



OPC-HTTP Gateway

1		1
2	,	1
1	1
2	2
3	2
4	3
3		3
1	3
2	3
4		4
1	4
2	4
3	5
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12	19

1

HTTP-HTTP(S) , OPC- OPC-HTTP (DA1, DA2, DA3 UA). OPC-

2

2.1

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1. OPC-HTTP Gateway
2. OPC-HTTP Gateway
sales@aggsoft.ru
3. OPC-HTTP Gateway
OPC-HTTP Gateway
4. **OPC-HTTP Gateway** "AS IS".
- 5.
6. OPC-HTTP Gateway

7. HTTP Gateway
HTTP Gateway.

OPC-
OPC-

2.2

shareware-

- 21
-
- 65535

2.3

2.4

OPC-HTTP Gateway	support@aggsoft.ru
	support@aggsoft.ru
	sales@aggsoft.ru

3

3.1

- Windows 2000 SP 4 - Windows 10 (x86 x64,).

COM-

3.2

OPC-HTTP Gateway.

Gateway", OPC-HTTP Gateway "\Programs Files\OPC-HTTP

OPC-HTTP Gateway

4

4.1

```

    opchttpgate.xml
    opchttpgate.exe.   OPC UA
opcuahttpgate.xml,   opcuahttpgate.exe

HTTP-

:

<Config>
  <Log file="opchttpgate.log" info="1" warning="1" error="1" limit="1000000" />
  <HTTPServer port="80;443" ssl="0" auth="1" staticfilepath="files\" log="1"
logdetailed="0">
    <Users>
      <User login="admin" password="admin" />
      <User login="user" password="user" />
    </Users>
    <AllowedIPs>
      <IP>127.0.0.*</IP>
      <IP>192.168.1.*</IP>
    </AllowedIPs>
  </HTTPServer>
</Config>

```

4.2

```

"Log" XML

:

<Log file="opchttpgate.log" info="1" warning="1" error="1" limit="1000000" />

file (
;
) -

:

info (
"1" (
),
;
: 1) -

warning (
info,
;
: 1) -

```

```
error ( ; : 1) -
    info,
```

```
limit ( ; : 100000) -
```

4.3

"DesktopModeSettings" XML

```
<DesktopModeSettings>
  <CustomTitle addversion="1">File OPC Server</CustomTitle>
  <CustomLabel>Uptime</CustomLabel>
  <ExitPassword enabled="1">admin</ExitPassword>
  <StopPassword enabled="1">admin</StopPassword>
</DesktopModeSettings>
```

```
CustomTitle ( ; : ) -
    "addversion" "1",
```

```
CustomLabel ( ; : ) -
```

```
ExitPassword ( ; : ) -
    "enabled" "1",
    "blockuserlogout" "1",
```

```
StopPassword ( ; : ) -
    "enabled" "1",
```

4.4 HTTP-

"File" XML

HTTP-

```
<HTTPServer port="80;443" ssl="0" auth="1" staticfilepath="files\" log="1"
logdetailed="0">
```



```

port (
    TCP- ;
    : 80) - TCP-
(«;»). HTTP-

ssl (
    «1» ( ),
    «0», 443, HTTP- SSL.
    SSL.

websocket (
    «1» ( ),
    : 0) -
    WebSocket

auth (
    «1» ( ), HTTP-
    « » (Basic Authentication). Users HTTP-
    «

staticfilepath (
    ;
    : files) -
    GET.

log (
    «1» ( ), HTTP-
    : 1) -

logdetailed -
    «1» ( ), HTTP-

```

(Users)

```

:
<User login="admin" password="admin" />

```

IP- (AllowedIPs)

```

IP- IP- , HTTP-
IP-
IP- «?» «*».
:
192.168.1.* - IP- 192.168.1.0 192.168.1.255

```

AllowedOPC

OPC

"?" "*"

server_id () -

host (:) -

IP- OPC-
OPC HTTP.

<AllowedOPC>

<!-- remove all "OPC" nodes if you want to allow access for all. Mask characters * and ? are allowed -->

<OPC server_id="opcserversim.Instance.*" host="*">

<User login="*" />

</OPC>

</AllowedOPC>

OPC-

«opcserversim.Instance».

4.5

SSL

HTTP-
SSL

SSL,

01ServerCert.pem -

01ServerKey.pem -

127.0.0.1.

OpenSSL.

SSL

4.6 WebSocket

"demo_websocket.html",

JSON.

[HTTP](#)

4.7 OPC UA

OPC-HTTP Gateway

OPC UA

- None ()
- Sign ()
- Sign & Encrypt ()
- Basic128Rsa15
- Basic256
- Basic256Sha256

OPC-HTTP Gateway

OPC UA
"None".

OPC-HTTP Gateway

() OPC

```
Application Uri:urn:aggsoft.com.opc.client.application
Serial Number: 00f8e216f16b422e72
Signature algorithm: sha256RSA
Issuer: CN = aggsoft.com.opc.client@localhost;O = aggsoft.com;C = DE
Subject: CN = aggsoft.com.opc.client@localhost;O = aggsoft.com;C = DE
Thumbprint: 2603744fb26c3345fce0f6880e451fe76b9e19c0
```

5

Windows.

cmd.exe

Windows Vista (cmd.exe)

: ophttpgate.exe /AI

: ophttpgate.exe /R

"OPC HTTP Gateway Service"

(cmd.exe)

ophttpgate.exe /?

6 HTTP-

6.1

HTTP

1. HTTP- GET POST.
2. POST: «application/x-www-form-urlencoded».
3. POST POST, HTTP- «Post Data»,
4. HTTP- JSON Content-Type «application/json; charset=utf-8».
5. (, -) , HTTP- 400 (Bad Request -) .
6. (, HTTP- 403 (Access Denied -) .

7. HTTP-

WebSocket

- 1. HTTP- WebSocket.
- 2. JSON, UTF-8.
- 3. HTTP- (
- 4. HTTP- JSON.
- 5. HTTP- (subscribe) OPC ,

6.2

(write)

13	
1	Null ()
2	Smallint ()
3	Integer ()
4	Single ()
5	Double ()
6	
7	
8	
11	
16	ShortInt ()
17	
18	
19	
20	Int64
21	Word64

6.3

OPC

OPC
():

0x00 - (BAD).
 0x40 - (UNCERTAIN).
 0xC0 - (GOOD).

BAD:

0x04 - (CONFIG ERROR).
 0x08 - (NOT CONNECTED).
 0x0C - (DEVICE FAILURE).
 0x10 - (SENSOR FAILURE).
 0x14 - (LAST KNOWN).
 0x18 - OPC (COMM FAILURE).
 0x1C - (OUT OF SERVICE).

UNCERTAIN:

0x44 - (LAST USABLE).
 0x50 - (SENSOR CAL).
 0x54 - (EGU EXCEEDED).
 0x58 - (SUB NORMAL).

GOOD:

0xD8 - (LOCAL OVERRIDE).

6.4

JSON

success - « » « »;

processed - , data,

data -

name - OPC OPC-

group - OPC.

value - OPC.
data_type - _____ .
quality - _____ OPC, OPC .
timestamp - _____ , OPC OPC
 (_____ UTC). OPC _____ OPC,
 _____ .
update_count - _____ API.
 _____ 0, _____ OPC .
clsid - _____ OPC- .
desc - _____ OPC- .
path - (_____ OPC UA) _____ OPC .
 _____ "\u000D" ASCII _____ CR.

6.5

_____ OPC- .
 _____ : get-servers.json
 _____ :
host (_____ , _____) - IP- _____ .
 _____ HTTP- .
 _____ HTTP:
 http://127.0.0.1/get-servers.json?host=192.168.1.180
 http://127.0.0.1/get-servers.json
 _____ WebSocket JSON:
 {"command":"get-servers", "host":"192.168.1.180"}
 {"command":"get-servers"}
 _____ :
 {"command":"get-servers", "success": true, "processed": 1, "data":
 [{"name": "opcerversim.Instance.1", "desc": "Demo server", "clsid": "{0a9db5fd-
 4ca5-4611-84fb-3f5b75692fa9}", }]}

OPC UA: discovery-
Local Discovery Server OPC Foundation

6.6

OPC-

: get-tag-tree.json

server (,) - OPC-

host (,) - IP- OPC-
OPC UA , .

HTTP:

http://127.0.0.1/get-tag-tree.json?server=opcserver.sim.Instance.1

WebSocket JSON:

```
{"command": "get-tag-tree", "server": "opcserver.sim.Instance.1"}
```

WebSocket JSON OPC UA:

```
{ "command": "get-tag-tree",  
  "server": "opc.tcp://192.168.1.3:16664/OpenOpcUaCoreServer" }
```

OPC DA:

```
{ "command": "get-tag-tree", "success": true, "data":  
  [ { "name": "Channel1.Device1.Tag1", "data_type": 8 },  
    { "name": "Channel1.Device1.Tag2", "data_type": 3 },  
    { "name": "Channel1.Device1.Tag3", "data_type": 3 },  
    { "name": "Channel2.Device1.Tag1", "data_type": 3 } ] }
```

OPC UA:

```
{ "command": "", "success": true, "data":  
  [ { "name": "NS4|string|  
  ByteString", "display_name": "ByteString", "data_type": 0, "path": "NonUaNodeComplianceTest" },  
    { "name": "NS4|string|  
  SByte", "display_name": "SByte", "data_type": 0, "path": "NonUaNodeComplianceTest" },  
    { "name": "NS4|string|  
  Time", "display_name": "Time", "data_type": 0, "path": "NonUaNodeComplianceTest" },  
    { "name": "NS4|string|  
  String", "display_name": "String", "data_type": 0, "path": "NonUaNodeComplianceTest" } ] }
```


OPC UA

- OPC (Node Id) OPC
1. (, NS4).
 2. (number, string, octet, guid).
 3. (, ByteString).
- "path"** "\".

6.7

(100 OPC- 1000 OPC-)

OPC

: subscribe.json

:

server (,) - OPC-

host (,) - IP- OPC-

group (OPC- OPC-) -

tag (,) - () OPC-
Get Tag Tree.

OPC DA

« » («|»).

OPC UA

(\u0009) (\u000D).

HTTP:

<http://127.0.0.1/subscribe.json?server=opcserver.sim.Instance.1&group=MyGroup1&tag=Channel1.Device1.Tag1|Channel1.Device1.Tag2>

WebSocket JSON:

```

{"command": "subscribe", "server": "opcserver.sim.Instance.1", "group": "MyGroup1",
"tag": "Channel1.Device1.Tag1|Channel1.Device1.Tag2"}
{"command": "subscribe", "server": "opcserver.sim.Instance.1", "group": "MyGroup1",
"tag": "Channel1.Device1.Tag1\u00DChannel1.Device1.Tag2"}

:

{"command": "subscribe", "success": true, "processed": 1}

{"command": "subscribe", "success": false, "processed": 0}

```

6.8

HTTP-
OPC-
: unsubscribe.json
:
server (,) - OPC-
host (,) - IP- OPC-
group (,) -
tag,
group «*»,
tag (,) - (. group).

HTTP:

```

http://127.0.0.1/unsubscribe.json?server=opcserver.sim.Instance.1&tag=Channel1.Device1.Tag1|
Channel1.Device1.Tag2
http://127.0.0.1/unsubscribe.json?server=opcserver.sim.Instance.1&group=MyGroup
http://127.0.0.1/unsubscribe.json?server=opcserver.sim.Instance.1&group=*

```

WebSocket JSON:

```

{"command": "unsubscribe", "server": "opcserver.sim.Instance.1", "tag":
"Channel1.Device1.Tag1| Channel1.Device1.Tag2"}
{"command": "unsubscribe", "server": "opcserver.sim.Instance.1", "group": "MyGroup"}
{"command": "unsubscribe", "server": "opcserver.sim.Instance.1", "group": "*" }

:

```

```
{"command": "unsubscribe", "success": true, "processed": 1}
```

```
{"command": "unsubscribe", "success": false, "processed": 0}
```

6.9

: list-subscribed.json

:

server (,) - OPC-

host (,) - IP- OPC-

group (,) -

group «*»,

HTTP:

http://127.0.0.1/list-subscribed.json?server=opcserverim.Instance.1&group=*

WebSocket JSON:

```
{"command": "list-subscribed", "server": "opcserverim.Instance.1", "group": "*"}
```

:

```
{"command": "list-subscribed", "success": true, "data":
[{"name": "Channell.Devicel.Tag1", "group": "MyGroup"},
{"name": "Channell.Devicel.Tag2", "group": "MyGroup"},
{"name": "Channell.Devicel.Tag3", "group": "MyGroup"}]}
```

6.10

OPC , OPC HTTP- OPC- ,
 , (SyncRead). OPC ,
 : read.json

```

:
server (          ,          ) - OPC-          .
host (           ,           ) - IP-           OPC-          .
group (          ,          ) -          .
tag,
group «*»,
tag (           ,           ) - (          .
group.

```

HTTP:

```
http://127.0.0.1/read.json?server=opcserverim.Instance.1&tag=Channel1.Device1.Tag1
```

WebSocket JSON:

```
{ "command": "read", "server": "opcserverim.Instance.1", "tag":
"Channel1.Device1.Tag1" }
```

```
{ "command": "read", "success": true, "processed": 1,
"data": [ { "name": "Channel1.Device1.Tag1", "group": "MyGroup",
"value": "123", "quality": "0xC0", "timestamp": "2016-10-27 06:23:24", "data_type":
8 } ] }
```

WebSocket :

```
{ "command": "read", "async": true, "success": true, "processed": 1,
"data": [ { "name": "Channel1.Device1.Tag1", "group": "MyGroup",
"value": "123", "quality": "0xC0", "timestamp": "2016-10-27 06:23:24", "data_type":
8 } ] }
```

```

data -
:
name -
group -
value -
data_type - _____
quality - _____ OPC , OPC
timestamp - , OPC

```

6.11

```

        ,
        .
        OPC
        OPC-
        ,
        .
        : write.json
        :
server (
    ,
) - OPC-
host (
    ,
) - IP- OPC-
group (
    ,
) -
tag (
    ,
) - OPC.
value (
    ,
) -
data_type (
    ,
) -
    ,
    .
    ,
    .

```

HTTP:

```

http://127.0.0.1/write.json?
server=opcerversim.Instance.1&group=MyGroup&tag=Channel1.Device1.Tag1&value=321&data_type=8

```

WebSocket JSON:

```

{"command": "write", "server": "opcerversim.Instance.1", "group": "MyGroup", "tag":
"Channel1.Device1.Tag1", "value": "321", "data_type": 8}

```

:

```

{"command": "write", "success": true, "processed": 1}

```

6.12

jQuery
demo.html

«files»

URL- :

HTTP : <http://127.0.0.1:8080/demo.html>

HTTPS : <https://127.0.0.1:8443/demo.html> (,
SSL ,

).

HTTP UA : http://127.0.0.1:8080/demo_http_ua.html

WebSocket : http://127.0.0.1:8080/demo_websocket.html

OPC-HTTP Gateway.