Users manual

GOL installation

Version 1.0

CLUSTERPARK

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Content

List of pictures

List of tables

1 GOL and its components

GOL is Clusterpark developed powerful log data consolidation solution with open, XML standard, document oriented data base that provide very fast data analysis. With GOL can be detected the security breaches, software related and technical problems in IT infrastructure (computers, servers, network devices etc.). GOL can be used as complementary solution to other analysis tools for deeper understanding of processes in different systems for investigation and quick decisions for preventive activities.
GOL has following components:

- **golLoader**: agent for log entry collection from files and sending them to database (golDB) for consolidation from local network or within WAN. GOL installation has two agents: one for collection of logs from Linux based systems and another one for log data collection from devices with Windows operating systems;
- **golDB**: consolidated log entry database, that has been built on Clusterpoint XML document oriented NoSQL database engine;
- **GOL-GUI user interface**: GOL web oriented user interface for access of consolidated log data, search of information in them, data representation in graphical form and event monitoring in real-time with dashboards and alerts for crucial events;
- **API**: for integration of data from golDB with other analytics systems or creation of statistics reports with simple XML requests from applications like MS Excel. More information about API and how to use it can be found at Clusterpoint Wiki page.

1.1 Description of golLoader agents

golLoader agents for Linux operating systems and WinGol for MS Windows OS are installed on devices (servers or computers) where the log data must be collected for transmission to golDB. Agents transmit log data to golDB within time intervals that can be configured centrally from GOL-GUI. They provide collection of actual and historical (rotated) log data. Besides the transmitting of log data agents contact the golDB at regular time intervals for receiving of configuration changes.

1.2 Description of golDB

golDB provides indexing and consolidation of log data received from agents in a single database. Thanks to technologies built in the Clusterpark database engine golDB provides fast information search by using single words, phrases or complex queries with Boolean expressions. golDB can be clustered and mirrored thus building systems for ensuring additional data security and increased productivity. More about Clusterpark DB engine and its capabilities can be found at www.clusterpoint.com. GOL has several database instances whose role is described in *Table 1*.

Table 1. Description golDB database instances.

Name of database	Description of database
golDB	All log entries received from golLoader agents are stored there.
golcfg	Contains information about all sorts of GOL configuration parameters. golLoader settings are stored there as well.
golstat	There are stored the settings necessary for operation of dashboards and alerts.

golDB has its own web oriented management system that allows configuration of clusters and monitoring of resources used.

1.3 Description of GOL-GUI

GOL-GUI provides access to information collected in golDB and functionality for its analysis:

- Time graphs for highly interactive, visual evaluation of log entry amounts within selected time periods for finding of periods with increased or decreased amounts of log entries that can indicate the potentially anomalous activity;
- Network graphs for visualization of all log sources, their cross-links and statuses;
- Broad possibilities for Google-like information search by using simple words, phrases, Boolean expressions and structured queries;
- Dashboards for real-time IT infrastructure and software monitoring with time graphs and selective search queries;
- Real-time alerts about crucial events by using selective search queries and set of rules for their identification;
- Preservation of search queries for later reuse of them;
- Centralized configuration and management of golLoader agents;
- Configuration of GOL general settings.

GOL-GUI is created by using HTML5 and it can be used with smart phones and tablets.

2 Requirements for GOL installation

GOL should be installed on Linux operating systems. 32 and 64 bit Linux OS is supported. Currently GOL could be installed on - Debian, Fedora, CentOS and Suse.

GOL can be installed on Windows or Mac OS too. In this case the virtualization environment (like Oracle Virtual Box) with, supported by GOL, Linux OS installed must be used.

MS Windows event log file agent can be installed on MS Windows 2000, Vista, XP, 7, 8 workstation and MS Windows Server operating systems.

Hardware requirements for using GOL largely depend on amount of log files that should be consolidated and analyzed. Minimum requirement is to have at least 2 CPU cores, 4Gb RAM and 10Gb free disk space. golDB management system can be used for monitoring of resources and planning of them, taking into account the time how long the data should be stored.

GOL trial can be used for evaluation of resources and functionality before purchase of licensed solution.

3 GOL installation sequence

GOL is prepared and available as Linux installation package. Package contains all components for GOL as described in chapter *1 GOL and its components* excluding WinGol agent for Windows OS that could be installed separately.

Recommended GOL installation sequence is following:

- Prepare for installation and download GOL installation package. Described in chapter *3.1 Preparing for GOL installation*;
- Install golDB, GOL-GUI and Linux golLoader. Described in chapter *3.2 Installation of golDB, GOL-GUI and Linux golLoader*;
    - perform additional configuration of the CentOS operating system if necessary. Described in chapter *3.4 Additional configurations for CentOS operating system*;
- Configure SNMP trap. Described in chapter *3.5 Configuration of SNMP trap*;
- Perform configuration of GOL settings. Described in chapter *4 GOL configuration after installation*;
- Connect to GOL on golDB server installed golLoader. Described in chapter *5 Linux golLoader configuration*. Step can be omitted if golLoader on golDb server was not installed;
- Optional installation of other golLoader Linux agents. Described in chapter *3.3 Installation and initial configuration of individual golLoader on other Linux hosts*;
- Optional installation of WinGol MS Windows agents. Described in chapter *6 Installation and configuration of Windows golLoader agent (WinGol)*.

3.1 Preparing for GOL installation

Before GOL installation the hardware or virtual machine with supported Linux OS must be prepared.
During installation the SMTP server settings will be asked to enter (chapter *3.2.1 golDB installation and initial configuration*). Therefore it is recommended before installation to ascertain the SMTP server address. That can be done in several ways. For example:

- In case that on user computer the "Outlook" or „Thunderbird" is installed, than note e-mail sending settings;
- Ask for SMTP address the system administrator or internet service provider;

It is highly recommended to assign static IP address to host where GOL installation is planned.
In order to download GOL package in Linux command line can be entered command *wget* or *curl* and link to appropriate Linux package:

- Debian, Ubuntu, Suse: Use command *wget;*

```
root@GOL-debian64-03-2014:/home/gol# wget http://clusterpark.com/download/gol-de
bian_amd64.run
```

- CentOs, RedHat, Fedora: Use command *curl;*

```
[root@CentOS64 ~]# curl -o /root/gol-centos-.x86_64.run http://www.clusterpark.c
om/download/gol-centos.x86_64.run
```

3.2 Installation of golDB, GOL-GUI and Linux golLoader

3.2.1 golDB installation and initial configuration

After downloading of installation package go to the folder where package is stored. For installation of package use command s*h* or *./*:

```
[root@CentOS64 ~]# sh gol-centos.x86_64.run
Verifying archive integrity... All good.
Uncompressing GOL......
================================================================
=              Clusterpark Log Processing and Search           =
================================================================

Welcome to installation wizard.
This wizard will ask you few simple questions and perform initial
 configuration.

cat: /etc/timezone: No such file or directory
Package 'gol-gui'. This package provides indexing and analysis
 functionality and requires Clusterpoint Server v2
Would you like to install 'gol-gui' package? (YES/NO) _
```

To continue golDB installation, on question„ … install 'gol-gui' package?" enter *„YES"*, but for cancellation of installation process enter *„NO"*.

After an authorization to begin the installation host will be checked for necessary components. All components necessary for GOL are included in installation package and if something will be found missing on host, it will be installed.

```
Wizard will now perform some checks for requirements and will
 offer you to install missing packages. Please answer 'yes' to
 any prompts from package manager
Press any key to continue_
```

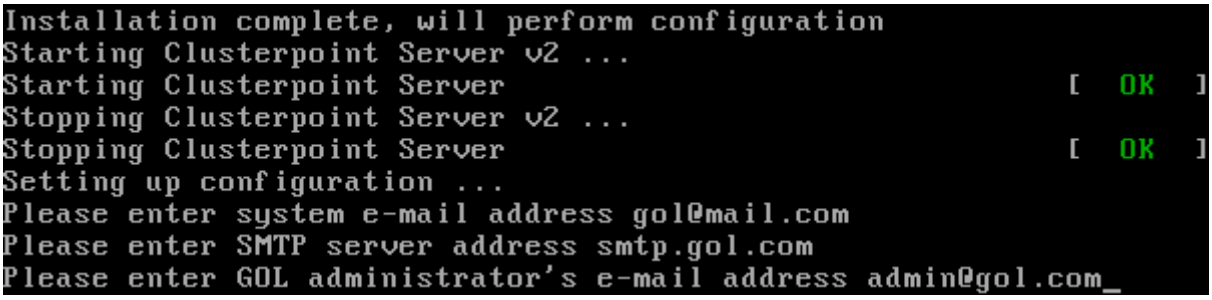
To start component checking any key could be pressed.

After checking of necessary components a list of golDB software setup and installation size will be displayed to user.

```
Dependencies Resolved

================================================================================
 Package       Arch     Version         Repository                        Size
================================================================================
Installing:
 cps2-server   x86_64   2.3.0.71p-0     /cps2-server-2.3.0.71p-0.x86_64   59 M

Transaction Summary
================================================================================
Install       1 Package(s)

Total size: 59 M
Installed size: 59 M
Is this ok [y/N]: _
```

- To continue installation type „*y*" and press "Enter";
- To cancel golDB installation type „*n*" and press "Enter".

After golDB installation initial configuration must be done.



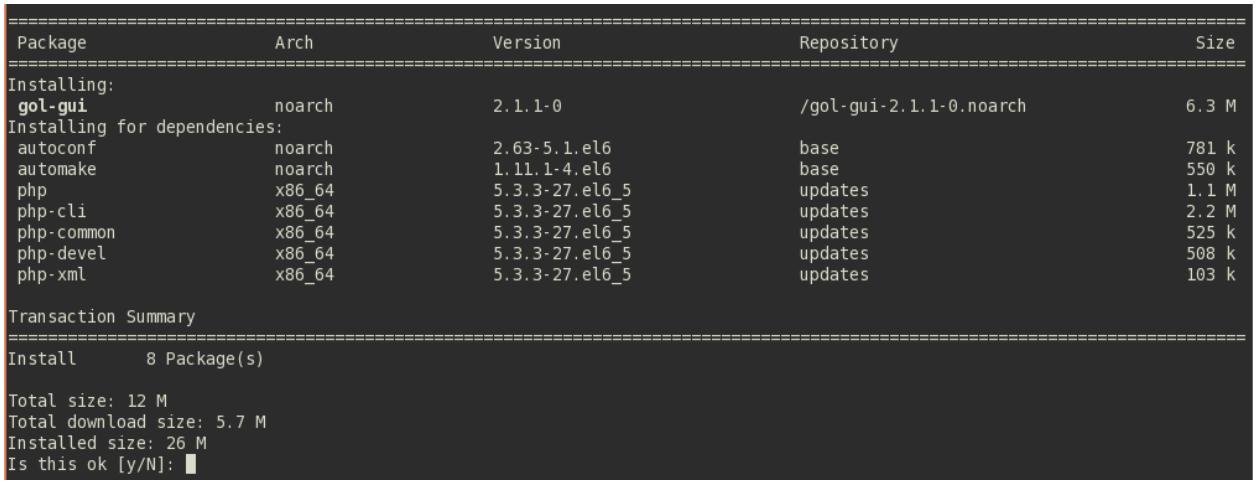
In requested fields enter information as needed:

- **Please enter system e-mail address** GOL system e-mail address;
- **Please enter SMTP server address** SMTP server address;
- **Please enter GOL administrator's e-mail address** GOL administrator e-mail address;

golDB installation and configuration is finished and in next step installation of GOL-GUI is offered.

3.2.2 GOL-GUI installation

After checking of necessary components a list of GOL-GUI software setup and installation size will be displayed to user.



- To continue installation type „*y*" and press "Enter";
- To cancel GOL-GUI installation type „*n*" and press "Enter".

After installation of GOL-GUI additional configuration is not necessary and in next step installation of golLoader is offered.

3.2.3 Linux golLoader installation and initial configuration

golLoader agent can be installed on any Linux computer or server. It is recommended to install loader on golDB server as well for monitoring its Linux environment.

```
Configuration complete

Package 'gol-loader'. This package provides log files loading
 functionality. This is client for 'gol-gui' package, which
 must be installed on this server or somewhere else.
Would you like to install 'gol-loader' package? (YES/NO) _
```

- To continue installation of loader on golDB server type „*Yes*" and press „Enter";
- If golLoader installation on GolDB server is not necessary, type „*No*" and press „Enter".

If golLoader installation on golDB server is confirmed, than after checking of necessary components, a list of golLoader software setup and installation size will be displayed to user.

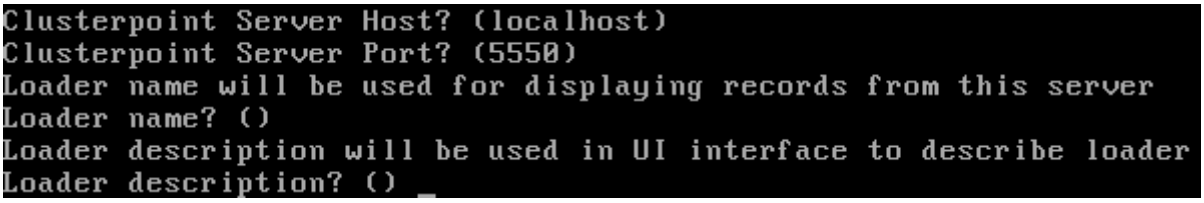
```
Dependencies Resolved

================================================================================
 Package         Arch        Version      Repository                      Size
================================================================================
Installing:
 gol-loader      noarch      2.1.1-0      /gol-loader-2.1.1-0.noarch      18 M

Transaction Summary
================================================================================
Install       1 Package(s)

Total size: 18 M
Installed size: 18 M
Is this ok [y/N]: _
```

- To continue installation type „*y*" and press "Enter";
- To cancel golLoader installation type „*n*" and press "Enter".

After installation of loader its initial configuration is needed. It is required to use already installed golLoader parameters or configure them.

```
Complete!
Installation complete, will perform configuration now ...
Would you like to use the same configuration as for 'gol-gui' package? (YES/NO)
```

It is recommended to use existing GOL-GUI settings by typing „*Yes*" and pressing „Enter".



Important settings installation will offer by default. Description of settings is available in *Table 2*.

Table 2. Description of golLoader installation settings.

Settings field	**Input description**
Clusterpoint Server Host?	By default – (localhost). Input must be approved by pressing „Enter”.
Clusterpoint Server Port?	Specifies the network port through which golLoader will send data. By default the port – (5550) will be used. Input must be approved by pressing „Enter”.
Loader name? ()	Must be specified the name of server or computer (host) on which the loader will be installed. This name will be used to identify host in golDB and GOL-GUI. Input must be confirmed by pressing “Enter”.
Loader description? ()	In this field description of host can be written. This field is not mandatory. Input must be confirmed by pressing “Enter”.

3.2.4 Linux golLoader configuration file.

If golDB server IP address has been changed or during golLoader installation wrong settings had been entered, they can be changed directly in golLoader configuration file. It is recommended to do changes in settings in following steps:

1) Login to Linux with root user rights by using commands *„su –l”* or *„sudo –s”*:

```
gol@gol-demo:~$ su -l
Password:
root@gol-demo:~# _
```

2) Stop the golLoader service with command: *„/etc/init.d/gol-load stop”*:

```
root@gol-demo:~# /etc/init.d/gol-load stop
[ ok ] Stopping GOL log loader process...done.
```

3) Open configuration file in Linux text editor (*vi, nano, gedit* u.c.). Configuration file is located in folder: */usr/local/GOL-loader/conf.ini*:

```
root@gol-demo:~# vi /usr/local/GOL-loader/conf.ini
```

4) Change the setting that was entered wrongly. Description of settings is available in *Table 3*.

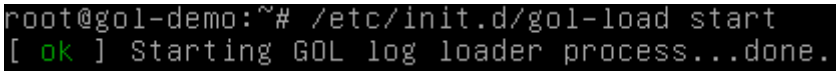
```
;This is loader configuration file.

[general]
loader_id = "f5fe9e7d139700a378c3760b1c36a72077bc8c41"
name = "gol-demo"
description =
maxrows =
sleep =

[database]
address = "localhost"
protocol = "tcp"
port = "5550"
username = "gol"
password = "y2sP"

[cof_file_1]
path = "log_sources.ini"
type = "linux"
```

Table 3. Full description of golLoader configuration settings.

Settings field	Settings description
Loader_id =	Automatically created golLoader identification in golDB. Should not be changed.
name =	Name of host on which golLoader was installed. This name is used for loader identification in golDB and GOL-GUI. Can be changed if necessary.
description =	Additional description of host. Can be changed if necessary.
maxrows =	Specifies the number of records loader sends to golDB each session. By default, it is 200 records.

sleep =	Logs transmission time interval. The default is 20 sec.
address =	golDB server IP address.
protocol =	A network protocol used for connection to golDB. By default, the - tcp.
port =	Specifies the network port through which golLoader send data.
username =	Username for connection to golDB.
password =	Password for connection to golDB.
path =	The log data source configurations file name and location.
type =	Type of operating system – „linux" or „Windows".

5) Start golLoader service by entering command: *„/etc/init.d/gol-load start*"



Warning! – If golLoader already was configured in GOL-GUI before changes in configuration file, than as soon as golLoader connects to the golDB, the values in fields "name", "discription", "sleep" and "maxrows" will be change according the configuration already saved in database. There fore changes in these fields directly in configuration file are not necessary and they can be changed in GOL-GUI **Configuration** section **Hosts**.

3.3 Installation and initial configuration of individual golLoader on other Linux hosts

Installation of golLoader Linux agent on other hosts can be performed only after initial configuration of GOL.

For installation of golLoader on other hosts the GOL full installation package must be used, just omit the unnecessary parts as golDB and GOL-GUI.

For installation of golLoader follow the instructions described in chapter *3.1 Preparing for GOL installation* or start it from storage (HDD, flash disk) where it was stored after initial download.

```
================================================================================
=                Clusterpark Log Processing and Search                         =
================================================================================

Welcome to installation wizard.
This wizard will ask you few simple questions and perform initial
 configuration.

cat: /etc/timezone: No such file or directory
Package 'gol-gui'. This package provides indexing and analysis
 functionality and requires Clusterpoint Server v2
Would you like to install 'gol-gui' package? (YES/NO) no

Package 'gol-loader'. This package provides log files loading
 functionality. This is client for 'gol-gui' package, which
 must be installed on this server or somewhere else.
Would you like to install 'gol-loader' package? (YES/NO) _
```

During installation the questions about golDB and GOL-GUI installation must be answered with „*n*", because these components already are installed.

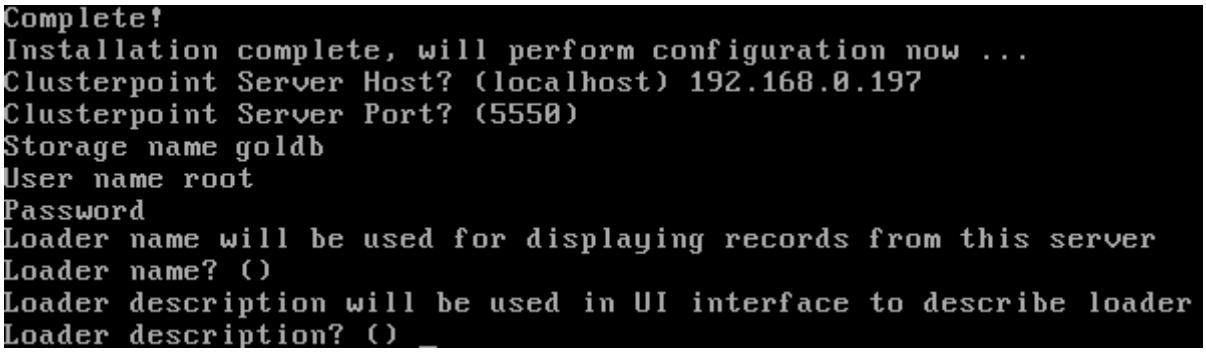
In next step on question „*Would you like to install 'gol-loader' package?*" type „*yes*" and press „Enter".

After checking of necessary components, a list of golLoader software setup and installation size will be displayed to user.

```
Dependencies Resolved

================================================================================
 Package         Arch        Version      Repository                      Size
================================================================================
Installing:
 gol-loader      noarch      2.1.1-0      /gol-loader-2.1.1-0.noarch      18 M

Transaction Summary
================================================================================
Install       1 Package(s)

Total size: 18 M
Installed size: 18 M
Is this ok [y/N]: _
```

- To continue installation type „*y*" and press „Enter";
- To cancel golLoader installation type „*n*" and press „Enter".

After installation of loader its initial configuration is needed. It is required to use already installed golLoader settings.



Description of settings is available in *Table 4*.

Table 4. Description of golLoader installation settings.

Settings field	**Description of the activities**
Clusterpoint Server Host?	Type in golDB server address and press „Enter”.
Clusterpoint Server Port?	Specifies the network port through which golLoader send data. By default the port - (5550) is used. Confirm with „Enter”.
Storage name	Specifies the name of database. By default the – **golDB**.
Username	Type in the username for connection to golDB. By default the – **root** or enter the username that was specified in the GOL configuration.
Password	Type in the password for connection to golDB. By default the - **y2sP** or enter the password that was specified in the GOL configuration.
Loader name ()	Type the name of server or computer on which the loader will be installed. This name will be used to identify host in golDB and GOL-GUI. Confirm with “Enter”.
Loader description()	Field is not mandatory. In this field description of host can be written. Confirm with “Enter”.

Now golLoader agent installation has been completed and further configuration of settings can be carried out in GOL-GUI configuration section, as described in chapter *5 Linux golLoader configuration*.

3.4 Additional configurations for CentOS operating system

If Linux CentOS operating system has been used it is recommended to perform following additional operations. Following commands should be entered in terminal mode:

- **Add firewall rules.** Before input of firewall rules it is recommended to become familiar with the *iptables* program editing commands.

Execute the command:

vi /etc/sysconfig/iptables

Add following lines to the firewall settings table:

-A INPUT -m state --state NEW -m tcp -p tcp --dport 80 -j ACCEPT
-AINPUT -m state --state NEW -m tcp -p tcp --dport 5580 -j ACCEPT
-A INPUT -m state --state NEW -m tcp -p tcp --dport 5550 -j ACCEPT

```
# Generated by iptables-save v1.4.7 on Tue Dec 17 10:33:52 2013
*filter
:INPUT ACCEPT [0:0]
:FORWARD ACCEPT [0:0]
:OUTPUT ACCEPT [2865:309153]
#:RH-Firewall-1-INPUT - [0:0]
:OUTPUT ACCEPT [0:0]
-A INPUT -m state --state RELATED,ESTABLISHED -j ACCEPT
-A INPUT -p icmp -j ACCEPT
-A INPUT -i lo -j ACCEPT
-A INPUT -p tcp -m state --state NEW -m tcp --dport 22 -j ACCEPT
-A INPUT -p tcp -m state --state NEW -m tcp --dport 23 -j ACCEPT
-A INPUT -m state --state NEW -m tcp -p tcp --dport 80 -j ACCEPT
-A INPUT -m state --state NEW -m tcp -p tcp --dport 5580 -j ACCEPT
-A INPUT -m state --state NEW -m tcp -p tcp --dport 5550 -j ACCEPT
-A INPUT -j REJECT --reject-with icmp-host-prohibited
-A FORWARD -j REJECT --reject-with icmp-host-prohibited
COMMIT
# Completed on Tue Dec 17 10:33:52 2013
```

After saving of table execute the command:

/etc/init.d/iptablesrestart

- **Add to the httpd process rights for writing in log folder.** Execute following command:

  chcon -v --type=httpd_sys_content_t /usr/local/GOL-gui/apps/logs

- **Allow the httpd process the usage of network connections.** Execute the command:

  setsebool -P httpd_can_network_connect 1

- **If Apache does not start at Linux boot time, than run levels must be installed by executing commands:**

  chkconfig --listhttpd
  chkconfig --level 2 httpdon
  chkconfig --level 3 httpdon
  chkconfig --level 4 httpdon

chkconfig --level 5 httpdon

3.5 Configuration of SNMP trap

GOL has capability to download the network equipment's internal log entries using SNMP trap. To activate this capability some additional configuration operations must be performed. All operations can be performed in Linux terminal mode with *root* user rights:

- Open the file "*/etc/apt/sources.lst*" in editor. Append to the end of data source IP address line the "*contrib non-free*". If this file is not found, than this step can be ignored;
- If SNMP process is not found, it must be installed by executing following commands:

  apt-get update
  apt-get install snmp
  apt-get install snmpd
  apt-get install snmp-mibs-downloader
  download mibs

  For SNMP installation other commands and resources can be used according the current Linux version.
- Open the file "*/usr/share/snmp/snmp.conf*" in editor. Add new line "mibs +ALL" and save the file. The location of the file *snmp.conf* may differ from version to version;
- Settings in file "*/usr/share/snmp/snmptrapd.conf*" should be configured. Additional information can be found in http://www.net-snmp.org/wiki/index.php/TUT:Configuring_snmptrapd, but additional information about SNMP v3 can be found in http://www.net-snmp.org/wiki/index.php/TUT:Configuring_snmptrapd_to_receive_SNMPv3_notifications. *snmpd* file location may differ from version to version:

  # traphandle all to GOL traps handler script. Path is just for example.
  #You should specify one where you will save the actual script
  traphandle default /0admin/snptrap/traphandle.02.sh.php

  # this disables traps logging to syslog
  donotlogtraps 1

  # configure traps authentification
  # SNMP v1,v2 example
  authCommunity log,execute,net nvpublic
  # SNMP v3: TRAP user
  #createUser -e ENGINEID myuser SHA "my_auth_pass" AES "my_encryption_pass"
  createUser -e 0x8000000001020304 v3trapuser SHA v3password AES v3coding
  # SNMP v3: INFORM user
  createUser v3trapuser SHA v3password AES v3coding
  # SNMP v3: Authorizing your user to do things with the received notifications
  authUser log,execute,net v3trapuser
  # SNMP v3: If you want to receive v3 traps (or informs) sent with noAuthNoPriv,
  authUser log,execute,net myuser noauth
- Execute the command:

start snmptrapd

- Check the configuration by executing following commands:

  snmptrapd -v 3 -n "" -a SHA -A v3password -x AES -X v3coding -l authPriv -u v3trapuser -e 0x8000000001020304 localhost 0 linkUp.0

  snmptrapd -C -v 3 -a SHA -A v3password -x AES -X v3coding -l authPriv -u v3trapuser localhost 0 linkUp.0

- Create PHP command file for SNMP process. For this the graphical or PHP command line editor can be used:

```
<?php

// The file we will be writing to. It's best to specify a full path, to avoid
// any confusion over the current working directory
$outFile = '/data.disk/trap/snmp_trap_' . date('Ymd') . '.log';

// First, we'll open our outfile...
if (!$ofp = fopen($outFile, 'a')) exit("Oh No! I couldn't open my out file!");

// ...and write the current timestamp to it, so we are certain the script was
// invoked. You can remove this if you want, once you are sure it is working
fwrite($ofp, date('Y/m/d H:i:s')."\t");

// Next we'll write all the trap data to the file
// We could use stream_copy_to_stream() for this, but I don't know if it is
// available on your server so I won't do it here
//fwrite($ofp,"Data:\t");
while (!feof(STDIN))
{
$string = trim(fread(STDIN, 1024));
$string = str_replace("\n", "\t", $string);
$string = str_replace("\r", "", $string);
  fwrite($ofp, $string."\t");
}
fwrite($ofp,"\n");

// We don't actually need a closing PHP tag and in many cases it is better
// to omit it, to avoid unexpected whitespace being output.
```

- Save created PHP script in the folder which was specified in *snmptrapd.conf* faile. For example *„/0admin/snptrap/traphandle.02.sh.php”*;

- If the *snmpd* and *snmptrapd* processes are not started during boot, than they must be added to boot manually. To perform that, execute following commands in terminal mode:

  Chkconfig snmpd on

  Chkconfig snmptrapd on

Now SNMP trap is ready and golLoader can be configured in GOL-GUI to start transfer data from a SNMP trap to golDB.

4 GOL configuration after installation

4.1 Detection of golDB IP address

If IP address is static and well known than this step can be omitted. Before proceeding with further GOL configuration it is necessary to determine the IP address assigned to the host on which GOL is installed. This can be done by executing the command *ifconfig* in Linux terminal mode:

```
[root@localhost ~]# ifconfig
eth0      Link encap:Ethernet  HWaddr 08:00:27:66:A9:49
          inet addr:10.0.2.15  Bcast:10.0.2.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fe66:a949/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:15 errors:0 dropped:0 overruns:0 frame:0
          TX packets:19 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:10093 (9.8 KiB)  TX bytes:1879 (1.8 KiB)

eth1      Link encap:Ethernet  HWaddr 08:00:27:DC:22:EC
          inet addr:192.168.0.195  Bcast:192.168.0.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fedc:22ec/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:2437 errors:0 dropped:0 overruns:0 frame:0
          TX packets:16 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:258179 (252.1 KiB)  TX bytes:1684 (1.6 KiB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:37992 errors:0 dropped:0 overruns:0 frame:0
          TX packets:37992 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:3655763 (3.4 MiB)  TX bytes:3655763 (3.4 MiB)
```

golDB IP address is specified in **eth1** configuration. In example picture above it is seen as:

„inet addr: 192.168.0.195”

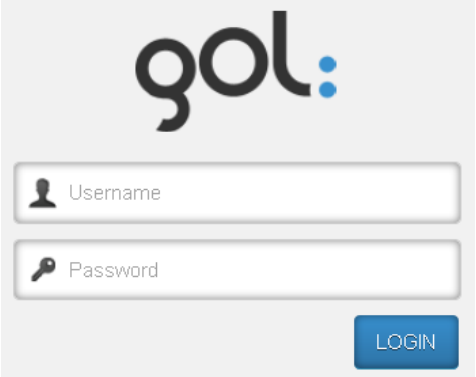
REMARK! This address must not be changed. Otherwise golLoader agents will not be able to send log data to golDB and their reconfiguration should be done manually.

4.2. Getting started with GOL

To get started with GOL for further configuration in internet browser command line:

- On same server or computer where GOL is installed enter *„localhost/gol/”*;
- On any other computer in network enter *„http://[IP]/gol/”*. [IP] indicates the server address on which GOL is installed.

GOL-GUI access form opens (*Picture 1*).



Picture 1. GOL access form.

To start GOL configuration it should be accessed with Administrator rights. GOL installation already had set up default Administrator login and password:

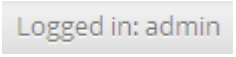
Username: admin

Password: password

The username should be written in the field with  icon, but password in the field with icon  . Press **LOGIN** button.

The GOL-GUI work screen opens and the user can start working according to the rights granted.

The access rights with which the user has accessed the GOL are shown on menu line - **Logged in:**. For example, user with administration rights will be displayed as *admin*:



4.3 Finishing the work with GOL

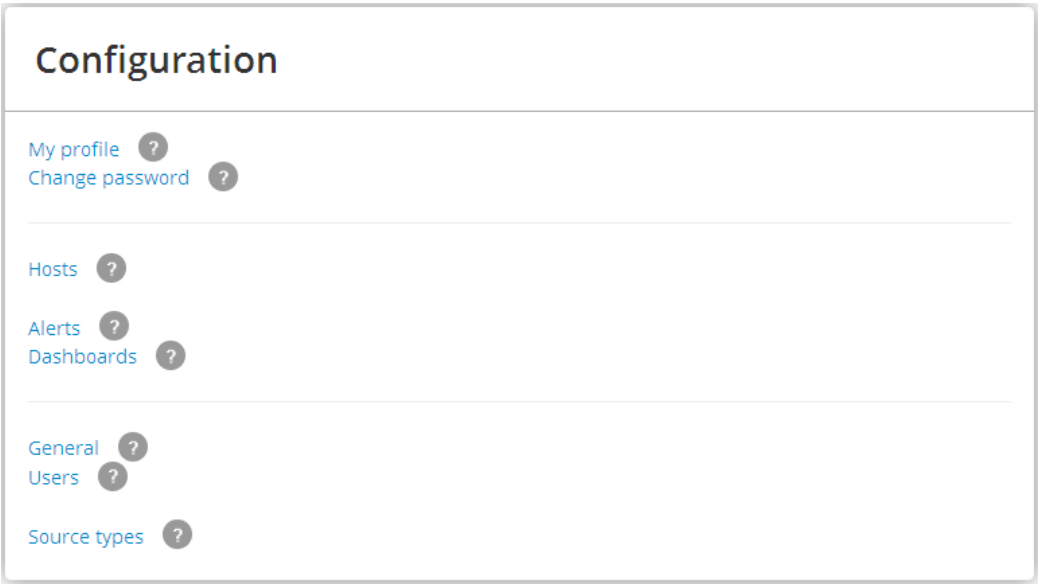
To finish and log out from GOL-GUI at the end of menu line icon  could be pressed. GOL-GUI access form opens again and tab in internet browser can be closed.

5 Linux golLoader configuration

This chapter describes the sequence for Linux operating systems golLoader agent configuration.

5.1 Initialization of new golLoader agent

In order to connect new golLoader agent to GOL in window with GOL configuration elements (*Picture 2*) choose a category **Hosts**.

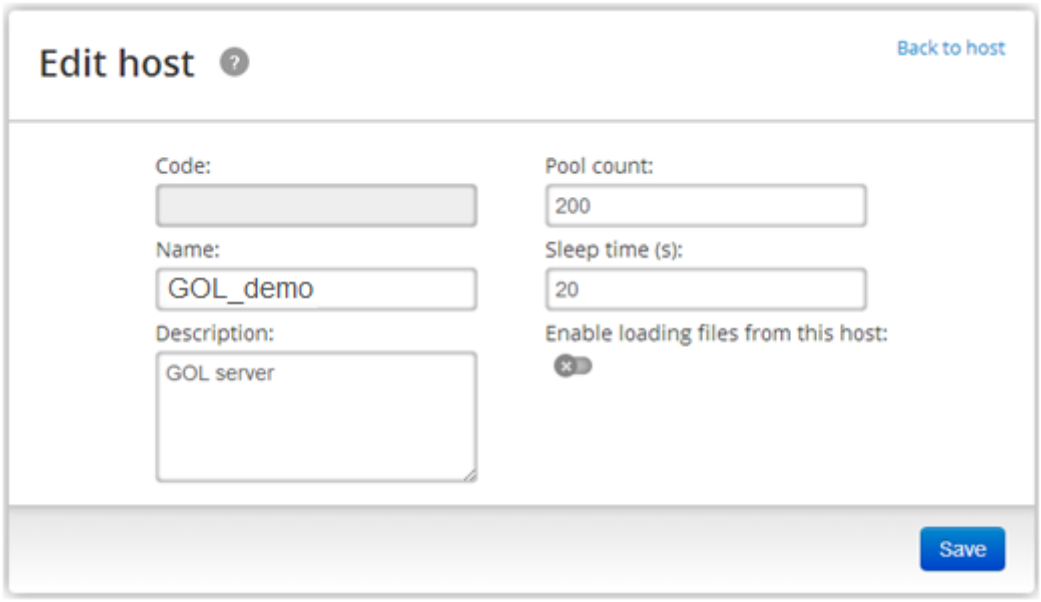


Picture 2. Window with GOL configuration elements.

The windows for list with installed agents will be opened; move to **New hosts** tab. Example is shown in *Picture 3*.

Picture 3. Example with new GOL golLoader agents.

- For further configuration of golLoader on the host click icon . Window for configuration of golLoader general settings will be opened (*Picture **4***).



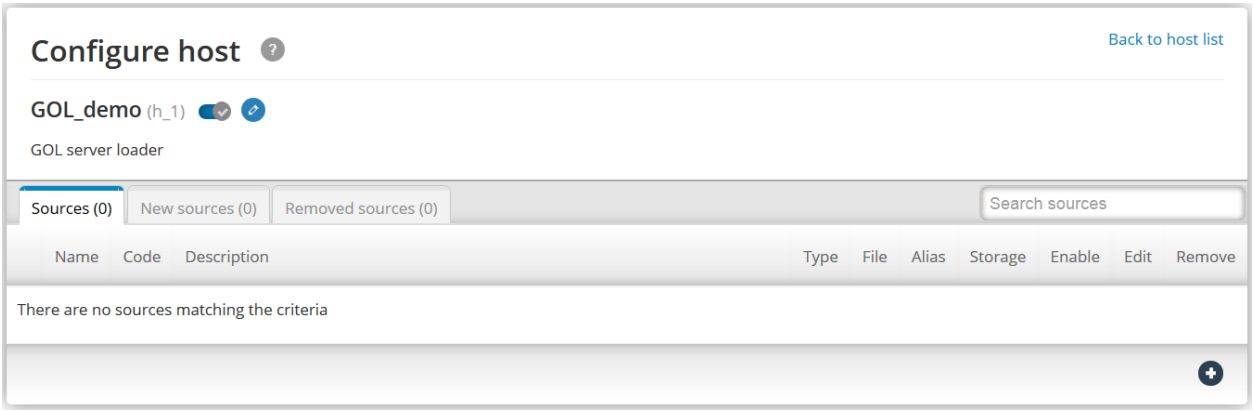
Picture 4. Window for configuration of golLoader main settings.

Configuration settings will be offered by default, but they can be changed if necessary. Description of changeable settings fields:

- **Poolcount:** the amount of log entries which golLoader is sending to golDB during each session can be specified. By default maximum 200 entries will be sent;
- **Sleeptime (s):** interval in seconds between each session can be specified. By default interval is set to 20 seconds;
- In order to activate agent and start log data sending process press on switch  (disabled by default). Switch icon will be changed to  indicating that log data sending is enabled;

To save the configuration settings button **Save** must be pressed. Now golLoader agent is turned on and is ready for further configuration.

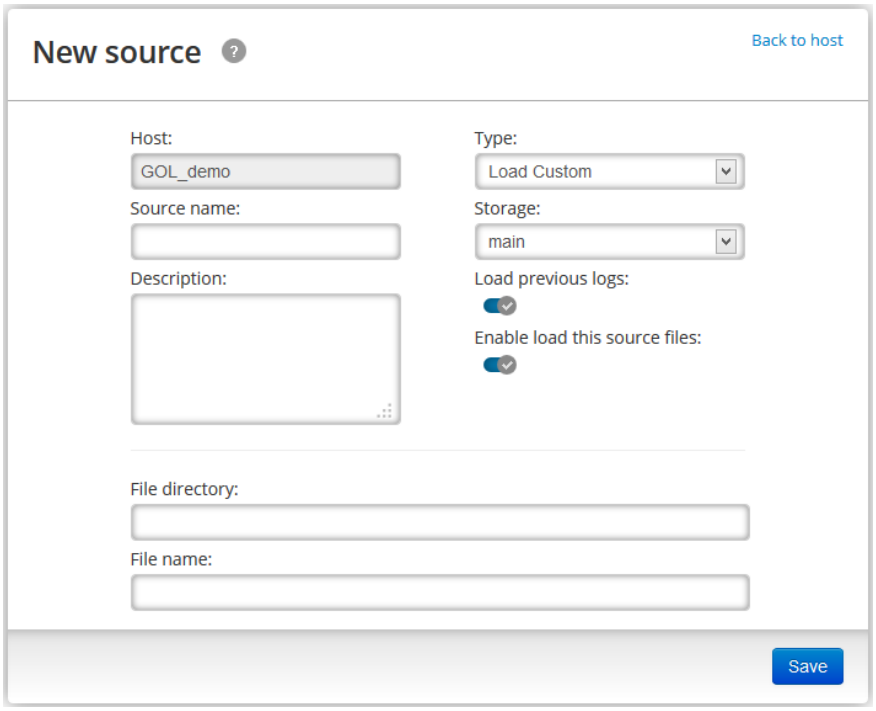
- After entering of main settings the window for configuration of log data sources will be opened (*Picture 5*);



Picture 5. Window for list of log data sources.

5.2 Configuration of log data sources

In order to add new log data source press icon . The window for configuration of log data source settings will be opened (*Picture 6*).



Picture 6. Log data source configuration window.

Description of log data source configuration settings is shown in *Table 5*, but examples with Linux log data sources are shown in *Table 6*.

Table 5. Description of log data source settings.

Field name	Description
Source name	A short name of log data source must be written.
Description	The description of data source can be written. Not mandatory, but recommended.
File directory	The full path to the folder from which log data will be collected must be indicated.
Filename	In this field the unchanging part of log file name must be written. For example if the files „**yum**1, **yum**2, **yum**3, etc.” (which are the rotation files), do exist than simply write **yum**.
Type	Corresponding log file type must be select from the dropdown menu.
Storage	Specify to which of golDB log data storages the entries will be sent. By default it is – main.
Load previous logs	Switch is indicating should the agent collect and send to the database historical entries from rotation files. By default position is - sending of historical data is enabled. Can be moved to position - historical data won’t be sent.
Enable load this source files	Main switch for initialization of log entry sending process. By default switch is in position - log data sending will be started

	immediately after saving of configuration. It can be moved to position  , if data sending directly after saving of configuration is not necessary. It can be turned on later though.

Before the connection of log data source it is necessary to check their names and location.

Table 6. Examples for Linux log data sources.

Log name	**File directory**	**File name**	**Type**
YellowdogUpdater, Modified	*/var/log/*	*yum*	*Load Custom*
Cron	*/var/log/*	*cron*	*Syslog*
Linux security	*/var/log/*	*secure*	*Syslog*
System messages	*/var/log/*	*messages*	*Syslog*
Apache access	*/var/log/httpd*	*access_log*	*Apache2 access*
Apache error	*/var/log/httpd*	*Error_log*	*Apache2 error*
Yum	Log file keeps the name and work time of installed programs and packages.		
Cron	Log file keeps entries of executed scheduled software installation activities.		
Secure	Log file keeps notifications about user login and logout actions.		
Messages	Log file keeps overall performance of the system.		
Apache access	Log file keeps access to the Apache server data.		
Apache error	Log file keeps Apache server error notifications.		

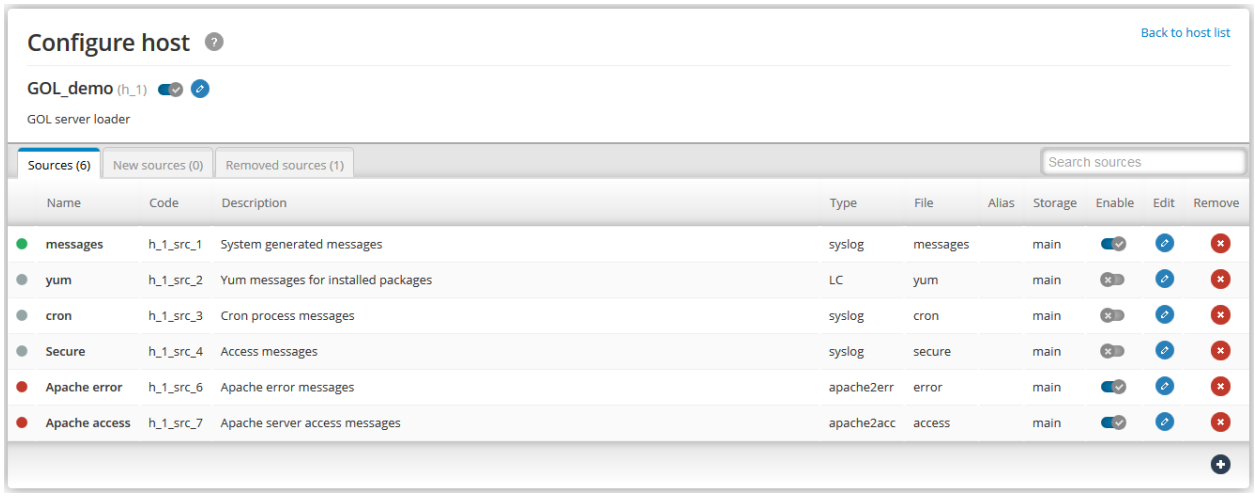
Usually Linux log file names are left as they are after installation, but sometimes users are configuring the names for rotation files to identify them with date in file name. In these cases file names must be specified as regular expressions. Examples how to create file names as regular expressions are shown in *Table 7*.

Table 7. Examples of log file names as regular expressions.

Log types recognized by default	If file name is not modified, the name to write in field „File name” is specified in left column.
Messages,	/^messages(-[0-9]{8,8})?$/
syslog	/^{cPART}([.]log){0,1}([.][0-9]{1,2}){0,1}(([.]gz){0,1}|([.]bz2){0,1})$/
cps	/^{cPART}(_[0-9]{2,2}){3,3}[.]log$/
apache2err	/^{cPART}(([-._]\d{1,8})(([.]gz){0,1}|([.]bz2){0,1})){0,1}$/
apache2acc	/^{cPART}(([-._]\d{1,8})(([.]gz){0,1}|([.]bz2){0,1})){0,1}$/
snmptrap_exp	/^{cPART}_[0-9]{8,8}[.]log(([.]gz){0,1}|([.]bz2){0,1})$/

Small training how to create regular expressions can be found at - http://regexone.com

The above described configuration steps should be performed for each log file that is meant to store in database. The statuses of configured log data files can be checked in tab **Sources.** Example is shown in *Picture 7*.



Picture 7. List of configured log data sources.

Icon ● is indicating that golLoader agent is active and sending the log entries from corresponding log files to database. Icon ● is indicating that log entries from corresponding log file are not sent. Possible reasons may be:

- The log file name or folder has been entered incorrectly;
- Specified log file do not have entries yet.

When all necessary log files are configured, with link **Back to host list** return to the list of configured hosts (*Picture 8*).

Picture 8. List with configured hosts.

6 Installation and configuration of Windows golLoader agent (WinGol)

Installation package can be downloaded to hard disk from the internet address provided by developer. From there it can be copied to other media for installation on Windows servers and computers (hosts).

6.1 Preparing for WinGol installation

Prior installation the golDB IP address, database login name and password must be identified. In order to do that:

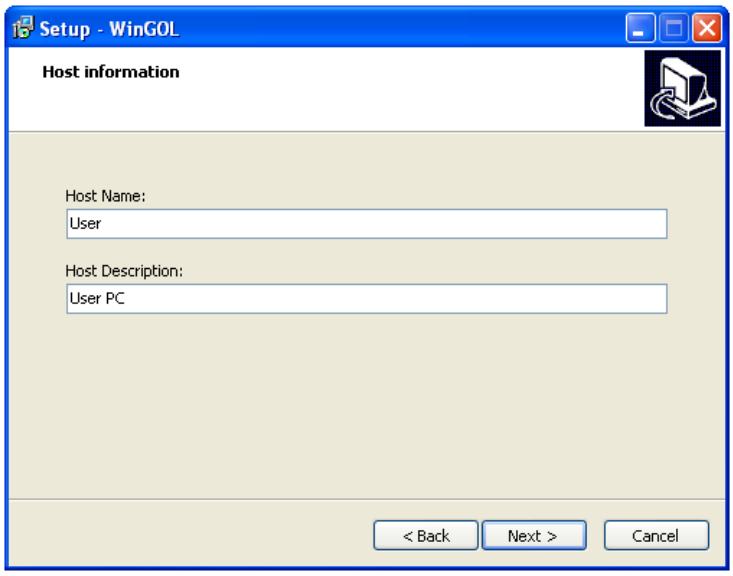
- Start GOL-GUI and login with administrators rights;
- In main menu open ***Configuration***;
- In the window with configuration elements chose ***General***;
- Open the tab ***Storages***;
- Settings necessary for installation are specified in section ***golcfg*** oposit the names:
    - ***Address:*** golDB IP address;
    - ***Username:*** login name for connection to the database, by default - „root”;
    - ***Password:*** password for connection to the database, by default - „y2sP”.

6.2 Installation of WinGol

After download of installation package open the folder where it is located and run the installation package. WinGol installation starting window will be opened (*Picture 9*).

Picture 9. WinGol installation starting window.

To continue installation press on button **Next**. In order to cancel the installation press **Cancel** button. By pressing on **Next** the window (*Picture 10*) where name of the host and its description must be specified will be opened.



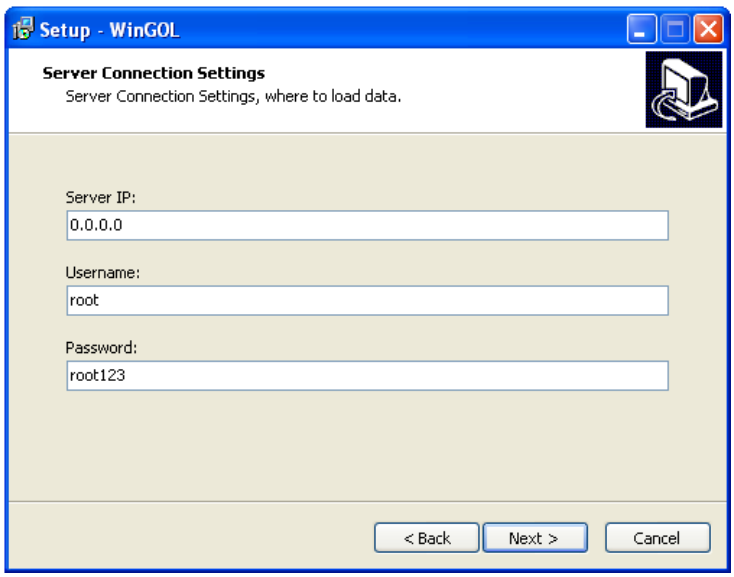
Picture 10. Window for input of host name and description.

Description of input parameters is shown in *Table 8*.

Table 8. Description of input parameters for host name.

Name of field	**Description**
Host Name:	Input the name of the host. It will be used for identification of host in GOL-GUI visualization tools. Host name is determined automatically from Windows settings. It can be changed if necessary.
Host Description:	Input hosts broader description.

After input of information press **Next** to continue installation. The window for input of golDB server IP address, login and password (*Picture 11*) will be opened.



Picture 11. Window for input of golDB connection settings.

Description of input settings for connection to golDB is available in *Table 9*.

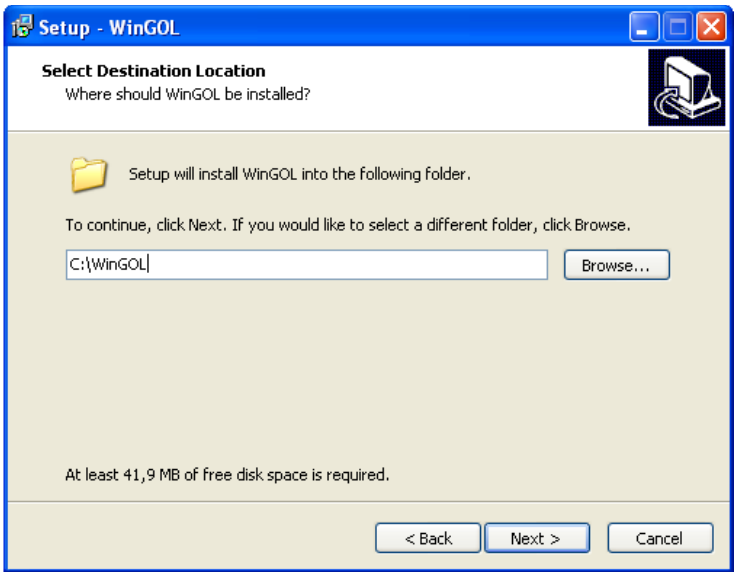
Table 9. Description of golDB connection settings.

Name of field	Description
Server IP:	Input IP address where golDB is located.
Username:	Input username for connection to golDB.
Password:	Input password.

The username and password can be can be found in main menu under ***Configuration / General / Storage*** corresponding fields **Username** and **Password**.

After input of information press button **Next** or button **Back**, if previously entered information should be changed.

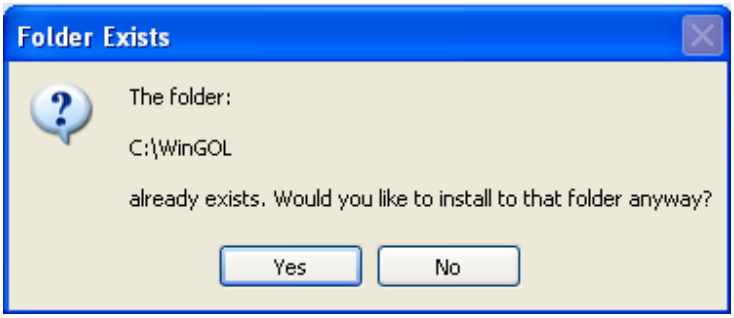
After pressing on **Next** window for input of WinGol installation folder will be opened (*Picture 12*). Folder can be specified from the list of existing folders by pressing the button **Browse**. Default folder name – *C:\WinGol* is already specified in input field.



Picture 12. Window for input of WinGol installation folder.

After input of installation folder press button **Next**.

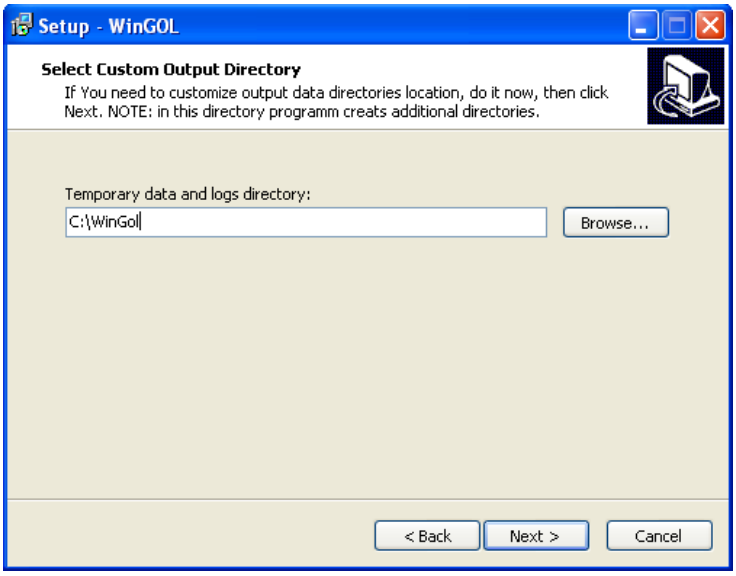
If the new WinGol version is installed over previous one, than additional dialog, informing that installation folder already exist, will appear (*Picture 13*):



Picture 13. Dialog for approval of WinGol installation folder.

To accept installation in folder that already exist press button **Yes**. If WinGol should be installed in other folder press **No** and dialog will return to window for input of installation folder (*Picture 12*).

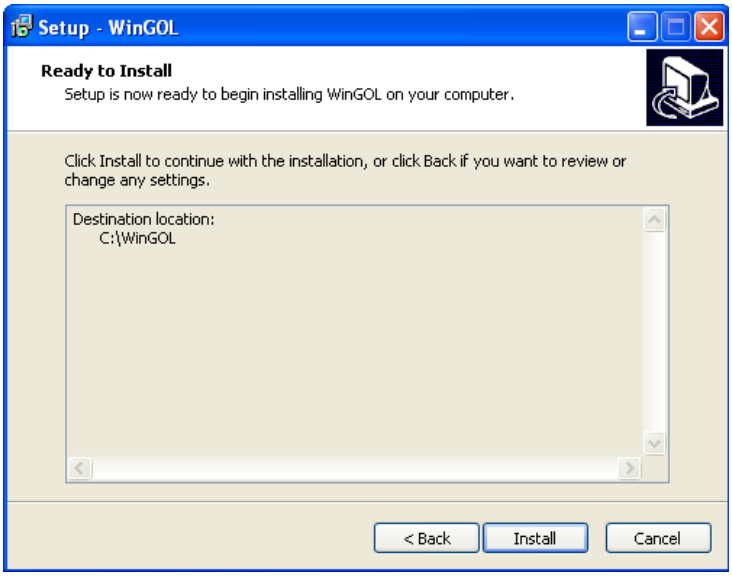
By pressing **Yes** the window for input of folder where log data prepared for sending to golDB will be collected will be opened (*Picture 14*). Folder can be selected from the list of existing folders by pressing button **Browse**. Default name of the folder – *C:\WinGol* already is specified in input field.



Picture 14. Window for input of folder where log data will be collected.

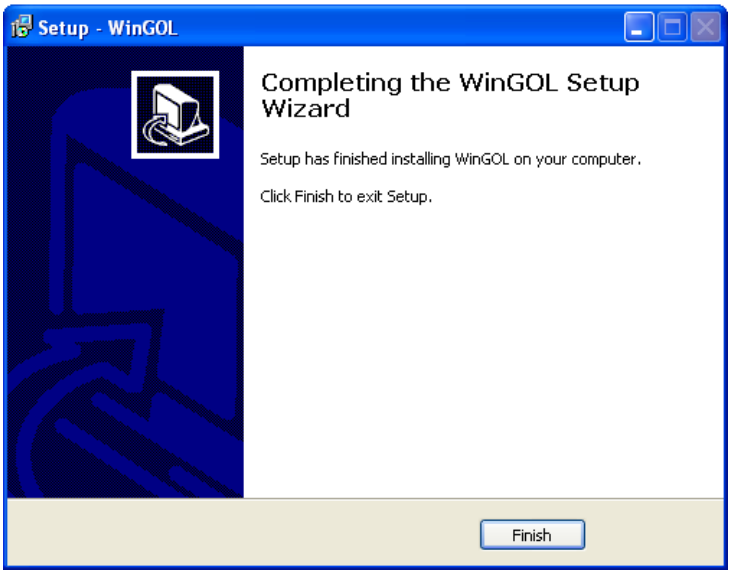
After input of folder press button **Next**.

In the next window (*Picture 15*) the folders selected for installation will be shown. If the names of folders or other settings should be changed press button **Back**. To continue with installation press button **Install**.



Picture 15. Window with overview of installation folders.

After successful installation the window with overview of WinGol installation status will appear (*Picture 16*).



Picture 16. Installation status window.

To close it pres **Finish**. All WinGol processes necessary for collection and transmission of log data will be started automatically. Information about connected host will appear in GOL-GUI approximately after 10 sec. and will be available for further configuration.

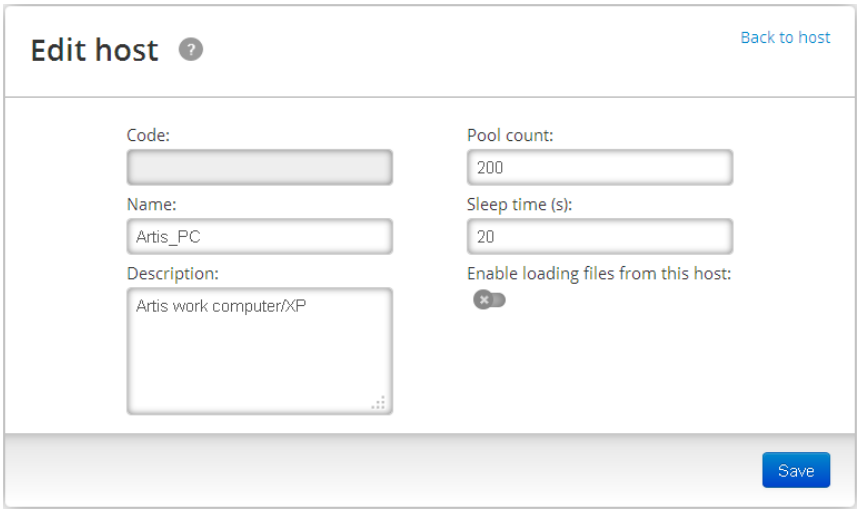
6.3 WinGol configuration in GOL

To finish configuration of WinGol, run GOL-GUI in the browser and login with administrator rights:

- In main menu open ***Configuration***;
- In the window with configuration elements chose ***Hosts***;
- Open tab **New hosts** (*Picture 17*) with list of newly installed loaders;

Picture 17. Windows with list of newly installed loaders.

- For further configuration of loader press on icon  . The window for configuration of WinGol general settings will be opened (*Picture **18***).



Picture 18. Window for configuration of WinGol main settings.

Description of loader configuration input settings is shown in *Table 10*.

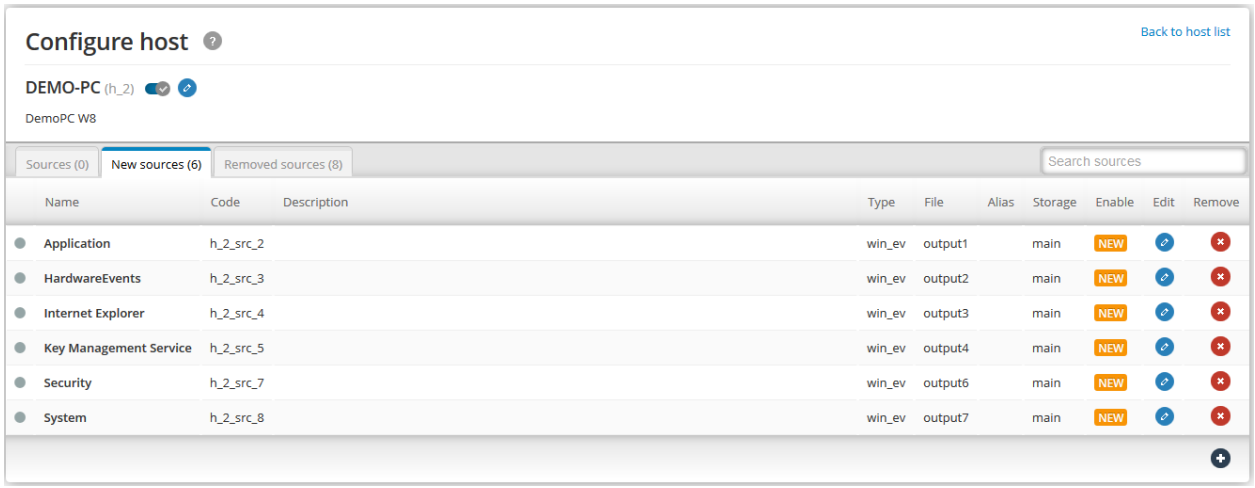
Table 10. Description of loader configuration settings.

Name of the field	**Description**
Name	Specifies the name of the host where WinGol is installed.
Description	Broader description of the host.
Pool count	The amount of log entries which WinGol is sending to golDB during each session can be specified. By default maximum 200 rows will be sent.
Sleep time (s)	Interval in seconds between each session can be specified. By default interval is set to 20 seconds.
Switch	In order to activate agent and start log data sending process press on switch (disabled by default). Switch icon will be changed to indicating that log data sending is enabled.

Settings must be saved by pressing on button **Save**. Now the WinGol agent is enabled and ready for further configuration.

- The window for list of log data sources will be opened. To configure the log data sources for particular loader press **New sources** tab (*Picture 19*) where all automatically recognized MS Windows event types will be listed.

REMARK! If the **New Sources** tab in configuration window has index **(0)** the GOL-GUI link in the browser should be refreshed.

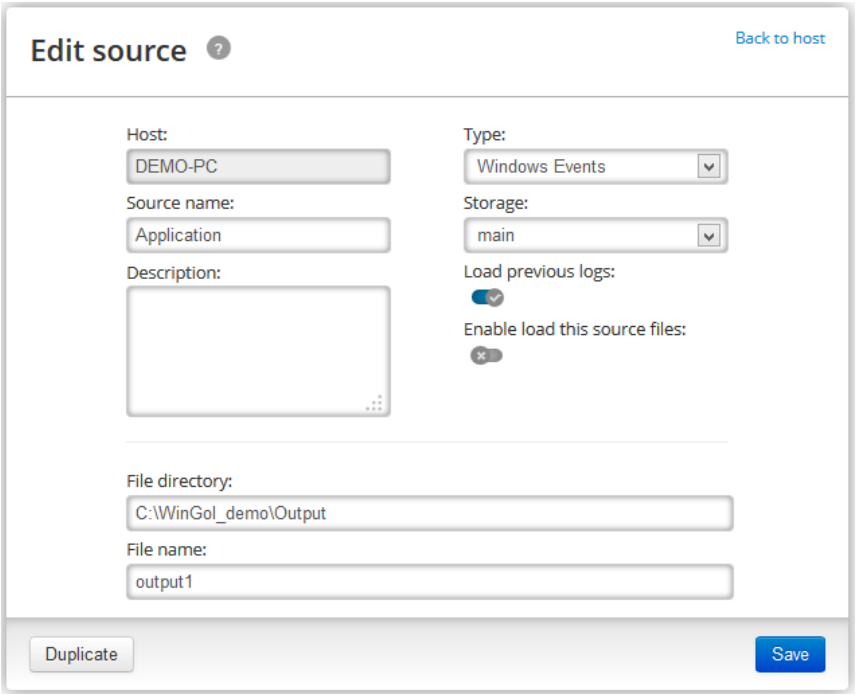


Picture 19. List of automatically recognized MS Windows events.

The name of event is specified in column **Name**. The NEW in the column **Enable** does mean that corresponding log data transmission is not started and it must be enabled. That can be done by pressing on icon . The window for log data transmission settings configuration will be opened (*Picture 20*);

- In the settings fields' information received from loader has been already shown. It is not recommended to change them, otherwise the loader won't work correctly and log data won't be sent to golDB. Parameters that can be changed at this step are described in

- *Table **11***.



Picture 20. Log data transmission configuration window.

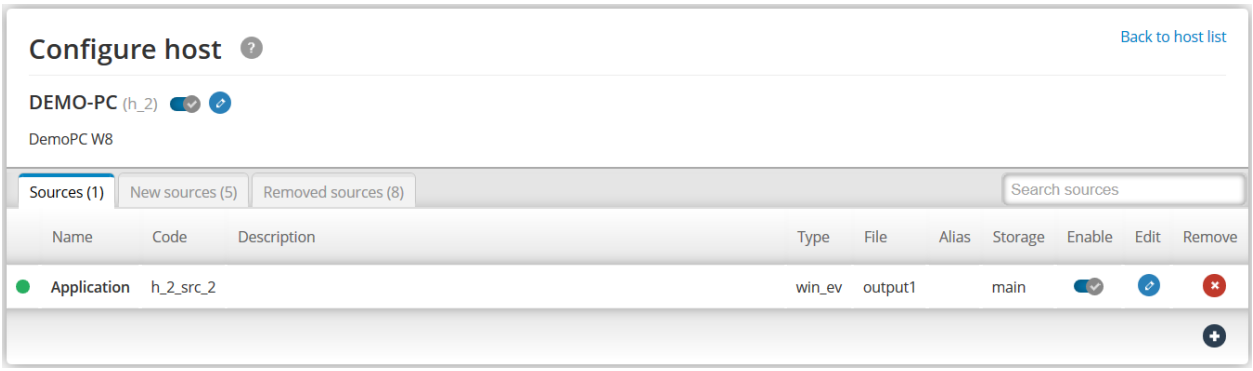
Table 11. Description of log data transmission settings.

Name of the field	Description
Source name	Specify the name of event according the MS Windows classification. Not recommended to change.
Description	Description of event.
Load previous logs	Switch in position inform, that historical events prior current time and date will be sent to the golDB as well. If that is not necessary, press on it and switch will be moved to position off - .
Enable load this source file	To start transmission of the data switch must be pressed (disabled by default). Switch icon will be changed to indicating that data transmission is enabled.

Configuration settings must be saved by pressing button **Save**.

The above steps can be performed to other log data sources which are intended to be transmitted to database as well. Status of enabled events can be checked in the tab **Sources** (*Picture 21*).

Icon indicates that loader is transmitting the entries from corresponding data file to the golDB;



Picture 21. List with enabled for transmission data sources.

When all events are enabled with link **Back to host list** return to the list with configured hosts (*Picture 22*).

Picture 22. List with configured hosts.

Switch at the position  in column **Enable** indicates that the loader on particular host is enabled, but icon  in front of host name indicates that the loader is transmitting data to database.

7 WinGol and Linux golLoader uninstallation

7.1 Preparing GOL prior WinGol uninstallation

Before WinGol uninstallation from the host it must be disconnected from golDB:

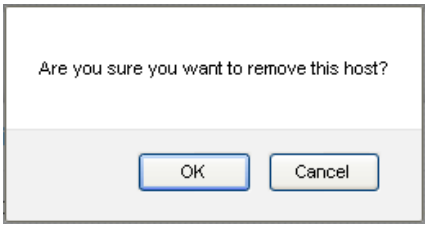
- Run GOL-GUI in web browser and login with administrators rights;
- Open ***Configuration*** in main menu;
- In the window with configuration elements chose ***Hosts***, window with list of all registered in GOL devices will be opened (*Picture 23*).

Picture 23. List of devices registered in GOL.

- In order to disable the log data transmission press the switch in column **Enable**, switch will be changed to indicating that particular device is disconnected from golDB. Accordingly, the icon opposite the host name in the column **Name** from will be changed to as additional indication that particular device is disconnected (*Picture 24*).

Picture 24. Example of list with disconnected device.

- To remove the device from the list and from network chart it must be deleted by pressing in the column **Remove** (*Picture 24*). The dialog window for approval of removing will be opened (*Picture 25*).



Picture 25. Dialog window for approval of device removing.

By pressing **OK** button information about device will be moved to the tab ***Removed hosts*** (*Picture 27*). *Picture 26* shows the list of hosts without deleted entry.

Picture 26. List of hosts without deleted device.

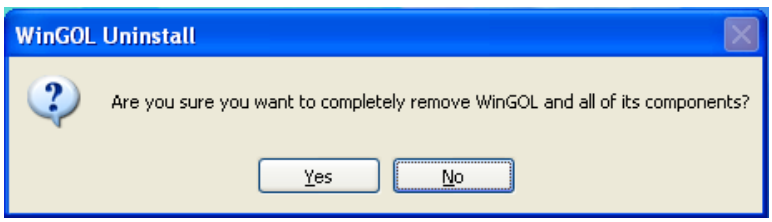
Removed hosts index ***(1)*** indicates the number of records currently in tab (*Picture 27*).

Picture 27. List with deleted entry.

The inscription REMOVED in **Enable** column indicates that the host has been successfully removed from GOL and MS Windows log records are no longer sent.

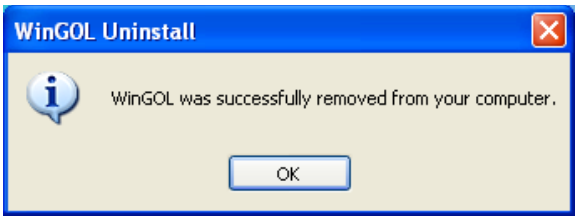
In the next step find the appropriate folder with installed WinGol on the host (default folder - *C: \ WinGol*) and run the program **unins000.exe**. WinGol uninstallation window will be opened (*Picture 28*).

- In order to start WinGol uninstallation process press button **Yes**. By pressing on button **No** uninstallation will be terminated;



Picture 28. WinGol uninstallation dialog.

- The program will automatically stop all processes and remove WinGol and its components from hard disk;
- After successful WinGol uninstallation the window with appropriate message will be displayed (*Picture 29*).



Picture 29. Window with message about successful WinGol uninstallation.

To close the message window press button **OK**.

After uninstallation the WinGol folders will remain on hard drive. They must be deleted manually if they won't be needed anymore.

7.2 Linux golLoader and GOL uninstallation

In order to uninstall golLoader and GOL appropriate to Linux version commands must be executed:

Debian

1) Switch to user „root" *su –l*:

```
gol@gol-demo:~$ su -l
Password:
root@gol-demo:~# _
```

2) Uninstall golLoader packages and remove folders:

dpkg -P gol-loader && rm -rf /usr/local/GOL-loader;

3) Uninstall GOL packages and remove folders:

dpkg -P gol-gui && rm -rf /usr/local/GOL-gui;

4) Uninstall golDB packages and remove folders:

dpkg -P cps2-server && rm -rf /usr/local/cps2

Fedora

1) Switch to user „root" *su-l:*

```
gol@gol-demo:~$ su -l
Password:
root@gol-demo:~# _
```

2) Uninstall golLoader packages and remove folders:

yum remove gol-loader.noarch && rm -rf /usr/local/GOL-loader

3) Uninstall GOL packages and remove folders:

   yum remove gol-gui.noarch && rm -rf /usr/local/GOL-gui

4) Uninstall golDB packages and remove folders:

   yum remove cps2-server.x86_64&& rm -rf /usr/local/cps2

CentOS

1) Switch to user „root” *su-l*:

```
gol@gol-demo:~$ su -l
Password:
root@gol-demo:~# _
```

2) Uninstall golLoader packages and remove folders:

   yum remove gol-loader && rm -rf /usr/local/GOL-loader*

3) Uninstall GOL packages and remove folders:

   yum remove gol-gui && rm -rf /usr/local/GOL-gui*

4) Uninstall golDB packages and remove folders:

   yum remove cps2 && rm -rf /usr/local/cps2*

8 Restore WinGol installation

This chapter describes the installation sequence for WinGol recovery after uninstalling from the computer or server. Restoration of WinGol installation may be necessary if the host that has already been registered in GOL, is again necessary to connect to GOL for log data transmission.

REMARK! If WinGol on the host was uninstalled than at first WinGol installation must be carried out as described in the chapter*6.2 Installation of WinGol*. It must be noted that the **Host Name** must be the same as it is registered in GOL ***Configuration*** section ***Hosts*** tab ***Removed hosts***.

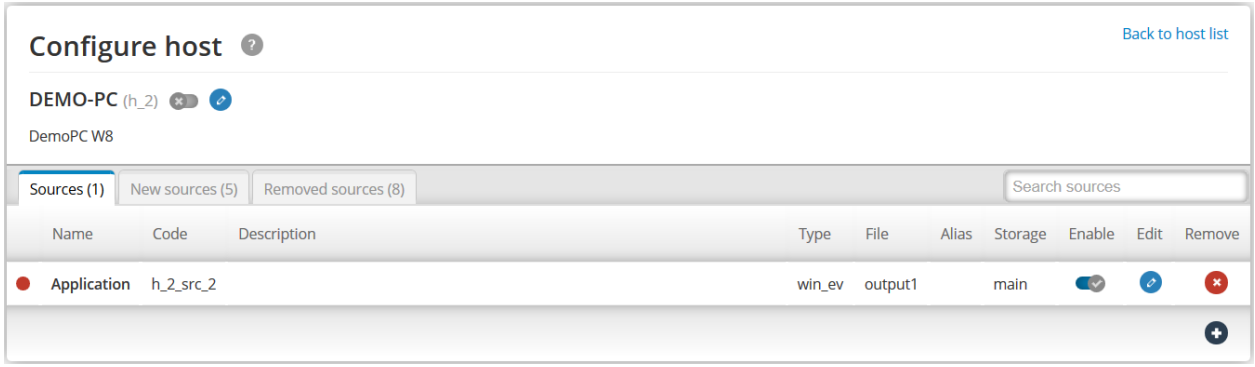
After the host connection to the network it must be enabled in GOL:

- Run GOL-GUI in web browser and login with administrators rights;
- Open ***Configuration*** in main menu;
- In the window with configuration elements chose ***Hosts***, window with list of all registered in GOL devices will be opened;
- In system configuration section open tab ***Removed hosts*** (*Picture 30*).

Picture 30. List with removed hosts.

Press on icon in the column **Edit**, in line with appropriate host;

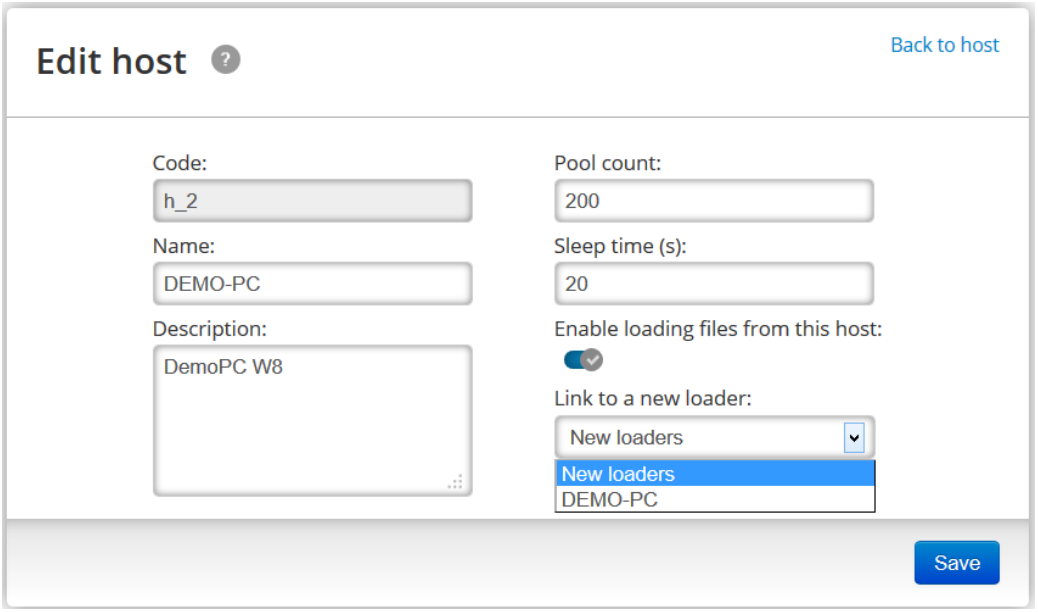
- Host configuration window will be opened (*Picture 31*); press on the switch in the line with host name. Switch will be changed to which means that host again is enabled for sending log data;



Picture 31. Host configuration window.

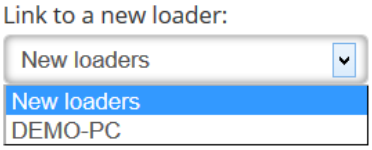
If WinGol on host is installed again, it is necessary to specify in GOL configuration the agent's name:

- In the **Configure host** window (*Picture 31*) press on icon at the end of line with host name. Host connection configuration window will be displayed (*Picture 32*).



Picture 32. Host connection configuration window.

- In the dropdown menu **Link to a new loader** is a record „New loaders” which means that new loader is available;
- Open **Link to a new loader** dropdown menu (*Picture 33*) and from the list choose the appropriate loader.



Picture 33. Drop down list with available loaders.

- The button **Save** (*Picture 32*) must be pressed for confirmation of configuration**.**

Now the host connection to the GOL has been restored.

9 golDB management environment

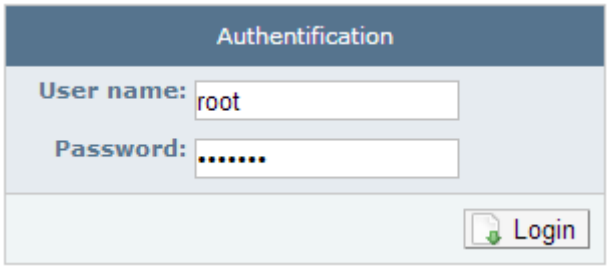
golDB has been created using the Clusterpoint XML document oriented NoSQl database engine. To help manage golDB servers user-friendly database management environment is available.

9.1 Access to the golDB user's environment

To get to the golDB user's environment a web browser program can be used. In to the browser address field:

- on the same host where GOL was installed enter "*localhost:5580*";
- for access from another host enter *„http:///[IP]:5580/”*. [IP] indicates the host address on which GOL is installed.

golDB terminal user access form will be opened (*Picture 34*).



Picture 34. golDB terminal user access form.

Default administrator's name and password already has been set by golDB installation:

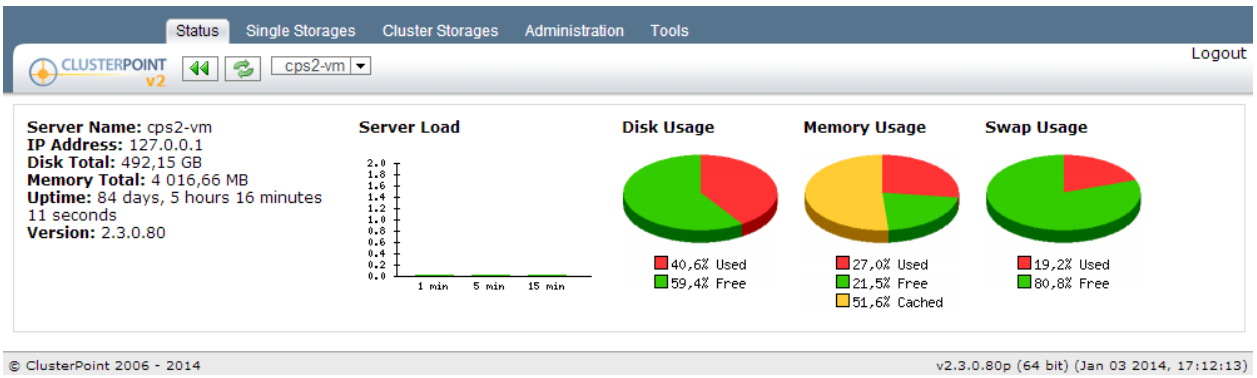
User name: root

Password: password

When the corresponding access parameters are entered press the button **LOGIN**.

9.2 Overview of the golDB server resources

After authentication in golDB, user environment initially displays information about server resources in use (*Picture 35*).



Picture 35. Overview of golDB server resources.

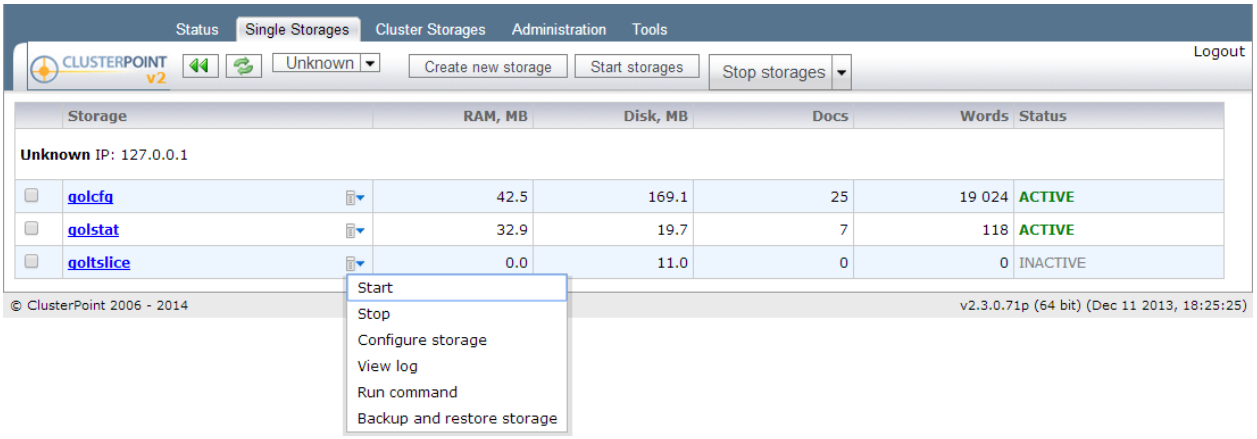
Overview shows information about server CPU load, hard disk and memory utilization and the current version of the database.

Attention should be paid to the amount of memory used; its availability is a very important for golDB to work productively.

This information can be used for planning of the necessary resources.

9.3 Database management

In the menu items **Single Storages** and **Cluster Storages** management of individual databases and creation of new instances is available. These sections features detailed information about each database – memory and hard disk utilization, amount of documents (log entries) consolidated, amount of indexed words and database status (*Picture 36*).



Picture 36. Database information window.

9.3.1 Stop and activation of individual databases

In cases when stop or activation of the database is needed:

a) In order to stop all databases press the button Stop storages;

b) In order to activate all databases press button Start storages;

c) To stop or activate individual database press button and chose the items **Start** or **Stop** accordingly.

9.3.2 Deleting documents from database

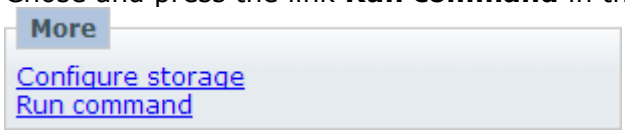
Deleting of entries from database, with keeping of data sources, can be executed in following order:

a) Stop the golLoader agents as described in the chapter *7.1 Preparing GOL prior WinGol uninstallation*;

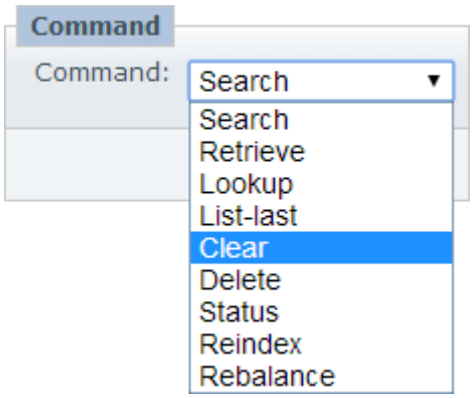
b) Open the **Cluster Storages** item in golDB terminal;

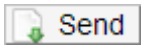
c) In the window that opens press on „goldb” in the column **Cluster storages**;

d) Chose and press the link **Run command** in the tab **More**:



e) New window will be opened where from dropdown chose command **clear**:



f) In order to accept command and delete the entries in database press button 

in the right edge.

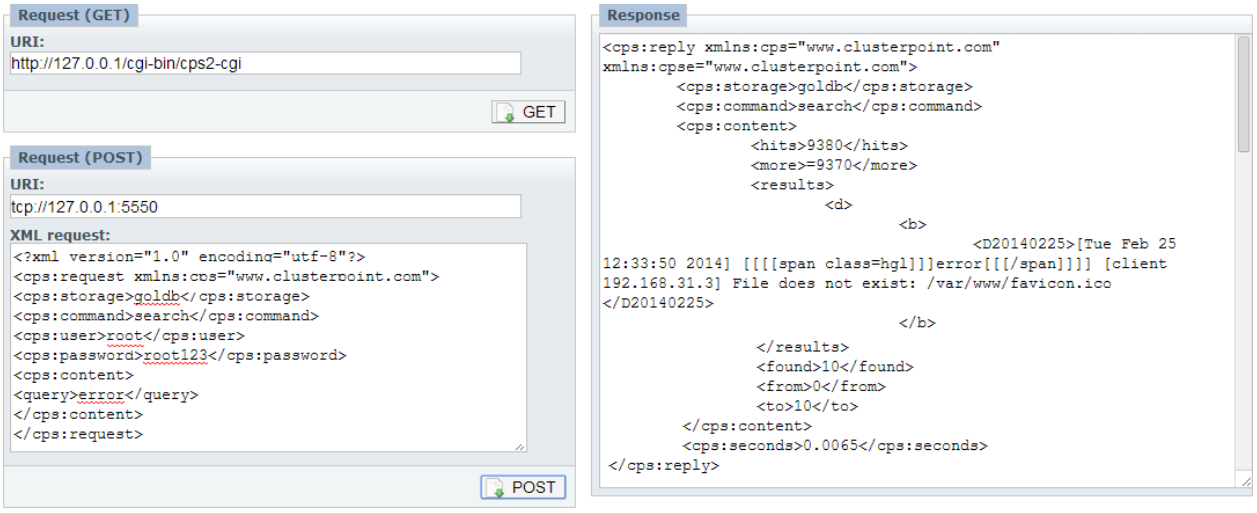
9.3.3. Commands that can be executed in database

For golDB management several built-in commands can be used. How to access them is described in chapter *9.3.2 Deleting documents from database* starting from step b).
Description of commands is available in *Table 12*.

Table 12. Commands available for golDB management.

Command	Description
Search	Command can be used for search of words and phrases in the database and displaying of the results.
Retrieve	Command for finding and retrieval of document with displaying of full content by its ID nr.
Lookup	Command for finding of the document by its ID nr.
List-last	View the last entries in the database.
Clear	Delete all the database entries
Delete	Delete database
Status	Command for viewing of detailed database status
Reindex	Command for re-indexing of the data
Rebalance	Command can be used for rebalancing of the golDB content among all nodes

These and other advanced commands can be executed in the menu item **Tools**. In example (*Picture 37*) with a red underline is marked the replaced value in goldb database for finding the word "*error*".



Picture 37. Example with changed values in golDB.

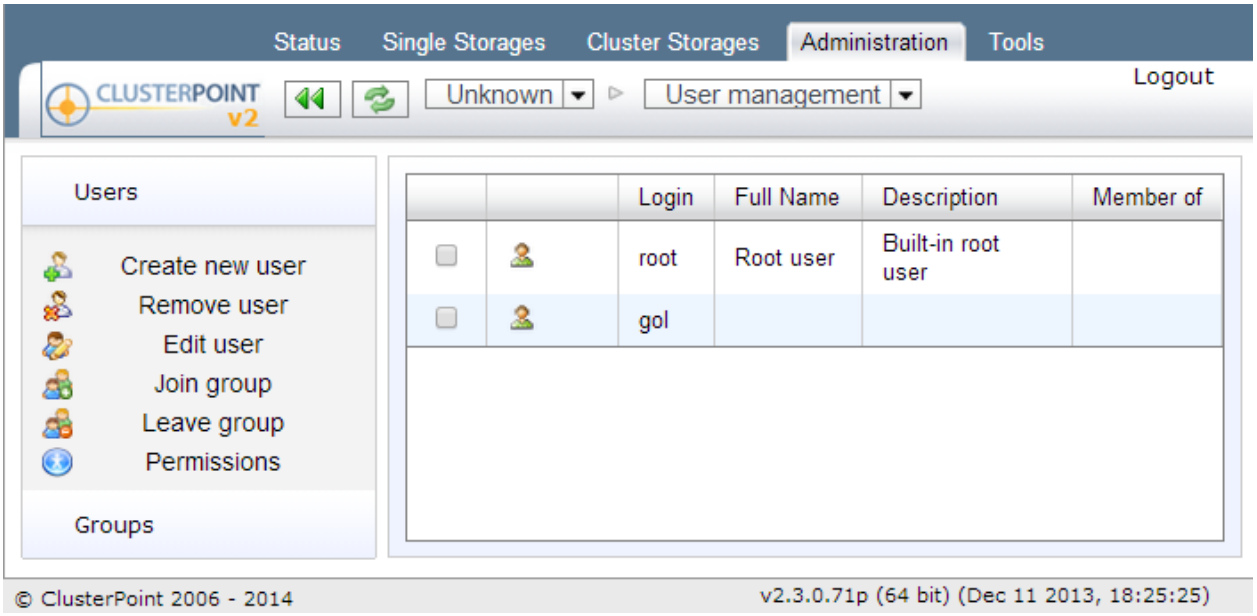
9.6 golDB users and passwords

In order to create or edit golDB users press the menu item **Administration** - User management.

The list with current users will be opened (*Picture **38***). By default in GOL are to users:

1) User **root** with password "**password**" is used for golDB administration;

2) User **gol** with password **y2sP** provides golLoader authentication to the server for sending of log entries to the database.

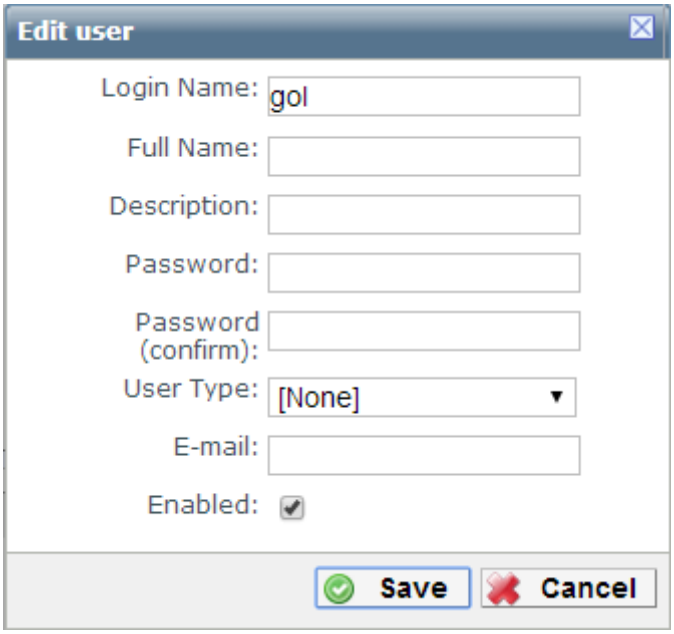


Picture 38. List with golDB users.

In order to change the password check the box (☑) and press **Edit User**.

- New window for changing of the password will be opened;

- New password must be entered in to the both **Password** fields and saved by pressing button **Save** (*Picture 39*).



Picture 39. Window for change of golDB user password.

Other settings can be edited in this window as well:

- User name can be changed by writing new one in the field **Login name**;
- Full name of the user can be specified in the field **Full name**;
- From items in the drop down menu **User Type** the user rights can be chosen;
- User can be enabled or disabled by adding or removing the check in the **Enabled** field box (☑).

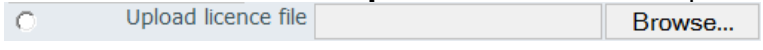
9.7 Database license and its extension

If the database license term is over, the license may be renewed upon receipt of a new license file. After receiving of the file it must be uploaded to the database:

1) In the menu item **Administration** press the arrow on the button 

and from the dropdown menu chose item **License**;

2) Windows for license installation will be opened. Under **Install new license** check the radio button with appropriate method for license renewal:

   a) In order to upload the file check the item **Upload license file** and press the button **Browse** 

;

   b) In order to renew the license with content from the license file check the item **Copy license content** 

and copy the content of the file in the empty field.

10 Troubleshooting GOL

10.1 GOL system folders

GOL system files by default are located in the following folders:

- Folder with GOL-GUI interface files:

  /usr/local/GOL-gui

- Folder with golLoader Linux agent files:

  /usr/local/GOL-loader

- Folder with Clusterpoint database engine files:

  /usr/local/cps2

10.2 Linux golLoader agent is seen as inactive in GOL-GUI network-chart

If the network-chart in GOL-GUI is identifying the host as inactive (bubble with red ring) and log entries are not transmitted to golDB, it is possible that agent is either jammed or process is not started for some reason.

REMARK! Before proceeding with golLoader restart, it is necessary to ensure that the appropriate Linux host is connected to a computer network or can access the golDB server.

In order to verify golLoader status, in Linux terminal mode take following steps:

1) Switch to user *„root”* by entering appropriate password:

   su-l

   ```
   gol@gol-demo:~$ su -l
   Password:
   root@gol-demo:~# _
   ```

2) Execute the command:

   ps aux | grep gol

   ```
   [root@lvltpub-cms2-cpoint-02 log]# ps aux | grep gol
   ```

   Command can return two kinds of results:

   a) golLoader is running as a process with assigned to it ID. In example lower the ID is marked with yellow background (17281):

```
root     17281  0.0  0.0 130512  7040 pts/0    S    14:17   0:00 /usr/local/GOL-
loader/php/php-cli /usr/local/GOL-loader/gol-loader.php
root     19425  0.0  0.0 103236   876 pts/0    S+   14:24   0:00 grep gol
```

b) golLoader is not running and only *grep* process ID was returned.

```
root     19425  0.0  0.0 103236   876 pts/0    S+   14:24   0:00 grep gol
```

In case when golLoader agent is not running (case b) it can be activated by executing the command:

„/etc/init.d/gol-load start"

```
root@gol-demo:~# /etc/init.d/gol-load start
[ ok ] Starting GOL log loader process...done.
```

Available parameters for *gol-load* and *gol-alerts* commands:

- **Start** – Activate the service;
- **Stop** – Stop the service;
- **Restart** – Stop and then reactivate service.

In case when golLoader process is active but data to golDB are not transmitted (case a), process can be stopped with **Stop** and then reactivated with command **Start**:

```
[root@lvltpub-cms2-cpoint-02 log]# /etc/init.d/gol-load stop
Stopping GOL log loader process
[root@lvltpub-cms2-cpoint-02 log]# /etc/init.d/gol-load start
Starting GOL log loader process                            [  OK  ]
```

If the previous approach does not succeed, golLoader process can be stopped with command *kill* using golLoader process ID and then reactivated. For example is used the case a) with specified ID number - 17281. Following commands must be executed:

kill -9 17281 and then executing command */etc/init.d/gol-load start*

```
[root@lvltpub-cms2-cpoint-02 log]# kill -9 17281
[root@lvltpub-cms2-cpoint-02 log]# /etc/init.d/gol-load start
Starting GOL log loader process                            [  OK  ]
```

10.3 GOL-GUI stops after login

If after entering correct user name and password in the browser blank page is displayed, it is possible that golDB is not running. In order to activate database service, in Linux terminal mode take following steps:

1) Switch to user *„root"*:
   su-l

```
gol@gol-demo:~$ su -l
Password:
root@gol-demo:~# _
```

2) Execute *cps2-server* service:

   „/etc/init.d/cps2-server start"

```
root@gol-demo:~# /etc/init.d/cps2-server start
[ ok ] Starting Clusterpoint Server...done.
```

Other available for *cps2-server* service parameters:

- **Start** – Activates Clusterpoint database engine;
- **Stop** – Stops the Clusterpoint database engine;
- **Restart** – Stops and then reactivates Clusterpoint database engine;
- **Reload** - Stops and then reactivates Clusterpoint database engine;
- **Force-reload** – Forcibly stops and then activates Clusterpoint database engine.

10.4 GOL-GUI is not running

Internet browser program can not open the GOL-GUI user login dialog. In this case it is possible that *Apache* service is not running. *Apache* service can be activated by taking following steps in Linux terminal mode:

1) Switch to user *„root"*
   su-l

```
gol@gol-demo:~$ su -l
Password:
root@gol-demo:~# _
```

2) Start *Apache* service:

   - For Debian and Ubuntu Linux execute command:

     „/etc/init.d/apache2 start"

   - For Red Hat, Fedora and CentOS Linux execute command:

     „/etc/init.d/httpd start"

10.5 List with available log types in golLoader configuration window is empty

If in log data configuration window **Type** dropdown menu is empty, it is possible that information about configuration is not stored correctly in golDB. In order to avoid that, following steps must be executed:

1) Open internet browser;
2) In the address field enter - *http:///[Server IP]:5580/*;
3) Authentication will be required for golDB user terminal access. Default parameters, user - ***root***; password - ***password***.
4) In main menu press the item **Single storages;**
5) Press on database name **golcfg** (colored in blue);
6) On the left edge press on item **run command**;
7) From list of available commands chose **Reindex** and press button **Send**.
8) Open GOL-GUI in internet browser and make sure that the problem is fixed.