

Configuration of a Community Energy Storage (CES) Controller

Version 3.2

May 14th, 2010

1 Descriptions of Function

This use case will describe how the settings of a CES Controller (an operating controller in the field) can have its operational settings changed from a remote location.

1.1 *Function Name*

Configuration of a CES Controller

1.2 *Function ID*

IECSA identification number of the function

1.3 *Brief Description*

The CES Management System is used to manage the configuration of the CES Controller.

1.4 *Narrative*

The *CES Management* system is used to manage the configuration of the *CES Controller* and *CES Units*. Once it has been determined that a configuration change is needed with a *CES Controller*, the *CES Management System* issues a command to affect that change. Each communication change received by the *CES Controller* is acknowledged by a message back to the *CES Management* system and a log entry is created in *D-SCADA* to maintain situational awareness. The message is also shared with the *Historian* by *D-SCADA*.

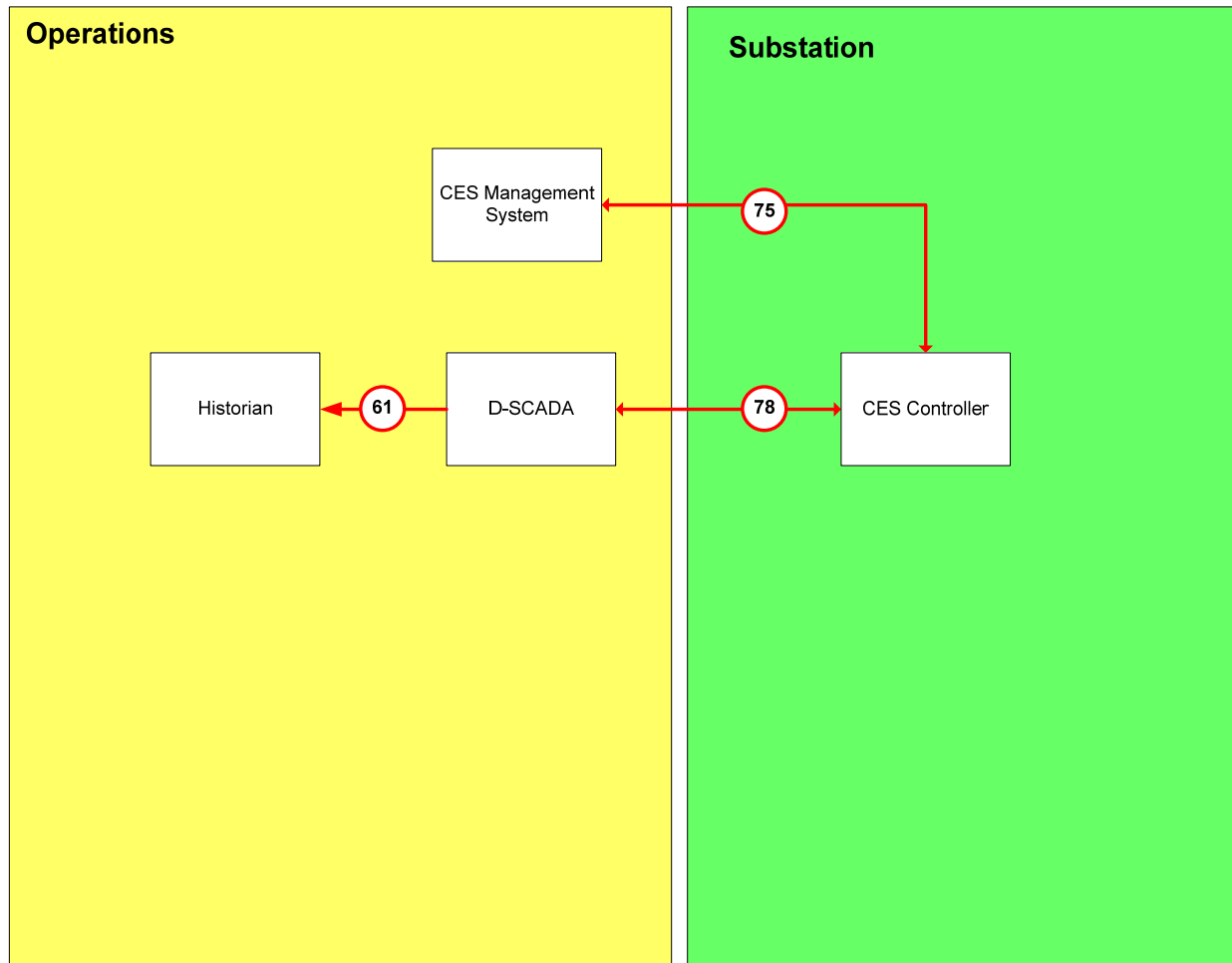


Figure 1-1
Context Diagram for Configuration of a CES Controller

1.5 Actor (Stakeholder) Roles

Describe all the people (their job), systems, databases, organizations, and devices involved in or affected by the Function (e.g. operators, system administrators, technicians, end users, service personnel, executives, SCADA system, real-time database, RTO, RTU, IED, power system). Typically, these actors are logically grouped by organization or functional boundaries or just for collaboration purpose of this use case. We need to identify these groupings and their relevant roles and understand the constituency. The same actor could play different roles in different Functions, but only one role in one Function. If the same actor (e.g. the same person) does play multiple roles in one Function, list these different actor-roles as separate rows.

<i>Grouping (Community)'</i>		<i>Group Description</i>
<i>Actor Name</i>	<i>Actor Type (person, device, system etc.)</i>	<i>Actor Description</i>
DSCADA	Sub-System	Distribution Supervisory Control and Data Acquisition System. DSCADA is a sub-system of the DMS.
Historian	Sub-System	CES data archive.
CES Management System	System	Community Energy Storage Management System – Back office system that manages the configuration of the CES Controller and the CES Units.
CES Controller	Device	Community Energy Storage Controller Device that resides at the substation providing communications, control and dispatching function with the CES Unit.

1.6 Information exchanged

<i>Information Object Name</i>	<i>Information Object Description</i>
CES Controllers requiring a Configuration Change/Update	CES Controllers whose operational settings or software is not up to date
Configuration Change/Update	Operational Settings for the CES Controller that need to be updated.
Communications Acknowledgement	An acknowledgement that the communication signal has arrived at its intended source.
Configuration Change Log Entry	A log entry verifying that the Configuration Change has taken place in the CES Controller

1.7 Activities/Services

<i>Activity/Service Name</i>	<i>Activities/Services Provided</i>

1.8 Contracts/Regulations

<i>Contract/Regulation</i>	<i>Impact of Contract/Regulation on Function</i>

<i>Policy</i>	<i>From Actor</i>	<i>May</i>	<i>Shall Not</i>	<i>Shall</i>	<i>Description (verb)</i>	<i>To Actor</i>

<i>Constraint</i>	<i>Type</i>	<i>Description</i>	<i>Applies to</i>

2 Step by Step Analysis of Function

Describe steps that implement the function.

2.1 Steps to implement function – Name of Sequence

Configuration of a CES Controller.

2.1.1 Preconditions and Assumptions

<i>Actor/System/Information/Contract</i>	<i>Preconditions or Assumptions</i>
CES Controller	The CES Controller coordinates updates and polling schedules.
CES Controller	The CES Controller has existing communications to the CES Management System

2.1.2 Steps – Name of Sequence

Describe the normal sequence of events, focusing on steps that identify new types of information or new information exchanges or new interface issues to address.

#	Event	Primary Actor	Name of Process/Activity	Description of Process/Activity	Information Producer	Information Receiver	Name of Info Exchanged	Additional Notes	IECSA Environment
#	<i>Triggering event? Identify the name of the event.¹</i>	<i>What other actors are primarily responsible for the Process/Activity? Actors are defined in section0.</i>	<i>Label that would appear in a process diagram. Use action verbs when naming activity.</i>	<i>Describe the actions that take place in active and present tense. The step should be a descriptive noun/verb phrase that portrays an outline summary of the step. "If ...Then...Else" scenarios can be captured as multiple Actions or as separate steps.</i>	<i>What other actors are primarily responsible for Producing the information? Actors are defined in section0.</i>	<i>What other actors are primarily responsible for Receiving the information? Actors are defined in section0. (Note – May leave blank if same as Primary Actor)</i>	<i>Name of the information object. Information objects are defined in section 1.6</i>	<i>Elaborate architectural issues using attached spreadsheet. Use this column to elaborate details that aren't captured in the spreadsheet.</i>	<i>Reference the applicable IECSA Environment containing this data exchange. Only one environment per step.</i>
1.1	CES Management System is initiating a CES Controller Configuration Change	CES Management System	CES Controller Configuration change needed	CES Management System identifies a CES Controller or group of CES Controllers that require a Configuration Change/Update	CES Management System	CES Management System	CES Controllers requiring a Configuration Change/Update	Configuration Change/Update (eg. Energy Dispatch Schedule)	
1.2.1		CES Management System	CES Management System sends Change/Update	CES Management System sends Configuration Change/Update to the CES Controller	CES Management System	CES Controller	Configuration Change/Update	DNP3	
1.2.2		CES Controller	CES Controller sends Communications Acknowledgement	CES Controller sends Communications Acknowledgement to the CES management System	CES Controller	CES Management System	Communications Acknowledgement	DNP3	

¹ Note – A triggering event is not necessary if the completion of the prior step – leads to the transition of the following step.

#	Event	Primary Actor	Name of Process/Activity	Description of Process/Activity	Information Producer	Information Receiver	Name of Info Exchanged	Additional Notes	IECSA Environment
1.3		CES Controller	CES Controller implements the new settings	CES Controller implements the new Configuration Change/Update	CES Controller	CES Controller	Configuration Change/Update		
1.4		DSCADA	DSCADA receives CES Controller configuration change via scheduled poll	DSCADA receives CES Controller Configuration Change Log Entry during next scheduled poll	CES Controller	DSCADA	Configuration Change Log Entry	DNP3	
1.5		DSCADA	DSCADA sends Configuration Change Log Entry to the Historian	DSCADA sends Configuration Change Log Entry of the CES Controller configuration change to the Historian	DSCADA	Historian	Configuration Change Log Entry	Pi Historian Interface	

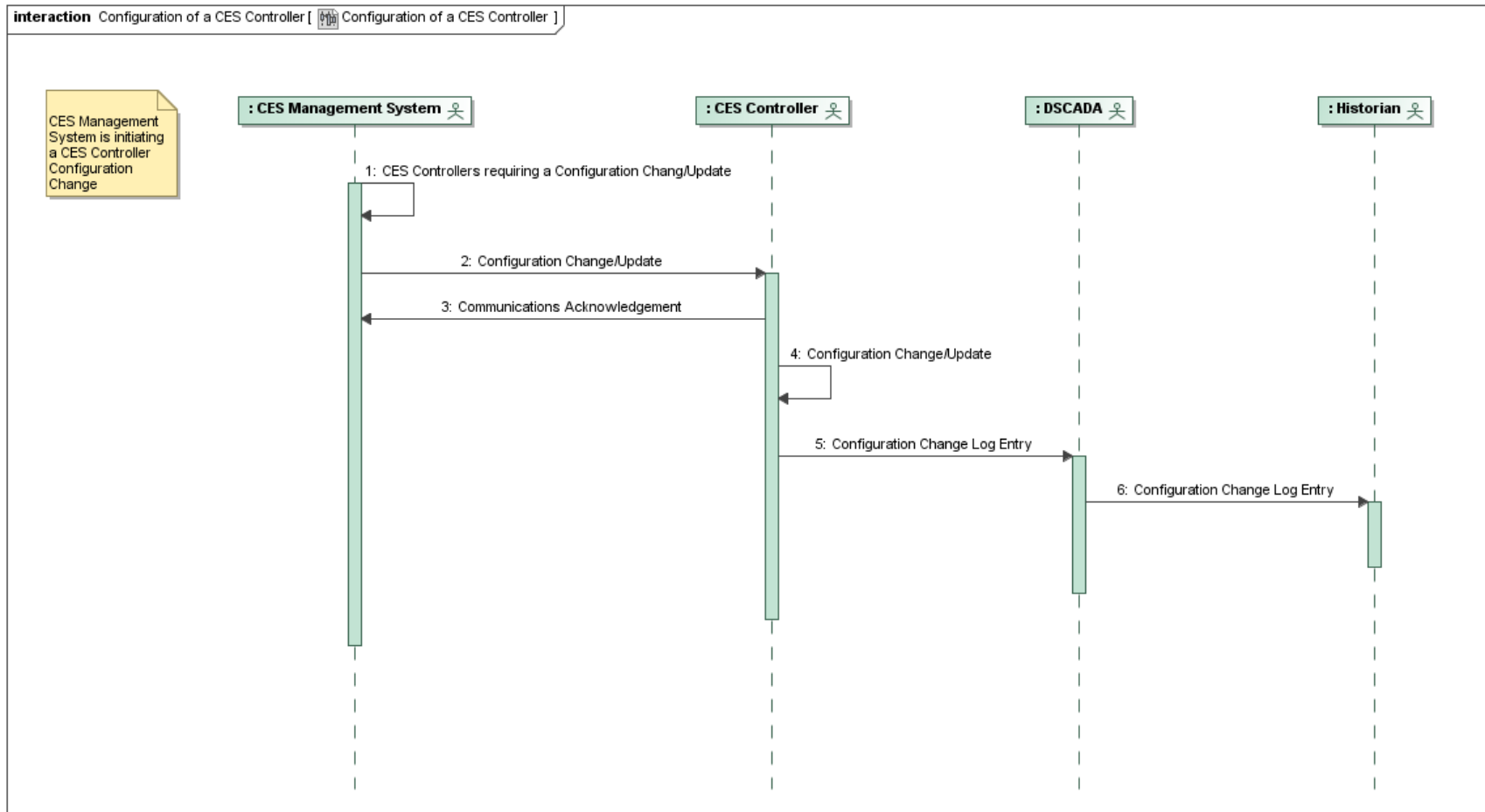
2.1.3 Post-conditions and Significant Results

<i>Actor/Activity</i>	<i>Post-conditions Description and Results</i>
CES Controller	The operational settings for the CES Controllers are now able to be Updated as needed from a remote location via the CES Management System

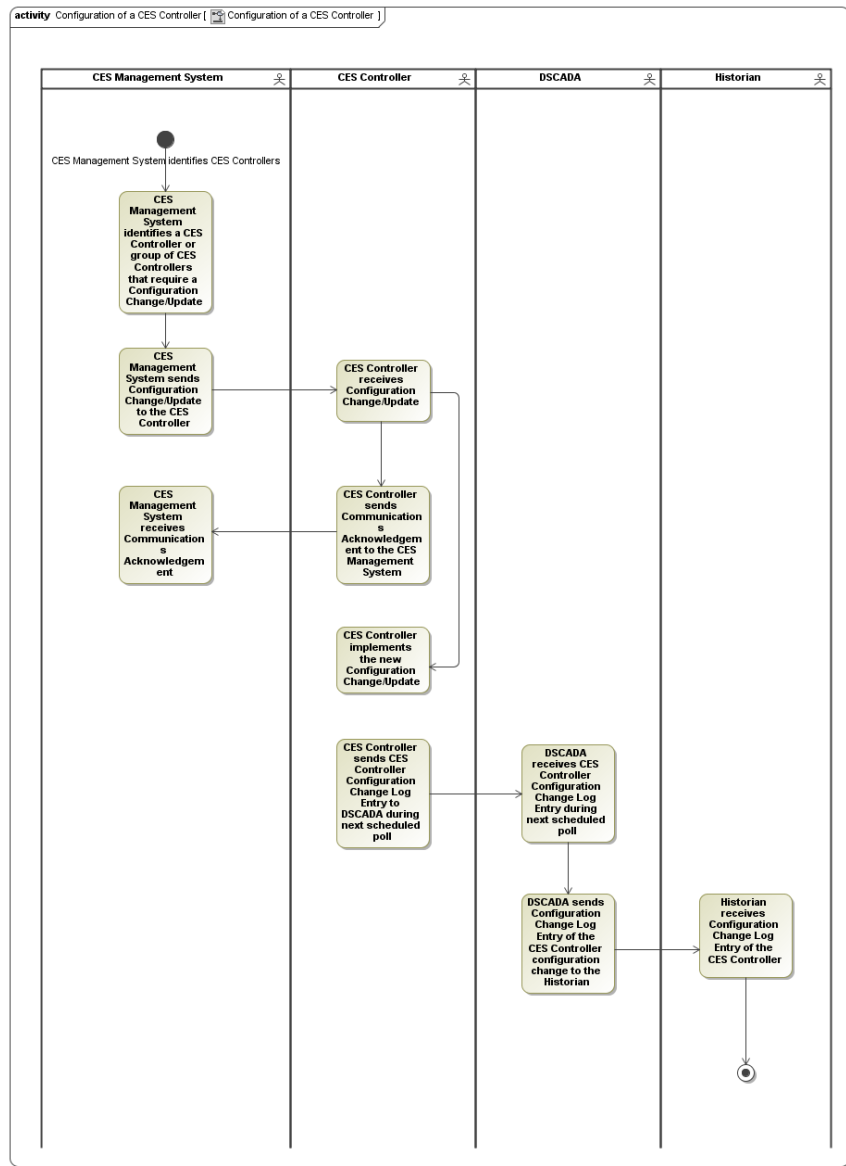
2.2 Architectural Issues in Interactions

Elaborate on all architectural issues in each of the steps outlined in each of the sequences above. Reference the Step by number.

2.3 Diagrams



Configuration of a CES Controller Sequence Diagram



Configuration of a CES Controller Activity Diagram

3 Auxiliary Issues

3.1 References and contacts

ID	Title or contact	Reference or contact information
[1]		

3.2 Action Item List

ID	Description	Status
[1]		

3.3 Revision History

No	Date	Author	Description
2.0	4-11-2010	John J. Simmins	Create Brief Description, Narrative and fill in blanks.
3.0	5-11-2010	Brian D. Green	Revisions and add diagrams
