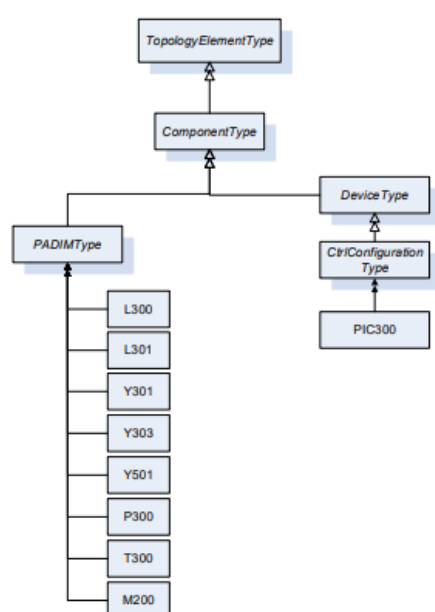


# ELEC-E8113 OPC UA Teamwork

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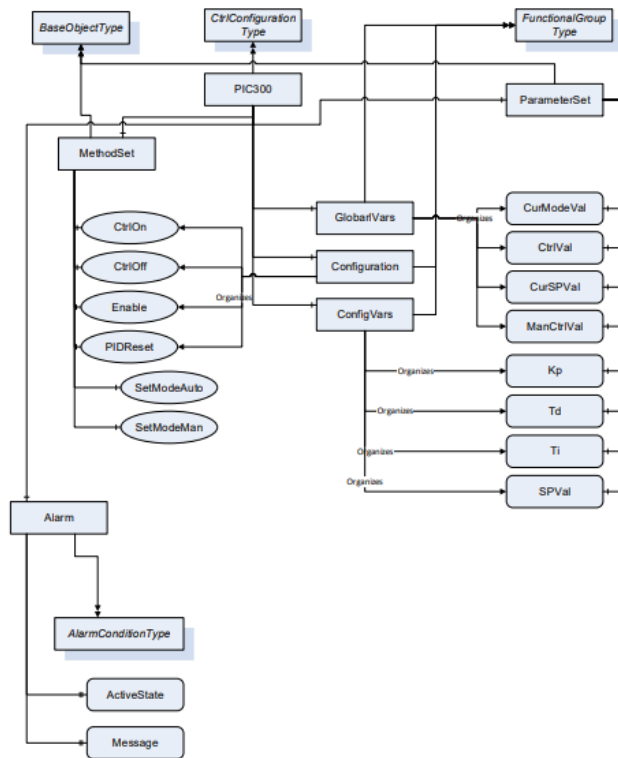
High level model of our Address space implemented to the AppServer of our OPC UA teamwork is shown in Figure 1. Address space is divided to eight PADIMType-objects and one CtrlConfigurationType-object. These nine objects represent different devices present in given DemoServer of the teamwork. Variables present in DemoServer are mapped in these objects. Definition of PADIMType is documented in OPC UA for Process Automation Devices Companion Specification. Definition of CtrlConfigurationType is documented in OPC UA for Programmable Logic Controllers base on IEC61131-3. All the devices include OPC UA Method-objects and OPC UA Alarm-objects. These are defined in OPC UA Specification, Part 3: Address Space Model and OPC UA Specification Part 9: Alarms & Conditions respectively.



**Figure 1.** Top level of our Address space.

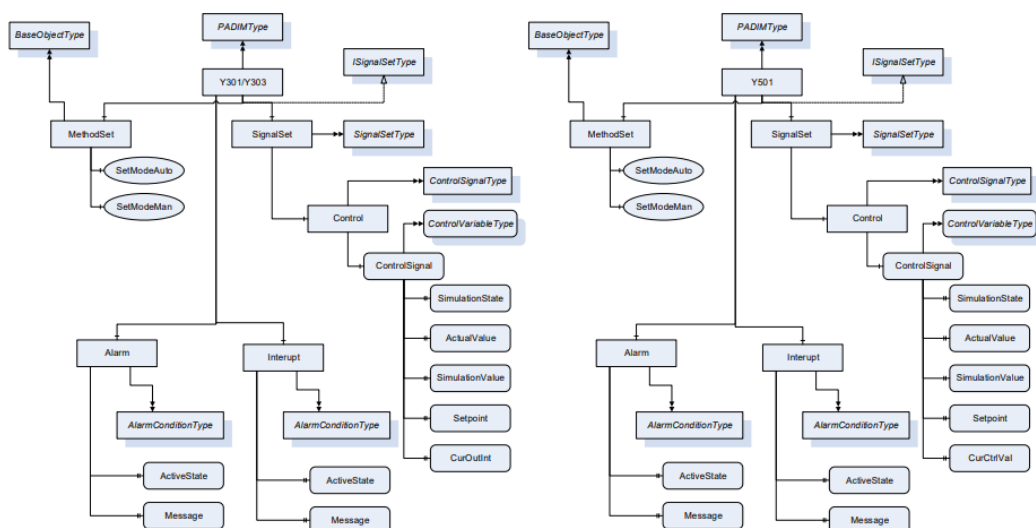
More detailed models of the Address space are presented in Figures 2-5. All PADIMType-objects have SignalSet-object, MethodSet-object, SignalSetType-interface, and one or two alarm-objects. CtrlConfigurationType-object includes MethodSet-object, ParameterSet-object, GlobalVars-object, Configuration-object, ConfigVars-object, and Alarm-object.

PIC300-object with CtrlConfigurationType is shown in Figure 2. MethodSet-object includes CtrlOn, CtrlOff, Enable, PIDReset, SetModeAuto, and SetModeMan methods. These represent DemoServer variables with same names. First four of these methods are organized by Configuration-object. PIC300-object includes ParameterSet-object that has variable CurModeVal, CtrlVal, CurSPVal, ManCtrlVal, Kp, Td, Ti, and SPVal. These represent DemoServer variables with same names. Variables of ParameterSet-object are organized by GlobalVars-object and ConfigVars-object. PIC300-object also has Alarm-object component which has components ActiveState and Message, these represent DemoServer variables AlrmEvtOn and AlrmEvtMsg respectively.

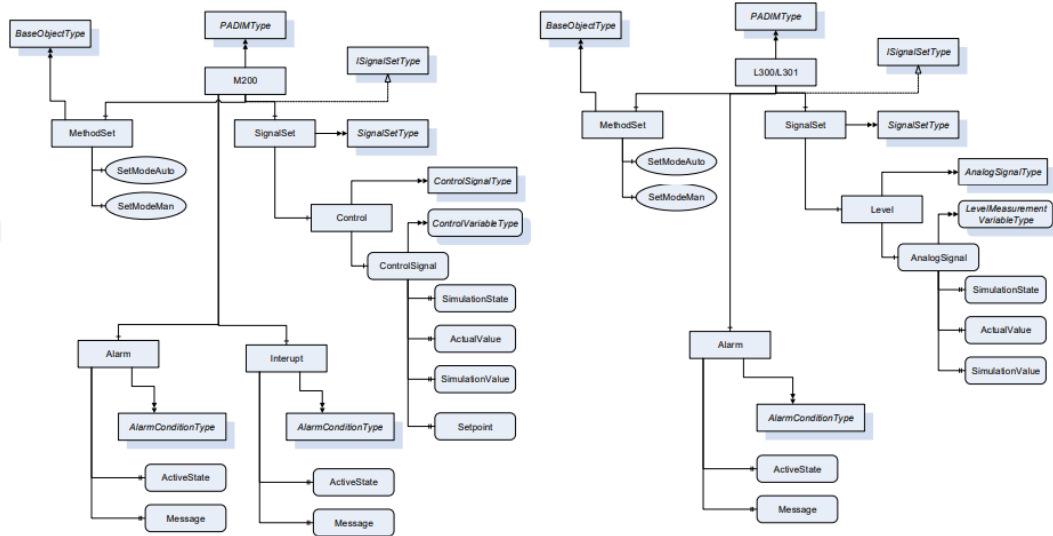


**Figure 2.** CtrlConfigurationType-object, PIC300, implemented in AppServer.

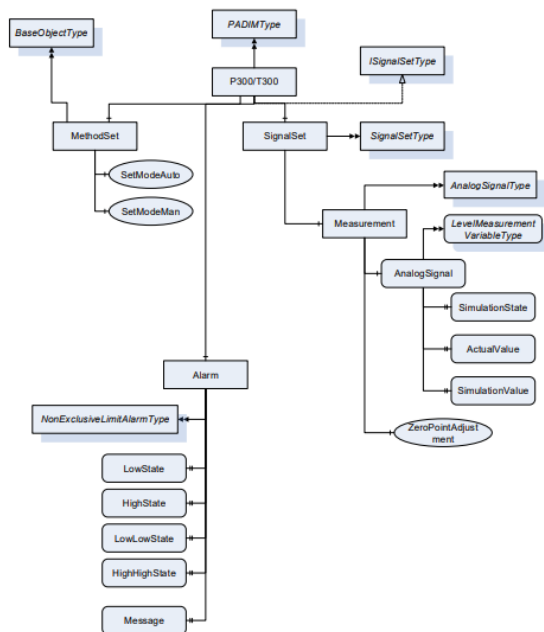
PADIMType-objects Y301, Y303, and Y501 are shown in Figure 3. PADIMType-objects M200, L300, and L301 are shown in Figure 4. PADIMType-objects P300 and T300 are shown in Figure 5. MethodSet-object of PADIMType-objects include methods SetModeAuto and SetModeMan which represent DemoServer variables with same names. Alarm-object and Interrupt-object map DemoServer variables that have “Alrm” or “Int” in their names. Other variables are mapped to variables of SignalSet-object. SimulationState-, ActualValue-, and SimulationValue-variables of AppServer represent MeasVal(or CtrlVal ), MeasMan(or ManCtrlVal), and CurModeVal variables of DemoServer respectively. Setpoint-variable of AppServer represent CtrlOut-variable of DemoServer. ZeroPointMeasurement-method of AppServer represent ZeroMeas-variable of DemoServer. Other variables of DemoServer are mapped to variables with same name of AppServer.



**Figure 3.** PADIMType-objects Y301, Y303, and Y501 implemented in AppServer.



**Figure 4.** PADIMType-objects M200, L300, and L301 implemented in AppServer.



**Figure 5.** PADIMType-objects P300 and T300 implemented in AppServer.