**u7ide Getting Started**

**– Creating a new project**

– Start program u7;

– Go to to “Project” tab page (this is default tab page, if program is just started it is not required step) then click button “New Project..”, the window “Create New Project” will appear;

– Enter desired project name, template is [CUSTOMER]\_[UNIT][SYSTEM][NO]. Example: project name is KZNPP\_6SDS1, customer Kozloduy Nuclear Power Plant (KZNPP), Unit 6, Shut Down System 1 (SDS1);

– Enter the project description;

– Enter and confirm password for user Administrator, in case of too weak password the system will prompt to enter another password;

– Press “Ok”, the new project will be created, it will be upgraded to the latest version and will appear in the project list;

**– Opening project**

– To open project, click on it and press “Open Project” button (or double click on project in the project list), the program will ask to enter username and password;

– In the field “Username” enter “Administrator”, fill the password section with the pointed password during creation steps (user “Administrator” is automatically created during initializing of a new project);

– Press “OK”, in case of correct data the project will be opened and main window will change its caption to “u7 - kznpp\_sds1 - Administrator”;

**– Equipment Configuration**

**–** Go to “Equipment” tab page, work area of this tab page consists of Object Tree (left side) and Property Grid (right side);

– Any project must contain at least one system, to add a system left click on Object tree, select “Add Object –> System” from the context menu, the new system will be added;

– Any object has identifier (EquipmentID), the new system is created with the default ID “SYSTEMID”, change EqipmentIDTemplate property to a desired one (for example SDS1 for Shut Down System 1), to change any object's property press on object, press on a property value, enter a new value, press Enter;

– Change system caption (for example: Shut Down System 1) ;

– Add two racks to the system, right click on the system, select “Add Obejct → Rack”, the new rack will be added;

– Set EqipmentIDTemplate properties for new racks, for instance “$(PARENT)\_RCH0” and “$(PARENT)\_RCH1”. Note – some property fields may contain macroses like “$(PARENT)”, in the EquipmentID property this part of the value is changed to corresponding value, thus EqipmentIDTemplate value ”$(PARENT)\_RCH0” changes to EquipmentID value “SDS1\_RCH0” as the parent for the rack is system with StrID “SDS1”;

– Set Caption for the new racks, for instance “SDS Rack 0” and “SDS Rack 1”;

– Add Chassis to both racks. Right click on rack, select “Add Object → Chassis”, set EqipmentIDTemplate and Caption for chassis, for instance “$(PARENT)\_CHS”;

– Change the “Place” property of chassis to 0;

– At this moment everything is ready for adding modules to chassis, it is considered that both racks should contain next modules in their chassis:

Place 0: LM-1 (Logic Module);

Place 1: DIM (Discrete Input Module);

Place 2: DOM (Discrete Output Module);

Place 3: AIM (Analogue Input Module);

Place 4: AOM (Analogue Output Module);

Place 13: OCM (Optical Connection Module);

– To add module to chassis, select chassis, right click on it and select “Add From Preset...” item. “Choose Preset” dialog will appear, select module “LM-1” from the list;

– Set property “LMNumber“ for module LM-1 in Rack 0 to value 1;

– Set property “LMNumber“ for module LM-1 in Rack 1 to value 2;

– Add module DIM, set field “Place“ to 1;

– Add module DOM, set field “Place“ to 2;

– Add module AIM, set field “Place“ to 3;

– Add module AOM, set field “Place“ to 4;

– Add module OCM, set field “Place“ to 14;

– At this point minimum hardware configuration is done, project contains:

system SDS1;

rack SDS1\_RCH0;

chassis SDS1\_RCH0\_CHS;

module SDS1\_RCH0\_CHS\_MD00 (LM-1);

module SDS1\_RCH0\_CHS\_MD01 (DIM);

module SDS1\_RCH0\_CHS\_MD02 (DOM);

module SDS1\_RCH0\_CHS\_MD03 (AIM);

module SDS1\_RCH0\_CHS\_MD04 (AOM);

module SDS1\_RCH0\_CHS\_MD13 (AOM);

module SDS1\_RCH0\_CHS\_MD14 (OCM);

rack SDS1\_RCH1;

chassis SDS1\_RCH1\_CHS;

module SDS1\_RCH1\_CHS\_MD00 (LM-1);

module SDS1\_RCH1\_CHS\_MD01 (DIM);

module SDS1\_RCH1\_CHS\_MD02 (DOM);

module SDS1\_RCH1\_CHS\_MD03 (AIM);

module SDS1\_RCH1\_CHS\_MD04 (AOM);

module SDS1\_RCH1\_CHS\_MD14 (OCM);

– To add inputs from module DIM to Application Signals right click on DIM and choose “Add Inputs/Outs to App Signals”, this operation will add Application Signals connected to modules inputs or outputs;

– The “Application Signals” tab page will appear, the list of signals which can be used for drawing Application Logic Schemes will be shown, besides inputs and outputs list contains validity signals for them. Filter mask field will be set to show only added signals from DIM, “SDS1\_RCH0\_CHS\_MD01\_\*”;

– Go back to “Equipment” tab page and perform operation of adding application signals for modules DOM, AIO, AOM (left click on module and choose “Add Inputs/Outs to App Signals”);

**– Application Signals**

– Go to “Application Signals” tab page. The list of added signals will be shown;

– To filter signals by types and identifiers, use combo boxes and mask field above the signal list. Mask can contain “\*” and “?” symbols. To apply the mask, use “Apply” button;

– To edit signal properties, double click the left mouse button on the necessary signal. “Signal properties editing” dialog will appear.

**– Application Logic Schemes**

– Go to “Application Logic” tab page, it has control tab page and schemes list (empty now);

– Right click on scheme list control, select “Add File...”. Program will ask to set scheme properties, set “AppSchemaID” to TESTLOGIC, set field “Caption” to “Test Logic”, press OK, the new Logic Scheme will be added to the list;

– To open scheme for editing it must be checked out for edit, as it is just created it is in state Checked Out;

– To open scheme double click it on list, the new tab with the empty scheme will be opened, it will have caption “#TESTLOGIC” which is the schemes StrID;

– All Application Logic Schemes must be tied up to specific Logic Modules (LM-1) where this logic will be executed, this is done by setting “EquipmentIDs” property for Logic Scheme;

– To set up link between Application Logic Scheme and Logic Module, right click on Logic Scheme drawing area, select “File → Properties...”, set property “EquipmentIDs” to Logic Module EquipmentID (SDS1\_RCH0\_CHS\_MD00);

– At this point everything is ready to draw Application Logic, any logic should contain input and output signals, logic elements and links, in the next steps simple logic scheme with two inputs, logic “AND” and output will be created;

– To add input item, right click on scheme, select “Add Item → Input”, put item on scheme;

– For all input and output items must be assigned Application Signal, select Input item, right click on it, select “Properties...”, set property “AppSignalIDs” to “#SDS1\_RCH0\_CHS\_MD01\_CTRLIN\_INH01A”, what is input 1 for DIM module;

– Scheme navigation tips:

To Zoom In/Zoom Out, use mouse wheel or press Ctrl + Plus, Ctrl + Minus;

To adjust scheme position while it is zoomed in, press and hold mouse wheel and move it;

To copy item, select it and drag it with pressed Ctrl;

– Add one more Input item and set ”AppSignalIDs“

for it to “#SDS1\_RCH0\_CHS\_MD01\_CTRLIN\_INH02A” what is input 2 for DIM module;

– Add logical “AND” item, right click on scheme, select “Add Item → FBL Element”, Select “and” from the logical element list, press “OK”, put item on scheme;

– Connect pins between items with Link, right click on scheme, select “Add Item → Link”, press and hold left mouse button on one pin, move mouse to the destination pin, release button, to set custom link path do not releasing left button do right click;

– Add Output item, set “AppSignalIDs” fro it to “#SDS1\_RCH0\_CHS\_MD02\_CTRLOUT\_OUT01”, what is discrete output 1 in module DOM;

– Link output item to logical “and” output pin;

– Save Scheme with Ctrl + S;

**– Editing connections**

– It is considered that optical port 2 in OCM in Rack 0 is connected to optical port 2 in OCM in Rack 1;

– Choose “Optical Connections Editor...” in “Tools” menu. The connections editing dialog will appear;

– Click “Check Out” button, then click “Add”. A “Newconnection” item will appear in the list;

– Double click the left mouse button on it. Set ConnectionID field to “RACK0RACK1”. Set Port1EquipmentID field to “#SDS1\_RCH0\_CHS\_MD14\_OPTOPORT2”, Port2EquipmentID field to “#SDS1\_RCH1\_CHS\_MD14\_OPTOPORT2”;

– Click “OK” to save changes;

**– Building Project**

– Go to “Build” tab page, press “Build” button;

– Build will be started, output log window will show the build process;

– All warning messages have orange colour, error messages re red;

– Build process should be done with the only warning which inform that in case of Debug build, workcopies of files can be used instead of fixed changes;

– The result of build is a set of output files:

Application Logic files;

Module Configuration files;

Reports;

Log file;

etc.

– Application Logic and Module Configuration can be written to Logic Module, after start this module executes new logic which was drawn in Application Logic Scheme editor.