



ControlEdge RTU
Release 170

ControlEdge Builder Bulk Configuration User's Guide

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ABOUT THIS GUIDE

Revision history

Revision	Date	Description
A	March 2021	Initial release of this document

Intended audience

This documentation is intended for the following audience: Users who plan, install, configure, operate, or maintain ControlEdge™ 2020 controllers running the eCLR (IEC 61131-3) execution environment.

Prerequisite skills

Knowledge of SCADA systems and experience of working in a Microsoft Windows environment are required.

Introduction to ControlEdge Technology

Item	Description
ControlEdge PLC	ControlEdge 900 controllers running the eCLR (IEC 61131-3) execution environment with PLC software options configured with ControlEdge Builder.
ControlEdge RTU	ControlEdge 2020 controllers running the eCLR (IEC 61131-3) execution environment with RTU software options configured with ControlEdge Builder.
ControlEdge UOC	ControlEdge 900 controllers running the Honeywell control execution environment (CEE) configured with Experion Control Builder.

Special terms

The following table describes some commonly used industry-wide and Honeywell-specific terminology:

Terminology	Description
Bulk Configuration	A tool to read and write multiple variables for multiple controllers.

Related documents

The following list identifies publications that may contain information relevant to the information in this document.

- ControlEdge Builder Software Installation User's Guide
- ControlEdge Builder Software Change Notice
- ControlEdge PLC and ControlEdge RTU Getting started
- ControlEdge 2020 Platform Hardware Planning and Installation Guide
- ControlEdge Builder Function and Function Block Configuration Reference
- ControlEdge Builder Protocol Configuration Reference Guide
- ControlEdge PLC and ControlEdge RTU Network and Security Planning Guide
- ControlEdge RTU and PLC DNP3 Device Profile
- Firmware Manager User Guide

OVERVIEW

Bulk Configuration is a utility of ControlEdge Builder to read and write multiple variables on multiple controllers at the same time.

Key features are listed below:

- Detect online controllers automatically
- Group controllers through controller lists
- Group variables through variable lists
- Add and delete controller lists and variable lists
- Import controllers into an existing controller list from an external .csv file
- Import variables into an existing variable list from an external .csv file
- Save controllers of an existing controller list to the corresponding default .csv file
- Save variables of an existing variables list to the corresponding default .csv file
- Bulk authenticate controllers
- Save tables based on the combination of a controller list and a variable list
- Bulk read values of multiple variables from multiple controller

NOTE: String variables are not supported.

- Export read values
- Bulk write values of multiple variables to multiple controller

NOTE: String variables are not supported.

- Import or Export modified values of variables

The following table lists bulk configuration procedures.

Table 2-1: Bulk configuration procedures

	Task	Go to
Step 1	Install Bulk Configuration	See Installing Bulk Configuration for more information.
Step 2	Launch Bulk Configuration	See Launching Bulk Configuration for more information.
Step 3	Create a controller list	See Creating a controller list for more information.
Step 4	Add controllers into a controller list	See Adding controllers to a controller list for more information. or, See Importing controllers into the current list for more information.
Step 5	Create a variable list	See Creating a variable list for more information.
Step 6	Add variables into a variable list: <ul style="list-style-type: none"> • If variables are not existing in Bulk Configuration • If variables are existing in Bulk Configuration 	<ul style="list-style-type: none"> • See Importing variables into the current list for more information. • See Adding variables to a variable list for more information.
Step 7	Configure a table	See Creating a table for more information.
Step 8	Authenticate controllers	See Bulk authenticating controllers for more information.
Step 9	Read variables	See Bulk reading variables for more information.
Step 10	Write variables	See Bulk writing variables for more information.

INSTALLATION

Hardware Requirements

Item	Specification
Processor	Minimum: Pentium or compatible 2 GHz Recommended: Intel® Core™ i5 or equivalent better
System RAM	Minimum: 1 GB Recommended: 4 GB
Hard disk	5 GB free memory space
DVD-ROM drive	Required
Graphic Card	DirectX9 compatible graphic adapter
Display color settings	True color (32 bit)
RS232 interface	Optional
Resolution	Recommended: 1280x800 or above Optimal: 1920x1080, 1366x768, 1280x1024 and 1280x800

Software Requirements

Item	Specification
Installation Media	ControlEdge Builder Media Kit
Operation system	Windows 10 32-bit or 64-bit (Support Secure Communication) Windows Server 2016 Standard Edition 64-bit
Certified antivirus software	McAfee AV + Virus Scan Engine + patch (8.7i + Engine 5400 + Patch3)

ATTENTION: If Bulk Configuration does not display correctly on your computer, try upgrading the computer's graphic driver to the latest version available.

Installing Bulk Configuration

Prerequisites

- The user must log on the computer as an administrator or a member of the Administrator group to install Bulk Configuration.
- Bulk Configuration can be installed over a previous version without uninstalling it first.
- The user should set the format language, keyboards default input language as English and set the location of English speaking region.

To install Bulk Configuration

1. Insert the **ControlEdge Builder Media Kit** into the DVD-ROM drive.
2. Browse to the folder "BulkConfiguration" containing **BulkConfiguration.exe**. Double-click this file.
The **User Account Control** dialog appears to ensure that you allow the app to make changes to your device.
3. Click **Yes**. The BulkConfiguration- InstallShield Wizard dialog appears.
4. Click **Next** to continue.
5. In the **License Agreement** page, click **I accept the terms in the license agreement** and click **Next**.
6. In the **Setup Type** page, select **Complete** and click **Next**.
7. In the **Ready to Install the Program** page, click **Install** to begin the installation.
8. The installation is in progress. Then in the **InstallShield Wizard Completed** page that appears, click **Finish**.

Results

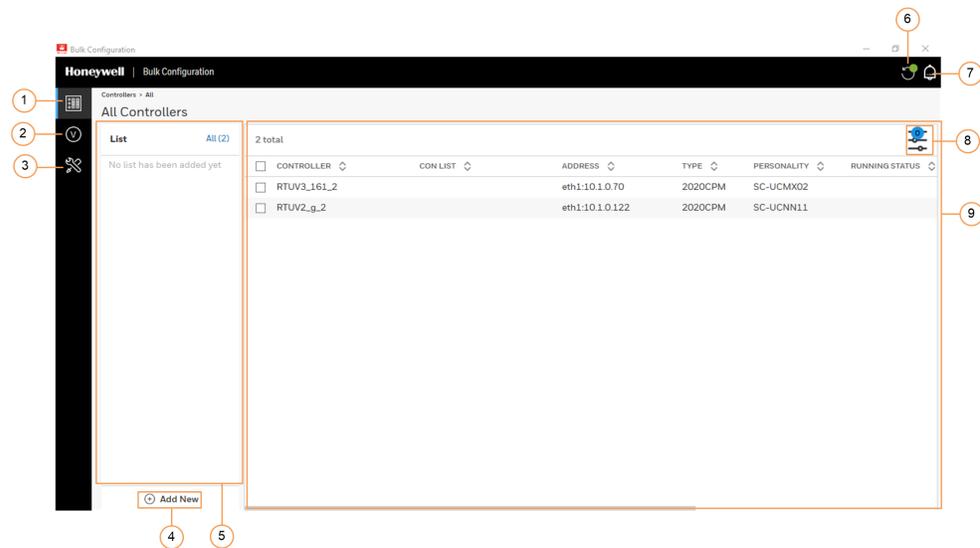
Bulk Configuration is installed successfully.

LAUNCHING BULK CONFIGURATION

Click **Start > All Programs > Honeywell > Bulk Configuration** to launch Bulk Configuration, and the Home Page appears.

Controllers tab is selected by default and online controllers are detected and listed on the right panel automatically.

Figure 4-1: Home Page

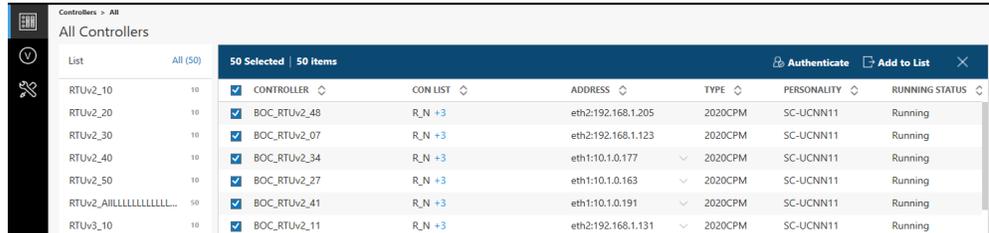


Item	Description
1	Controllers: adds controller lists, and add controllers into the controller lists.
2	Variables: adds variables lists and add variables into the variables lists.
3	Configuration: configures tables, and read/write variables.
4	Add New: used to add a controller list or variable list.
5	List Panel: lists created controller lists, or variable lists, or tables.
6	<p>Progress: shows status of the latest operation.</p> <ul style="list-style-type: none"> : represents the operation is successful.

Item	Description
	<ul style="list-style-type: none"> : represents the operation is failed.
7	<p>Notifications: shows status of all operations.</p>
8	<p>Filter: shows controller from Controllers tab or variables from Variables tab according different filters.</p> <ul style="list-style-type: none"> From the Controllers tab, the following filters are available: <ul style="list-style-type: none"> PERSONALITY RUNNING STATUS SYNC STATUS AUTHENTICATED CON LIST From the Variables tab, the following filters are available: <ul style="list-style-type: none"> Type Variable List
9	<p>The right panel shows information that depends on the tab you selected.</p> <p>Controllers List: When you select Controllers tab, it lists all online controllers in the network.</p> <p>Variables List: When you select Variables tab, it lists all variables you have imported.</p> <p>Table: When you select Configuration tab and select a table, it lists variables and controllers in the table.</p>

Controllers List displays details of all controllers present in the network.

Figure 4-2: Controllers List

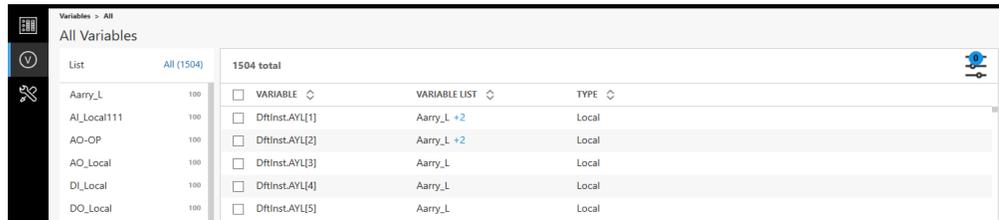


Item	Description
CONTROLLER	Controller name
CON LIST	Controller list name which the controller is added in. If the controller is added into multiple controller lists, a number appears. You can put the cursor on it to show the corresponding controller lists.
ADDRESS	IP address of the controller
TYPE	Controller type <ul style="list-style-type: none"> • 2020CPM • 900CPM
PERSONALITY	Hardware type <ul style="list-style-type: none"> • SC-UCMX01 • SC-UCMX02 • SC-UCNN11
RUNNING STATUS	Controller running status <ul style="list-style-type: none"> • Running • Stopped • On
SYNC STATUS	Sync status

Item	Description
	<ul style="list-style-type: none"> • Not synchronized • Synchronizing • Synchronized
BOOT/RECOVERY	Boot/recovery version of the controller
APPLICATION	Application version of the controller
AUTHENTICATED	Authentication status: <ul style="list-style-type: none"> • Not Attempted • PASS • FAIL

Variables List displays all variables you have imported.

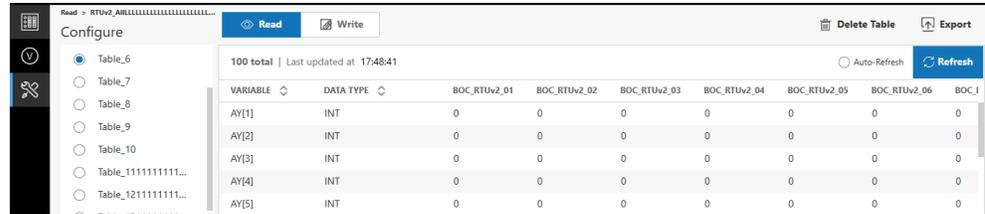
Figure 4-3: Variables List



Item	Description
VARIABLE	Variable name
VARIABLE LIST	Variable list name which the variable is added in. If the variable is added into multiple variable lists, a number appears. You can put the cursor on it to show the corresponding variable lists.
TYPE	Variable type <ul style="list-style-type: none"> • Local • Global

Table displays variables and controllers in the table.

Figure 4-4: Table



Item	Description
VARIABLE	Lists all variables in the table
DATA TYPE	Data type of a variable
[Controller name]	Lists all controllers in the table

CONFIGURATION

Configuring a controller list

A controller list can group multiple controllers.

Creating a controller list

1. From the Home Page, select the **Controllers** tab, and click **Add New**. The **Create New List** dialog appears.
2. Enter a name for the controller list, and click **Create**. The controller list is added.

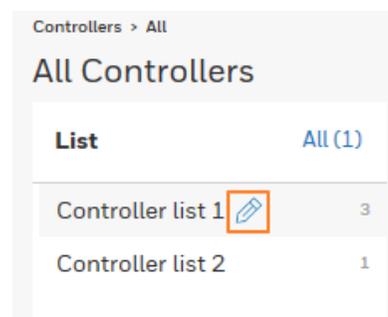
A .csv file with the same name is created at the same time and stored in the location:

C:\ProgramData\Honeywell\BulkConfiguration\bulkconfig\controllerLists

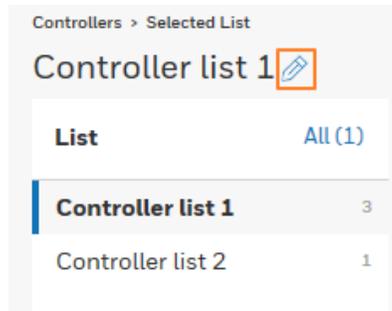
Renaming a controller list

The controller list name cannot be modified if the corresponding .csv file is already opened.

1. From the Home Page, select the **Controllers** tab.
2. Put the cursor on a controller list, and the edit button appears.



Or select the controller list, and the edit button appears above.



3. Click the edit button, and the **Rename List** dialog appears.
4. Enter the required name, and click **Save**.
The corresponding .csv file stored in "C:\ProgramData\Honeywell\BulkConfiguration\bulkconfig\controllerLists" is renamed at the same time.

Deleting a controller list

The controller list cannot be deleted if the corresponding .csv file is already opened.

1. From the Home Page, select the **Controllers** tab.
2. Select the controller list you want to delete, the **Delete List** button appears at the top right corner.



3. Click the **Delete List** button, and then the **Delete List** dialog appears to ensure that you want to delete the controller list.
4. Click **Confirm** to delete the list.

Adding controllers to a controller list

ATTENTION: Up to 50 controllers can be added in a controller list.

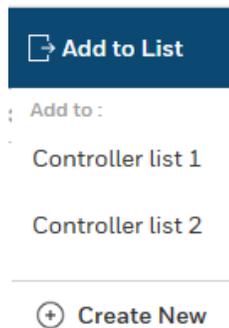
There are two ways to add controllers to a controller list.

- From the Home Page, select the **Controllers** tab. All online controllers are detected automatically and displayed on the right panel.

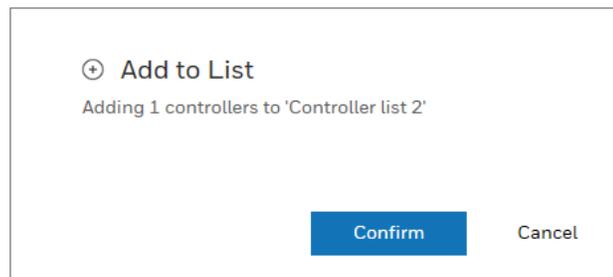
1. Select the checkboxes of controllers you want to add, the **Add to List** button appears.

List		All (1)	1 Selected 1 Items		Authenticate Add to List X			
Controller list 1	2	<input checked="" type="checkbox"/>	CONTROLLER	CON LIST	ADDRESS	TYPE	PERSONALITY	RUNNING STATUS
Controller list 2	0	<input checked="" type="checkbox"/>	RTUV2_g_2	Controller list 1	eth1:10.1.0.122	2020CPM	SC-UCNN11	

2. Click the **Add to List** button, the existing controller lists are displayed.



3. Select the target controller list, the **Add to List** dialog appears.

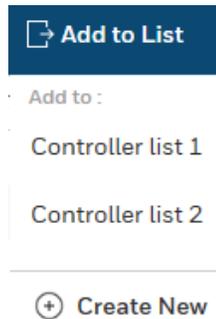


4. Click **Confirm**. The controllers are added into the target controller list.
- From the Home Page, select the **Controllers** tab, and select the controller list including the controllers you want to add to another list.

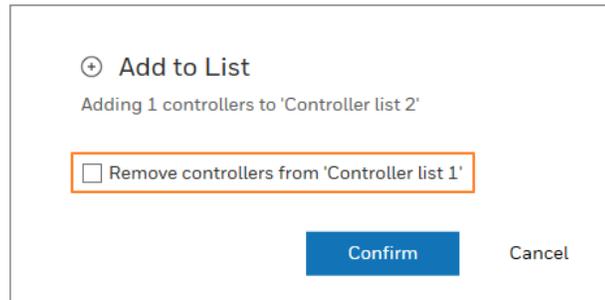
1. Select the checkboxes of controllers you want to add, the **Add to List** button appears.

List		All (1)	1 Selected 2 Items		Authenticate Add to List Remove X				
Controller list 1	2	<input type="checkbox"/>	CONTROLLER	ADDRESS	TYPE	PERSONALITY	RUNNING STATUS	SYNC STATUS	BOOT/RE
Controller list 2	0	<input type="checkbox"/>	RTUV2_g_2	eth1:10.1.0.122	2020CPM	SC-UCNN11			
		<input checked="" type="checkbox"/>	RTUV3_161_3	eth1:10.1.0.80					

2. Click the **Add to List** button, the existing controller lists are displayed.



3. Select the target controller list, the **Add to List** dialog appears. A checkbox is provided to remove the selected controllers from the current list if required.



4. Click **Confirm**. The controllers are added into the target controller list.
 - If the checkbox is selected, the controllers are removed from the current list at the same time.
 - If the checkbox is not selected, the controllers are existing in both of controller lists.

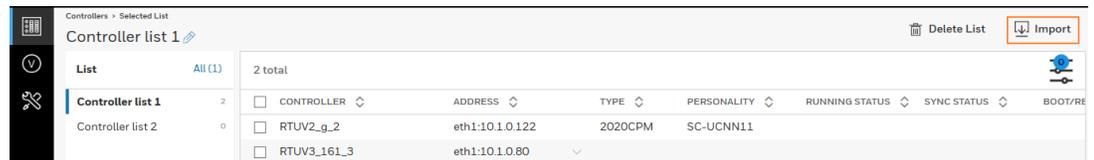
Importing controllers into the current list

You can import multiple controllers into a controller list from a .csv file. Before being imported, the required controllers should be added in the .csv file.

You can take a .csv file as a template stored in "C:\ProgramData\Honeywell\BulkConfiguration\bulkconfig\controllerLists", or add required controllers directly in the .csv file with the same name of the controller list.

ATTENTION: Up to 50 controllers can be imported in a controller list even though you add more than 50 controller in the .csv file.

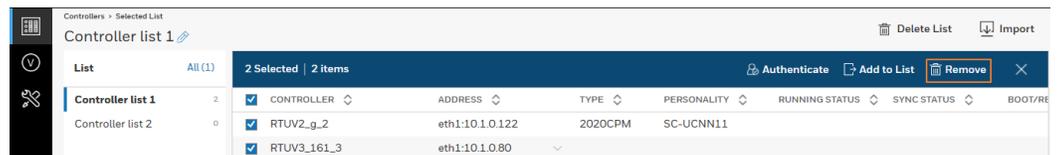
1. From the Home Page, select the **Controllers** tab, and select a controller list. The **Import** button appears.



2. Click the **Import** button, the **Open** dialog appears.
3. Select the target .csv file and click **Open**. The **Import to List** dialog appears.
4. Click **Confirm**. The controllers are imported to the controller list.

Removing controllers from a controller list

1. From the Home Page, select the **Controllers** tab, and select a controller list.
2. Select the checkboxes of controllers you want to remove. The **Remove** button appears.



3. Click the **Remove** button, the **Remove Controllers** dialog appears to ensure that you want to remove the selected controllers.
4. Click **Confirm**. The controllers are removed from the controller list.

Configuring a variable list

A variable list can group multiple variables.

Creating a variable list

1. From the Home Page, select the **Variables** tab, and click **Add New**. The **Create New List** dialog appears.

2. Enter a name for the variable list, and click **Create**. The variable list is added.

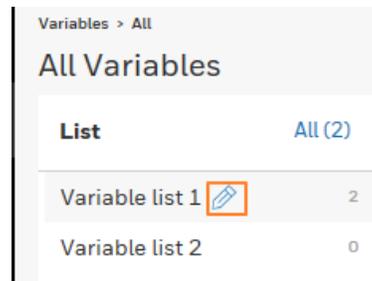
A .csv file with the same name is created at the same time and stored in the location:

C:\ProgramData\Honeywell\BulkConfiguration\bulkconfig\variableLists

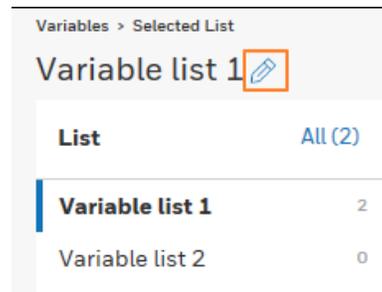
Renaming a variable list

The variable list name cannot be modified if the corresponding .csv file is already opened.

1. From the Home Page, select the **Variables** tab.
2. Put the cursor on a variable list, and the edit button appears.



Or select the variable list, and the edit button appears above.



3. Click the edit button, and the **Rename List** dialog appears.
4. Enter the required name, and click **Save**.
The corresponding .csv file stored in "C:\ProgramData\Honeywell\BulkConfiguration\bulkconfig\variableLists" is renamed at the same time.

Deleting a variable list

The variable list cannot be deleted if the corresponding .csv file is already opened.

1. From the Home Page, select the **Variables** tab.
2. Select the variable list you want to delete, the **Delete List** button appears at the top right corner.



3. Click the **Delete List** button, and then the **Delete List** dialog appears to ensure that you want to delete the variable list.
4. Click **Confirm** to delete the list.

Importing variables into the current list

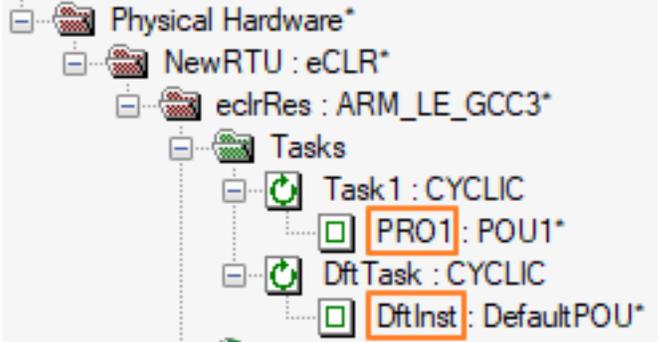
Before reading or writing variables, you must import them into a variable list from a .csv file. Before being imported, the required variables should be added in the .csv file.

You can take a .csv file as a template stored in "C:\ProgramData\Honeywell\BulkConfiguration\bulkconfig\variableLists", or add required variables directly in the .csv file with the same name of the variable list.

ATTENTION: Up to 100 variables can be imported in a variable list even though you add more than 100 variables in the .csv file.

The following two items should be filled in the .csv file.

Item	Description
Variable Name	<p>Variables can be divided into three categories classified by data type:</p> <ul style="list-style-type: none"> • Primitive data type (including BOOL, INT, DINT, REAL etc.) • Array • Struct <p>Variables can be divided into two categories classified by variable scope:</p> <ul style="list-style-type: none"> • Global • Local <p>Enter the full name of a variable by following the rule below:</p>

Item	Description
	<p>[POU Instance Name].[Variable Name]</p> <ul style="list-style-type: none"> [POU Instance Name] is a must for Local variables, but not required for Global variables. <p>Here is an example of [POU Instance Name]:</p>  <ul style="list-style-type: none"> [Variable name] <ul style="list-style-type: none"> Primitive data type: variable name Array: array variable name[index] E.g. ArrayVar[1] Struct: struct variable name.member name E.g. StrVar.PV
IsGlobal	<p>Enter FALSE or TRUE</p> <ul style="list-style-type: none"> FALSE is for local variables. TRUE is for global variables.

To import variables into a variable list

1. From the Home Page, select the **Variables** tab, and select a variable list. The **Import** button appears.



2. Click the **Import** button, the **Open** dialog appears.
3. Select the target .csv file and click **Open**. The **Import to List** dialog appears.
4. Click **Confirm**. The variables are imported to the variable list.

Adding variables to a variable list

ATTENTION: Up to 100 variables can be added in a variable list.

Prerequisite

The required variables must be imported in a variable list before adding them to another variable list. See [Importing variables into the current list](#) for more information.

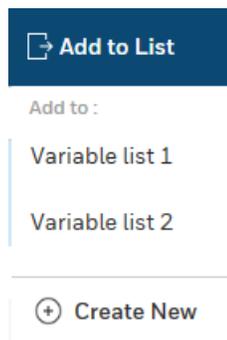
To add variables to a variable list

There are two ways to add variables to a variable list.

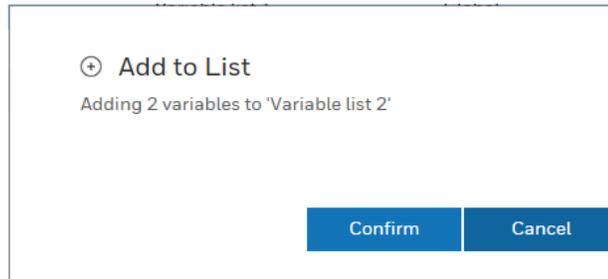
- From the Home Page, select the **Variables** tab. All imported variables are displayed in **Variables List**.
 1. Select the checkboxes of variables you want to add, the **Add to List** button appears.



2. Click the **Add to List** button, the existing variable lists are displayed.



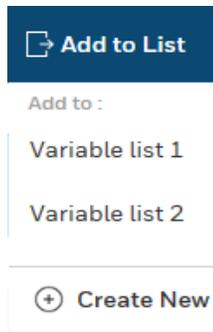
3. Select the target variable list, the **Add to List** dialog appears.



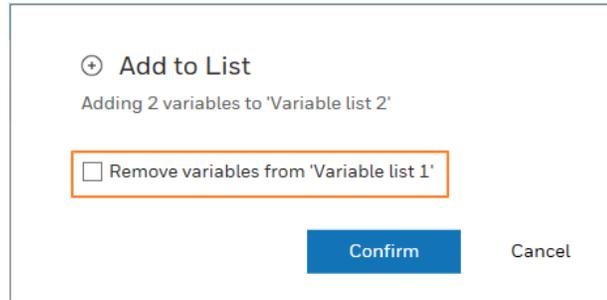
4. Click **Confirm**. The variables are added into the target variable list.
- From the Home Page, select the **Variables** tab, and select the variable list including the variables you want to add to another list.
 1. Select the checkboxes of variables you want to add, the **Add to List** button appears.



2. Click the **Add to List** button, the existing variable lists are displayed.



3. Select the target variable list, the **Add to List** dialog appears. A checkbox is provided to remove the selected variables from the current list if required.



4. Click **Confirm**. The variables are added into the target variable list.
 - If the checkbox is selected, the variables are removed from the current list at the same time.
 - If the checkbox is not selected, the variables are existing in both of variable lists.

Removing variables from a variable list

1. From the Home Page, select the **Variables** tab, and select a variable list.
2. Select the checkboxes of variables you want to remove. The **Remove** button appears.



3. Click the **Remove** button, the **Remove Variables** dialog appears to ensure that you want to remove the selected variables.
4. Click **Confirm**. The variables are removed from the variable list.

Configuring a table

A table can integrate multiple controllers and multiple variables based on a controller list and a variable list.

Creating a table

Before creating a table, at least one controller list and one variable list must be configured. See [Configuring a controller list](#) and [Configuring a variable list](#) for more information.

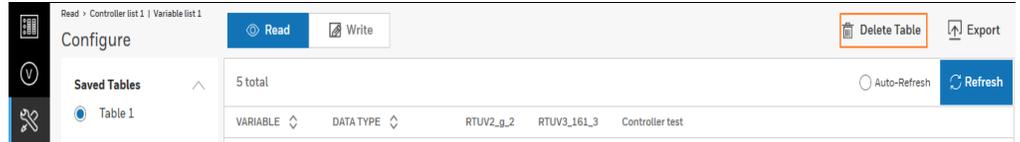
1. From the Home Page, select the **Configuration** tab.
2. Select a controller list and a variable list, then click **Save table**. The **Save to Table** dialog appears.
3. Enter a name for the table, and click **Save**. The table is added, and controllers and variables in the table appear on the right panel.

Renaming a table

1. From the Home Page, select the **Configuration** tab.
2. Select the table you want to rename, and click **Save table**. The **Save to Table** dialog appears.
3. Enter a new name for the table, and click **Save**.
A new table with the new name is created. You can delete the old table then.

Deleting a table

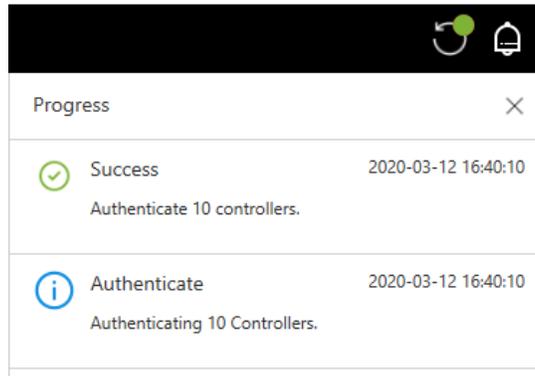
1. From the Home Page, select the **Configuration** tab.
2. Select the table you want to delete, and the **Delete Table** button appears.



3. Click the **Delete Table** button, and the **Delete Table** dialog appears to ensure that you want to delete the table.
4. Click **Confirm** to delete the table.

For the initial password of each user type, see "User privileges" in the *ControlEdge Builder User's Guide*.

4. Click **SIGN IN**. Click the Progress button to check if the authentication is successful or not.



Bulk reading variables

NOTE: String variables are not supported.

1. From the Home Page, select the **Configuration** tab.
2. Select a table, variables and controllers in the table are displayed on the right panel.
3. There are two ways to read values of variables.
 - Manual refresh
Click **Refresh** to display the latest values of variables manually.



NOTE: If **Auto-Refresh** is already selected, click it to switch to the manual refresh.

- Auto refresh
Click **Auto-Refresh**, and set a time interval to refresh values periodically.



NOTE: The default time interval is 60 seconds, and the minimum time interval is 10 seconds.

4. (Optional) Export a table

- a. Select the table you want to export, and the **Export** button appears.



- b. Click the **Export** button, and the **Save As** dialog appears.
- c. Select a destination location, and enter a name for the exported file.
- d. Click **Save**. A .csv file is exported and saved.

Bulk writing variables

This feature enable users to assign values to variables for controllers at the same time.

ATTENTION: Before the first write, you must read variables to get data types from the controllers. See Bulk reading variables for more information.

NOTE: String variables are not supported.

1. From the Home Page, select the **Configuration** tab.
2. Select a table, and click **Write**.
3. Change values for variables. There are three ways to change variable values:
 - Change one variable value for multiple controller
 - a. From the right panel, click the variable you want to change value. The following dialog appears.

AY[1]		
<input type="checkbox"/> CONTROLLER	Current Value	New Value
<input type="checkbox"/> BOC_RTUv2_01	0	0
<input type="checkbox"/> BOC_RTUv2_02	0	0
<input type="checkbox"/> BOC_RTUv2_03	0	0
<input type="checkbox"/> BOC_RTUv2_04	0	0
<input type="checkbox"/> BOC_RTUv2_05	0	0
<input type="checkbox"/> BOC_RTUv2_06	0	0
<input type="checkbox"/> BOC_RTUv2_07	0	0
<input type="checkbox"/> BOC_RTUv2_08	0	0
<input type="checkbox"/> BOC_RTUv2_09	0	0
<input type="checkbox"/> BOC_RTUv2_10	0	0
<input type="checkbox"/> BOC_RTUv2_11	0	0
<input type="checkbox"/> BOC_RTUv2_12	0	0
<input type="checkbox"/> BOC_RTUv2_13	0	0
<input type="checkbox"/> BOC_RTUv2_14	0	0
<input type="checkbox"/> BOC_RTUv2_15	0	0

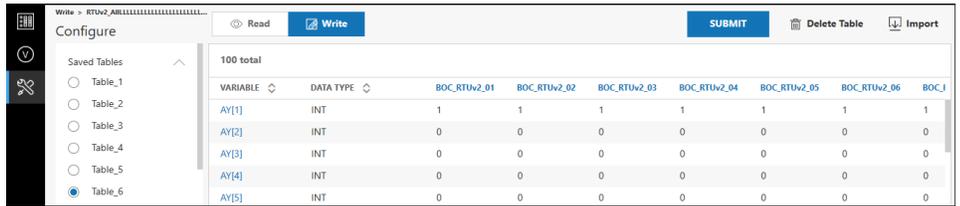
SAVE **Cancel**

b. Select the checkboxes of controllers, and enter a new value for the variable.

50 selected 50 items		
<input checked="" type="checkbox"/> CONTROLLER	Current Value	New Value
<input checked="" type="checkbox"/> BOC_RTUv2_01	0	0
<input checked="" type="checkbox"/> BOC_RTUv2_02	0	0
<input checked="" type="checkbox"/> BOC_RTUv2_03	0	0
<input checked="" type="checkbox"/> BOC_RTUv2_04	0	0
<input checked="" type="checkbox"/> BOC_RTUv2_05	0	0
<input checked="" type="checkbox"/> BOC_RTUv2_06	0	0
<input checked="" type="checkbox"/> BOC_RTUv2_07	0	0
<input checked="" type="checkbox"/> BOC_RTUv2_08	0	0
<input checked="" type="checkbox"/> BOC_RTUv2_09	0	0
<input checked="" type="checkbox"/> BOC_RTUv2_10	0	0
<input checked="" type="checkbox"/> BOC_RTUv2_11	0	0
<input checked="" type="checkbox"/> BOC_RTUv2_12	0	0
<input checked="" type="checkbox"/> BOC_RTUv2_13	0	0
<input checked="" type="checkbox"/> BOC_RTUv2_14	0	0
<input checked="" type="checkbox"/> BOC_RTUv2_15	0	0

SAVE **Cancel**

c. Click the "



- Change values of multiple variables for one controller
 - a. From the right panel, click the controller you want to change variable values. The following dialog appears.



- b. Select the checkboxes of variables, and enter a new value.

5. Click **Read** and click **Refresh**, new values are displayed.

NOTIFICATIONS

There are two notification buttons at the top right corner. One records status of the latest operations, and the other one records operation history.

- Progress button:

The button appears after you perform an operation. You can click it to view operation status, and it will disappear after you close the status window.

- : represents the operation is successful.
- : represents the operation is failed.

- Notifications button :

Click the button to view status of all operations.

There are three icons indicating different status.

Icon	Description
	Records the operation
	Records the successful result
	Records the failed result

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