OMRON

Programmable Terminal NA Series

Practice Guide
IAG Library for Simple Login to HMI

NA5-15□101□
NA5-12□101□
NA5-9□001□
NA5-7□001□

Practices

Guide

sysmac
always in control

V452-E1-01

■ Introduction

This guide provides the reference information when creating and using IAG objects. It does not provide safety information. Be sure to obtain the NA Series Programmable Terminal User's Manual, to read the safety and other information necessary to use, and to test the equipment sufficiently before actual use.

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- Unauthorized access.

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(b)　Usage outside of the usage conditions.

(c)　Usage of the product against the conditions described in "Note about Use"

(d)　Modification or repair made to the Omron product by other than Omron personnel.

(e)　Software program embedded by other than Omron or usage of such software.

(f) Cause which could not have been foreseen with the level of science and technology at the time of shipping from Omron.

(g)　Causes originating from other than Omron or Omron products (including causes such as, but not limited to, natural disasters).

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Contents

1 Related Manuals

No.	Model	Title
V117	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	Programmable Terminal NA-series Hardware USER'S MANUAL
V118	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	Programmable Terminal NA-series Software USER'S MANUAL
V119	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	Programmable Terminal NA-series Device Connection USER'S MANUAL
V120	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	Programmable Terminal NA-series STARTUP GUIDE
W504	SYSMAC-SE2□□□	Sysmac Studio Version 1 OPERATION MANUAL
V447	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	Programmable Terminal NA-series Practice Guide Demonstration Screen for Safety CPU

2 Precautions

(1) When building an actual system, check the specifications of the component devices of the system, use within the ratings and specified performance, and take safety measures such as safety circuits to minimize the possibility of an accident.

(2) For safe use of the system, get the manuals of the component devices of the system and check the information in each manual, including "Safety Precautions" or "Precautions for Safe Use" before usage.

(3) It is the responsibility of the customer to check all the laws, regulations, and standards that the system must comply with.

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(5) The information in this guide is current as of May 2019.
It is subject to change without notice because of product upgrade.

(6) This IAG library has been tested with the system configuration in 3-2 "System Configuration." However, Omron does not guarantee screen operations after embedding the IAGs.

Special information in this document is classified as follows:

Precautions for Safe Use

It describes precautions on what to do and what no to do to ensure safe usage of the product.

Precautions for Correct Use

It shows precautions on what to do and what not to do to ensure proper operation and performance.

Additional Information

It shows precautions on what to do and what not to do to ensure proper operation and performance.

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3 Overview

3-1 Overview

This guide provides the information about the IAG which enables simple and easy login for on-site operators when executing the login procedure for NA series HMI security setting.
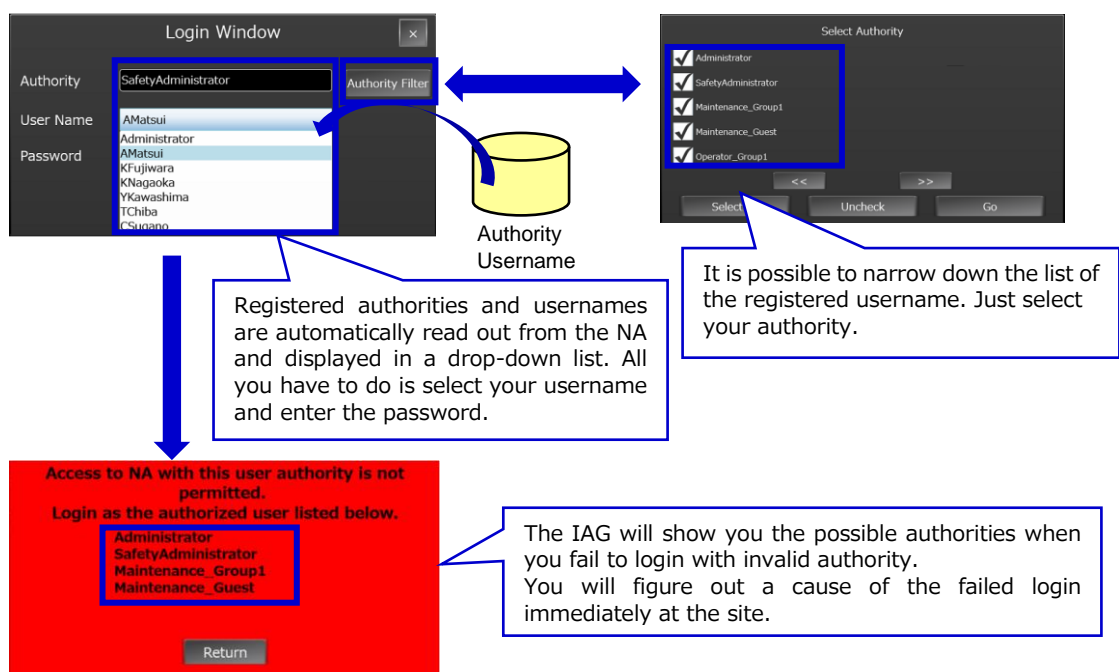
■ Standard Login to NA

An operator must remember his/ her username and password and enter both of them with the keyboard to login.

Login Window

User Name

Password

Login

You must enter your username and password for every login.
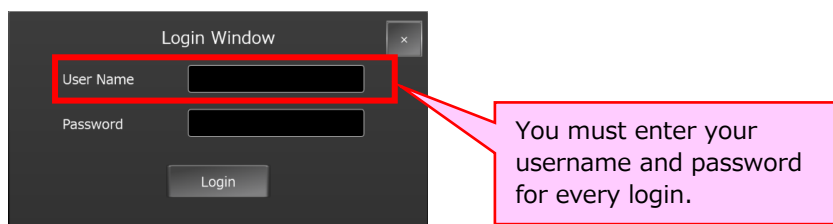
■ Login with IAG

The IAG reads the authorities and usernames registered on the NA and suggests candidates. All you have to do is select your username and type the password.
If many users have been registered, the Authority Filter makes it easy to select.
The IAG can show you the possible authorities when you fail to login with invalid authority.

Login Window

Authority   SafetyAdministrator   Authority Filter

User Name   AMatsui
             Administrator
Password   AMatsui
             KFujiwara
             KNagaoka
             YKawashima
             TChiba
             CSugano

Authority
Username

Select Authority

Administrator
SafetyAdministrator
Maintenance_Group1
Maintenance_Guest
Operator_Group1

<<   >>
Select   Uncheck   Go

It is possible to narrow down the list of the registered username. Just select your authority.

Registered authorities and usernames are automatically read out from the NA and displayed in a drop-down list. All you have to do is select your username and enter the password.

Access to NA with this user authority is not permitted.
Login as the authorized user listed below.

Administrator
SafetyAdministrator
Maintenance_Group1
Maintenance_Guest

Return

The IAG will show you the possible authorities when you fail to login with invalid authority.
You will figure out a cause of the failed login immediately at the site.

This guide describes details about the IAG objects that make up this function.

Object	Icon	Description
LoginWindowForUser	Login Window [×] Authority: SafetyAdministrator — Authority Filter User Name: AMatsui Password: Login	Registered user authority is verified at login. Login procedures are different according to the result of verification.
LoginButton		This object is used together with the object *LoginWindowForUser*. It is possible to set a behavior according to login condition.
LoginFeedBackButton		This object is used together with the object *LoginWindowForUser*. It behaves same as LoginButton. Also can control on/off of the Feedback Lamp of the Login Button.

The following two files contain those IAGs.

File	Icon	Description
GeneralLogin_IAG_7inch.iag	7/ 9- inch	
GeneralLogin _IAG_12inch.iag	12/ 15-inch	

Ask the Omron sales representative to get the files.

The description and introduction procedure about IAG objects are for 7-inch display. The contents except IAG objects are the same. When you create screens for 12-inch NA, the IAG objects in this document should be replaced as necessary.

3-2 System Configuration

The IAG objects were tested with the system configuration and versions below.
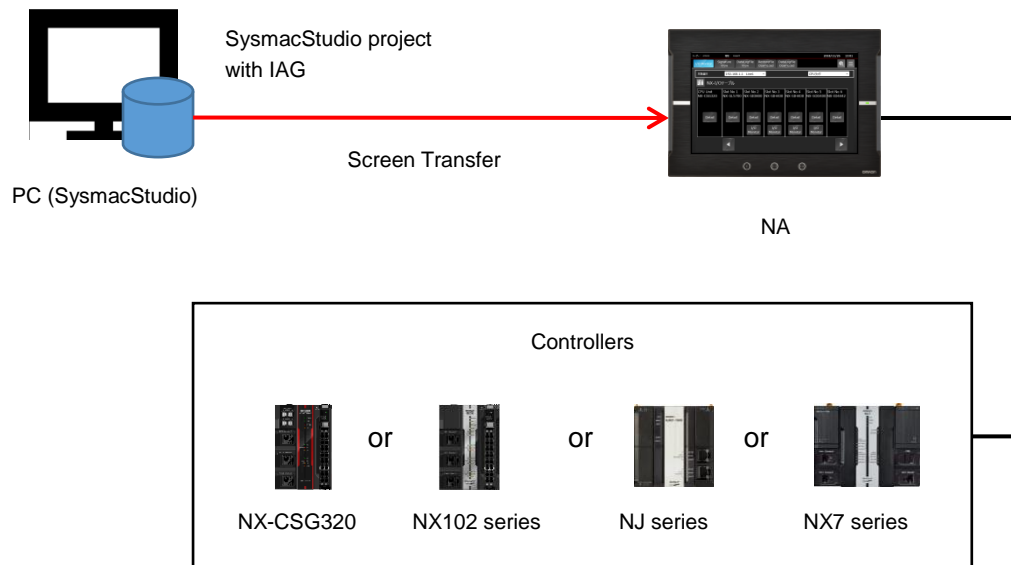
Tested versions are the following:

- NA OS : 7.2.1
- NA: 1.10
- SysmacStudio: 1.25
- Distribution file: 1.0*
- NX-CSG320: 1.00
- NX102-□□□□: 1.31
- NJ□□□-□□□□: 1.18
- NX7-□□□□: 1.18

*: See Chapter 4, "Library Version" for details.

📑   Precautions for Correct Use

Omron tested the operation of this library. However, its quality is not guaranteed because it is a sample product. Confirm that the library operates properly with your equipment before use.

4 Library Version

This chapter describes the versions of related items with IAG library.
You should check versions of the items listed in the table below before using the library.

Item	Description	How to Check the Version
Distribution file	The distributed IAG files have the library versions.	The version can be checked in the SysmacStudio IAG Collections Manager pop-up.
IAG library	Version of each IAG library. It manages specification change, bug correction, and others.	IAG project file editing function in SysmacStudio. The version can be checked as an IAG property in IAG Collections Manager. Also in Properties after located as an object.
NA	The version of the NA with which IAG has been created. IAG library is NOT applicable to older versions than that in this guide because supported functions depend on versions.	See [Minimum supported HMI version] in IAG Collections Manager.
NA OS	The version which NA runtime can operate. It differs according to the NA runtime version.	System Menu of NA. It will be checked if necessary when you upgrade NA runtime version of a project in SysmacStudio.

The versions of IAG library, NA runtime, and OS in "Practice Guide IAG Library to Visualize Integration of Control and Safety (V448)" are as the following.

Item	Version	Remarks
Distribution file	Same as the version of the IAG library	Filename extension is ".iag".
IAG library	Noted individually	Refer to Chapter5 "Properties".
NA	Ver. 1.10 and above	
NA OS	Ver. 7.2.1 and above	

5 Details of IAG Objects

5-1 LoginWindowForRole

5-1-1 Specifications

● External Specification

Object Name	LoginWindowForRole
Category	General_Login
Description	● Implement the login procedure to the NA. ● User authority which permitted to login is registered. ● Filtering by authority ● When an unauthorized user attempts to login, the error window appears notifying of the permitted authority.
Function	Login-permitted user authority is registered, and verified at the time of login. Authorities and usernames registered on the NA are read out to display candidate usernames. It enables an operator to select the username from the drop-down list and to enter only its password for login. Authority Filter can narrow down the username list. It makes easier to select users even when a lot of users are on the list.
Graphic	This IAG consists of three pop-ups.
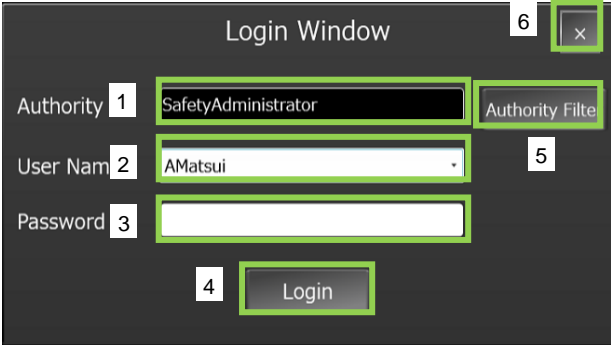
📖 Additional Information
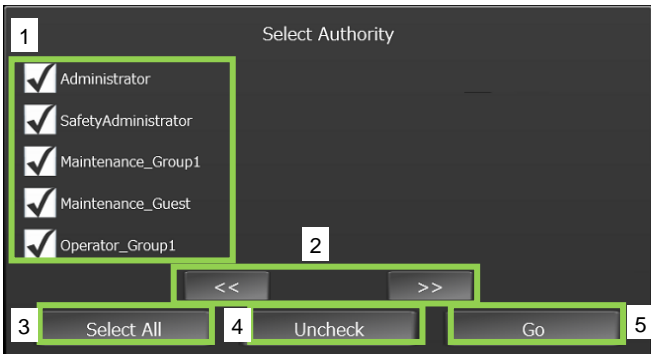
If you have already logged-in with the required authority, this IAG can skip the login procedure. The IAG should be used together with LoginButton (5-2) or LoginFeedBackButton (5-3).

See Chapter 6 "Appendix: How to Use IAG" for details.
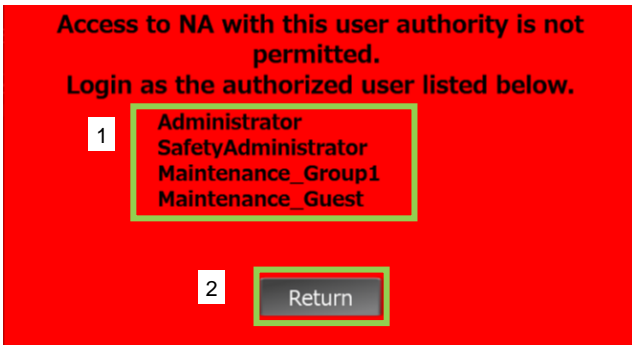
● Screen Specifications

Login	The main screen of this IAG. Username and password are entered in this screen to login.
14	

User I/F Specification		
No	Part	Description
1	Data Display	User authority which selected in [2] is displayed.
2	DropDown	List of registered users on NA is displayed. Select the user to login.
3	Data Edit	Enter the password of the user selected in [2].
4	Button	Login procedure is executed with the information entered in [2] and [3].
5	Button	Authority Filtering Screen appears when this button is pressed.
6	Button	The window is closed by this button.
Layout		
Property	Default	Description
Position (Left, Up)		Set in Property.
Size (Width, Height)		Set in Property.

Authority Filtering	In this pop-up, you can narrow down the user list to be displayed on the Login Window by filtering the users by authority.

User I/F Specification		
No	Part	Description
1	CheckBox	List of user authorities registered on NA is displayed here. Select authority you want to display on the Login Window.
2	Button	Display of user authority is switched.
3	Button	All authorities are selected by this button.
4	Button	All checked boxes are cleared by this button.
5	Button	Users are filtered by the selected authority, and after that, the window is switched to the Login Window.
Layout		
Property	Default	Description
Position (Left, Up)		Fixed
Size (Width, Height)		Fixed

Authority Error	This pop-up appears when the user cannot access to the NA with his/her authority after login.

User I/F Specification		
No	Part	Description
1	Data Display	List of user authorities which permitted to login
2	Button	The window is switched to the Login Window by this button.
Layout		
Property	Default	Description
Position (Left, Up)		Fixed
Size (Width, Height)		Fixed

● Properties

Property	Description	Input Mode	Input Range/ Data Type	Default
General				
Name	Object name. Must not be overlapped in a screen.	Direct input	Character string (1 to 127)	
Type	Object type. Not changeable.	-	-	
Version	IAG version	-	-	1.0.0.0
Publisher	IAG publisher	-	-	Omron Promotion Sample
Appearance				
Background Color	Background color of a page	Item selection Direct input	Color pallet Character string	Transparent[1]
Layout				
▼Position (Left , Top)	Position setting of object on a page.[2]	Direct input Spin button	Numeric Numeric	-
Left	Horizontal position (X-axis) of the top-left corner of an object on a page.	Direct input Spin button	Numeric Numeric	-
Top	Vertical position (Y-axis) of the to-left corner of an object on a page.	Direct input Spin button	Numeric Numeric	-
▼Size (Width, Height)	Object size setting.	Direct input Spin button	Numeric Numeric	（600,360）
Width	Width of object	Direct input Spin button	Numeric Numeric	600
Height	Height of object。	Direct input Spin button	Numeric Numeric	360
Input				
LoginableUserRole	User authority permitted to login	Variable specification	String(4)	(Blank)
Input/Output				
SelectRole	Authority being selected.	Variable specification[3]	Boolean(19)	(Blank)

Image

1: Transparent
2: The origin of coordinates locates at the top left corner of NA screen.
3: Allocated variables should be retentive.

● Events & Actions

This IAG can detect the event in the table below. Be sure to configure all events and actions in advance.

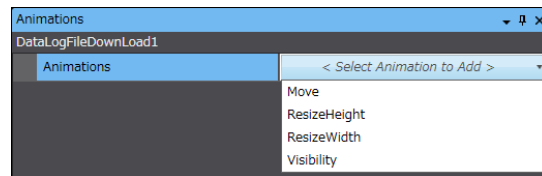Refer to Chapter 6 "Appendix: How to Use IAG" for details.

Event	Description
LoginSuccessful	Event that occurred when login is succeeded.

● Animations

Basic motions of animation can be defined.

Refer to "Animations" for details.
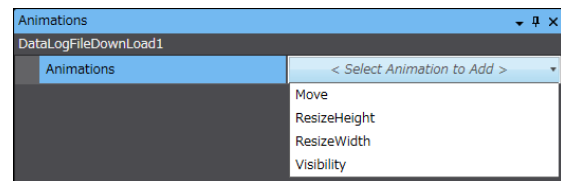
5-2 LoginButton

5-2-1 Specifications

● External Specification

Object Name	LoginButton
Category	General_Login
Description	When this button is pressed, the following processings are executed: ● Reading out login conditions of the NA. ● Checking login conditions to the designated authority: logged in or not logged in. Detecting the results as different events, and switching to the different pages according to the result.
Function	It makes possible to create an HMI application by using LoginWindowForRole (5-1) together: the application which can skip the login procedure if the user has already logged in with the required authority.
Graphic	This IAG consists of one part.

📖 Additional Information

See Chapter 6 "Appendix: How to Use IAG" for the information to use this IAG together with LoginWindowForRole (5-1).

● Properties

Property	Description	Input Mode	Input Range/ Data Type	Default
General				
Name	Object name. Must not be overlapped in a screen.	Direct input	Character string (1 to 127)	
Type	Object type. Not changeable.	-	-	
Version	IAG version	-	-	1.0.0.0
Publisher	IAG publisher	-	-	Omron Promotion Sample
Appearance				
Background Color	Background color of a page	Item selection Direct input	Color pallet Character string	Transparent[1]
Layout				
▼Position (Left , Top)	Position setting of object on a page.[2]	Direct input Spin button	Numeric Numeric	-
Left	Horizontal position (X-axis) of the top-left corner of an object on a page.	Direct input Spin button	Numeric Numeric	-
Top	Vertical position (Y-axis) of the to-left corner of an object on a page.	Direct input Spin button	Numeric Numeric	-
▼Size (Width, Height)	Object size setting.	Direct input Spin button	Numeric Numeric	（120,40）
Width	Width of object	Direct input Spin button	Numeric Numeric	120
Height	Height of object。	Direct input Spin button	Numeric Numeric	40
Input				
LoginableUserRole	User authority permitted to login	Variable specification	String(4)	(Blank)
Image				

1: Transparent
2: The origin of coordinates locates at the top left corner of NA screen.

● Events & Actions

This IAG can detect the events in the table below. Be sure to configure all events and actions in advance.
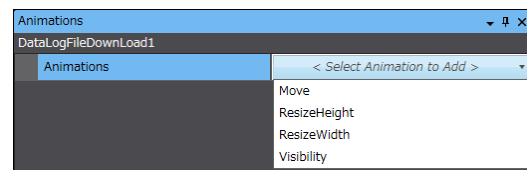
Refer to Chapter 6 "Appendix: How to Use IAG" for details.

Event	Description
ShowLoginWindow	Event occurs when this IAG part is touched without login.
ShowTargetWindow	Event occurs when this IAG part is touched with login.

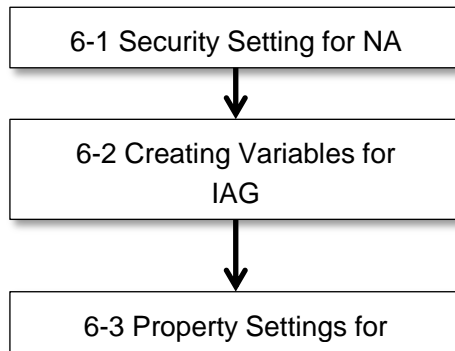● Animations

Basic motions of animation can be defined.

Refer to "Animations" for details.

5-3 LoginFeedBackButton

● External Specification

Object Name	LoginButton
Category	General_Login
Description	When this button is pressed, the following processings are executed: ● Reading out login conditions of the NA. ● Checking login conditions to the designated authority: logged in or not logged in. Detecting the results as different events, and switching to the different pages according to the result. ● Controlling on/off of the Feedback Lamp
Function	It makes possible to create an HMI application by using LoginWindowForRole (5-1) together: the application which can skip the login procedure if the user has already logged in with the required authority. The difference from LoginButton IAG is that this IAG can control on/off of the lamp.
Graphic	This IAG consists of one part.

📝 Additional Information

See Chapter 6 "Appendix: How to Use IAG" for the information to use this IAG together with LoginWindowForRole (5-1).

● Properties

Property	Description	Input Mode	Input Range/ Data Type	Default
General				
Name	Object name. Must not be overlapped in a screen.	Direct input	Character string (1 to 127)	
Type	Object type. Not changeable.	-	-	
Version	IAG version	-	-	1.0.0.0
Publisher	IAG publisher	-	-	Omron Promotion Sample
Appearance				
Background Color	Background color of a page	Item selection Direct input	Color pallet Character string	Transparent[1]
Layout				
▼Position (Left , Top)	Position setting of object on a page.[2]	Direct input Spin button	Numeric Numeric	-
Left	Horizontal position (X-axis) of the top-left corner of an object on a page.	Direct input Spin button	Numeric Numeric	-
Top	Vertical position (Y-axis) of the to-left corner of an object on a page.	Direct input Spin button	Numeric Numeric	-
▼Size (Width, Height)	Object size setting.	Direct input Spin button	Numeric Numeric	（120,40）
Width	Width of object	Direct input Spin button	Numeric Numeric	120
Height	Height of object。	Direct input Spin button	Numeric Numeric	40
Input				
Lamp	Lamp operating condition	Variable specification	Boolean	(Blank)
LoginableUserRole	User authority permitted to login	Variable specification	String(4)	(Blank)

Image

▼ **General**

Name	**LoginFeedBackButton0**
Type	General_Login_12inch.LoginFeedBackButton
Version	1.0.0.0
Publisher	Omron Promotion Sample

▼ **Appearance**

BackgroundColor	☐ Transparent

▼ **Layout**

► Position (Left,Top)	**110, 310**
► Size (Width,Height)	**160, 65**

▼ **Behavior (Input)**

Lamp	
LoginableUserRole	

1: Transparent
2: The origin of coordinates locates at the top left corner of NA screen.

● Events & Actions

This IAG can detect the events in the table below. Be sure to configure all events and actions in advance.

Refer to Chapter 6 "Appendix: How to Use IAG" for details.

Event	Description
ShowLoginWindow	Event occurs when this IAG part is touched without login.
ShowTargetWindow	Event occurs when this IAG part is touched with login.

● Animations

Basic motions of animation can be defined.
Refer to "Animations" for details.

6 Appendix: How to Use IAG

Design with the IAG follows the flowchart below.
Prepare the sample project file of login screen and add this IAG to it in advance.

```
┌─────────────────────────────────┐
│   6-1 Security Setting for NA    │
└─────────────────────────────────┘
                 │
                 ▼
┌─────────────────────────────────┐
│   6-2 Creating Variables for     │
│              IAG                 │
└─────────────────────────────────┘
                 │
                 ▼
┌─────────────────────────────────┐
│   6-3 Property Settings for      │
└─────────────────────────────────┘
```

In this chapter, you can learn how to design screens with the sample.

● Sample Screen/ Screen Transition
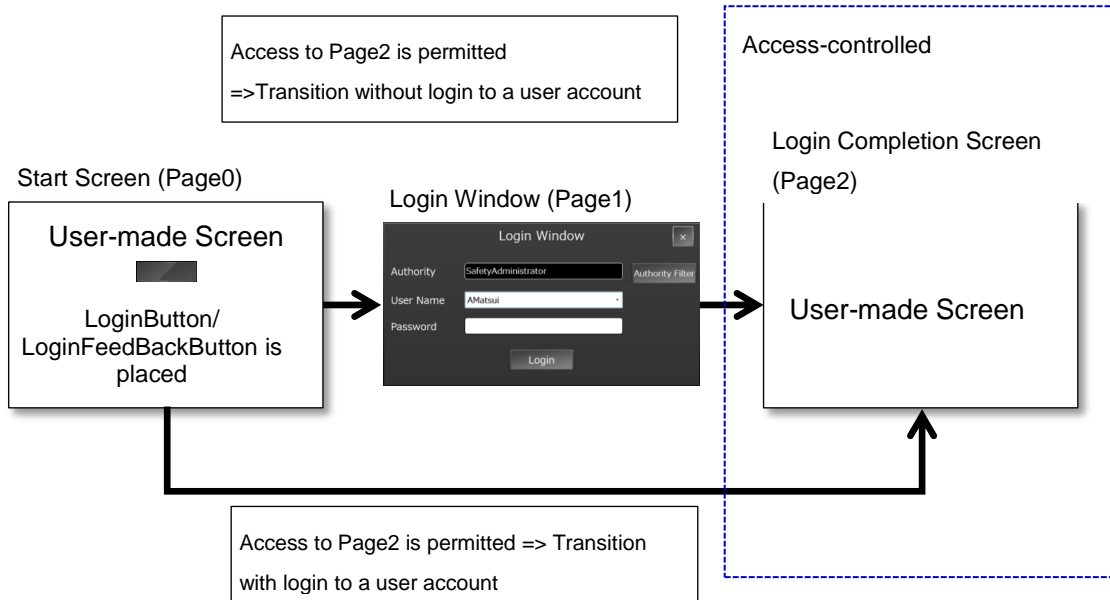
● Access Control to HMI for the Sample Screen (Authority and Username)

Username	Authority	Password	Page2 Access Right	Remarks
Administrator	Administrator	omron123	Yes	Permitted to access all the pages by default.
AMatsui	SafetyAdministrator	omron123	Yes	Safety program administrator
KFujiwara	Maintenance_Group1	omron123	Yes	PIC of the maintenance department
KNagaoka	Maintenance_Group1	omron123	Yes	PIC of the maintenance department
YKawashima	Maintenance_Guest	omron123	No	Subcontractor of the maintenance department
TChiba	Operator_Group1	omron123	No	Machine operator
CSugano	Operator_Group1	omron123	No	Machine operator
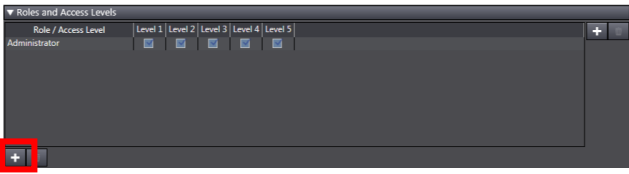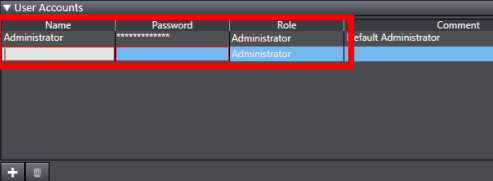
📑 Additional Information

If you log in to the NA every time from Page0 regardless of prior login conditions, switch the page to Page0 with the normal Button object, not using the LoginButton/ LoginFeedBackButton IAG.

6-1 Security Setting for NA

You must set the security setting on the NA before using this IAG.
The following is the security setting procedure.

1.	Double-click [Configurations and Setup] – [Security Settings] in Multiview Explorer.	
2.	Click the [+] button enclosed in a red square, in [Roles and Access Levels].	
3.	Enter an authority title and click to check the access level boxes.	
4.	Click the [+] button enclosed in a red square, in [User Accounts].	
5.	Enter Name, Password, and Role (authority).	
6.	The right illustration is a sample setting. See "Access Control to HMI for the Sample Screen" for details.	

6-2　Creating Variables for IAG

You need to assign NA global variables to each IAG input/output variables before using this IAG.

The global variable setting procedure for NA is described in this section.

Variable allocation for the sample screen

Variable	Data Type	Default Value	Retention	Remarks
LoginableUserRole	String(4)	New String() {'Administrator', 'SafetyAdministrator', 'Maintenance_Group1', 'Maintenance_Guest', ''}	inactivated	Assigned to all the IAG input variables. Name of the authority that the destination page permits to access is designated in character string as the default.
SelectRole	Boolean(19)	none	activated	Assigned to the input/output variable of the LoginWindowForRole IAG. It is the condition flag for the authority selected in the Authority Filtering Window. Access from other than IAG is prohibited.

1. Double-click [HMI] – [Global Variables] in the Multiview Explorer.	
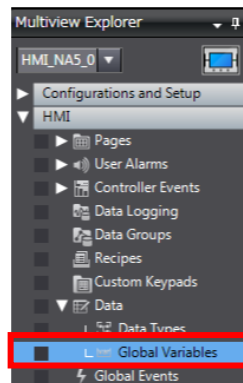
2. Create a variable according to the right illustration. Variable name: LoginableUserRole⌟ Data type: String(4) Default: New String() {'Administrator', 'SafetyAdministrator', 'Maintenance_Group1', 'Maintenance_Guest', ''} Retention: inactivated Variable name: SelectRole Data type: Boolean(19) Default: none Retention: activated	

6-3 Property Settings for IAG

The following is the procedure to place the necessary IAG on the screen and to set its properties.

1. Create the pages under [HMI] – [Pages] in the Multiview Explorer. See the right illustration.
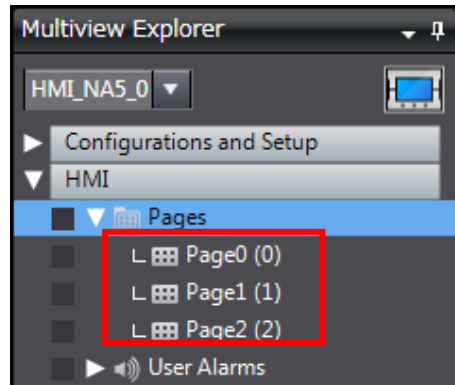
2. Double-click Page0 to open.
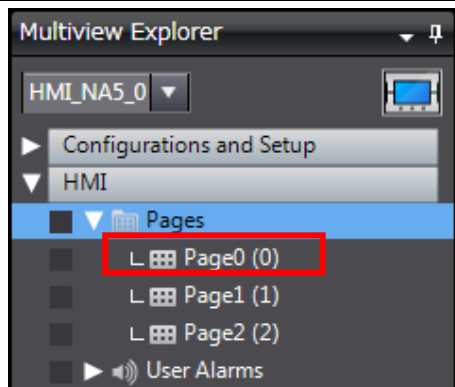
3. Place a LoginButton part on the screen.
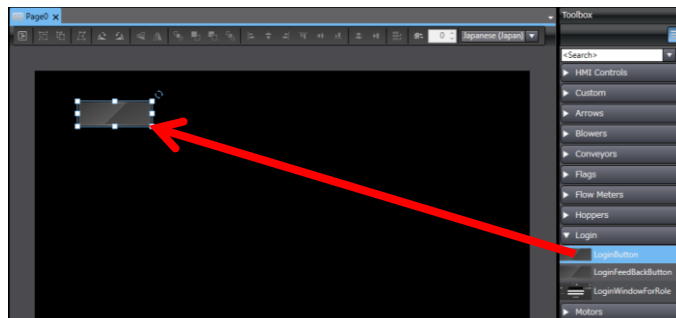
4. Enter *LoginableUserRole* (global variable) in the input variable LoginableUserRole, a property of the IAG part.	
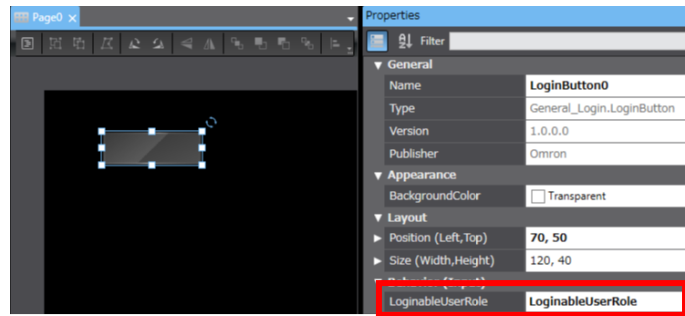
5. Configure Events and Actions as shown in the right.
 	
Event [0]:
  ShowLoginWindow
Action: ShowPage
PageName: Page1
 	
Event [1]:
  ShowTargetWindow
Action: ShowPage
PageName: Page2	
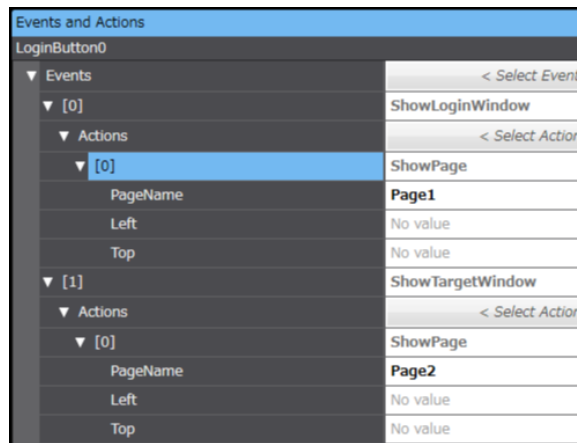
6. Double-click Page1 to open.	
7. Select "popup" for Page Type of Page1.	
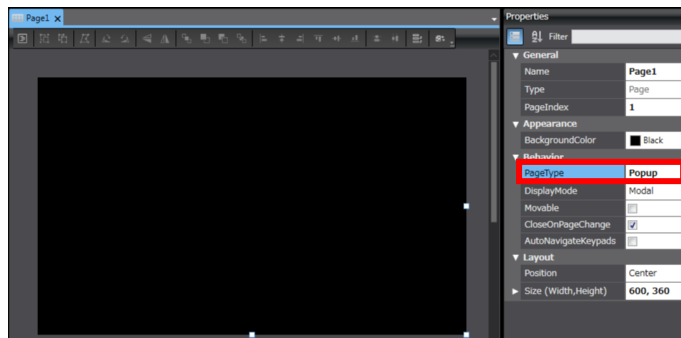
8. Set the screen size of Page1: width is 600, height is 360.	
9. Put the LoginWindowForUser part on the screen.	
10. Enter the global variable *LoginableUserRole* in the Input box (LoginableUserRole). Enter the global variable *SelectRole* in the In/Out box (SelectRole).	
11. Configure Events and Actions of the IAG part as shown in the right. Event [0]: LoginSuccessful Action [0]: ShowPage PageName: Page2	
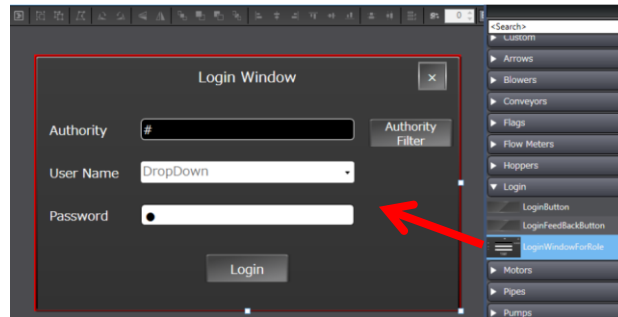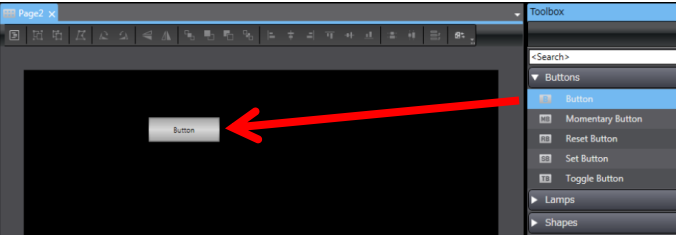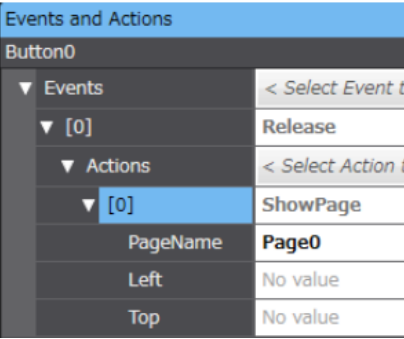
Login Completion Screen (Page2, in this sample) does not require settings for login.
For your reference, the screen building procedure to switch Page2 to Page0 is shown below.

1.	Double-click Page2 to open.	
2.	Put a Button part on the screen.	
3.	Configure Events and Actions for the Button part as shown in the right. Event [0]: Release Action [0]: ShowPage PageName: Page0	

Revision History

Revision Code	Date	Revision Description
01	May 2019	Original production

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