photocell as Auto (and hence we do in our application too)</p>	Integer. Size=130	Y	dmsIllumControl 1.3.6.1.4.1.1206.4.2.3.7.1
Number of Brightness Levels	<p>Indicates the number of individually selectable Brightness Levels supported by the individual device, excluding the OFF level</p> <p>This is the figure we divide by to get the % figure</p>	Integer. Size=10	Y	dmsIllumNumBrightLevels 1.3.6.1.4.1.1206.4.2.3.7.4 this value indicates the number of individually selectable brightness levels (a value from 0 to 255) on a device
Manual Brightness Level	<p>In the UI we always request a %. This must then be convert to an integer before sending it to the sign → % of Number of Brightness Level (see above) = x (value to send to sign)</p> <p>This can only be set if the brightness control is manual.</p> <p>On Skyline signs this values always ranges from 0 to 255</p>	Integer. Size=10	Y	dmsIllumManLevel 1.3.6.1.4.1.1206.4.2.3.7.6

CTMS/CTIS	Version: 2.0
UC CTMS 3.30 - Adjust Brightness	Date: April 19, 2005

Current Brightness Level	To display the current brightness level, we would convert this int to a % of Number of Brightness Level (see above) and display it	Integer. Size=10	Y	dmsIllumBrightLevelStatus 1.3.6.1.4.1.1206.4.2.3.7.5 this value indicates the current brightness level (a value from 0 to 255) (note → the 255 is the max of Number of Brightness Level so it should really be 0 to Number of Brightness Levels instead)
Current Brightness Light Output	To display the actual light output, we convert it to a % by simply dividing by 65535 and multiplying by 100 to get a % value  The UI always displays this value in a % and regardless of the brightness mode  This field is a read-only field from the UI always	Integer. Size=10	Y	dmsIllumLightOutputStatus 1.3.6.1.4.1.1206.4.2.3.7.9 indicates the current physical light output value ranging from 0 (darkest) to 65535 (maximum output)

## 10. Wire-Frame

