OPC Data Access Server

Administrator's Guide

IndigoVision

Preface

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1 ABOUT THIS GUIDE

This guide is provided for system administrators integrating the OPC Data Access Server with IndigoVision IP Video and Alarm Management systems.

References

The following documents are referenced in this document. The paths are to the default locations where the documents can be found.

1. OPC foundation:

   http://www.opcfoundation.org

2. Control Center Help

   Start menu >IndigoVision >Control Center 4 >Control Center Help (located on the Control Center 4 server)

Conventions used

This guide uses the following formats for safety notices:

Note   *Additional information relating to the current section.*

Caution   *Potential hazard that could seriously impair operation.*

Warning   *Potential hazard that could damage the product or impair network function.*

2   OVERVIEW

The IndigoVision OPC Data Access Server allows the current state of alarm zones and detectors from IndigoVision's IP Video and Alarm Management system to be made available via an OPC XML Data Access Server. This document explains how to install and configure the OPC Data Access Server.

Compatibility

Please ensure you have properly installed, configured, and licensed the OPC Data Access Server.

System Requirements

See the product datasheet for the currently supported Windows® operating systems.

OPC XML DA 1.01

The OPC Data Access Server is compatible and has been tested with OPC XML DA 1.01 clients.

Network Video Recorders

The OPC Data Access Server cannot be run on the same machine as an IndigoVision NVR-AS.

USB License Dongle

The OPC Data Access Server is a licensed product. A correctly licensed USB dongle must be present on the system running the OPC Data Access Server.

    ► *See License Dongle Issues on page 20 for troubleshooting information for the USB license*

3   INSTALLATION

Pre-Installation

Complete the following steps before installing the OPC Data Access Server.

- Allocate a port number for the OPC Data Access Server to listen for connection requests from OPC XML DA clients. The default is port 80.

- Configure any firewalls or routers between the OPC XML DA Client and the OPC Data Access Server to allow connections through to the OPC Data Access Server on this port.

Integration Module Installation

Ensure that the OPC Data Access Server USB license dongle is inserted into the machine that the software is to be installed on before installing.

Note: *If upgrading an existing installation of OPC Data Access Server version 1.0, refer to Upgrading from OPC Data Access Server v1.0 on page 10.*

To install the OPC Data Access Server:

1. Insert the IndigoVision Integrations DVD or download the Integration Module components from the Support area of the IndigoVision website.

2. Navigate to *IntegrationModules > OPC Integration Module > OPC Data Access Server,* and run *setup.exe*. Follow the on screen instructions.

   The OPC Data Access Server is installed to: *C:\Program Files\IndigoVision\Integration\OPC Data Access Server*.

3. Specify the system configuration parameters in the system configuration file (System.conf).

   ► *See System Configuration File (System.conf) on page 13*

   This file is presented during install. Save and close the file.

4. Specify the Alarm Servers (NVR-ASs) in the Alarm Server list configuration file (FromIvAlarmServers.conf). The OPC Data Access Integration Module will register with the Alarm Servers (NVRs) in this list to receive new alarms and make them available as OPC Data Access items.

   ► *See Alarm Servers Configuration file (FromIvAlarmServers.conf) on page 16*

This file is presented during install. Save and close the file.

5.   Specify the mappings of IndigoVision zones and detectors to OPC DA items.

   ▶ *See Alarms from IndigoVision Configuration File (FromIv.conf) on page 15*

   This file is presented during install. Save and close the file.

6.   Start the OPC Data Access Server service from the service control manager (Services) in the Administrative Tools in the Control Panel.

Upgrading from OPC Data Access Server v1.0

When installing OPC Data Access Server v2.0 on a PC with an existing v1.0 installation please keep in mind the following;

•   You must first manually uninstall the 1.0 version of the OPC Data Access Server.

   Use the *Remove* button in the Windows *Add or Remove Programs* Control Panel application.

•   Your existing configuration files (System.conf, AlarmServers.conf and any alarms from IV configuration files) will be preserved. However, these existing files are not compatible with version 2.0 of the OPC Data Access Server.

   Samples of the new file formats can be found in the install location *C:\Program Files\IndigoVision\Integration\OPC Data Access Server* and in this document.

   Note: *The AlarmServers.conf file has been renamed to FromIvAlarmServers.conf.*

•   Apart from the AlarmServerStatus data item, all OPC DA items presented by the OPC Data Access Server now have a boolean format (rather than String format event counters). As a result you may need to reconfigure your OPC XML DA Client.

4   CONFIGURATION

To integrate zones and detectors in the IndigoVision system as OPC DA items, there are three aspects that need to be configured:

1. Edit the system configuration file.

2. Configure the IndigoVision zones and detectors of interest.

3. Configure the list of IndigoVision Alarm Servers.

Note: *The OPC Data Access Server service must be manually restarted for configuration file changes to have an effect.*

System Configuration file (System.conf)

This file contains all the system configuration parameters.

► *See System Configuration File (System.conf) on page 13*

Alarms from IV Configuration file (FromIv.conf)

This file contains the mapping between the IndigoVision zones or detectors and the OPC DA item. It identifies the zones and detectors of interest on the IndigoVision Alarm Server and the matching OPC DA items.

► *See Alarms from IndigoVision Configuration File (FromIv.conf) on page 15*

Alarm Servers Configuration file (FromIvAlarmServers.conf)

This file contains a list of Alarm Server (NVR-AS) IP addresses. Each Alarm Server has a mapping to an Alarm from IV configuration file. However, this can be the default FromIv.conf configuration file mentioned above.

► *See Alarm Servers Configuration file (FromIvAlarmServers.conf) on page 16*

IndigoVision Control Center Configuration

If the IMOnline, IMOffline, 3rdPartyOffline or 3rdPartyOnline event IDs are defined in the system configuration file and are of interest then they must be configured in Control Center.

► *See References on page 5*

Building the OPC XML DA namespace

When the OPC Data Access Server starts up it reads all of the configured FromIv files. This contains entries for an OPC tag of OPCGroupNode.OPCItem. However, to differentiate between different FromIv files and, therefore NVR-ASs, the OPC DA namespace is built up as:

`FromIv.OPCGroupNode.OPCItem`

The FromIv grouping comes from the name of the FromIv file, without the .conf extension.

The OPCGroupNode.OPCItem component comes from the FromIv entries.

Only the leaf items (OPCItem) of this OPC namespace can have values. The others are for organisation purposes – much like a directory structure.

Understanding the OPC XML DA item values

All OPC XML DA item values are presented as OPC Booleans. The exception is the Alarm Server Status OPC XML DA item which, if configured, is presented as an OPC String. All OPC XML DA items have the OPC quality of *GOOD*.

IndigoVision Zones

IndigoVision zones that are to be mapped to OPC XML DA items are identified by the name of the zone displayed in Control Center. For OPC XML DA items representing IndigoVision zones, values can be true or false. False indicates that the zone is in any state other than *Alarmed* or *Acknowledged*. True indicates that the zone is in either the *Alarmed* or *Acknowledged* states.

IndigoVision Detectors

IndigoVision detectors that are to be mapped to OPC XML DA items are identified by the name of the detector and the name of the zone they are within. For OPC XML DA items representing IndigoVision detectors, values can be true or false. False indicates that the detector is in any state other than *Active*. True indicates that the detector is in the *Active* state.

Alarm Server (NVR-AS) status

For Alarm Server (NVR-AS) status, the corresponding items can hold the string values *offline* and *online*.

5 SYSTEM CONFIGURATION FILES

This section contains examples of the configuration files required by the OPC Data Access Server.

System Configuration File (System.conf)

This file lists the configurable system parameters that are independent of alarms and events.

The usage of the parameters listed in the sample configuration file below is explained in their comments:

```
[AlarmServer]

#
# MANDATORY: The IP address of the primary Alarm Server (NVR)
# must be specified
#
IP=0.0.0.0


[SystemEvents]

#
# SystemEvents are events that may be sent to Control Center to report the
# status of, or problems with, the Integration Module.
#
# The number assigned to a system event is a user-defined event number
# that corresponds to an external system input number of an alarm source
# in Control Center.
#


#
# If IMOffline is defined, an event with this number will be sent
# to the NVR/Alarm Server whenever the Integration Module is about to go
# offline.
# Reasons for going offline include a manual service stop request, the host
# pc shutting down, or when the USB license dongle is removed or expires
# (trial dongles only).
#
# IMOffline=1


#
# If IMOnline is defined, an event with this number will be sent
# to the NVR/Alarm Server whenever the Integration Module has
# successfully started up.
#
```

```
# IMOnline=2


#
# If the 3rdPartyOffline property is defined, an event with this
# number will be sent to the NVR/Alarm Server whenever no OPC DA
# XML Client is connected.
#
# 3rdPartyOffline=3


#
# If the 3rdPartyOnline property is defined, an event with this
# number will be sent to the NVR/Alarm Server whenever no OPC DA
# XML Client is connected.
#
# 3rdPartyOnline=4



[OPCSystemEvents]

#
# OPCSystemEvents are OPC DA items that may be set so that an
# OPC DA client can know the status of, or problems with,
# the Integration Module.
#
# The text assigned to an OPC system event is used as follows:
# The entry is composed of an OPC namespace
# group node and an OPC namespace leaf item entry
# and is separated by a '.'
#


#
# If the AlarmServerStatus property is defined, each
# NVR/Alarm Server will appear as an OPC item
# within the OPC group structure assigned to the property.
# The line monitoring status of the NVR/Alarm Servers
# will be set to "online" or "ofline" for the value of their
# corresponding OPC item.
#
# AlarmServerStatus=system.alarmserverstatus



[Options]

#
# Options are optional properties specific to the OPC Data
# Access Server Integration Module
#


#
# The port number for the XML Data Access Server to listen on.
# The default is 80
#
# XmlDataAccessPort=80



[Log]

#
```

```
# The log level.
# The default log level is "info", which will log each alarm sent to the
# NVR/Alarm Server and all errors.
#
# Change to "err" to minimize the log output to just errors.
# Change to "debug" to maximize log output.
#
# Logging level
#    err     (minimize output, log errors only)
#    info    (log alarms and errors)
#    debug   (maximize output, log all information)
#
# Level=info
```

Alarms from IndigoVision Configuration File (FromIv.conf)

By default, the installation provides one default alarm from IndigoVision configuration file located in the FromIv folder. The file is called *FromIv.conf*.

There is one mapping entry per line in the mapping file. Each entry is a comma-separated pair.

```
# This file maps Alarm Server Zones and Detectors to OPC DA entries.

# The event type ('ZONE' or 'DETECTOR'), the zone name and detector name are
# all separated by a ':'.
# Assuming your Alarm Server is configured with unique zone names and
# detector names are unique within each zone, these parameters together form
a
# single unit that uniquely describes the IndigoVision zone or detector.

# This is separated from the OPC DA entry by a ','.
#
# The OPC DA entry is composed of an OPC namespace
# group node and an OPC namespace leaf item entry
# and is separated by a '.'.

# Examples:
#
# ZONE:IvZone 1,Biogroup.Binary1
# ZONE:IvZone 2,BuildingA.Hallway
# DETECTOR:IvZone 2:Frontdoor,BuildingA.FrontDoor

# Illegal Characters:
#
# The Zone and Detector names cannot contain the characters ',' or ':' or
'\'.
# Also, any leading or trailing whitespace will be stripped.
#
# However, octal escape codes can be added to include these characters.
# Note that as the backslash is used as the escape character then the
# backslash itself requires to be escaped via an octal escape code.
#
# The valid range for octal escape codes is \001 to \177
#
```

```
# Some frequently used escape codes:
# Character ' ': => \040 - for allowing leading or trailing spaces
# Character ':': => \072
# Character ',': => \054
# Character '\': => \134
#
# Example:
# ZONE:IvZone\07201,group1.item1
#
# The OPC DA entry cannot contain the characters ',', '/', '\' or '.'.
# Use of octal escape codes in the OPC DA entry is NOT supported.
```

Note: *For the purposes of OPC Data Access Server, zone names are assumed to be unique within each IndigoVision Alarm Server. Detector names are similarly assumed to be unique within each zone. These restrictions are not enforced by the IndigoVision Alarm Server or Control Center.*

Alarm Servers Configuration file (FromIvAlarmServers.conf)

This file contains a list of IndigoVision Alarm Server IP addresses that receive IndigoVision alarms. Each Alarm Server IP address is (optionally) associated with an Alarms From IndigoVision configuration file as shown in the example.

```
#
# List of each Alarm Server (NVR) and its FromIv file (without .conf
extension)
#
# Each entry consists of up to three comma separated fields
#
# The first field is the IP address of the Alarm Server (mandatory).
#
# The second field is the Alarms From IV configuration file excluding file
# extension of ".conf" (mandatory). All Alarms From IV configuration files
# are located in the "FromIv" folder.
# For example an entry of "FromIv" indicates that the
# Alarms From Iv configuration file is .\FromIv\FromIv.conf
#
# The optional third field can be used to provide a description.
#
# Note that it is possible to set up all Alarm Servers to use the one
default
# Alarms From Iv configuration file by entering "FromIv" as the second field
# for all entries.

# IP address, FromIv file, Description (optional)

# Example using all three fields:
#
# 0.0.0.0, FromIv, Default FromIv\FromIv.conf

# Example using two fields:
#
# 0.0.0.0, FromIv
```

All the entries should include a valid IP address for the first field.

Any text that follows a # is treated as a comment in a configuration file. Therefore, if a FromIv.conf file includes a # in its file name, and that file name is configured in FromIvAlarmServers.conf file, the configuration is not correctly identified by OPC Data Access Server and consequently the OPC Data Access Server may not work as expected.

6   TROUBLESHOOTING

Internal OPC Server fails to start

If the OPC Data Access Server fails to start and the log file states `Error preparing internal OPC server instance` check that there are no port conflicts with another process listening on the same port as the OPC Data Access Server.

A tool that can be used to help identify ports in use is netstat. The `-ab` option lists all ports in use together with the associated executable.

1. From *Start > Run*, type in `cmd`, then click *OK*.

2. Type `netstat -ab` at the command prompt.

   ► *Refer to netstat documentation for more information.*

Events not appearing as OPC DA items

If alarms are not appearing as OPC DA items then the following end-to-end check for a single alarm may help to determine the source of the problem.

1. Check that a valid and correctly licensed USB HASP license dongle has been inserted into a working USB port for the OPC Data Access Server.

   If this has not been done then the OPC Data Access Server will not start and there will be errors in the log file such as `USB license key check failed: License dongle not found`.

2. Check that the OPC Data Access Server has been configured correctly.

3. Enable debug level logging.

   Do this by setting `Level=debug` in the `[Log]` section of the system configuration file, then restart the OPC Data Access Server service. This will allow the Integration Module to log all zone alarms and detector activation events received from the Alarm Server, not just those that have been mapped in the Alarms From IV file.

   Verify that the OPC Data Access Server is sending zone and detector events to the internal OPC Data Access Server by opening the most recent log file and checking for messages. For example:

```
2011-12-08 08:28:00 [system] FromIv Zone event 'Zone1:Alarmed' received from
Alarm Server '10.1.166.20'.
2011-12-08 08:28:00 [system] Sending FromIv zone event
'10.1.166.20:Zone1:Alarmed (TestGroup.Zone1)' to OPC Data Access Server...
2011-12-08 08:28:00 [system] Setting OPC tag value FromIv:TestGroup:Zone1 to
true.
```

If the step above does not identify that an alarm has been sent for the IndigoVision zone or detector of interest then look to see if the Integration Module is receiving the event or alarm but has not been configured. For example:

```
2011-12-08 08:32:43 [system] FromIv Zone Alarmed event received
'10.1.166.20:Zone1'. It is not configured to send to the third party system.
2011-12-08 08:32:43 [system] FromIv Detector Triggered event received
'10.1.166.20:4:Detector1'. It is not configured to send to the 3rd party
system.
```

If the event is shown in the log file as not being configured, then one or both of the Alarms From IV configuration file or Alarms Server configuration file are not correctly configured to forward this event to the internal OPC DA Server.

License Dongle Issues

If the OPC Data Access Server is installed on a machine that has not had Aladdin HASP software installed previously then no license dongle issues should be encountered.

However, possible issues may occur if the machine to be installed on has previously had Aladdin HASP software installed on it.

Possible Issues

Occasionally there can be issues arising with the use of the Aladdin HASP license dongle on machines that currently have, or have been in the past, installed with the Aladdin HASP software.

This manifests itself as:

- The inability to install the Aladdin HASP software driver correctly during the installation process of the OPC Data Access Server.

- Being unable to correctly check and validate the USB licence dongle as it is inactive after the installation process.

Aladdin HASP Driver Software Version

The OPC Data Access Server installation will attempt to install version 5.95 of the Aladdin HASP Driver Software as a merge module install.

There are known incompatible uninstall issues with versions previous to v5.0 of the Aladdin HASP Driver Software.

To determine the version of the HASP driver used then check the registry entry for:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Aladdin Knowledge
Systems\HASP\Driver\Installer\Version
```

Note: *This is the registry location for version 5.95. Other versions may differ.*

How to check for Aladdin HASP software

To ascertain whether Aladdin HASP software is installed then check the windows registry for an entry of:

HKEY_LOCAL_MACHINE\SOFTWARE\Aladdin Knowledge Systems

To ascertain whether Aladdin HASP software has been installed at some point regardless of whether a registry entry exists then check for the existence of Aladdin common files in the directory:

[Program Files]\Common Files\Aladdin Shared

where *[Program Files]* refers to your Windows program files directory (normally *"C:\Program Files"*)

How to check that the Aladdin HASP dongle is active

If the Aladdin dongle is working correctly then a red LED will be illuminated on the dongle.

Also check that the device drivers are listed in *Device Manager*:

1. Navigate to Control Panel > System.

2. Select the Hardware tab.

3. Select Device Manager.

4. Navigate to Universal Serial Bus Controllers, and expand the list.

   Check that the following are listed:

   • Aladdin HASP HL Key

   • Aladdin HASP Key

   • Aladdin USB Key

Alarms from IndigoVision (FromIv) Configuration

The configuration of alarms from IndigoVision requires one Alarm Servers configuration file and one or more FromIv configuration files.

The Alarm Servers configuration file is FromIvAlarmServers.conf and the default location for this file is *C:\ProgramData\IndigoVision\Integration\OPC Data Access Server\FromIvAlarmServers.conf.*

There is a shortcut to this from the Start menu.

Start->All Programs->IndigoVision->OPC Data Access Server->Edit From Iv Alarm Server Configuration File

Within the FromIvAlarmServers.conf file there is a list of Alarm Servers (NVR-AS). Each entry is composed of an Alarm Server IP address and the name of the FromIv configuration file (without file extension) to use as FromIV configuration for that Alarm Server.

The FromIv configuration file names specified in the FromIvAlarmServers.conf file lets the integration module know where to look for these FromIv files.

The approach is to add a `.conf` extension and then look for a matching file within the sub-folder called `FromIv`. The default location for this sub-folder on Windows 7 is *C:\ProgramData\IndigoVision\Integration\OPC Data Access Server\FromIv.*

Example 1

If there is an entry of:

`192.168.0.1, FromIv`

in AlarmServers.conf then the FromIv configuration file for the Alarm Server with the IP address 192.168.0.1 is:

`FromIv\FromIv.conf`

The full default path on Windows 7 would be:

C:\ProgramData\IndigoVision\Integration\OPC Data Access Server\FromIv\FromIv.conf

Example 2

If there is an entry of:

`192.168.0.2, nvr-as-1`

in AlarmServers.conf then the FromIv configuration file for the Alarm Server with the IP address 192.168.0.1 is:

`FromIv\nvr-as-1.conf`

The full default path on Windows 7 would be:

C:\ProgramData\IndigoVision\Integration\OPC Data Access Server\FromIv\nvr-as-1.conf

OPC Data Access Server v2.0 fails to install

Version 2.0 of the OPC Data Access Server cannot be installed on a PC with version 1.0 already installed due to an issue with the license dongle driver. The following error message will be displayed if the installer detects that there is an older version of the OPC Data Access Server already installed; `Previous OPC Data Access Server installation found. You must remove it before installing this version.`

► *See Upgrading from OPC Data Access Server v1.0 on page 10*

A   Default Ports Diagram

The default OPC Data Access Server listening port is 80. However, the listening port is configurable so as to allow co-residency of the OPC Data Access Server on the same machine as a standard web server. This port is indicated with a double border.

The ports indicated with a broken border are assigned by the system from the list of available free ports.