

Import alarms from GE Fanuc iFix to Nimbus

Nimbus uses OPC AE (Alarms and Events) to subscribe for alarm events from iFix.

Mostly the OPC AE server is already installed in the iFix, if it does not exist contact your local GE Fanuc distributor and they will provide it for you. To find out if the OPC AE server exists, look for the iFixOPCAESrv.exe file in the Proficy iFix folder.

The Nimbus Alarm Server itself has no build-in feature for OPC AE but there is an external application, *NimOPC* (Nimbus OPC AE link), which is freely downloadable from www.automatisera.nu.

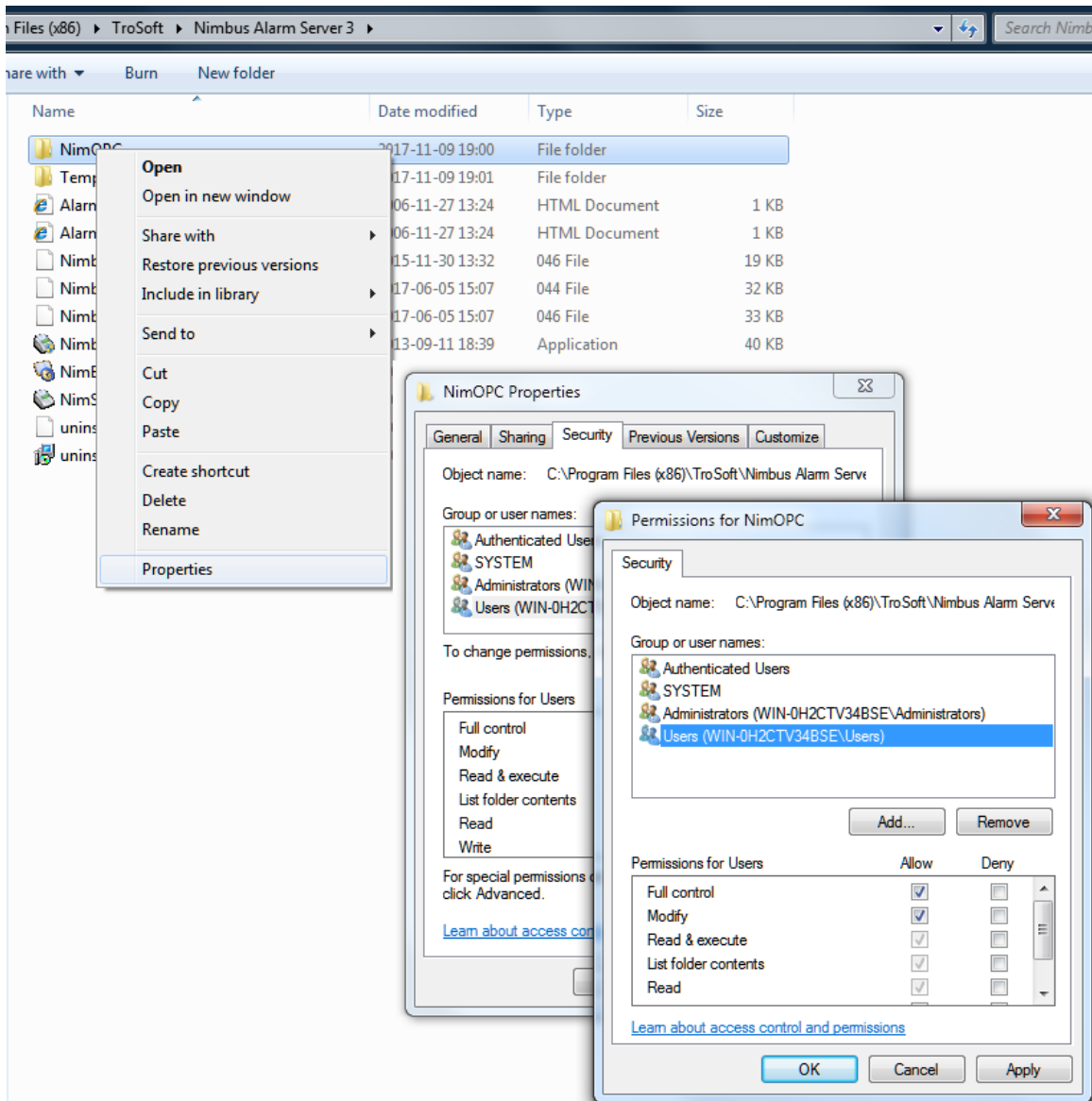
Install and configure NimOPC

Create a new folder, *NimOPC*, where Nimbus Alarm Server was installed – usually `C:\Program Files (x86)\TroSoft\Nimbus Alarm Server 3`

Open the downloaded *NimOPC_1.0.0.xx.zip* file, open it and copy the files to the newly created *NimOPC* folder.

Set the folder access rights on the new *NimOPC* folder for group *Users* to *Full control*, by right clicking the *NimOPC* folder -> *Properties* -> *Security* -> *Edit*.

Select *Users* group and check *Full control*. Click *Ok* twice.

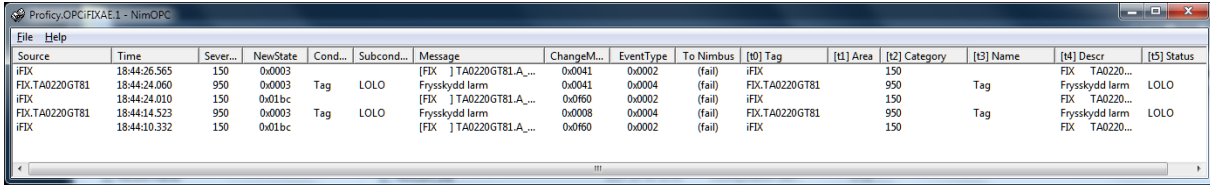


Folder access rights needs to be changed, or it will be more difficult to edit *NimOPC.ini*

Open the *NimOPC.ini* file. Uncomment the *ProgId=Proficy.OPCiFIXAE.1* row. Save *NimOPC.ini*.

Start *iFix* if it not running. Start *NimOPC.exe* (should be *Run as Administrator*).

If you get a question about exposing ports to the network, select desired networks and *Ok*. *NimOPC* exposes a TCP socket port where *Nimbus* will connect.

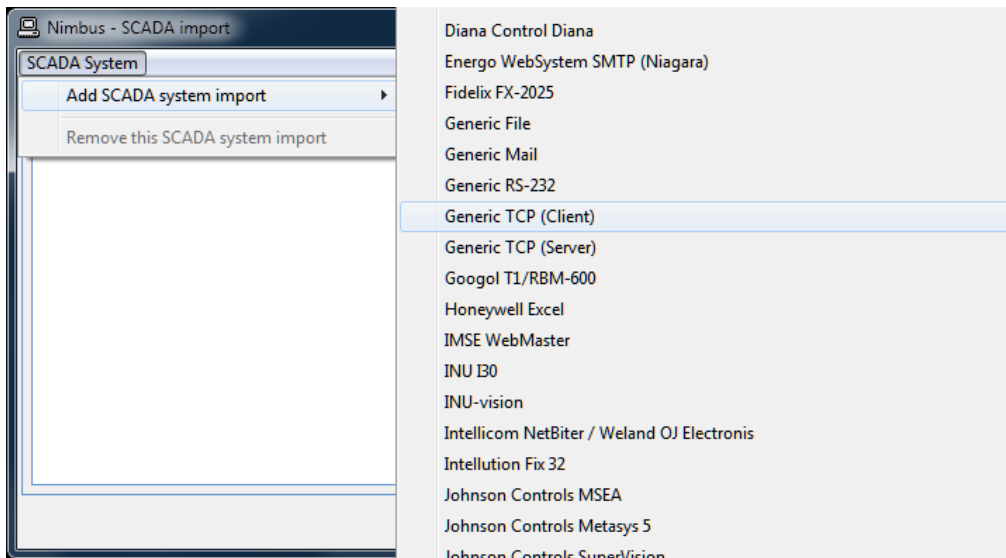


Source	Time	Sever...	NewState	Cond...	Subcond...	Message	ChangeM...	EventType	To Nimbus	[t0] Tag	[t1] Area	[t2] Category	[t3] Name	[t4] Descr	[t5] Status
iFIX	18:44:26.565	150	0x0003			[FIX] TA0220GT81_A...	0x0041	0x0002	(fail)	iFIX	150			FIX TA0220...	
FIX.TA0220GT81	18:44:24.060	950	0x0003	Tag	LOLO	Frysskydd larm	0x0041	0x0004	(fail)	FIX.TA0220GT81	950		Tag	Frysskydd larm	LOLO
iFIX	18:44:24.010	150	0x01bc			[FIX] TA0220GT81_A...	0x0160	0x0002	(fail)	iFIX	150			FIX TA0220...	
FIX.TA0220GT81	18:44:14.523	950	0x0003	Tag	LOLO	Frysskydd larm	0x0008	0x0004	(fail)	FIX.TA0220GT81	950		Tag	Frysskydd larm	LOLO
iFIX	18:44:10.332	150	0x01bc			[FIX] TA0220GT81_A...	0x0160	0x0002	(fail)	iFIX	150			FIX TA0220...	

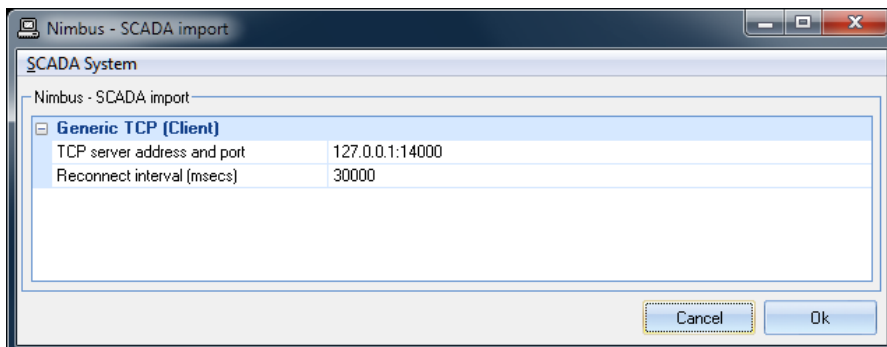
In the title bar it should express *Proficy.OPCiFIXAE.1* which indicates the *iFix* OPC AE server has started and is connected to *NimOPC*.

Some events will hopefully appear in the list when they occur. *NimOPC* will automatically subscribe to all events.

Configure Nimbus to connect to NimOPC



In *Nimbus Explorer* select *Setup -> SCADA import setup*. Select *SCADA System -> Add SCADA system import -> Generic TCP (Client)*



Nimbus has default values as above.

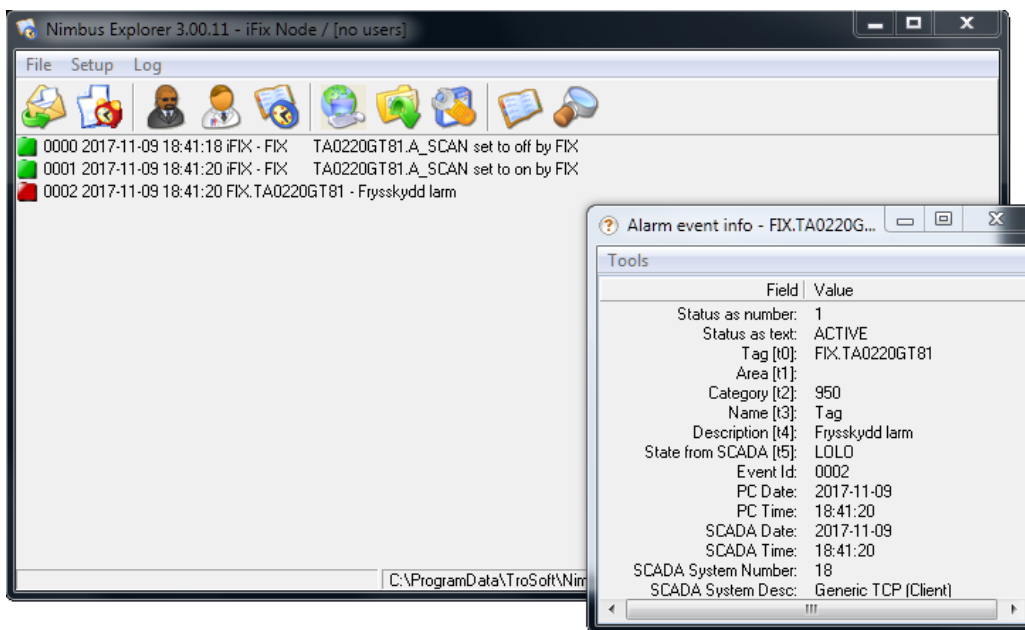
Nimbus Alarm Server may aswell be installed in some other server than the *NimOPC / iFix* node. If that is the case the above IP should be changed and necessary firewalls be configured accordingly.

Port number should correspond to the port number set in *NimOPC.ini*. The default value is 14000.

Start the *Nimbus Server* either using *Service Control Manager* if it is installed as service or using the *File* menu.

Nimbus should now connect to the *NimOPC* application, this will be indicated in the *NimOPC list view*.

Try some test alarms and ensure they appear in *Nimbus Explorer*.



In the above example some events have been sent from *NimOPC* to the *Nimbus Alarm Server*.

Double click the alarm event to open the *Alarm Event Info* form.

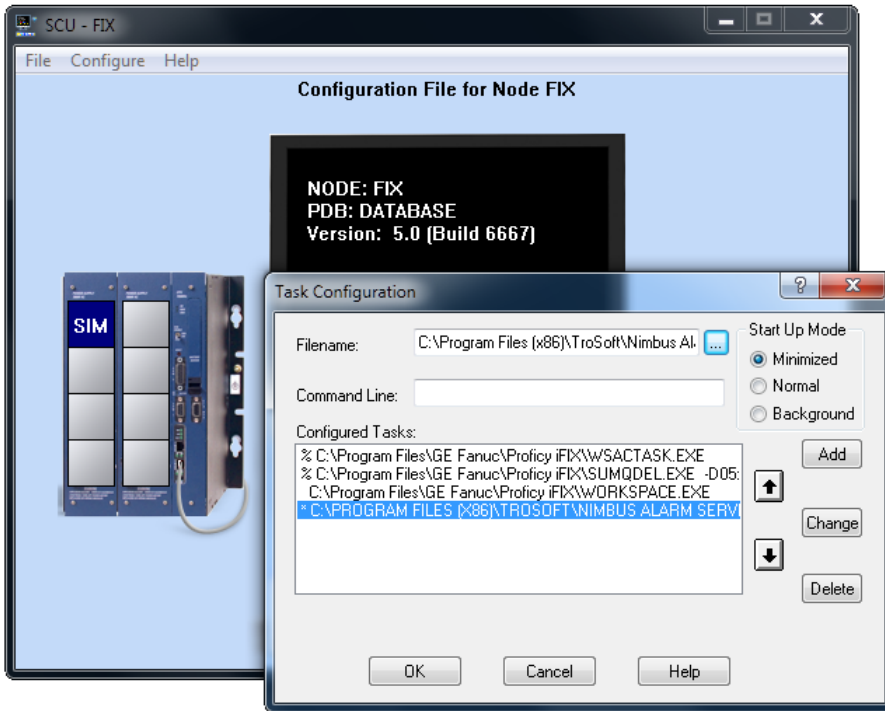
Configure the NimOPC application to start automatically

NimOPC may be run as a service, but that could cause problems because *iFix* cannot be restarted when *NimOPC* is running.

NimOPC should instead be started by *iFix*.

Run the *SCU*.

Select *Configure -> Tasks*



Find the *NimOPC.exe* file and select *Add*. *NimOPC* should be started as the last task (at least after all iFix core tasks) and run as a *Minimized* task.

Save the configuration file. Restart *iFix* and ensure it starts *NimOPC* and *Nimbus* reconnects.

Caution Because *NimOPC* is not an iFix application it should always be manually closed before iFix is shutdown. iFix is not capable of shutting it down. *NimOPC* uses *OPC AE (DCOM)* which automatically will start the *iFix OPC AE server*. If the *OPC AE server* is started *iFix* will not be able to restart. If this happens, find the *NimOPC.exe* and *iFixOPCAESrv.exe* processes in *Task manager* and kill them both.

If we would like to run *NimOPC* as service anyway?

To install *NimOPC* as service start *NimOPC* using the command line switch */if* from an elevated command prompt, ex:

NimOPC.exe /i

Uninstall using the */u* command line switch.

First time *NimOPC* needs to be started manually using the *Service Control Manager (SCM)*.

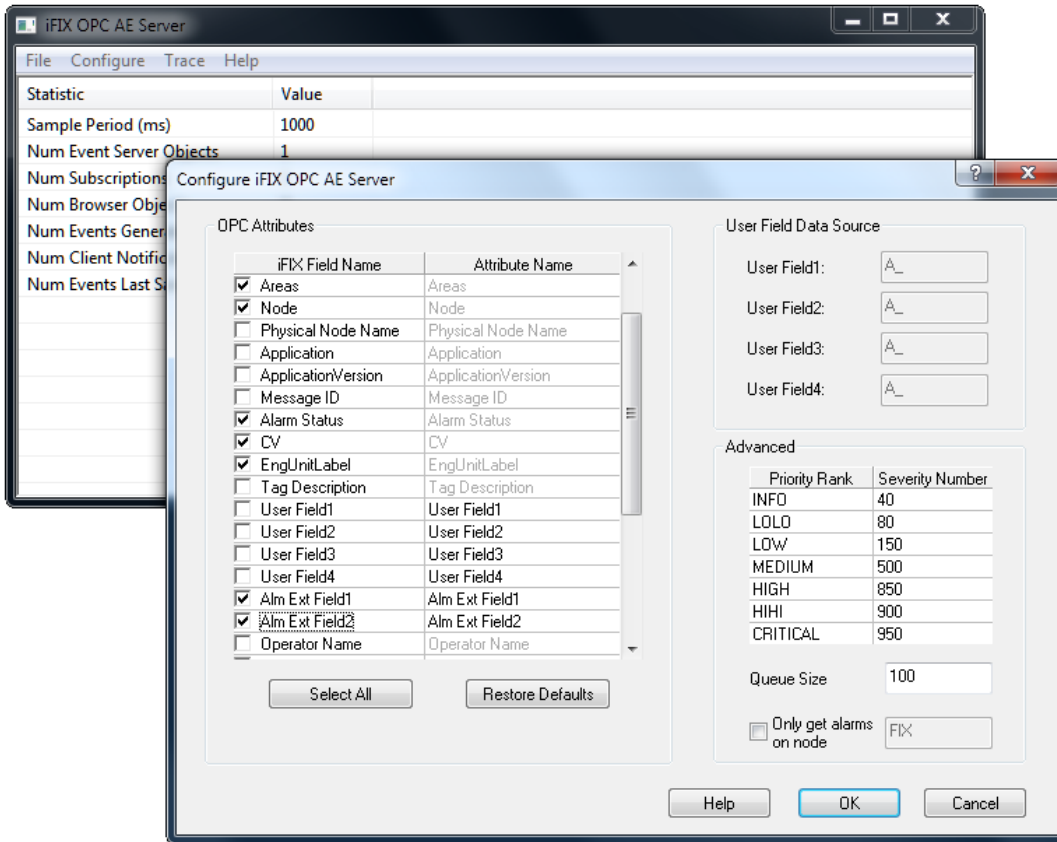
If iFix is running as service then *NimOPC* should be run as the same user *iFix* uses. The default user is *Local System Account*.

Also select *Startup type: Automatic (Delayed start)*

Configure the iFix OPC AE server and NimOPC for more info

Attributes

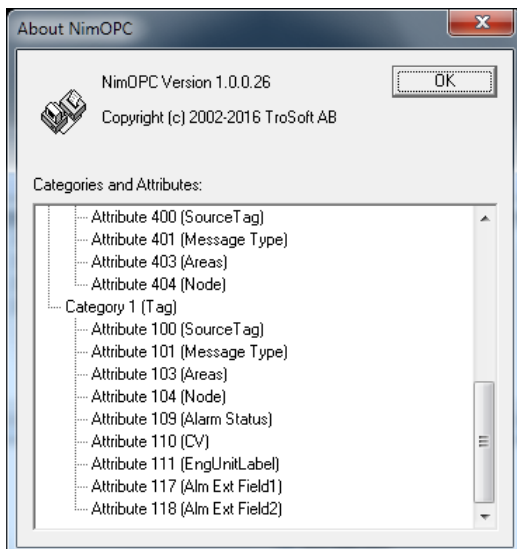
The *iFix OPC AE server* is able to provide some more information about each alarm event. This is in the OPC world known as *Attributes*.



Find the *iFix OPC AE Server* form and select *Configure -> Configure fields*. Select the fields to be sent to *NimOPC*.

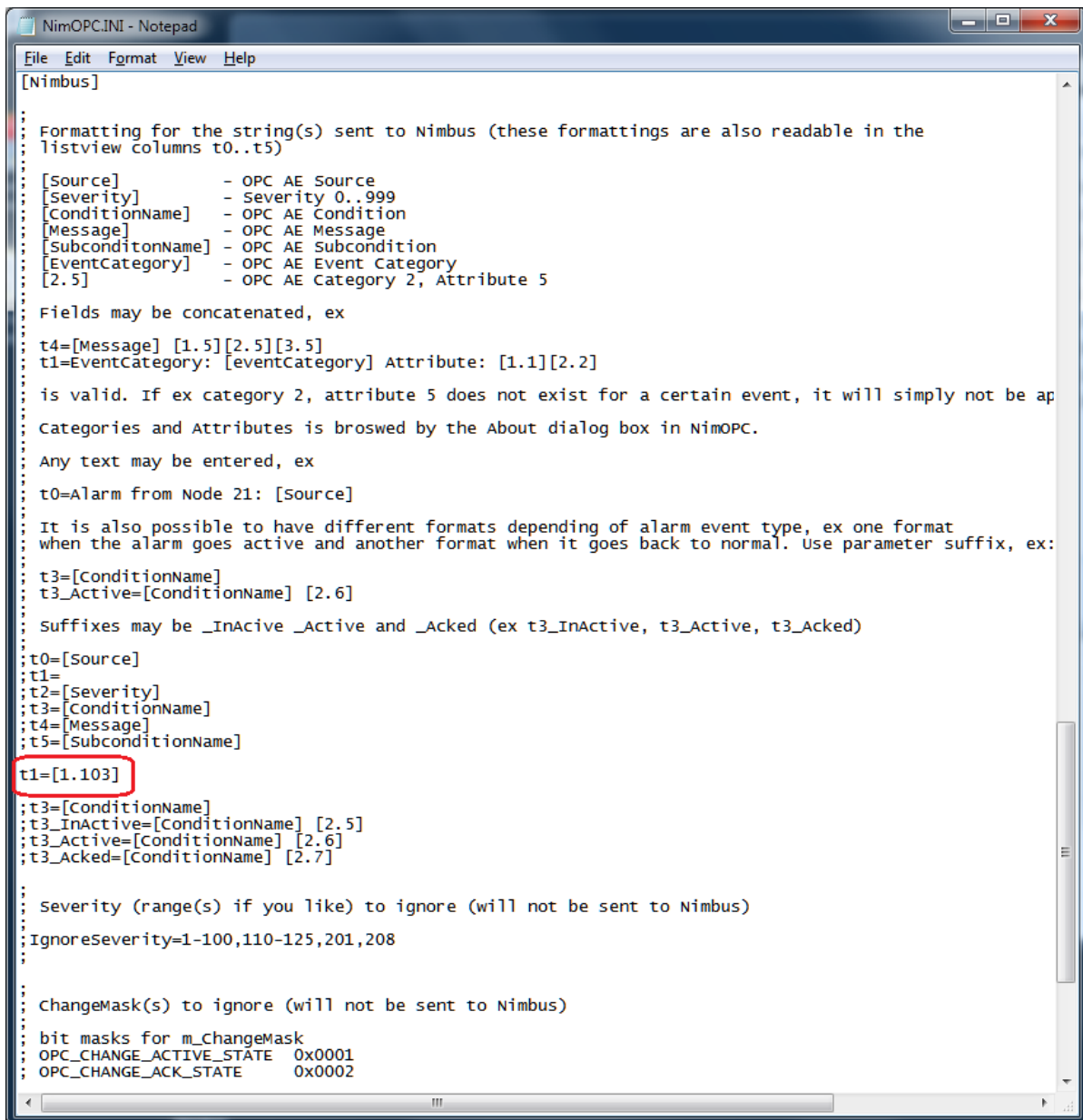
In the above example *Areas(Alarm Areas)* and the *Alm Ext fields* are selected beside the default fields. Click *Ok* and select *File -> Exit*. The *OPC AE Server* will automatically restart and *NimOPC* will now be updated with the new attributes.

Show the *NimOPC* form, select *Help -> About NimOPC*



Here you can see what numbers the attributes get. The *Areas* will have attribute 1.103 (*Category.Attribute*)

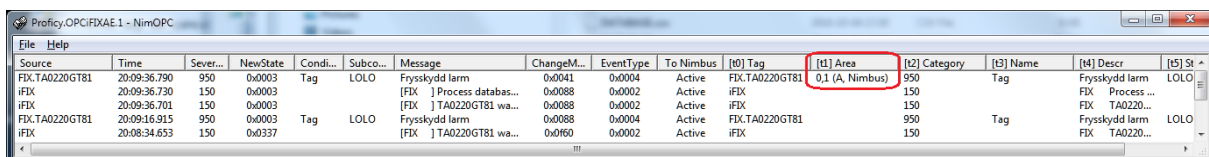
Open the *NimOPC.ini* file.



```
[Nimbus]
:
: Formatting for the string(s) sent to Nimbus (these formattings are also readable in the
: listview columns t0..t5)
:
: [Source] - OPC AE Source
: [Severity] - Severity 0..999
: [ConditionName] - OPC AE Condition
: [Message] - OPC AE Message
: [SubconditionName] - OPC AE Subcondition
: [EventCategory] - OPC AE Event Category
: [2.5] - OPC AE Category 2, Attribute 5
:
: Fields may be concatenated, ex
: t4=[Message] [1.5][2.5][3.5]
: t1=EventCategory: [eventCategory] Attribute: [1.1][2.2]
:
: is valid. If ex category 2, attribute 5 does not exist for a certain event, it will simply not be ap
:
: Categories and Attributes is browsed by the About dialog box in NimOPC.
:
: Any text may be entered, ex
: t0=Alarm from Node 21: [Source]
:
: It is also possible to have different formats depending of alarm event type, ex one format
: when the alarm goes active and another format when it goes back to normal. Use parameter suffix, ex:
:
: t3=[ConditionName]
: t3_Active=[ConditionName] [2.6]
:
: Suffixes may be _Inactive _Active and _Acked (ex t3_InActive, t3_Active, t3_Acked)
:
: t0=[Source]
: t1=
: t2=[Severity]
: t3=[ConditionName]
: t4=[Message]
: t5=[SubconditionName]
:
: t1=[1.103]
:
: t3=[ConditionName]
: t3_InActive=[ConditionName] [2.5]
: t3_Active=[ConditionName] [2.6]
: t3_Acked=[ConditionName] [2.7]
:
:
: Severity (range(s) if you like) to ignore (will not be sent to Nimbus)
: IgnoreSeverity=1-100,110-125,201,208
:
:
: ChangeMask(s) to ignore (will not be sent to Nimbus)
:
: bit masks for m_ChangeMask
: OPC_CHANGE_ACTIVE_STATE 0x0001
: OPC_CHANGE_ACK_STATE 0x0002
```

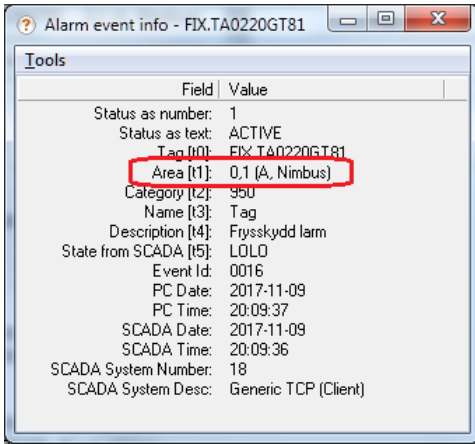
Select the field(s) where to put the new attributes. In the example above we just use the *1.103Areas* attribute and put into the *T1*-field.

Save *NimOPC.ini*. Restart *NimOPC*.



Source	Time	Sever...	NewState	Condi...	Subco...	Message	ChangeM...	EventType	To Nimbus	[t0] Tag	[t1] Area	[t2] Category	[t3] Name	[t4] Descr	[t5] St
FIX.TA0220GT81	20:09:36.790	950	0x0003	Tag	LOLO	Frysskydd larm	0x0041	0x0004	Active	FIX.TA0220GT81	0,1 (A, Nimbus)	950	Tag	Frysskydd larm	LOLO
iFIX	20:09:36.730	150	0x0003			[FIX] Process databas...	0x0088	0x0002	Active	iFIX		150		FIX Process ...	
iFIX	20:09:36.701	150	0x0003			[FIX] TA0220GT81 wa...	0x0088	0x0002	Active	iFIX		150		FIX TA0220...	
FIX.TA0220GT81	20:09:16.915	950	0x0003	Tag	LOLO	Frysskydd larm	0x0088	0x0004	Active	FIX.TA0220GT81		950	Tag	Frysskydd larm	LOLO
iFIX	20:08:34.653	150	0x0337			[FIX] TA0220GT81 wa...	0x0060	0x0002	Active	iFIX		150		FIX TA0220...	

Here the *Area* fields appear in the *T1*-column which actually means they will appear in the *Area*-field in Nimbus.



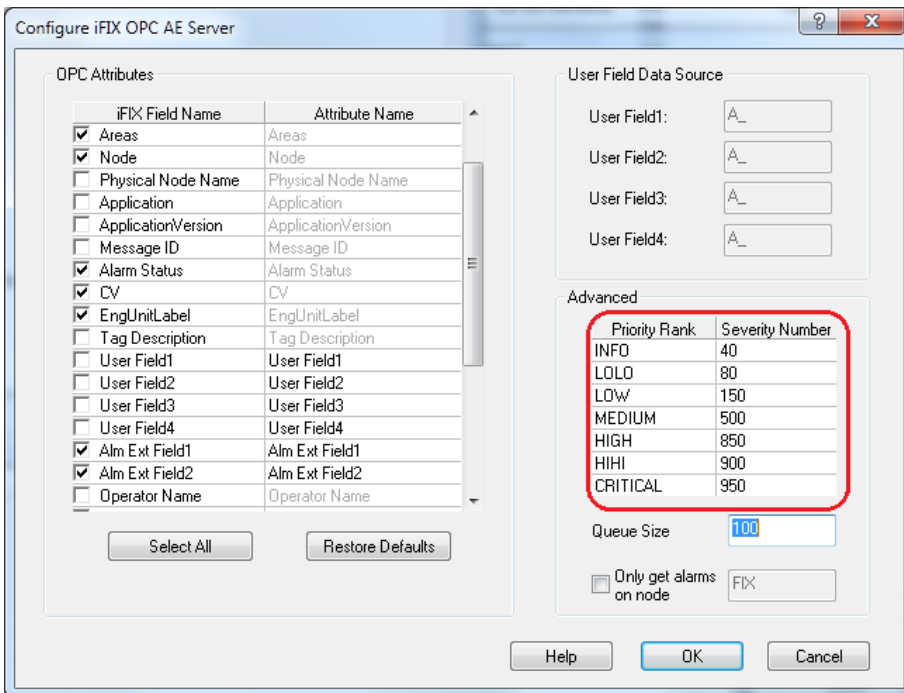
This is how it looks in Nimbus. The selected *Alarm Areas* in the tag's *Alarms tab* are presented within parenthesis. In the above example the Alarm Areas *A* and *Nimbus* are selected.

0, 1 means it ranges from *0..1* (totally 2 Alarm Areas), these numbers are of little or no use, but the text (ex *Nimbus* above) may be used as a filter criteria in the *Alarm Route Profiles*.

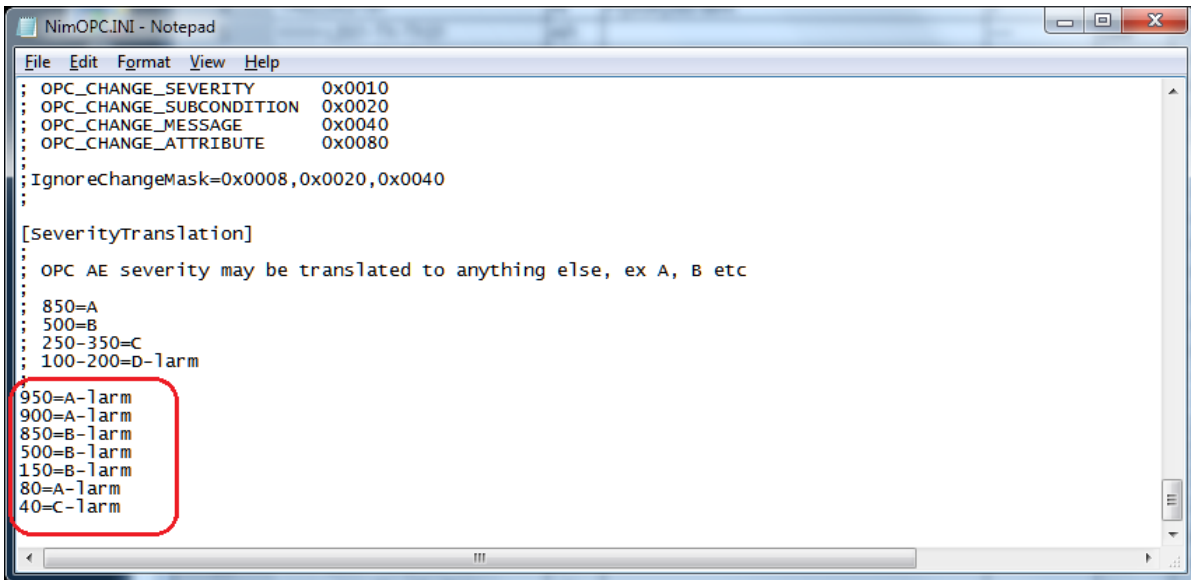
Category / Severity

Category may also differ from plant to plant and customer needs.

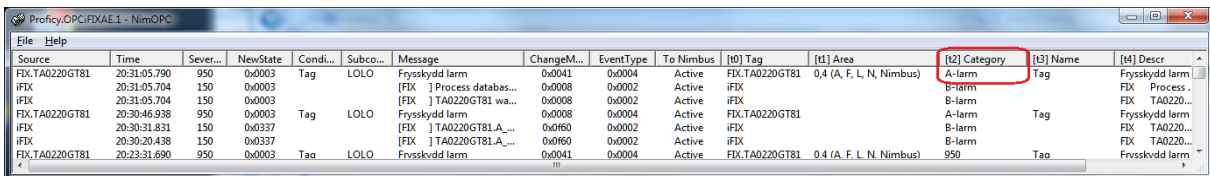
Find the *iFix OPC AE Server* form and select *Configure -> Configure fields*



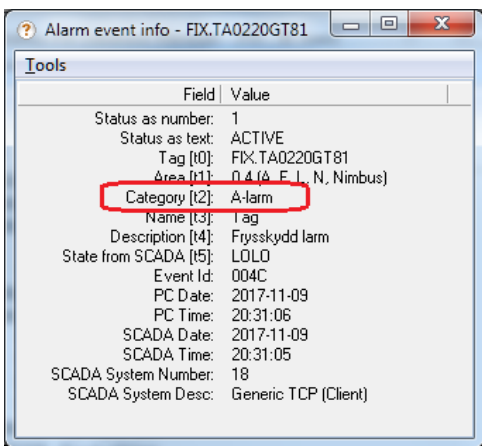
The above (default) settings translates the *iFix priority* to *OPC severity*. This severity may be translated by *NimOPC* to something more readable (or just back to the *iFix priorities* if you like)



Enter the Severity number and what it should be translated to in the *[SeverityTranslation]* section. Save *NimOPC.ini*. These changes take effect immediately, no programs need to be restarted.



Here, the previous severity number 950 is now translated to the text *A-larm* before it is sent to *Nimbus*.



This is how it looks in *Nimbus*. The text may be used as filter in the *Alarm Route Profiles* just as any other field.

Other settings and filters

There are some other settings in *NimOPC.ini* that change the behaviour and look. Ex to filter out unwanted events (operator messages).

Unfortunately there are no documentation for *NimOPC*, however the INI-file is pretty well commented.