Main Page Related Pages

WienerOPCS

4.0.1912.0

OPC (OLE for Process Control) allows fast and secure access to data and information under Windows operating systems. As an industry-spanning, multi-vendor software interface, OPC minimizes connection and maintenance overheads.

This server, running on a computer with the Microsoft Windows XP, Windows 7 32 and 64 bit and Windows Server 2008 operating systems, enables access to W-IE-NE-R remote controllable hardware, so-called crates in the following sections of this manual, connected to the server computer via a CAN-bus network or a TCP/IP (SNMP) connection.

It is possible to

- Access from any OPC Client application to the data of one or more servers.
- Encapsulating the properties specific to the server and type of communication.
- Restricting access rights by the underlying Microsoft DCOM.

This manual is divided in the following sections:

Main Page Related Pages

WienerOPCS

General Remarks

The only purpose of this manual is a description of the product. It must not be interpreted as a declaration of conformity for this product including the product and software.

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Main Page Related Pages

WienerOPCS

Installation and Version History

WienerOPCS ReadMe 4.0.1912.0

1 Installation

The correct functionality of the OPC server software is dependent of software additional packages, which should be installed before.

1.1 Net-SNMP (necessary if you connect crates via TCP/IP)

Install net-snmp. You may download it from www.sourceforge.net, but a tested version of the windows installation file is available at our download area (www.wiener-d.com->Support->Downloads).

Only the "Base Components" are required. If you want to use the utilities to generate configuration scripts automatically, you have to install the and the "Perl SNMP Modules", too.

The default directory is c:\usr. If you change this directory, you have to move the WIENER-CRATE-MIB.txt file, which will be installed by the WienerOPCS installer in the c:\usr\share\snmp\mibs directory, to the appropriate directory.

Simple check: the command line utility

snmpget -v 2c -c public 192.168.91.80 sysUpTime.0

should return the time of the crate at IP 192.168.91.80.

If no crate is available at this time: The above command is working with Microsoft Windows, too.

(The SNMP functionality must be installed, it is not installed by default)

1.2 Kvaser CAN-Bus driver (only necessary if you connect crates via KVASER CAN-Bus hardware)

If you intend to use CAN-Bus hardware of the Kvaser company (www.kvaser.com), you must install the appropriate driver of your hardware. Please look at the hardware documentation of your Kvaser product for additional information.

We tested the server with a the Kvaser PCIcan 4xHS and driver version 7.6.8001.0. The driver is integrated in the kvaser_drivers_w2k_xp.exe software version 4.6a

1.3 Perl (Optional)

We supply some basic perl scripts to identify the connected crates and generate a configuration file automatically (subfolder util). If you want to use them you have to install ActivePerl (http://www.activestate.com/Products/Download/Download.plex?id=ActivePerl). We used ActivePerl 5.8.7.815 for testing.

After installation of Perl you have to install the NetSNMP perl modules. This is described in the NetSNMP Readme.txt file in the section "INSTALLATION - PERL MODULE".

1.4 OPC Core Components

The core components are free available from the OPC Foundation (www.opcfoundation.org). The server is tested with version 105.1.

This components are included in the WienerOPCS installer file.

1.5 WienerOPCS

The installation is done by the WienerOPCS installaction script.

2 Documentation

The complete documentation is installed in the "doc"-subfolder of the installation directory. The documentation is available as HTML and as Microsoft Help File (CHM).

3 Known Problems & Planed Enhancements

- SNMP: WIENER devices can handle just one TCP/UDP request at a time. So the SNMP communication of the OPC server may be interrupted if another client (e.g. web browser) does access the device at the same time. The OPC server will reconnect to the device automatically.
- Possible OPC DA 2.0.5 comliance test failure (some type conversion)

4 Version History

WIENER OPCS 4.0.1912.0, 2012/07/12 11:39:28

- Executable under windows XP, Windows 7 32bit, Windows 7 64bit and Windows Server 2008.

WIENER OPCS 3.0.1144.0, 2010/07/02 17:53:02

- New OPC items NetworkAddress, NetworkAddressStatic, RegulationMode, SupervisionMaxTemperature

WIENER OPCS 3.0.1111.0, 2010-06-07

- MPOD support

WIENER OPCS 3.0.1000.0, 2010-03-30

- Enable non-numeric IP addresses in the configuration file again.

WIENER OPCS 3.0.690.0, 2009-03-30

- Bugfix: Consecutive write operations, which modify only some bits of the data transfered to the device, failed if the intermediate tiome was too low. This regards the bit manipulation of the digital outputs (Signal) and the SupervisionBehavior items.
- Automatic server shutdown if the last OPC client disconnects and the server is started with the -embedded option.

WIENER OPCS 3.0.679.0, 2009-02-02

- Server Startup: Race condition between initialization and detection threads fixed.

WIENER OPCS 3.0.677.0, 2009-01-21

- CAN-bus: Detection of failed transmissions (e.g. if no hardware connected to the interface)

WIENER OPCS 3.0.644.0, 2008-12-17

- Delayed client access to finish device detection at server startup.
- Tolerates power supplies connected to UEP6000.exe via RS232
- Improved device detection
- Fix of some race conditions
- Detection of UEP422/UEP4020/UEP5020 power supplies with fan tray CPU H1-5.07.
- Bugfix: SNMP: Write of some integer variables (e.g. channelNumber) have been treated as float and did not work.

WIENER OPCS 3.0.523.0, 2008-04-18

- Documentation updateed.

WIENER OPCS 3.0.514.0, 14 April 2008

- All requested features implemented. Details in the Trac database (trac.wiener-d.com/WienerOPCS)

WIENER OPCS 3.0.498.0, 20 March 2008

- Some additional features implemented. Details in the Trac database (trac.wiener-d.com/WienerOPCS)

WIENER OPCS 3.0.486.0, 11 March 2008

- Implementation of the caching functionality for SNMP devices, too.

WIENER OPCS 3.0.466.0, 08 Ferbruary 2008

- Implementation of the caching functionality: The devices (e.g. crates) reads are no longer controlled by the OPC client configuration, but managed by the OPC server.

WIENER OPCS 2.1.201.0, 02 Mai 2007

- Bugfix: If someone tries to read the output register settings from a crate which doesn't have this option, the server crases.
- Some documentation cleanups.

WIENER OPCS 2.1.197.0, 23 Apr 2007

- Programmable switch on / switch off ramps

- Setting of the (optional) output register

WIENER OPCS 2.0.64.0, 29 Mar 2007

- Bugfix: If a crate is assigned to a not existing CAN-bus interface, the server crashed. Now an error message is writte to the logfile, and the crate is excluded from the namespace.
- Bugfix: If a CANbus request is stopped, some other requests are stopped, too. This caused crashing the server (e.g. during the OPC compliance test with real test items)
- Bugfix: SNMP: Receiving an SNMP answer of an already canceled OPC request caused the server to die.
- Feature: During registration of the OPC server (with the -r, -u command line arguments) no log file is generated, and no configuration file is accessed.
- Feature: If the log files defined in the configuration file are not absolute file names (e.g. \myLogFile or c:\mylogfile), the logfiles are generated below the Windows temporary folder. (Previous behavior: The current directory was used. That was the \windows\system32 if the server was started as service)

WIENER OPCS 2.0.55.0, 27 Feb 2007

- Version control changed to Subversion. In the Major.Minor.Build.Revision nomenclature the "Build" part now is the SVN revision number, and the "Revision" part (which is not retrievable via OPC) is 0 for all released software.
- New compiler version VC 8.0
- Bugfix: The installation program fails with the registration of the server, if the installation path includes blanks (e.g. "C:\Program Files")
- Feature: Only the prerequisites of used network connections (selcted with the TRANSPORT attribute in the configuration file) must be installed. If you are just using CAN-Bus access, Net-Snmp needs not to be installed.
- Doc: SupervisionBehavior differences between PL512 and UEP6 clarified
- Bugfix: PL512: SupervisionBehavior not writable in some situations
- Bugfix: PL508: The Output....Failure... items report the status of that items, and not (as intended) if a failure occured.
- Doc: LocalControlOnly (Inhibit of the remote control) clarified.
- Feature: RestartService.vbs script to restart the server (and read the configuration again)
- Feature: Additional namespace items concerning the CAN-bus interfaces: BaudRate, BusLoad

WIENER OPCS 2.0.0.x, 15 Dec 2006

- Support of Kvaser CAN-bus hardware.

WIENER OPCS 1.1.1.x, 15 Sep 2006

- Full compliant to OPC Data Access 2.05A (Tested with the OPC Compliance Test tool 2.100 Build 1130 from the OPC Foundation)
  The issues with the IOPCAsyncIO2 read & write (invalid client handle in test cases 12 and 13) are removed.

WIENER OPCS 1.1.0.x, 27 Feb 2006

- Namespace extension
- Support of the PL512 power supplies via SNMP.
- Perl configuration file generation.

WIENER OPCS 1.0.3.x, 27 Feb 2006

- Implementation of some "Cache-Only" OPC tags (Server.TestObjects.*) for OPC client development.
- Static data is retrieved in the same way as other data from the crates, so this problems are fixed. It belongs to the responibility of the OPC client developer to make sure that collecting static data desn't block the I/O data transfer.
- OPC manual (including namespace and configuration file) as HTML or PDF. (Thanks to www.doxygen.org)
- The Crate.Output.Channel.ChannelNumber.MeasurementTemperature could now be hidden if a digital sensor is

existing. The new configuration file attribute "ShowMeasurementTemperature" controls the behaviour.

- Ther child elements of "SupervisionBehaviour" are writable now.
- This is a release-build

WIENER OPCS 1.0.2.x, 25 Oct 2005

- Write errors from OPC server to the crate are now correctly reported to the client as ERROR.
- This version runs as a "Windows Service".
- Additional configuration file items (SNMP.ReadCommunity, SNMP.WriteCommunity)
- Item "SupervisionBehaviour" and child items are now readable.
- Installation / deinstallation with Microsoft Windows Installer (install.msi)
- Additional help & diagnostic output if started with wrong parameters
- Item "System.OnOffCrate" does work, but returns bad status. Bug in RCM firmware. Fixed in RCM 1.0.0.4.

Known Problems:

- Some (static) data is read only once. If there is a communication problem between server and crates, two situations occur:

 - Server is starting without crates: The static data is never retrieved. Status is BAD_CONNECTION.

 - Crates die after initial communication was OK: Status is GOOD.

WIENER OPCS 1.0.1.x, 2 Oct 2005

Initial version

Known problems:

- Item "System.Status.OutputFailure" does not work (allways FALSE). Bug in RCM firmware. Fixed in RCM 1.0.0.4.
- If the SNMP reports write errors, they are not propably reportet in the OPC client. That may be a client problem. Must be investigated. FIXED in 1.0.2
- SNMP data transfer is not optimized (some data is redundant). OPTIMIZED in 1.0.2
- OPC item "SupervisionBehaviour" not implemented now.
- The start as a service does not work under all conditions. So this version is a normal application. FIXED in 1.0.2
- This version is a "debug" build, to catch possible errors more easy.

CPU Load

Read ALL data of a 12-channel RCM every 500 ms (This is harder than accessing 20 RCMs every 10 seconds, because SNMP communication to different IP addresses is done parallel)

SNMP transfer time: ca. 50 ms

total system load: ~ 10% (Athlon 3000+, 512 MB RAM, some other applications running)

OPC Namespace Reference

This is the namespace documentation of the WienerOPCS server.

Node Name

This is the root node of the namespace.

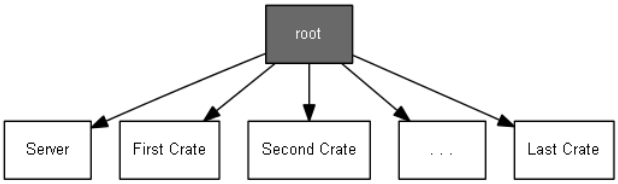
Parent Node

This is the root node of the namespace.

Child Nodes

- **Server**
- **Name of the first controlled crate**
- **Name of the second controlled crate**
- **...**

Node Relation in the Namespace



See also:
OPC Namespace Index

Server

This describes all server-related things.

Node Name

Server

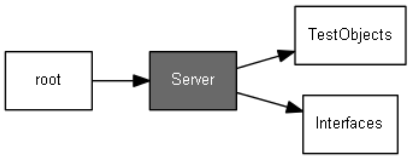
Parent Node

root

Child Nodes

- **TestObjects**
- **Interfaces**

Node Relation in the Namespace



Tags

Tag Name	Data Type	Access Level	Update Rate	Description
UpTime	DATE	R0	**MES**	Retrieves the time how long the OPC server has been running.

Properties provided by all tags
- Item Description (property ID 101)
  This property retrieves a constant help text which describes the function and usage of the tag.

See also:
OPC Namespace Index

TestObjects

The tags of this node are implemented as "cache-only". There is no connection to real (physical connected) hardware.

The intention for this is to give the OPC client developer some test items.

Node Name

TestObjects

Parent Node

Server

Child Nodes

none

Node Relation in the Namespace

Tags

Tag Name	Data Type	Access Level	Update Rate	Description
I1_Cache	I1	R0, W0	MES	Test tag for OPC client development.
I2_Cache	I2	R0, W0	MES	Test tag for OPC client development.
I4_Cache	I4	R0, W0	MES	Test tag for OPC client development.
UI1_Cache	UI1	R0, W0	MES	Test tag for OPC client development.
UI2_Cache	UI2	R0, W0	MES	Test tag for OPC client development.
UI4_Cache	UI4	R0, W0	MES	Test tag for OPC client development.
R4_Cache	R4	R0, W0	MES	Test tag for OPC client development.
R8_Cache	R8	R0, W0	MES	Test tag for OPC client development.
BOOL_Cache	BOOL	R0, W0	MES	Test tag for OPC client development.
BSTR_Cache	BSTR	R0, W0	MES	Test tag for OPC client development.

Properties provided by all tags

- Item Description (property ID 101)
  This property retrieves a constant help text which describes the function and usage of the tag.

Since:

This node was implemented in WienerOPCS 1.0.3.

See also:

OPC Namespace Index

Interfaces

This describes all I/O-interface related things.

Node Name

Interfaces

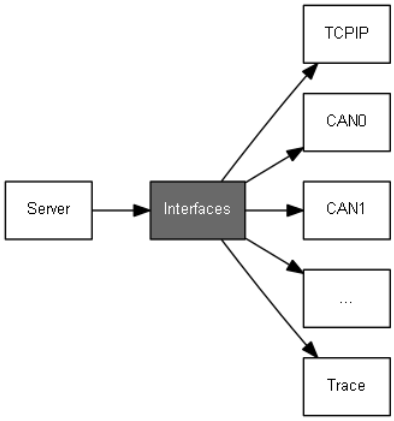
Parent Node

Server

Child Nodes

- TCPIP
- CAN0, CAN1, ...
- Trace

Node Relation in the Namespace



See also:
OPC Namespace Index

TCPIP

The tags of this node reflect TCPIP specific items.

Node Name

TCPIP

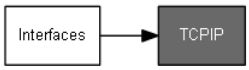
Parent Node

Interfaces

Child Nodes

none

Node Relation in the Namespace



Tags

Tag Name	Data Type	Access Level	Update Rate	Description
NumberOfConnectedDevices	R4	R	MES	The number of connected devices.
MaximumMeasurementPeriode	R4	R	MES	The maximum time all MEASUREMENT_DATA of all devices is read.
MaximumUserDataPeriode	R4	R	MES	The maximum time all USER_DATA of all devices is read.
UserDataPriority	R4	RW	MES	The relation of USER_DATA / MEASUREMENT_DATA i/o operations.
MaximumTransfersPerSecond	R4	RW	MES	The maximum number of i/o-operations per connected device per second. Zero means no limit.
Transmitted	R4	R	MES	The total number of transmitted messages.
Received	R4	R	MES	The total number of received messages.
TransmittedPerSecond	R4	R	MES	The number of transmitted messages per second.
ReceivedPerSecond	R4	R	MES	The number of received messages per second.
MaximumWriteQueueEntries	UI4	R	MES	The maximum number of queued write operations of all devices. Each device has it's own write queue.

Properties provided by all tags
- Item Description (property ID 101)
  This property retrieves a constant help text which describes the function and usage of the tag.

Since:
This node was implemented in WienerOPCS 2.1.

See also:
OPC Namespace Index

CAN0, CAN1, ...

The tags of this node reflect CAN-bus specific items.

Node Name

CAN0, CAN1, ...

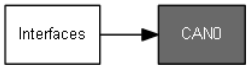
Parent Node

Interfaces

Child Nodes

none

Node Relation in the Namespace



Tags

Tag Name	Data Type	Access Level	Update Rate	Description
BitRate	UI4	R	MES	The CAN-bus transmission speed (Bits per second).
NumberOfConnectedDevices	R4	R	MES	The number of connected devices.
MaximumMeasurementPeriode	R4	R	MES	The maximum time all MEASUREMENT_DATA of all devices is read.
MaximumUserDataPeriode	R4	R	MES	The maximum time all USER_DATA of all devices is read.
UserDataPriority	R4	RW	MES	The relation of USER_DATA / MEASUREMENT_DATA i/o operations.
MaximumTransfersPerSecond	R4	RW	MES	The maximum number of i/o-operations per connected device per second. Zero means no limit.
Transmitted	R4	R	MES	The total number of transmitted messages.
Received	R4	R	MES	The total number of received messages.
Retries	R4	R	MES	The total number of retries.
Failures	R4	R	MES	The total number of communication failures. Such failure forces a device to be unconnected.
StatisticsPeriod	R4	RW	MES	The measurement periode for the following items (in seconds).
BusLoad	R4	R	MES	Estimated bus load (0..100%).
TransmittedPerSecond	R4	R	MES	The number of transmitted messages per second.
ReceivedPerSecond	R4	R	MES	The number of received messages per second.
RetriesPerSecond	R4	R	MES	The number of retries per second.
FailuresPerSecond	R4	R	MES	The number of communication failures per second.

Properties provided by all tags

- Item Description (property ID 101)
  This property retrieves a constant help text which describes the function and usage of the tag.

Since:

This node was implemented in WienerOPCS 2.1.

See also:

OPC Namespace Index

Trace

This tag makes it possible to change the Trace values through Namespace while the server is running.

Node Name

Trace

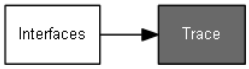
Parent Node

Interfaces

Child Nodes

none

Node Relation in the Namespace



Element Attributs

Attribute	Description
TraceErrorLevel	Control of the ERROR trace level bit mask. (0: disable, 1: enable specific messages)
TraceWarningLevel	Control of the WARNING trace level bit mask. (0: disable, 1: enable specific messages)
TraceInfoLevel	Control of the INFO trace level bit mask. (0: disable, 1: enable specific messages)
TraceDebugLevel	Control of the DEBUG trace level bit mask. (0: disable, 1: enable specific messages)

Remarks:

- For default Trace value settings see **Debug and Trace**.
- The default values of the trace variables are read from WienerOPCS.cfg file. It is possible to change this values either through OPC client, during running the server, or editing the WienerOPCS.cfg file, before starting it.

Since:

This feature was added in 4.0.1899.0.

See also:

OPC Namespace Index

Crate

A crate node contains all configuration data of a single crate. There is one crate node for each power crate controllable by this server.

The crate is identified by its network address. The associated OPC-compliant node name is either generated from the IP-address (e.g. IP 127.0.0.1 gets the name 127_0_0_1) or is defined at the **Crate** part of the configuration file.

Node Name

Any name (Defined at **Crate**)

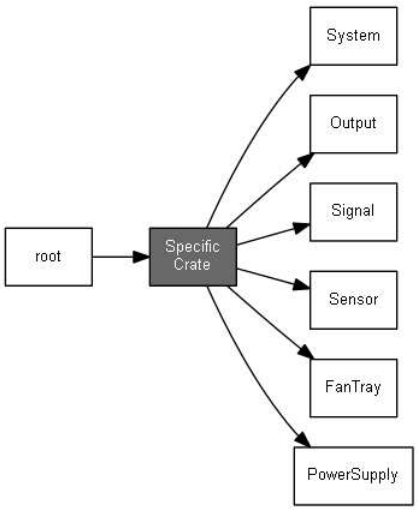
Parent Node

root

Child Nodes

- **System**
- **Output**
- **Signal**
- **Sensor**
- **FanTray**
- **PowerSupply**

Node Relation in the Namespace



Properties provided by this node

- Item Description (property ID 101)

This property retrieves a constant help text which describes the type and network connection of this crate.

See also:
OPC Namespace Index

System

The system nodes contains global items which relate to the complete crate.

Node Name

System

Parent Node

Crate

Child Nodes

- Status

Node Relation in the Namespace

Tags

Tag Name	Data Type	Access Level	Update Rate	Description
Description	BSTR	R0	FIX	A textual description of the connected crate and its firmware. Example: "WIENER Crate (RCM 1.0.0.1)"
OnOff	BOOL	W1	USR	FALSE: Switch off and lock all channels of the power supply. TRUE: Unlock. Channels may be switched on by other commands.
NetworkAddress	BSTR	R0	FIX	Retrieves the dotted-decimal IP address actually used by the connected device.
NetworkAddressStatic	BSTR	R0	USR	Retrieves the dotted-decimal IP address assigned to the connected device. The special value 0.0.0.0 is used if BOOTP/DHCP is activated.
UpTime	DATE	R0	MES	Retrieves the time how long the crate has been running.
UserBusReset	BOOL	W1	USR	VME: Generate a VME SYSRESET.

Properties provided by all tags
- Item Description (property ID 101)
  This property retrieves a constant help text which describes the function and usage of the tag.

UpTime

Remarks:
Not available if connected via CAN-bus.

NetworkAddressStatic

Limitations:
Only available if connected via TCPIP.

Since:
WienerOPCS 3.0.1142.0.

NetworkAddress

Limitations:
Only available if connected via TCPIP.

Since:
WienerOPCS 3.0.1142.0.

See also:
OPC Namespace Index

Status

Global status of the complete crate.

Node Name

Status

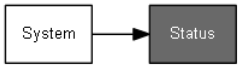
Parent Node

System

Child Nodes

none

Node Relation in the Namespace



Tags

Tag Name	Data Type	Access Level	Update Rate	Description
On	BOOL	R0	MES	FALSE: All channels of the power supply are switched off and locked. TRUE: Channels may be switched on by other commands.
Inhibit	BOOL	R0	MES	FALSE: All channels of the power supply are switched off and locked by an inhibit/interlock signal. TRUE: Channels may be switched on by other commands.
FailureInput	BOOL	R0	MES	Failure of the device supply voltage (e.g. AC mains).
FailureOutput	BOOL	R0	MES	FALSE: All output channels are OK. TRUE: At least one output failure.
FailureSystem	BOOL	R0	MES	Any global system failure (e.g. selftest failure).
FailureFanTray	BOOL	R0	MES	True if one fan is broken.
FailureSensor	BOOL	R0	MES	At least one of the temperature sensors connected to the temperature branch has a failure.
FailureSignal	BOOL	R0	MES	At least one of the items connected to the signal branch has a failure.
FailureUserBus	BOOL	R0	MES	VME: The SYSFAIL signal.
WriteProtect	BOOL	R0	MES	True if SYSTEM_DATA is write-protected.

Properties provided by all tags

- Item Description (property ID 101)
  This property retrieves a constant help text which describes the function and usage of the tag.

See also:

OPC Namespace Index

Output

This node contains all output-relevant items.

Node Name

Output

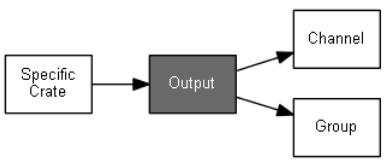
Parent Node

Crate

Child Nodes

- Channel
- Group

Node Relation in the Namespace



See also:

OPC Namespace Index

Channel

This node contains a child node for each crate channel.

Node Name

Channel

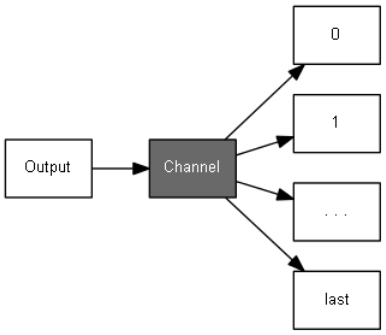
Parent Node

Output

Child Nodes

- 0
- 1
- . . .

Node Relation in the Namespace



See also:
OPC Namespace Index

Channel Number

This node contains all data of a single output channel.

Node Name

Channel Number

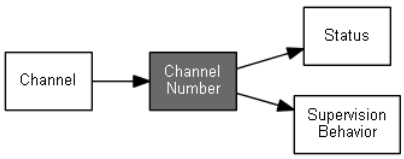
Parent Node

Channel

Child Nodes

- Status
- SupervisionBehavior

Node Relation in the Namespace



Tags

Tag Name	Data Type	Access Level	Update Rate	Description
Name	BSTR	R0	SYS	A textual description of the channel.

OnOff	BOOL	W1		FALSE: Switch this channel off. This clears all error flags. TRUE: Switch this channel on.
ClearEvents	BOOL	W1		Clear all (error) event flags of this channel. It is necessary to clear events before a channel can be switched on again. This is used by MPOD HV modules only.
Voltage	R4	R0. W3	**USR**	Nominal output voltage [V]. The power supply regulates the voltage at the sense connection to this value.
VoltageFineAdjust	R4	R0. W3	**USR**	Adjustment of Voltage in small steps, to get a higher resolution. The value is different from device to device. If the device is replaced by an identical one (e.g. in case of hardware failure), the adjustment has to be done again.
Current	R4	R0, W3	**USR**	Current limit [A]. If the output current grows to this value, the power supply will switch to constant current mode (and the sense voltage will decrease below **Voltage**).
MeasurementSenseVoltage	R4	R0	**MES**	Measured voltage at the sense point [V].
MeasurementTerminalVoltage	R4	R0	**MES**	Measured voltage at the sense point [V].
MeasurementCurrent	R4	R0	**MES**	Measured output current [A].
MeasurementTemperature	I2	R0	**MES**	Retrieves the measured temperature of the power supply module [°C].
SupervisionMaxCurrent	R4	R0, W2	**USR**	Maximum allowed current for good status [A].
SupervisionMinSenseVoltage	R4	R0, W2	**USR**	Minimum allowed sense voltage for good status [V].
SupervisionMaxSenseVoltage	R4	R0, W2	**USR**	Maximum allowed sense voltage for good status [V].
SupervisionMaxTerminalVoltage	R4	R0, W2	**USR**	Maximum allowed terminal voltage for good status [V].
SupervisionMaxTemperature	R4	R0, W2	**USR**	Maximum allowed power supply module termperature for good status [°C].
SupervisionMaxPower	R4	R0, W2	**USR**	Maximum allowed output power for good status [W].
GroupNumber	I2	R0, W2	**USR**	Group number of this channel. (1...127)
VoltageRiseRate	R4	R0, W3	**USR**	Voltage Rise Slew Rate [V/s]. The slew rate of the output voltage if it increases (after switch on or if the **Voltage** has been changed)
VoltageFallRate	R4	R0, W3	**USR**	Voltage Fall Slew Rate [V/s]. The slew rate of the output voltage if it decreases (after switch off or if the **Voltage** has been changed)
RegulationMode	I2	R0, W3	**USR**	Regulation mode. This enumerator should be set according to the load cable length. 0: Fast regulation, short cables. 1: Moderate regulation, medium cables. 2: Slow regulation, long cables.

Properties provided by all tags

- Item Description (property ID 101)
  This property retrieves a constant help text which describes the function and usage of the tag.

Name

Limitations:
Only available if connected via TCPIP.

Since:
WienerOPCS 1.1.0.

OnOff

Limitations:
Only available if the crate type is RCM, PL512 or MPOD.

ClearEvents

Limitations:
Only available if the crate type is MPOD with HV-modules.

Voltage

Properties:

- High EU (property ID 102)
  Constant value 8.
- Low EU (property ID 103)
  Constant value 0.

Limitations:
Only available if the crate type is PL508 or PL512.

Since:
WienerOPCS 1.1.0.

Current

Properties:

- High EU (property ID 102)
  Constant value 8.
- Low EU (property ID 103)
  Constant value 0.

Limitations:
Only available if the crate type is PL508 or PL512.

Since:
WienerOPCS 1.1.0.

MeasurementSenseVoltage

Properties:
- High EU (property ID 102)
  Constant value 8.
- Low EU (property ID 103)
  Constant value 0.

MeasurementTerminalVoltage

Properties:
- High EU (property ID 102)
  Constant value 8.
- Low EU (property ID 103)
  Constant value 0.

Limitations:
Only available if the crate type is PL512

Since:
WienerOPCS 1.1.0.

MeasurementCurrent

Properties:
- High EU (property ID 102)
  Constant value 100.
- Low EU (property ID 103)
  Constant value 0.

MeasurementTemperature

If the hardware is not able to measure analog temperatures (digital temperature switch), special values are returned:

- -32768: Temperature is below the critical limit.
- +32767: Temperature is above the critical limit.

It is possible to remove this tag from the namespace, if no analog tempearture is available. See **Crates** for details.

Properties:
- High EU (property ID 102)
  Constant value 125.
- Low EU (property ID 103)
  Constant value 0.

Limitations:
Only available if the crate type is PL508 or PL512

SupervisionMaxCurrent

Properties:
- High EU (property ID 102)
  Constant value 100.
- Low EU (property ID 103)
  Constant value 0.

SupervisionMinSenseVoltage

Properties:
- High EU (property ID 102)
  Constant value 8.
- Low EU (property ID 103)
  Constant value 0.

Since:
WienerOPCS 1.1.0.

SupervisionMaxSenseVoltage

Properties:
- High EU (property ID 102)
  Constant value 8.
- Low EU (property ID 103)
  Constant value 0.

SupervisionMaxTerminalVoltage

Properties:
- High EU (property ID 102)
  Constant value 8.
- Low EU (property ID 103)
  Constant value 0.

Limitations:
Only available if the crate type is PL508 or PL512

Since:
WienerOPCS 1.1.0.

SupervisionMaxTemperature

Properties:
- High EU (property ID 102)
  Constant value 8.
- Low EU (property ID 103)
  Constant value 0.

Limitations:
Only available if the crate type is PL512

Since:
WienerOPCS 3.0.1140.0.

SupervisionMaxPower

Properties:
- High EU (property ID 102)
  Constant value 1000.
- Low EU (property ID 103)
  Constant value 0.

Limitations:
Only available if the crate type is PL512

Since:
WienerOPCS 1.1.0.

GroupNumber

Limitations:
Only available if connected via TCPIP.

VoltageRiseRate

Properties:
- High EU (property ID 102)
  Constant value 65535.
- Low EU (property ID 103)
  Constant value 0.

Limitations:
Only available if the crate type is PL512

Since:
WienerOPCS 2.1.58.0

VoltageFallRate

Properties:
- High EU (property ID 102)
  Constant value 65535.
- Low EU (property ID 103)
  Constant value 0.

Limitations:
Only available if the crate type is PL512

Since:
WienerOPCS 2.1.58.0

RegulationMode

Properties:
- High EU (property ID 102)
  Constant value 3.
- Low EU (property ID 103)
  Constant value 0.

Limitations:
Only available if the crate type is PL512

Since:
WienerOPCS 3.0.1141.0

See also:
OPC Namespace Index

Status

Status of this channel.

Node Name

Status

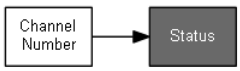
Parent Node

Channel Number

Child Nodes

none

Node Relation in the Namespace



Tags

Tag Name	Data Type	Access Level	Update Rate	Description
On	BOOL	R0	MES	FALSE: Channel is off. TRUE: Channel is on.
Inhibit	BOOL	R0	USR	FALSE: Channel can be switched on. TRUE: Channel can not be switched on.
RampUp	BOOL	R0	USR	FALSE: Voltage is not rising. TRUE: Voltage is rising (because of switch on or voltage change).
RampDown	BOOL	R0	USR	FALSE: Voltage is not falling. TRUE: Voltage is falling (because of switch off or voltage change).
FailureMinSenseVoltage	BOOL	R0	MES	FALSE: OK TRUE: Sense voltage too low.
FailureMaxSenseVoltage	BOOL	R0	MES	FALSE: OK TRUE: Sense voltage too high.
FailureMaxTerminalVoltage	BOOL	R0	MES	FALSE: OK TRUE: Terminal voltage too high.
FailureMaxCurrent	BOOL	R0	MES	FALSE: OK TRUE: Output current too high.
FailureMaxTemperature	BOOL	R0	MES	FALSE: OK TRUE: Temperature failure.
FailureMaxPower	BOOL	R0	MES	FALSE: OK TRUE: Output power too high.
FailureTimeout	BOOL	R0	MES	FALSE: OK TRUE: Communication timeout between power module and the control.

Properties provided by all tags
- Item Description (property ID 101)
  This property retrieves a constant help text which describes the function and usage of the tag.

Inhibit

Since:
WienerOPCS 1.1.0.

RampUp

Remarks:
Not available if connected via CAN-bus.

Since:
WienerOPCS 1.1.0.

RampDown

Remarks:
Not available if connected via CAN-bus.

Since:
WienerOPCS 1.1.0.

FailureMinSenseVoltage

Since:
WienerOPCS 1.1.0.

FailureMaxPower

Remarks:
Not available if connected via CAN-bus.

Since:
WienerOPCS 1.1.0.

FailureTimeout

Remarks:
Not available if connected via CAN-bus.

Since:
WienerOPCS 1.1.0.

See also:
OPC Namespace Index

SupervisionBehavior

Supervision Behavior of this Channel.

If a supervision threshold is exceeded, the behavior is selectable:

- The failure can be ignored.
  This is usefull for tests and the implementation phase, but not recommendet for normal operation.
- Switch this channel off.
  This is the standard action for stand-allone channels.
- Switch all channels belonging to the channel group off.
  If a specific electronic is supplied by more than one channels (e.g. 5V and 3.3V), it may be usefull to switch off all the supplying outputs on a failure.
- Switch all channels of the power supply off.
  This is usefull if parameters, which affect all outputs, are affected. (E.g module temperature)

To prevent damage to the power supply itself, some selections are not allowed for certain items.

Limitations:
Only available if the crate type is RCM or PL512.

Node Name

SupervisionBehavior

Parent Node

Channel Number

Child Nodes

none

Node Relation in the Namespace

Tags

Tag Name	Data Type	Access Level	Update Rate	Description
MinSenseVoltage	I2	R0, W2	USR	Enumerated value: 0: Ignore the failure. 1: Switch this channel off. 2: Switch all channels belonging to the channel group off. 3: Switch all channels of the power supply off.
MaxSenseVoltage	I2	R0, W2	USR	Enumerated value: 0: Ignore the failure. 1: Switch this channel off. 2: Switch all channels belonging to the channel group off. 3: Switch all channels of the power supply off.
MaxTerminalVoltage	I2	R0, W2	USR	Enumerated value: 1: Switch this channel off. 2: Switch all channels belonging to the channel group off. 3: Switch all channels of the power supply off.
MaxCurrent	I2	R0, W2	USR	Enumerated value: 0: Ignore the failure. 1: Switch this channel off. 2: Switch all channels belonging to the channel group off. 3: Switch all channels of the power supply off.
MaxTemperature	I2	R0, W2	USR	Enumerated value: 1: Switch this channel off. 2: Switch all channels belonging to the channel group off. 3: Switch all channels of the power supply off.
MaxPower	I2	R0, W2	USR	Enumerated value: 1: Switch this channel off. 2: Switch all channels belonging to the channel group off. 3: Switch all channels of the power supply off.
Timeout	I2	R0, W2	USR	Enumerated value: 0: Ignore the failure. 1: Switch this channel off. 2: Switch all channels belonging to the channel group off. 3: Switch all channels of the power supply off.

Properties provided by all tags

- Item Description (property ID 101)
  This property retrieves a constant help text which describes the function and usage of the tag.

Since:
The write functionality was implemented in WienerOPCS 1.0.3.

MinSenseVoltage

Since:
WienerOPCS 1.1.0.

MaxPower

Since:
WienerOPCS 1.1.0.

Timeout

Since:
WienerOPCS 1.1.0.

See also:
OPC Namespace Index

Group

This node contains a child node for each channel group. The special group with the name "ALL" contains all existing output channels.

Node Name

Group

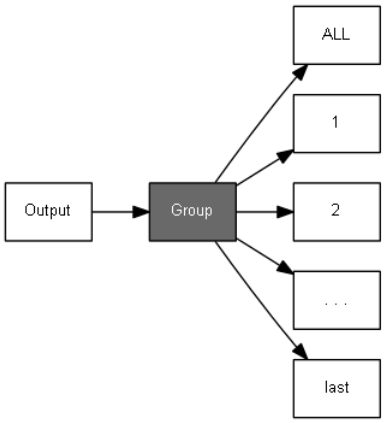
Parent Node

Output

Child Nodes

- **ALL**
- **1**
- **2**
- . . .

Node Relation in the Namespace



Remarks:
Not available if connected via CAN-bus.

See also:
OPC Namespace Index

Group Number

This node contains all items related to all channels of this specific output group.

Node Name

ALL or Group Number

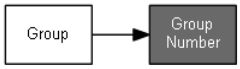
Parent Node

Group

Child Nodes

none

Node Relation in the Namespace



Tags

Tag Name	Data Type	Access Level	Update Rate	Description
OnOff	BOOL	W1		FALSE: Switch all channels of this group off. This clears all error flags. TRUE: Switch this channels of this group on.

Properties provided by all tags
- Item Description (property ID 101)
  This property retrieves a constant help text which describes the function and usage of the tag.

Remarks:
Not available if connected via CAN-bus.

See also:
OPC Namespace Index

Signal

This node contains all special signals.

Node Name

Signal

Parent Node

Crate

Child Nodes

- Digital Outputs

Node Relation in the Namespace

Since:
This is planned to be implemented and nor realized in this server version.

See also:
OPC Namespace Index

Digital Outputs

This node contains all digital output signals.

Node Name

DigitalOutputs

Parent Node

Signal

Child Nodes

- none

Node Relation in the Namespace

Tags

Tag Name	Data Type	Access Level	Update Rate	Description
0 1 ... 31	BOOL	RW	USR	FALSE: The output register bit is set to 0 (no inhibit). TRUE: The output register bit is set to 1 (inhibit).

Properties provided by all tags
- Item Description (property ID 101)
  This property retrieves a constant help text which describes the function and usage of the tag.

Limitations:
Only available if the crate type is PL508_DO (PL508 with the "Output Register" option).

Since:
This is planned to be implemented and not realized in this server version.

See also:
OPC Namespace Index

Sensor

This node contains all special signals.

Node Name

Sensor

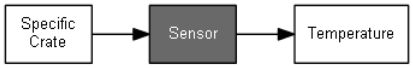
Parent Node

Crate

Child Nodes

- Temperature

Node Relation in the Namespace



See also:
OPC Namespace Index

Temperature

This node contains a child node for each temperature channel.

Node Name

Channel Number

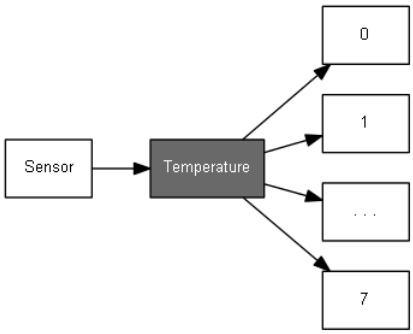
Parent Node

Sensor

Child Nodes

- 0
- 1
- . . .
- 7

Node Relation in the Namespace



See also:
OPC Namespace Index

Channel Number

This node contains all data of one temperature channel.

Node Name

Channel Number

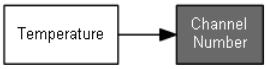
Parent Node

Temperature

Child Nodes

none

Node Relation in the Namespace



Tags

Tag Name	Data Type	Access Level	Update Rate	Description
MeasurementTemperaturee	R4	R0	MES	The external sensor temperature[°C].
SupervisionWarnTemperature	R4	R0, W2	USR	If this temperature is exceeded, the fan tray switches to full speed.
SupervisionMaxTemperature	R4	R0, W2	USR	If this temperature is exceeded, all outputs are switched off.
FailureMaxTemperature	R4	R0, W2	MES	The temperature sensor has reached the SupervisionMaxTemperature threshold.

Properties provided by all tags

- Item Description (property ID 101)
  This property retrieves a constant help text which describes the function and usage of the tag.

See also:

OPC Namespace Index

FanTray

This node contains all fan-specific items.

Node Name

FanTray

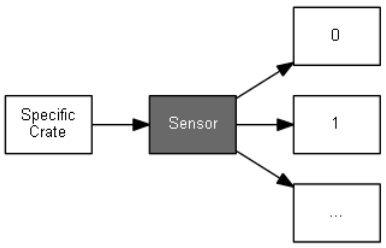
Parent Node

Crate

Child Nodes

- 0
- 1
- . . .

Node Relation in the Namespace



Tags

Tag Name	Data Type	Access Level	Update Rate	Description
FanSpeed	R4	R0, W2	USR	The nominal fan speed of all fans [RPM].
MeasurementFanSpeed	R4	R0	MES	The average fan speed [RPM].
TripIfFanFailure	BOOL	R0	USR	If true, all output channels will be switched off in case of a fan failure.
OpeartingTime	DATE	R0	MES	The fan operating time (incremented if the fans are running).

Properties provided by all tags

- Item Description (property ID 101)
  This property retrieves a constant help text which describes the function and usage of the tag.

See also:

OPC Namespace Index

Fan Number

This node contains all data of a specific fan.

Node Name

Fan Number

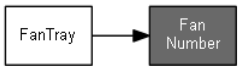
Parent Node

FanTray

Child Nodes

none

Node Relation in the Namespace



Tags

Tag Name	Data Type	Access Level	Update Rate	Description
MeasurementFanSpeed	R4	R0	MES	The fan speed [RPM].

Properties provided by all tags

- Item Description (property ID 101)
  This property retrieves a constant help text which describes the function and usage of the tag.

See also:

OPC Namespace Index

PowerSupply

This node contains all power supply specific items.

Node Name

FanTray

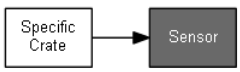
Parent Node

Crate

Child Nodes

none

Node Relation in the Namespace



Tags

Tag Name	Data Type	Access Level	Update Rate	Description
OpeartingTime	DATE	R0	MES	The power supply operating time (incremented if the outputs are switched on).

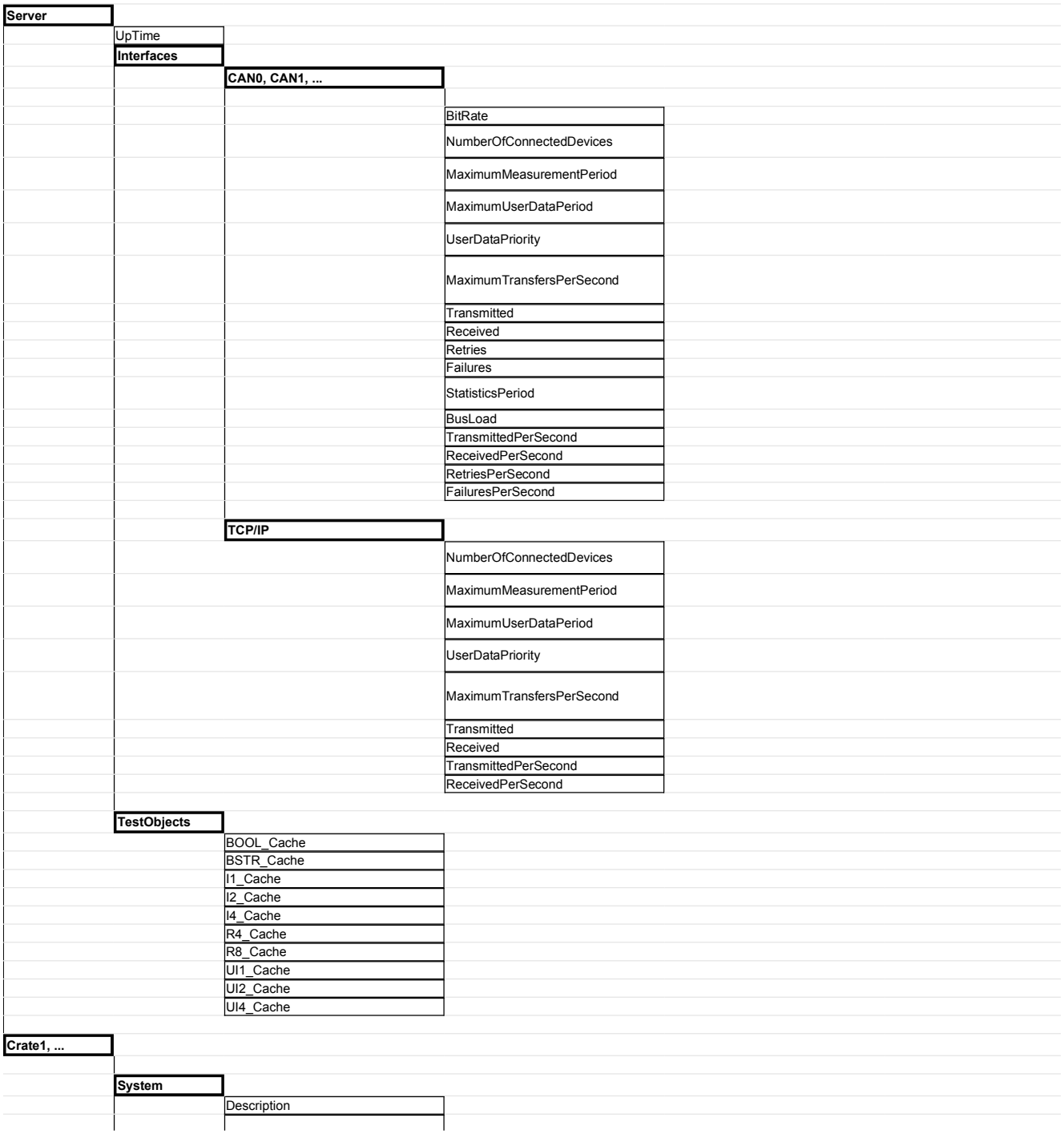
Properties provided by all tags

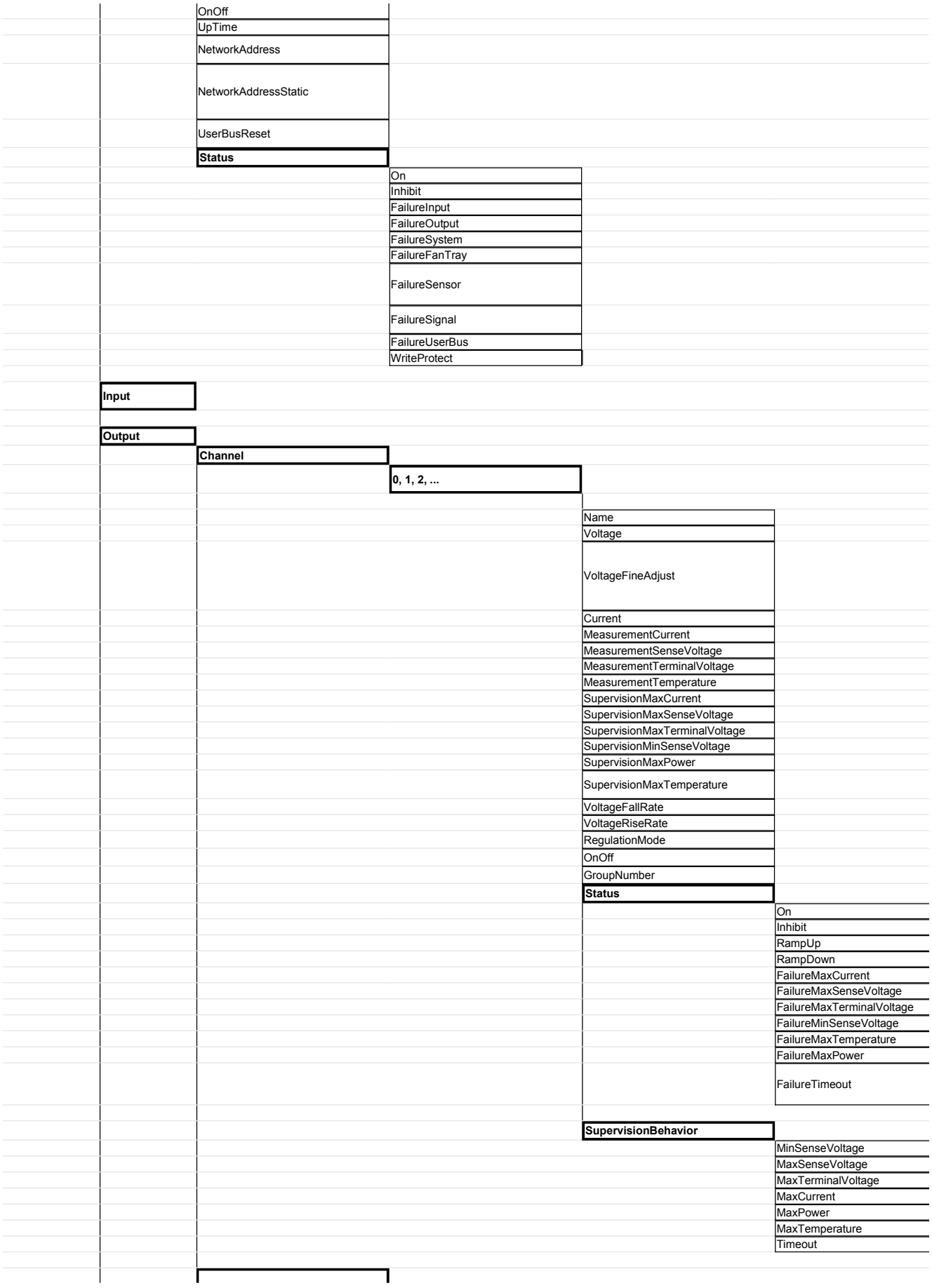
- Item Description (property ID 101)
  This property retrieves a constant help text which describes the function and usage of the tag.

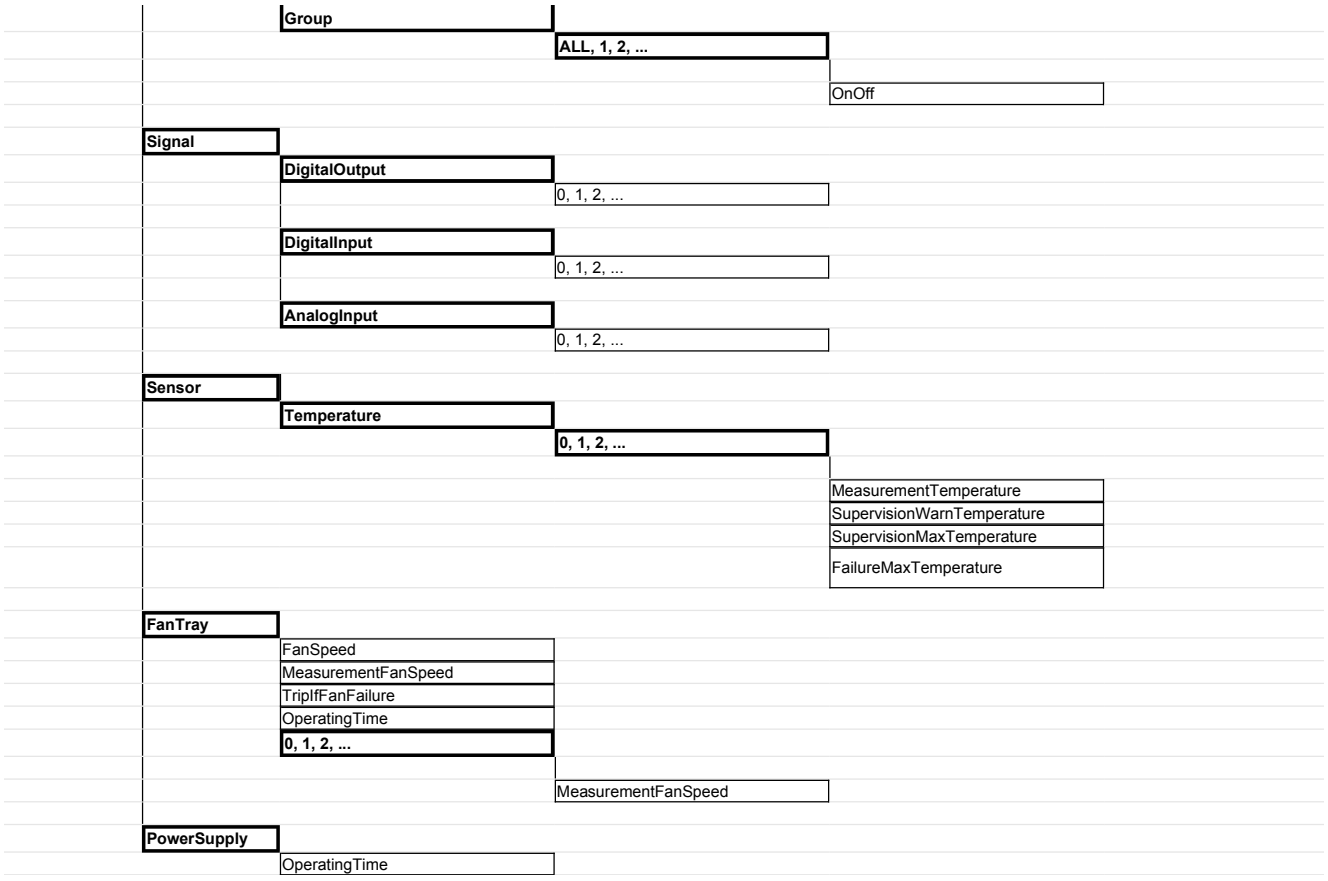
See also:

OPC Namespace Index

Namespace Tree




OnOff
UpTime
NetworkAddress
NetworkAddressStatic
UserBusReset
Status
On
Inhibit
FailureInput
FailureOutput
FailureSystem
FailureFanTray
FailureSensor
FailureSignal
FailureUserBus
WriteProtect
Input
Output
Channel
0, 1, 2, ...
Name
Voltage
VoltageFineAdjust
Current
MeasurementCurrent
MeasurementSenseVoltage
MeasurementTerminalVoltage
MeasurementTemperature
SupervisionMaxCurrent
SupervisionMaxSenseVoltage
SupervisionMaxTerminalVoltage
SupervisionMinSenseVoltage
SupervisionMaxPower
SupervisionMaxTemperature
VoltageFallRate
VoltageRiseRate
RegulationMode
OnOff
GroupNumber
Status
On
Inhibit
RampUp
RampDown
FailureMaxCurrent
FailureMaxSenseVoltage
FailureMaxTerminalVoltage
FailureMinSenseVoltage
FailureMaxTemperature
FailureMaxPower
FailureTimeout
SupervisionBehavior
MinSenseVoltage
MaxSenseVoltage
MaxTerminalVoltage
MaxCurrent
MaxPower
MaxTemperature
Timeout



Special Requirements for the WienerOPCS Server

Update Rate

The update rate is the time period after all tag objects of an OPC group are reloaded.

This forces the OPC server to retrieve the data from the connected hardware. This is done in any case (even if the OPC server 'knows' that the data will never change, e.g. the serial number of a connected hardware) to give the client the opportunity to verify the hardware data.

There is a server-wide minimal update rate (0.5 seconds) for all OPC items, but if a client tries to retrieve all possible tags with this update rate, this will generate massive network traffic between the server and the connected hardware. So it is possible that the OPC quality of some items changes to BAD "(not connected)".

All OPC item tags are assigned to the following classes:

MES: Measurement Data

This data is generated by the hardware dynamically and may change at any time.

Examples for this are **UpTime** or **MeasurementCurrent**.

USR: User Data

This data is stored in a hardware flash/eeprom. The data can be modified by the user during normal operation (e.g. with manual switches at the front pannel or via OPC)

An example for this is **SupervisionMaxCurrent**.

SYS: System Data

This data is stored in a special hardware flash/eeprom section. The data can not be modified by the user during normal operation, but can be changed by the manufacturer.

FIX: Fix Data

This data is stored in the firmware flash of the hardware and will only change during firmware update. It will never change during the time the hardware is connected to the OPC server.

An example for this is **Description**.

Configuration File Reference

The configuration file "WienerOPCS.cfg" is used to configure the server. The file is a text file, formatted in XML, with the root element **WienerOPCS**.

The file WienerOPCS.cfg ist installed in the WienerOPCS directory during the first installation. This file must be edited to match the local system, and will not be overwritten during succeeding installations.

The file WienerOPCS.template.cfg file contains all possible configuration elements.

The configuration file "WienerOPCS.cfg" is searched in the following directories in the following sequence:

1. The directory from which the application loaded.
2. The current directory.
3. The system directory.
4. The 16-bit system directory.
5. The Windows directory.
6. The directories that are listed in the PATH environment variable.

WienerOPCS

Element Name
WienerOPCS

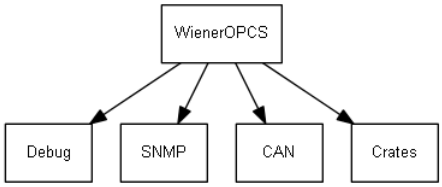
Element Attributs

Attribute	Default	Description
version	1.0	version of the configuration file syntax
date	20051101	the last modification date (YYYYMMDD)
time	124500	the last modification time (HHMMSS)

Parent Element
This is the root element of the configuration file.

Child Elements
- **Debug - Debug and trace**
- **SNMP**
- **CAN**
- **Crates - Collection of all crates controlled by this server**

Element Relation



Remarks:
The configuration file "WienerOPCS.cfg" is searched in the following directories in the following sequence:
1. The directory from which the server application loaded.
2. The current directory.
3. The system directory.
4. The 16-bit system directory.
5. The Windows directory.
6. The directories that are listed in the PATH environment variable.

See also:
Configuration File Element Index

Debug and Trace

All debug and trace-specific items.

Element Name
Debug

Parent Element
WienerOPCS

Child Elements
none

Element Attributs

Attribute	Default	Description
TraceErrorLevel	0xffffffff	All error messages enabled
TraceWarningLevel	0xffffffff	All warning messages enabled
TraceInfoLevel	0x00000003	Some informational messages enabled
TraceDebugLevel	0x00000000	All debug messages disabled. Enabling debug will produce massive output to the log files ans slow down the system!
TraceFileMaxSize	1000000	Maximum trace file size(MB)
TraceFile	OPCSlog.log	Name of trace file
TraceMaxBackups	1	The maximum number of backups Trace files created

Remarks:

- The "Debug" section contains the name of (alterneted) log files, the maximum file size, a global variable which enables/disables complete logging, and separate logging variables for ERROR, WARNING, INFORMATION and DEBUG. Each bit in the variables enables/disables certain debug messages.
  Setting DEBUG to 0xffffffff will produce massive output (which may decrease the performance of the server).
  If no log filename is defined in the configuration, the file "OPCSlog.log" will be used. DEBUG versions of the server send the messages to the system debugger, too, which can be captured with siutable tools (e.g. DebugView)

See also:
Configuration File Element Index

SNMP

All SNMP-specific parameters.

Element Name

SNMP

Parent Element

WienerOPCS

Child Elements

none

Attributes

Element Attributs

Attribute	Default	Description
ReadCommunity	public	Community name for SNMP get operations.
WriteCommunity	private	Community name for SNMP set operations.
Timeout	100	The default time span (in milliseconds) after a message is resent if no response had arrived. The OPC server knows the necessary exact timeout value for many specific data items. The default value is used only if the specific value is unknown.
Retries	2	The number of times the message is retransmitted after a timeout.
UserDataPriority	1.0	The relation of USER_DATA / MEASUREMENT_DATA i/o operations.
MaximumTransfersPerSecond	10.0	The maximum number of i/o-operations per connected device per second. Zero means no limit.

Access Level

The SNMP subsystem uses different community names for different access levels. The higher access level includes the lower ones. The OPC server uses the ReadCommunity string for all read operations, and the WriteCommunity string for all write operations.
The ReadCommunity and WriteCommunity attributes must be set to the appropriate community name of the controlled crates.
Example: If change of the output voltage should be performed by the OPC server, the WriteCommunity string must be set to the level 3 crate community name, default "guru".

Access Level	SNMP Default Community Name	Description
R0	public	Only read access.
R0, W1	private	Switching channels on and off allowed.
R0, W2	admin	Change of supervision limits allowed.
R0, W3	guru	Change of output voltage and current limit allowed.

See also:
Configuration File Element Index

CAN

All CAN-bus specific parameters.

This configuration element contains one child element (starting with Interface0) for each logical CAN-bus interface of the computer.
There must be at least one interface element.

Element Name

CAN

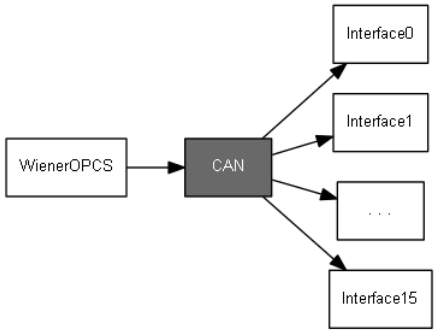
Parent Element

WienerOPCS

Child Elements

- **Interface0**
- **Interface1**
- **...**
- **Interface15**

Element Relation



Attributes

none

See also:
Configuration File Element Index

Interface0, Interface1, ..., Interface15

Data of one logical CAN-bus interface.

Element Name

Interface..

Parent Element

CAN

Child Elements

none

Attributes

Element Attributs

Attribute	Default	Description
Driver	Kvaser	Defines the type of the used driver. Allowed values are Kvaser, Peak.
Channel	the lowest available	The physical CAN-bus channel number of the driver (output connector number), starting at 0.
BitRate	1M	Transfer speed of this channel. Allowed values are 1M, 500k, 250k, 125k, 100k, 50k, 20k, 10k, 5k
Timeout	500	The default time span (in milliseconds) after a message is resent if no response had arrived. The OPC server knows the necessary exact timeout value for many specific data items. The default value is used only if the specific value is unknown.
Retries	1	The number of times the message is retransmitted after a timeout.
UserDataPriority	1.0	The relation of USER_DATA / MEASUREMENT_DATA i/o operations.
MaximumTransfersPerSecond	10.0	The maximum number of i/o-operations per connected device per second. Zero means no limit.

See also:
Configuration File Element Index

Crates

Collection of all crates controlled by this server.

Element Name

Crates

Parent Element

WienerOPCS

Child Elements

- **Crate**

Element Attributs
none

See also:
Configuration File Element Index

Crate

Data of one specific crate.

There is one crate element for each existing crate.

Element Name

Crate

Parent Element

Crates

Child Elements

none

Attributes

Attribute	Default	Description
Alias	no default	OPC node name for this crate. If the **Address** attribute is a range, the enumerated part of the address can be inserted at any position with the standard printf() format. Example: Alias="CAN Crate %2.2d" and Address="0.1-3" will create three crates with the aliasses "CAN Crate 01", "CAN Crate 02" and "CAN Crate 03".
Transport	SNMP	Network transport. Allowed values are SNMP, CAN
Address	SNMP: 127.0.0.1 or CAN: 0.1	Address string. TCPIP: Dotted-decimal IP address of the crate. An address range can be defined with the format XXX.YYY.ZZZ.START-END, where XXX, YYY and ZZZ are fixed values and START and END define the enumeration range. CAN: The address (1..127) of the crate. If more than one CAN-bus interface is available, the logical interface number (starting with 0) seperated by a dot is preceded. (see **CAN**) An address range can be defined with the format IF.START-END, where IF is the fixed interface number and START and END define the enumeration range.

Remarks:
Depending on the transport type specific prerequisites must be satisfied:
- NetSNMP and TCPIP connection for SNMP.
- KVASER driver for CAN.

See also:
Configuration File Element Index

WienerOPCS Command Line Parameters

Usage: WienerOPCS [option]

Options:

- -r, -RegServer
  Registers the server in the Windows registry.
  This is necessary to start the server automatically by the OpcEnum service.
  This is done during the WienerOPCS installation.
- -u, -UnRegServer
  Unregisters the server in the Windows registry.
- -e, -Embedded
  Embedded operation: Terminates server if not used.
- -c ConfigFile
  Specifies the configuration file (default: WienerOPCS.cfg).
- Any illegal option will show a short help message and terminate the program.

Modifying the WienerOPCS Service behavior

Registering the OPC server sets all necessary Windows registry items.

The default behavior is to start the server with the -embedded option, which automatically terminates the server after the last client disconnects. This can be changed by editing the Windows registry. If you are not familiar with the Windows registry and its tools contact your system administrator. Doing something wrong can destroy your complete system!

The relevant key is stored under \HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\WienerOPCS\ImagePath. If you have installed the server at the default location, its value is

"C:\Program Files\W-IE-NE-R\WienerOPCS\WienerOPCS.exe -embedded"

If you do not want the server to terminate automatically remove the " -embedded" string from the value.

The OPC server must be restarted to recognize the changes.

OPC Namespace Index

This is an alphabetically sorted list of all WienerOPCS namespace nodes.

- **Channel**
- **Channel Number**
- **crate name**
- **Output**
- **Group**
- **Group Number**
- **root** of the namespace
- **Server**
- **Status** (Output.Status)
- **Status** (System.Status)
- **SupervisionBehavior**
- **System**
- **TestObjects**

Configuration File Element Index

This is an alphabetically sorted list of all WienerOPCS.cfg configuration elements.

- **CAN**
- **Crate**
- **Crates**
- **Debug**
- **Interface (CAN-bus configuration)**
- **SNMP**
- **WienerOPCS**

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Wiener-OPCS

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