

Cognex Designer Advanced – User Control & Audit



COGNEX

Objective

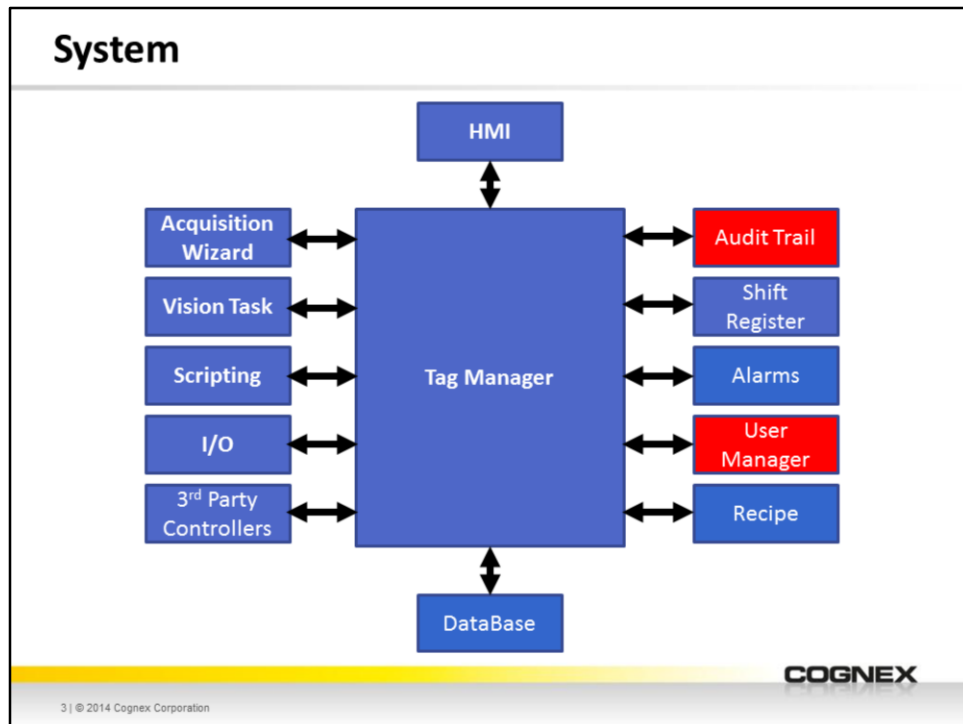
Cognex Designer Advanced – User Control & Audit

- Explore aspects of User Control
- Learn about the Inactivity Monitor
- Understand about the Audit Trail

❖ **Lab:** Create some users and control the access to the system

COGNEX

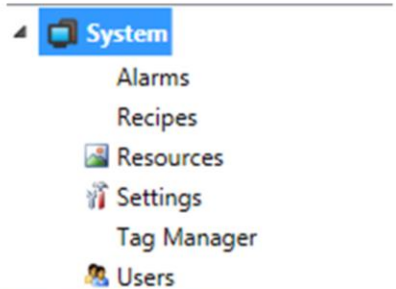
2 | © 2014 Cognex Corporation



Cognex Designer gives you the ability to use alarms, user access lists, and recipes through the use of Systems.

Systems

- **Alarms:** Flags of issues in the program
- **Recipes:** Change Tag values
- **Resources:** Add images or video
- **Settings:** Miscellaneous Control , Audit trail
- **Tag Manager:** User Defined tags
- **Users:** User Management



COGNEX

4 | © 2014 Cognex Corporation

System gives access to:

- Alarms: Flags of issues in the program
- Recipes: Different Tag values based off of a collection of saved values
- Resources: Ability to add images or video to the HMI
- Settings: Control over the program and audit trail
- Tag Manager: Access to the User Defined tags
- Users: Privileges based on set of given criteria

Users –Standard Mode

Explorer

System

Alarms

Recipes

Resources

Settings

Tag Manager

Users

Ability to set Privileges

User Configuration

Authentication Mode: Standard Configure

Username	Password	CurrentAccessLevel	CanSaveImages	Department	TrustLevel
Admin	0		<input type="checkbox"/>		0
RobertG	0		<input type="checkbox"/>	Training	3
LeoD	0		<input checked="" type="checkbox"/>	Engineering	1
MiguelP	0		<input type="checkbox"/>	Management	5
Operator	0		<input checked="" type="checkbox"/>	Operations	10

Define User Properties

Accept Cancel

Scripting access:

Users.Login(username, password)

Users.CurrentUsername

Users.CurrentAccessLevel

COGNEX

5 | © 2014 Cognex Corporation

In Standard mode, the user can define any number of users and assign each an access level from (1 - Operator to 5 - Administrator).

To log on, a User can use:

Users.Login(username, password): Attempt to log in with a specified user name/password.

Once a user is logged in, The Users.CurrentUsername and Users.CurrentAccessLevel tags are updated for the newly logged in user.

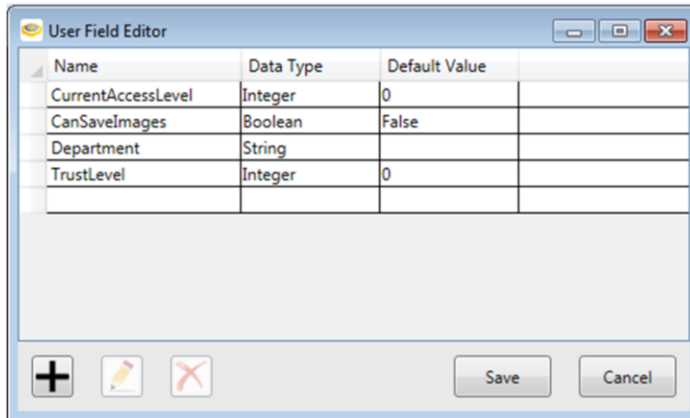
Users can be added and removed at runtime through the provided functions:

- Users.AddUser(username,password,accesslevel): Add a new user
- Users.DeleteUser(username): Remove a user
- Users.UserExists(username): Check if a user exists.

Add Fields

Default – CurrentAccessLevel

- Add additional fields / flags



The User Field Editor dialog box contains a table with the following data:

Name	Data Type	Default Value
CurrentAccessLevel	Integer	0
CanSaveImages	Boolean	False
Department	String	
TrustLevel	Integer	0

At the bottom of the dialog, there are three icons: a plus sign (+), a pencil (edit), and a red X (delete). To the right of these icons are two buttons: 'Save' and 'Cancel'.

COGNEX

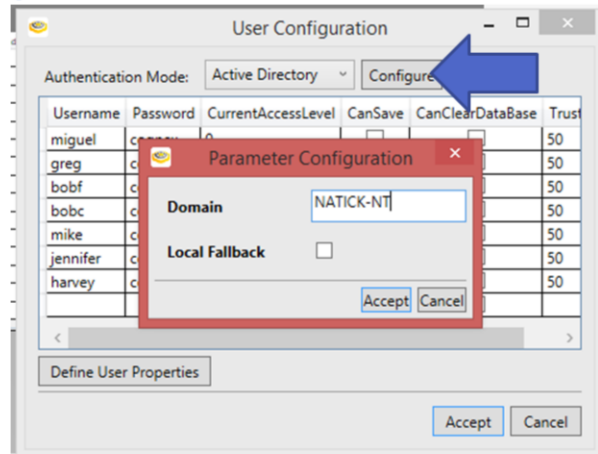
6 | © 2014 Cognex Corporation

The default field added to the User Field Editor is the CurrentAccessLevel parameter. It runs from access level 1 - Operator to 5 – Administrator.

You can add additional fields that will allow flexibility to the application such as whether the user is able to save or load a file, or even have access to various pages.

Active Directory

Use Corporate Data



COGNEX

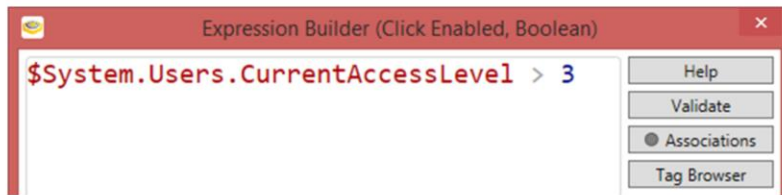
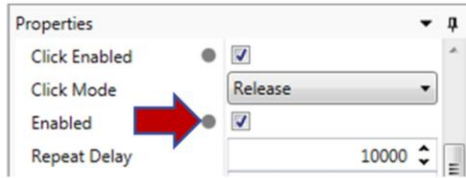
7 | © 2014 Cognex Corporation

When using Active Directory as the security mode, the user name and password will be checked against the domain.

The custom user fields will now attempt to read their data from the user's profile on the Active Directory server. The Name field is actually a property of the user's profile, so it will be automatically populated. The IsMemberOf keyword will iterate through the Active Directory's list of groups and check if the user is a member.

Edit Button for User Level

Show / Hide a Button



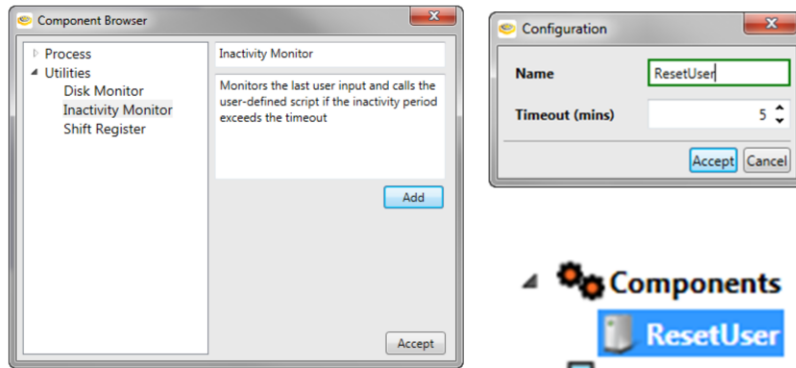
8 | © 2014 Cognex Corporation

COGNEX

By referencing the CurrentAccessLevel to the enable property of a button, you can hide or show the button given the user level of the person logged in. This may be a way to limit access to parameter settings to higher leveled users as opposed to everyone.

Automatically Resetting User


Use of the Inactivity Monitor with User



We can now use the Inactivity Monitor Component to reset the user if no action user input has taken place in the application.

Create a new Inactivity Monitor by selecting Components in the Explorer list. Select the desired inactivity period.

Timeout Expired Script



Components

Reset

Configure

Delete

Rename

Scripts

Timeout Expired

Script for Timeout

- Login as "default"

Reset Save As TimeoutExpired X

```
public static void TimeoutExpire  
1 $System.Users.Login("default", "");
```

COGNEX

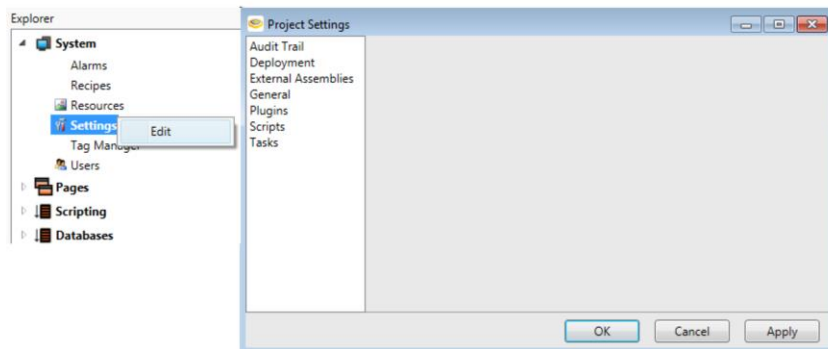
10 | © 2014 Cognex Corporation

In the Script for the Timeout Expired, add code that logs in a user ("default" in this case with no password) so that the system cannot be accidentally left in Admin mode if the administrator walks away and accidentally forgets to log out.

Settings – Audit Trail

Project Setting:

- Track Changes
- Define directory paths and project dlls
- Enable / disable plug-ins



COGNEX

11 | © 2014 Cognex Corporation

- Audit Trail can be used to monitor changes in the application and environment
- General allows user to user to define directory paths as well as passwords to the project
- Plugins shows which controls are available and being used. Is currently ReadOnly though I thic it will go back to being selectable.
- Scripts allows user to add other dlls to be used at the project level as opposed to just the individual script level
- Tasks allows you to state the garbage collecting (GC) frequency of the thread. It is set to 5 by default.

AuditTrail

Enable Auditing

The screenshot shows a 'Project Settings' dialog box with the 'Audit Trail' tab selected. The 'Enable Audit Trail' checkbox is checked. The 'Selected Database' dropdown is set to 'AuditDB', the 'Selected Table' dropdown is set to 'AuditTrail', and the 'User Tag' text box contains 'System.Users.CurrentUsername'. There are 'OK', 'Cancel', and 'Apply' buttons at the bottom of the dialog.

COGNEX

12 | © 2014 Cognex Corporation

The Audit Trail is able to be enabled or disabled through the checkbox.

- Selected Database: Created to hold the information coming from the Audit Trail
- Selected Table: The particular table in the database to be used for the Audit Trail – New Table just for Audit can be created by selecting “New”
- User Tag: The base tag that it is monitoring

Database

AuditTrail Table

Name	DataType
Timestamp	DateTime
Username	String
Action	String
Message	String

Data can be added via script:

```
$System.AuditTrail.Log("Message", "Action");
```

```
public static void ChangeLanguage(string Argument)
1 $param.SelectedLanguage = Argument;
2 $System.AuditTrail.Log("Language changed to " + Argument, "System change");
```

COGNEX

13 | © 2014 Cognex Corporation

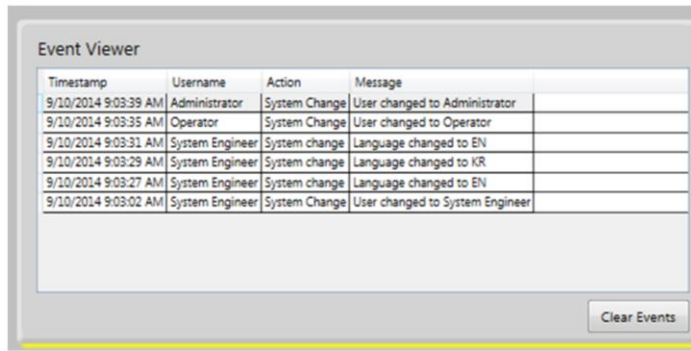
The box shows the different values being pulled into the database for the auditing.

Data can also be added programmatically by calling
\$System.AuditTrail.Log("Message", "Action").

When writing to the Audit Trail, time and user will always be captured. You need to add the message and action type.

Display the Audit Trail

Use a Table to Display the Query on the HMI pages



The screenshot shows a window titled "Event Viewer" containing a table with the following data:

Timestamp	Username	Action	Message
9/10/2014 9:03:39 AM	Administrator	System Change	User changed to Administrator
9/10/2014 9:03:35 AM	Operator	System Change	User changed to Operator
9/10/2014 9:03:31 AM	System Engineer	System change	Language changed to EN
9/10/2014 9:03:29 AM	System Engineer	System change	Language changed to KR
9/10/2014 9:03:27 AM	System Engineer	System change	Language changed to EN
9/10/2014 9:03:02 AM	System Engineer	System Change	User changed to System Engineer

Below the table is a "Clear Events" button.

COGNEX

14 | © 2014 Cognex Corporation

Create a query for the AuditTrail table and the results can be viewed in the HMI using a table.

Summary

User Control & Audit

- Discovered aspects of User Control
- Explored the Inactivity Monitor
- Learned about the Audit Trail



COGNEX

15 | © 2014 Cognex Corporation