



		<u>Name</u>	<u>Company</u>	<u>Present</u>	<u>CC</u>
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Subject	: Examples of 800xA Performance Problems			<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Introduction

We are still doing research about Performance Issues on the ABB 800xA System of one of our clients. There are performance issues when we call up Graphic Displays for the very first time. An improvement we already did is eliminating all the Aspect View Wrappers and we also made improvements with our Network.

The load time for a Graphic when it is called up for the very first time on a client is still between 5 to 10 seconds and decreases even more when we are calling up several displays. We also see that the CPU Load of the Aspect Server goes to the maximum. CPU Load should not be the bottleneck of the ABB 800xA System, so there has to be something else what causes this high CPU Load. We found out that some Graphic Elements, which are used a lot in our Graphic Displays, are generating logfiles which give a good indication where we have to look for these performance issues. Below are some examples of these Graphic Elements and the corresponding logfiles.

Example 1

We use a general module type for different tanks. This general module contains motors, indicators etc. Not every tank uses all of these modules. When they are not used we give them the name 'no name'. Besides that there is a parameter outside the module (in control builder) that we use to make that module visible or not in the general tank Graphic Element. Below is a parameter list example of one of these tanks:

Name	Data Type	Initial Value	Parameter	Attributes	Direction	Description
21 AirLockDescPar	String[40]		MT540C04_DescVAR		unspecified	
22 AirLockIOPar	MotorMNSIS110Type		PLC80153IOPar.MT540C04		unspecified	
23 COSensingNamePar	String[20]		QI540C01_NameVAR		unspecified	
24 COSensingDescPar	String[40]		QI540C01_DescVAR		unspecified	
25 COSensingIOPar	IndicatorAnalogIOType		PLC80153IOPar.QI540C01		unspecified	
26 DischargeScrewNamePar	String[20]		MT540C01_NameVAR		unspecified	
27 DischargeScrewDescPar	String[40]		MT540C01_DescVAR		unspecified	
28 DischargeScrewIOPar	MotorMNSIS110Type		PLC80153IOPar.MT540C01		unspecified	
29 ExhaustTemperatureNamePar	String[20]		TI540C32_NameVAR		unspecified	
30 ExhaustTemperatureDescPar	String[40]		TI540C32_DescVAR		unspecified	
31 ExhaustTemperatureIOPar	IndicatorAnalogIOType		PLC80153IOPar.TI540C32		unspecified	
32 FanNamePar	String[20]		MT540C02_NameVAR		unspecified	
33 FanDescPar	String[40]		MT540C02_DescVAR		unspecified	
34 FanIOPar	MotorMNSIS110Type		PLC80153IOPar.MT540C02		unspecified	
35 FilterHighPressureNamePar	String[20]		PA540C01H_NameVAR		unspecified	
36 FilterHighPressureDescPar	String[40]		PA540C01H_DescVAR		unspecified	
37 FilterHighPressureIOPar	IndicatorDigitalIOType		PLC80153IOPar.PA540C01H		unspecified	
38 FilterTemperatureEnablePar	bool		false		unspecified	
39 FilterTemperatureNamePar	String[20]		PLC80153DataPar.No_Name		unspecified	
40 FilterTemperatureDescPar	String[40]	default	PLC80153DataPar.No_Descr		unspecified	
41 FilterTemperatureIOPar	IndicatorAnalogIOType	default			unspecified	
42 HighLevelNamePar	String[20]		LA540C04H_NameVAR		unspecified	
43 HighLevelDescPar	String[40]		LA540C04H_DescVAR		unspecified	
44 HighLevelIOPar	IndicatorDigitalIOType		PLC80153IOPar.LA540C04H		unspecified	
45 MagnetHatchNamePar	String[20]	Default	PLC80153DataPar.No_Name		unspecified	
46 MagnetHatchDescPar	String[40]	Default	PLC80153DataPar.No_Descr		unspecified	

Figure 1





Because we give these 'not used' modules the name 'no name' it looks like this in the Control Structure:

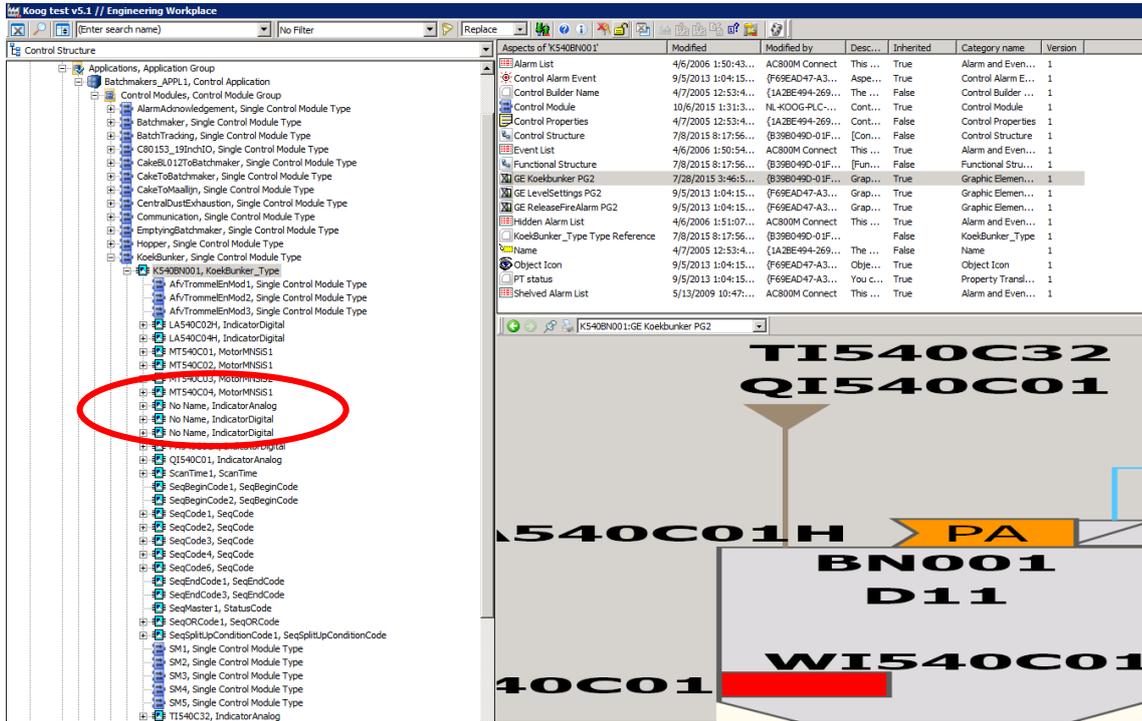


Figure 2

The general tank Graphic Element contains the Graphic Elements of all of the lower modules. As said, we make them visible or not with an enable parameter in Control Builder (see figure 1). Despite the visible of the 'No Name' Graphic Elements is set to false and this modules are therefore not visible in the general tank Graphic Element, there looks to be a performance issue with these elements when the tank Graphic Element is called up for the first time on a client or server.

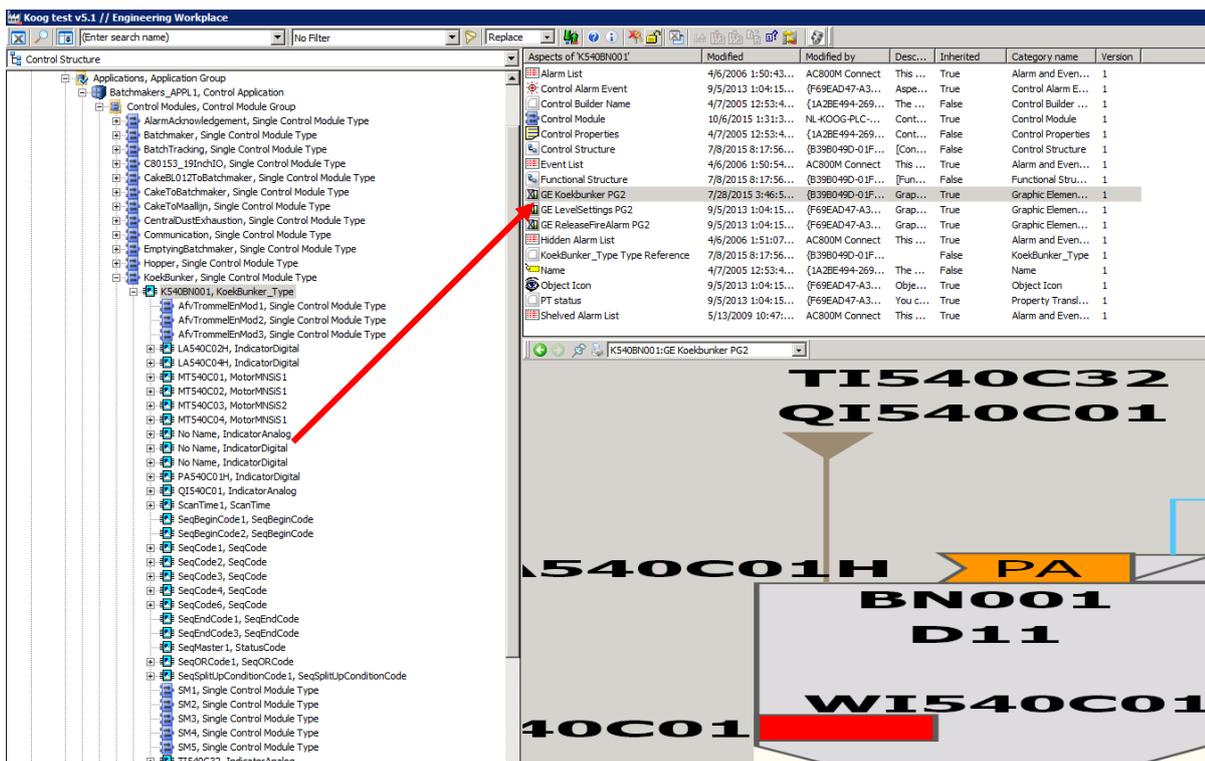


Figure 3





Below is part of the log file from an initial load of this Tank Graphic Element:

```
AdsCacCommSrv 4460 Running
AdsScadsSrv 3364 Running
AdvAeAsmM... 4124 Running
AdvAeBasicAt... 4104 Running
AdvAeEventC... 1972 Running
AdvAeEventS... 4348 Running
AdvAeEventS... 3612 Running
AdvAeSoftPac... 3252 Running
AdvAeEngine 3508 Running
AfwADServer 344 Stopped
AfwADServer 344 Running
AfwADSPStatus 1652 Stopped
AfwBackupSe... 3176 Running
AfwEngAPrefSrv 1936 Running
AfwFadNode 4364 Running
AfwFadSrv 4372 Running
AfwLockSrv 3504 Running
AfwScheduler 4400 Running
AfwScheduler 4364 Stopped
AfwScheduler 5212 Running

2016-04-08 11:12:16:727#6, KOOG-T-AS1, AfwADServer, PID: 344, Thread: 708
AfwADServer, Activities, level = 2, Tag =
Activity GetStructureNodes : total 2093.66 msec, processing 1594.34 msec, suspended 499.32 msec, pending 0.00 msec, blocked 0.00 msec Activity envWo:1 isExec:1
State: Finished
BackEnd:
Client: KOOG-T-AS1:AfwWorkplaceApplication:6388 (C:\Program Files (x86)\ABB Industrial IT\Operate IT\Process Portal A\bin)
NL-KOOG-PLC-DEV\800xAInstallation KOOG-T-AS1 <NL-KOOG-PLC-DEV\800xAInstallation>
ReqId: 2182
Path: No Name/Attention

2016-04-08 11:12:18:751#7, KOOG-T-AS1, AfwADServer, PID: 344, Thread: 708
AfwADServer, Activities, level = 2, Tag =
Activity GetStructureNodes : total 2023.41 msec, processing 1651.33 msec, suspended 372.08 msec, pending 0.00 msec, blocked 0.00 msec Activity envWo:1 isExec:1
State: Finished
BackEnd:
Client: KOOG-T-AS1:AfwWorkplaceApplication:6388 (C:\Program Files (x86)\ABB Industrial IT\Operate IT\Process Portal A\bin)
NL-KOOG-PLC-DEV\800xAInstallation KOOG-T-AS1 <NL-KOOG-PLC-DEV\800xAInstallation>
ReqId: 2252
Path: KS40BN001/No Name/Attention
```

Figure 4

As you can see, the AfwADServer service seems to have a problem with these 'no name' modules. I have done some testing with these no name modules and the problem is gone when I replace the 'no name' names with unique names. But my question is why these 'no name' modules can be a performance issue for 800xA, because I always thought that the system does not work with names but with the unique GUID's of the modules?





Example 2

Another example is the Graphic Element of our Single Controllers. There are performance issues when we call up these Graphic Elements for the very first time. This is a problem because we have a lot of these Single Controllers so we use the Graphic Elements of these Single Controllers in many Graphic Displays.

In this example I zoom in to Single Controller FC510D04. This Single Controller has a Graphic Element named GE Controller Icon PG2. The Graphic Element contains data from the Control Module itself but does also contain a Graphic Element from the lower Attention Module. The arrow indicates where the Graphic Element is coming from.

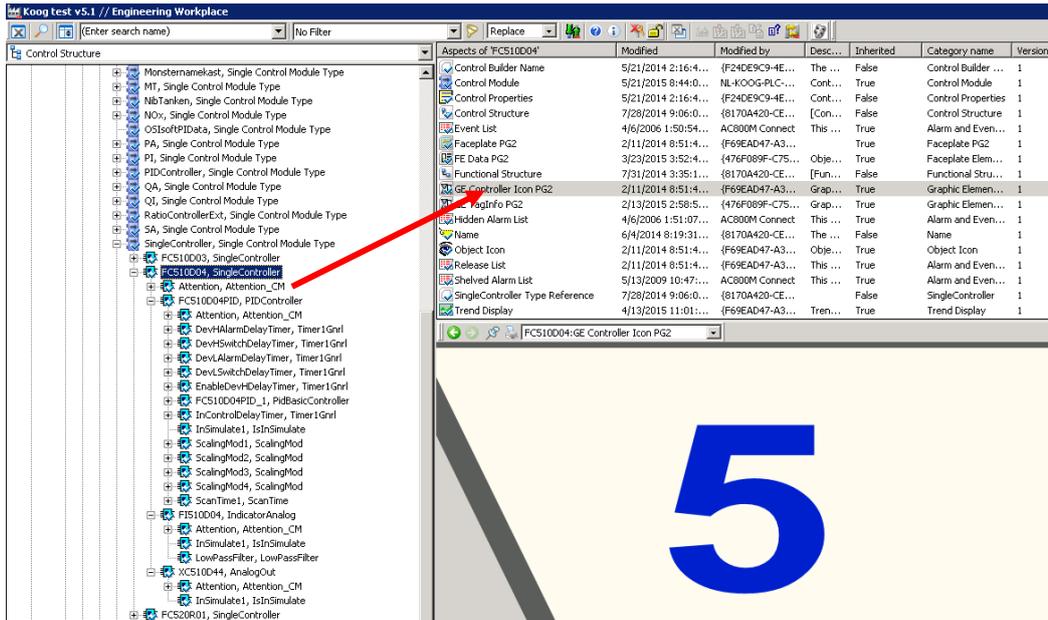


Figure 5

As you can see, there are also other Attention Modules in the other lower Modules. There seems to be a problem with the name 'Attention' because it is in the logfile of the AFWADServer service when we are opening the Graphic Element of the Single Controller for the very first time. An example of this logfile is shown below.



Figure 6

As you can see, the AFWADServer service seems to have a problem with these 'Attention' modules. I have done some testing with these attention modules and the problem is gone when I replace the 'attention' names with unique names. But my question is why these 'attention' modules can be a performance issue for 800xA, because I always thought that the system does not work with names but with the unique GUID's of the modules?

