Wialon Admin Guide

wialon

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Overview and Architecture

Complex tracking system software of fifth generation in which best and innovative ideas are gathered. For practical acquaintance and testing you can try the newest version of Wialon™ B3.

Web browsers supported: Mozilla Firefox 3+, Opera 9.6+, IE 8+, Google Chrome 2.0+.

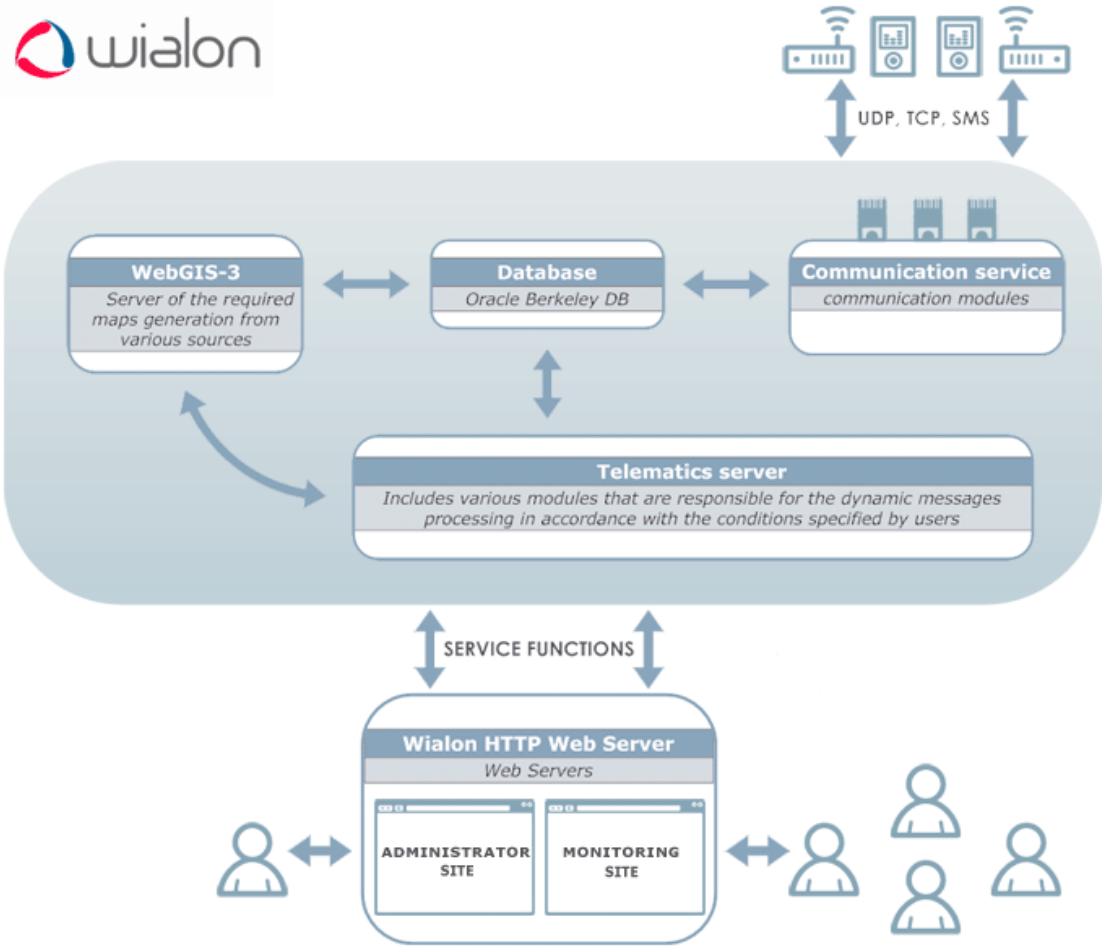
Distinctive features over similar software products are:

- Client/server architecture with support of multichannel asynchronous connections;
- Built-transactional storage system from the well-known producer in the world;
- High data performance;
- Script supporting, i.e. opportunity to work with the system at the macrolanguage;
- Distributed architecture designed for the millions of users and tracking units;
- Support for GSM modems, binary SMS, long SMS, and also possibility to work with SMPP protocol, de facto standard protocol for receiving/sending messages to mobile operators;
- Embedded web server integrated with operating system functions (Linux version);
- Modular system - for today there are about 50 modules and even more variety of plugins;
- Control access and users rights delineation;
- Close integration with WebGIS-3 server - search on map, binding of messages to roads at route construction, address definition by coordinates, image reception map and much more other;
- Unit remote control possibility via SMS/GPRS;
- Support for notification of various events such as entry and exit geofences, excess or decrease speed, change control sensors and digital inputs. Notifications can be sent by e-mail, SMS, displayed online or stored in unit history as events or violations;
- Support jobs running under a specific schedule, such as the delivery of reports via e-mail or execute a command over a unit;
- Unit groups support;
- Access from mobile phone;
- Huge, constantly expanding list of supported units (over 120 types at the moment).

Architecture

Wialon (painted blue) consists of four main parts: cartographic server WebGIS, telematics server, Database and a communication service. Altogether it receives, processes and stores data form tracked units, and sends commands to units when necessary.

- Communication with units is done via UDP, TCP/IP and SMS protocols.
- Oracle Berkeley DB database stores all messages that were received from or sent to GPS unit.
- Telematic server processes all messages and make GPS and extra information available on request.
- Cartographic server WebGIG processes cartographic data and make maps visible to Wialon users.
- Wialon HTTP Web server to connect any user to Wialon via any Internet browser. Supports http and https.



The system is not limited by this structure and can be expanded by adding necessary servers if capacity or data throughput are not enough for efficacious service operation. Any number of servers can be added to the system (see Minimum Requirements).

For you convenience, most Wialon distributions contain 'all services in one'. It means when you install a distribution, you will automatically get ready to use multicomponent tracking service.

Minimum Requirements

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Wialon has rather high level of software and hardware requirements.

Software Requirements

To install Wialon, 32 or 64-bit operating system on the bases of x86 architecture is needed. Windows and Linux OS are supported. Development and testing is performed on these two operating systems, and their workability is granted. Read the specifications for each of them in further topics of the guide.

We recommend to use Linux as software platform, because this operating system has a number of advantages over Windows:

- Two recent years Wialon software is developed on Linux OS, which results in constant selfdignostics and software optimization for Linux kernel.
- All our services where the software is tested (both paid and free) use Linux Debian Lenny 64-bit. On this OS the final integration of the distribution is made, and the software is tested by thousands of users daily.
- Linux OS is designed to provide maximum security and stability. Our servers have annual uptime and are stopped rarely. Wialon can be started as non-privileged user, that is why an intruder will not be able to harm the server OS.
- Linux version of Wialon includes additional facilities to make a diagnostics of crashes and errors. In case of system failure in Windows version,there much fewer possibilities to diagnose the problem and solve it.
- In its standard package Linux contains a great number of useful system tools, for example, *logrotate* to rotate log files, *crontab* to restart the server in case of crash, *tail -f* to view log files online, etc.

The most significant point is that Windows version can be 32-bit only, and it undergoes fewer level of testing. However, the service can be started on 64-bit version but its workability is not granted.

If you use Wialon for your company's local purposes, you do not have a right person for the job, and the number of monitoring units is 100-5000, Windows version is a good solution for you.

Wialon software can be installed to the Windows versions: Windows 2003 Server, Windows 2000, Windows XP. The workability on 64-bit systems is not granted.

Wialon software can be installed to the Linux versions: all Linux versions with 2.6 kernel, Debian and the like are recommended.

Hardware Requirements

Hardware platform requirements directly depend on the number of units and users you are going to have in your tracking service, as well as on tasks posed. Below you see the set of requirements for a configuration where all servers work on one physical server.

To define the amount of disk space needed note that a typical message from a unit occupies 150-200 bytes.

We recommend using Intel Pentium D from 1GB of RAM and of 20 GB SATA HD as the basic system. To monitor over 100 units, we recommend Core 2 Duo(Quad), from 2 GB of RAM and from 50 GB SATA HD. To monitor over 500 units, we recommend Core Quad, from 4 GB of RAM and from 100 GB SATA HD. To monitor over 2000 units, we recommend 2xXeon Quad Core, from 8 GB of RAM and from 300 GB SAS (or SATA with 10.000 turns) for DB.

In all cases we recommend to use RAID-1, RAID-5 or RAID-10. In case of Linux OS, use Linux MD RAID (software-based).

Besides, it is a good idea to store automatic backup copies (*backup* directory) in different server (for example, using NFS file system) or in an independent storage device.

Remember that using maps (both external or embedded GIS servers)causes additional requirements to RAM regardless Wialon telematic server itself. The approximate calculation scheme is as follows: 512 MB plus all maps in AVD format taken with 1.5 coefficient. It means to use maps of cities and average local regions 1GB of RAM is needed, and to use maps for all Russia - over 2 GB.

For efficient server operation we recommend to use the following Internet channel width:

- up to 5 users - 2 MB
- up to 20 users - 10 MB
- up to 1000 users - 100 MB
- over 1000 users - 1 GB

Wialon server requires static IP address to receive data from units.

Supported Browsers

Supported browsers are:

- **Mozilla Firefox 3+**
- **Opera 9.6+**
- **Internet Explorer 8+**
- **Google Chrome 2.0+**

If you use a browser not mentioned above, Wialon may function incorrectly.

Wialon Administrator's Responsibilities

Wialon service administrator is in charge of the following:

- To see that there are enough free space on the disk;
- To care of hard drives state (to avoid the formation of damaged areas);
- To monitor the volume of Wialon log files;
- To monitor errors ('… error …') in Wialon log files, in case of errors promptly remove cause of trouble;
- To monitor memory consumption and CPU load;
- To maintain actucal time on the server;
- To control the logins to Wialon and do not allow restarts or attempts of restarts from users who do not have enough rights for this.

Several processes allowing to automate administrator's work are described in **System Software Configuration**.

Directory Structure

The general structure of Wialon directories:

- **backup** – the directory with backup files;
  - **curr** - the newest backup files;
  - **perv** - some previous backups;
- **custom** - the directory containing your custom configuration;
  - **skins** - the directory with your custom design of the monitoring site (if you are using not a default design);
  - **hw** - the directory with scripts needed to work with devices different from the standard package and unique for the given service);
  - **custom.txt** - **the file of your custom Wialon Configuration**;
- **dep** – the directory containing system libraries needed for Wialon operation;
- **lib** – the directory of main libraries;
- **logs** – the directory containing log files;
  - **wialonb3_trace.log** - the main log file with detailed information about service state and work;
- **plugins** – the directory with plugins (here the unenciphered folder **mps** with additional plugins is also located);
- **scripts** – the directory with the main scripts;
- **sites** – the directory for sites;
- **storage** – the directory containing database;
  - **pd** - database for objects and their parameters;
  - **pl** - database transactions log for objects and their parameters;
  - **md** - messages database;
  - **ml** - database transactions log for messages database;
- **tmp** – the directory with temporary files.

User is allowed to make changes in **custom** directory only. By default, when the software is updated, only this directory is not replaced with original files from the distribution.

License

The license is **license.cfg** file. It must be given to you as a soft copy or sent by e-mail.

Periodically (usually each 20-30 days), Wialon license connects to the license server **lic.gurtam.com** (port **31176**) and confirms the product usage on one server at a time. If this license check is blocked because of firewall or lack of Internet connection, it will cause a ban to use the program. In this case you will not be able to create new devices. Working service with all its configuration will not be damaged.

You place the license file to the root directory before the first start of the server.

If you have any problems with license, you cannot create any monitoring objects, and in log files there can be found phrases like: **Error fetching license: 'avl.unit'**.

Installing and Updating Wialon

Download Wialon installation files from your page of personal distributions. Depending on operation system you are using, follow installation instructions:

- Windows
- Linux

install/start.txt · Last modified: 25/05/2010 15:18 by alek

Installing Distribution (Windows)

Wialon distribution is a ZIP file. Inside is the **distro** folder which contains installation files and the installer itself (**install.exe**).

Installation Process

Before installing Wialon to Windows OS, it is needed to install .NET Framework 2.0.

1. Run **install.exe** and follow wizard instructions.
2. Read license agreement and accept it.
3. Indicate the directory to install Wialon. By default, it is *C:\Program Files\Gurtam\WialonB3*.
4. Press OK. The installation process will start.

Starting the Service

Immediately after installation, place the license file into the directory where Wialon has just been installed. After that you can finally start the software.

To start or stop the service, use one of equivalent paths:

- Start All programs Wialon B3,
- Control panel Administration Services.

Diagnostics

For any diagnostics, see the log file **WialonB3_trace.log** that is located in the directory *logs*.

Installing Distribution (Linux)

Linux is the optimal operating system for organizing Wialon service operation. This is because the product is developed in this operation system, and if any problem occurs, it is easier to solve it.

Assistance in Installing Linux

However, novice users may meet with difficulties installing Linux for the first time. To avoid troubles, you can download from https://distro.gurtam.com/iso/ images of *Debian amd64* installation disks that have already optimal configuration for installing Linux from scratch. Any of disk images is no more than 200 Mb.

Three ways to install Linux are possible:

- Linux is installed on a computer with one hard drive or hardware RAID.
- Linux is installed on a computer with two hard drives one of which will be used for backup.
- Linux is installed on a computer with two hard drives that will be organized in software RAID-1 (mirror) for more reliability of the system.

After loading a distribution, write it to CD or DVD disk. In BIOS set boot from CD option. Then insert the disk to the CD-ROM drive and restart the PC. Follow the instructions on the screen. They concern time and regional settings, language, etc.

If you have chosen the last variant (a computer with two hard drives), you will be prevented that RAID will become available after restarting. Press 'Continue' to continue the installation.

Wialon Installation Process

Before installing Wialon, it is recommended to read recommendations on configuring server file system.

Two distribution variants are available:

- 32-bit,
- 64-bit.

32-bit distribution fits to any architecture, and 64-bit can be used only for x86_64 platform. To know your platform, execute the commend *uname -m*.

Download selected distribution and unzip it using the command *tar*. In the example below, this command is applied to 0909r1 distribution:

```
tar xzf wialon-pro_0909r1_l64.tgz
```

After this action, the directory *wialonb3_install* will appear. Here run installation script *install.sh*:

```
cd wialonb3_install
./install.sh
```

Root rights are not required for installation, but the default directory */var/lib/wialonb3* assumes that an ordinary user has no edit rights. However, for correct installation of automatic administrator's scripts, log files rotation system, and unattended startup of the service it is desirable to run installation as root user.

Root rights are neither required for normal service operation. In case you need port numbers under 1024, you can use reverse proxy server: **nginx**, **lighttpd** or **Apache**.

Installation wizard will ask you some questions. If you install Wialon for the first time, it is recommended to leave default settings. At the end, the installation wizard will show you the adjusted configuration and will do installation.

```
Welcome to Wialon B3 installation script.
Please answer few questions before starting actual installation. Provide empty answers to use
defaults.

Where would you like to install Wialon B3? [/var/lib/wialonb3]
Wialon B3 dependencies need to be downloaded and unpacked. This operation is performed only once for
each service installation and can take some time, so please wait patiently.
Enter HTTP or local directory path that contain archived Wialon B3 dependencies file adf-dep-3.1.1-
l64.tgz [http://distro.gurtam.com/adf]
Install custom configuration (folder)? [yes]
Where would you like to install Wialon B3? [/var/lib/wialonb3]
Install custom configuration (folder)? [no] yes
Install periodic administrative jobs (in current user crontab)? [no] yes
Install Wialon B3 log rotation script (into /etc/logrotate.d/wialonb3) [no] yes

OK, now is time to perform Wialon B3 installation. Check all parameters below are correct:

    Wialon B3 will be installed in:                 /var/lib/wialonb3
```

```
    Install user custom configuration folder:        yes
    Install Wialon B3 as system service:             no
    Install Wialon B3 cron jobs:                     yes
    Install Wialon B3 log rotation script:           yes
    Use ADF dependencies from:                       http://distro.gurtam.com/adf/adf-dep-3.1.1-l64.tgz

Are all parameters correct? [yes]
Creating directories...
Downloading/Copying packed ADF dependencies file adf-dep-3.1.1-l64.tgz
--08:53:36--  http://distro.gurtam.com/adf/adf-dep-3.1.1-l64.tgz
          => `/var/lib/wialonb3/adf-dep-3.1.1-l64.tgz'
Resolving distro.gurtam.com... 85.17.154.142
Connecting to distro.gurtam.com|85.17.154.142|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 7,019,076 (6.7M) [application/x-gtar]

100%[==========================================================================================================
7,019,076      9.25M/s

08:53:37 (9.23 MB/s) - `/var/lib/wialonb3/adf-dep-3.1.1-l64.tgz' saved [7019076/7019076]

Copying files and directories...
Installing Wialon B3 as system service...
Installing Wialon B3 cron jobs...
Installing Wialon B3 log rotation script...

Wialon B3 installation finished successfully. Read documentation for further instructions.

Server can be used as default init.d script. After loading environment (if using /etc/init.d/ script
preloading environment is not required) as described above you may:

To start server in debug (not forked) mode with logging to stdout (press Enter to stop):
/etc/init.d/wialonb3 debug
To start server in normal mode with logging to /var/lib/wialonb3/logs: /etc/init.d/wialonb3 start
To stop server in normal mode: /etc/init.d/wialonb3 stop

Log files located in /var/lib/wialonb3/logs directory always contain maximum information regarding
service errors or status.
```

If this is the first installation, select to *Install custom configuration* for the *./custom* folder to be created. It will have then standard contents. If installing updated, do not select this option in order to save your configuration settings.

Important! If the service will be started by a user with limited access rights, add the user/group to a trust group to avoid possible conflicts. To do this, in the file *./custom/system_env.sh* comment in the variables **ADF_USER** or **ADF_GROUP** and enter user/group that will obtain full rights to the directory where Wialon is installed.

```
#ADF_USER="--user some-user"
#ADF_GROUP="--group some-user-group"
```

Immediately after installation, place the license file into the directory where Wialon has just been installed. After that you can finally start the software.

How to configure your server for Linux OS, read in System Software Configuration.

First Steps

After installation Wialon already has some default settings and almost does not requires a special configuration before the first start. The most important is to write the license file to the service directory before the start.

How to Start the Service

Linux

See instructions in the installation script. Usually, it is */etc/init.d/wialonb3 start*.

Windows

Through the *Start menu* or *Control panel* *Administration* *Services*.

Default Ports

After the first installation, you can get the access to your service through a web browser via the following ports (numbers by default):

Port	Site	Description
8021	Administration site	Access for users in the group of administrators.
8022	Monitoring site	Working application. Contains the map. Use the default login *wialon* and password *wialon* to enter the site.
8023	Management site	Access for users from the group of managers. Here the accounts are created.
8024	Mobile site	A light version of the monitoring site to access the service form a PPC or mobile phone.

In other words, if you are on the server, your administration site is accessible through the link http://localhost:8021 or http://server>IP:8021.

Users/Logins

During the first start, a password will be reset for the user *admin* to enter the administration site. Besides, the user *wialon* with the password *wialon* and the account *wialon* for this user will be automatically created. This user can be used to enter the monitoring site. It is recommended to change the password for this user. All this will be registered in the log:

```
2008/12/29 17:06:25:916: Performing initial setup for Wialon site
...
2008/12/29 17:06:25:916: Updating initial password for admin user to: GbykVFGtFG
...
2008/12/29 17:06:25:917: Created user 'wialon'
...
2008/12/29 17:06:25:917: adf_avl_create_resource('wialon')
2008/12/29 17:06:25:917: Created resource 'wialon'
```

Updates

Wialon Pro updates are released in the way similar to Open Source products that is the way of releasing branches of the source code.

Once in four months we copy the Wialon source code to an independent branch and name it YYXX where YY is the year, and XX is the month of the release. Such a copy is made two months before the release. For example, in the July 2009 we prepare a branch for 0909 release (September 2009), in November 2009 we create a branch for 1001 release (January 2010).

After a branch has been released, we do not develop it but only correct detected bugs. As the corrections accumulate, every two weeks we make a new release candidate (for example, 0909C1, 0909C2), and then the releases themselves (for example, 0909R1, 0909R2).

Thus, the releases are stable and reliable, but by their functionality they lag behind the actual implementation for the period from two to four months.

In Wialon Data Center we always use the most recent, so-called bleeding-edge version. That is why at demo login you can see differences from existing stable release installed on your server.

Current version:

- **Wialon 1001**

Previous versions:

- **Wialon 0909**
- **2009/05/21**
- **2009/05/06**
- **2009/04/06**
- **2009/02/16**
- **2008/12/16**

Installing Updates

The process of installing updated is the same as installing your first version. However, remember that all files which are not in the *custom* directory will be replaced with original files, so the features which are not a part of standard package may be lost.

When installing updates, answer *No* for *Install user custom configuration folder*. In this case the *custom* directory will not be replaces with standard content and all your settings will be saved. By default, if installing updates over an existing version, this item is already set in *No* position.

0909 => 1001

After updating to Wialon 1001 and higher, the return to Wialon 0909 is impossible due to differences in structure and database drivers.

When updating from 0909 to 1001, it is necessary to stop the service before updating and copy the *storage* directory in a safety place.

After that, it is recommended to do a checkpoint. In the directory where Wialon is installed, do in Linux console the following:

```
./shell
cd storage
db_checkpoint -1
```

The same procedure is done also after installing updated but before starting the software. It is required because of the change of DB driver. The problem can occur when starting a new version for the first time, in the moment of BD initialization. If everything is going right, it means your storage system is not liable to this problem, and these preventive measures are not needed.

If any questions or troubles with installing and updating the software, please, do not hesitate to contact us through our technical support service.

Database Recovery

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Backup System

Backup is made automatically according to schedule. To turn off backup option, set the parameter **ADF_STORAGE_BACKUP_INTERVAL** as **0**.

The default location of backup files is **backup** directory. To indicate another location, set the path using the parameter **ADF_STORAGE_BACKUP_PATH** (without slash at the end).

Wialon 0909 and earlier versions store backup copies according to the date, for example, **backup/20090712, backup/20090713**.

Wialon 1001 locates the latest backup to the directory **backup/curr**. Old backups are automatically deleted as unnecessary.

Database Recovery after Fail

In some cases Wialon does not start because of failure in database files.

See Database and Backup System to know how the backup system is organized in different versions of Wialon.

How to Detect Database Errors

Usually, when starting the service you can find the following messages in the log:

```
2009/03/24 07:57:44:861: adf_storage_db_error_call: adf_storage:
/var/lib/wialon/storage/log.0000000038: log file unreadable: Permission denied
2009/03/24 07:57:44:861: adf_storage_db_error_call: adf_storage: PANIC: Permission denied
2009/03/24 07:57:44:862: adf_storage_db_error_call: adf_storage: Invalid log file: log.0000000038:
DB_RUNRECOVERY: Fatal error, run database recovery
2009/03/24 07:57:44:862: adf_storage_db_error_call: adf_storage: PANIC: DB_RUNRECOVERY: Fatal
error, run database recovery
2009/03/24 07:57:44:868: adf_storage_db_error_call: adf_storage: unable to join the environment
2009/03/24 07:57:44:918: storage_service::open_environment: recovering environment...
2009/03/24 07:57:48:693: adf_storage_db_error_call: adf_storage:
/var/lib/wialon/storage/log.0000000038: log file unreadable: Permission denied
2009/03/24 07:57:48:693: adf_storage_db_error_call: adf_storage: PANIC: Permission denied
2009/03/24 07:57:48:693: adf_storage_db_error_call: adf_storage: Invalid log file: log.0000000038:
DB_RUNRECOVERY: Fatal error, run database recovery
2009/03/24 07:57:48:693: adf_storage_db_error_call: adf_storage: PANIC: DB_RUNRECOVERY: Fatal
error, run database recovery
2009/03/24 07:57:48:700: adf_storage_db_error_call: adf_storage: unable to join the environment
2009/03/24 07:57:48:753: storage_service::open_environment: error recovering environment:
DB_RUNRECOVERY: Fatal error, run database recovery
```

Origins of Errors

Various factors can cause the database failures:

- Simultaneous work of two Wialons with one database.
- File system failure.
- Incorrect shutdown of Wialon software or operation system.
- Conflicts in access rights to DB files.

There are cases when Wialon is already started as root user, but another user is trying to start it as different user (not having rights to roll out the process).

Your Actions

In most cases, these situations are not critical. First of all, you can try to recover your DB from the backup copy (by defaults, it is saved hourly). Copy the contents of the *backup* folder to the *storage* folder. Beforehand copy *storage* folder contents to a secure place.

Database Recovery

This method of DB recovery is applicable only to Wialon 0909 and earlier versions. Wialon 1001 and higher are much more reliable and failure protected. To recover DB for these versions, please, contact Gurtam Help System.

If a recovery form a backup copy failed, you can restore database integrity by deleting incorrect messages. Go to Wialon installation directory, and in the command line type the following:

1. ./shell
2. cd storage
3. db_dump -r messages.db | db_load messages.db.new

4. mv messages.db messages.db.old
5. mv messages.db.new messages.db

Detailed description of these commands you can find here: **db_dump**, **db_load**

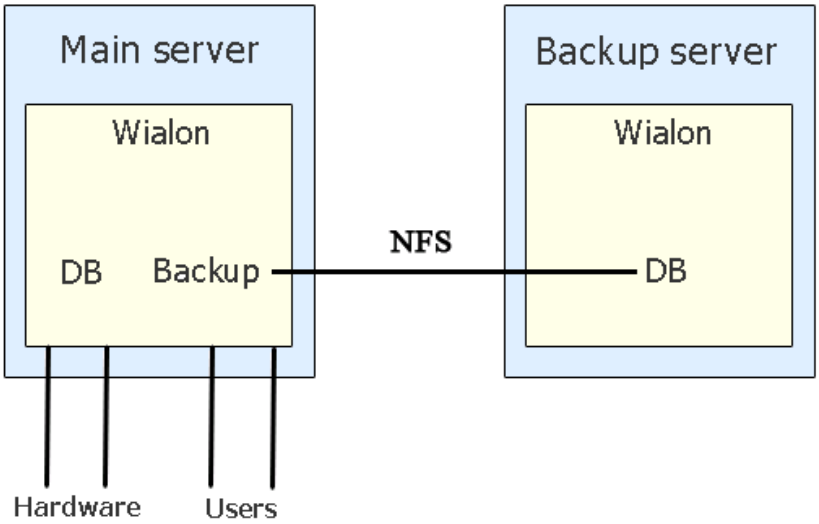
These commands are applicable for Linux. To download similar utilities for Windows go here.

Reserve Scheme of Operation

Security is one of the main characteristics of tracing systems. That is why it is so important to devote much attention to build a reliable scheme of software functioning.

When Wialon is used for corporate purposes, and its work is limited by moderate number of units (50-100), existing transaction database technologies and internal means of backup system work out this problem completely. But when the number of objects approaches to 1000 units and users are more than 200, regardless the faultless and reliable Wialon operation, it is important to have a reserve scheme of operation.

In case of hardware malfunction (like Winchester or CPU failures) it is strongly recommended to organize a reserve scheme of service operation beforehand.



To organize a reserve operation scheme, you need to have two physical servers with Wialon installed. At this, an additional license is nor required. You can use the same license on both configurations, because they will never work simultaneously. The main server with static external IP address is permanently in the work. File backup is adjusted in such a way backup gets from the main server to the *storage* folder of the reserve server. Thus, all current database is located on two different computers.

To implement this scheme, one can use Network File System (NFS) technology.

In case of main server collapse, its external IP address is assigned to the reserve server, and Wialon is started on it. Thus, the reserve server supersedes the main server, and all data from units gets on it. Besides, users has access to the service and their work is not interrupted. On the reserve serve there is a separate backup which stores database in a special folder. When the main server is renewed, we return to the main scheme: the reserve server is stopped, its backup folder id copied to the main server, and the main server is started.

System Configuration

Here are instructions of how to set your operation system to work with Wialon.

Common

- **Firewall**

Windows

- **Log Files Management**

Linux

- **File System**
- **/etc/sysctl.conf**
- **Firewall**
- **Network Time Synchronization**
- **Proxy Server for HTTP(S) Queries**
- **Mail Server**
- **Log Files Management**
- **Service Operation under an Ordinary User**
- **Unattended Startup of the Service**
- **Automatic Administrator's Scripts (Cron Jobs)**

Wialon Configuration

Configuration parameters are mostly adjusted in the file ***./custom/config.txt***. The file is in UTF-8 format (without BOM), that is why be attentive while editing it in Windows OS. As an aditor for this filw in Windows, we recommend Notepad ++.

Variable values are adjusted in the following way:

- <variable> = <value>
- <variable> = <$variable + additional value>

An example of the file:

```
# Email notifications from address
AVL_NOTIFICATIONS_EMAIL_FROM = noreply@noreply.com
# Email jobs from address
AVL_JOBS_EMAIL_FROM = noreply@noreply.com
# Optional service-wide reports visual configuration file
AVL_REPORTS_STYLES_FILE=$ADF_ROOT_PATH/custom/reports_config.xml
# CMS Manager site specification
CMS_MANAGER_WEBSERVER = cms_manager:8023:*
# Wialon Web site specification
WIALON_WEB_WEBSERVER = wialon_web:8022:*
WIALON_WEB_EMAIL_FROM = noreply@noreply.com
WIALON_WEB_MAPSERVER_URL =
http://ft1.mapsviewer.com,http://ft2.mapsviewer.com,http://ft3.mapsviewer.com,http://ft4.mapsviewer.com
WIALON_WEB_ROUTESERVER_URL =
WIALON_WEB_ENABLE_LOG = 0
# Net server allowing network clients access
ADF_STORAGE_NET_SERVER = 31188:*
# Storage subsystem configuration
ADF_STORAGE_CACHE_SIZE = 64
ADF_STORAGE_BACKUP_INTERVAL = 60
ADF_STORAGE_BACKUP_HOLD_INTERVAL = 7
ADF_AVL_UNIT_HISTORY_PERIOD = 0
# SMTP server configuration
ADF_SMTP_SERVER = localhost
# GIS network server configuration
ADF_GIS_NET_REMOTE_SERVER = mapsviewer.com
# Wialon Admin site specification
AVL_ADMIN_WEBSERVER = avl_admin:8021:*
# Communications server configuration
ADF_AVL_COMM_SERVER = local:0:0:1
```

Note:
When reinstalling the system or installing updates, the installer does not replaces this file by original distribution files so that not losing your changes.

In the following sections Wialon configuration is described in details:

- **Units and Devices**
- **Database and Backup System**
- **Maps**
- **Monitoring Site**
- **Mobile Site**
- **Management Site**
- **Administration Site**
- **All Variables**

Units and Devices

Two server parameters can be configured for units:

- network interface;
- port number.

How to set parameters, see Wialon Configuration.

Variable	Description
ADF_AVL_HW_BIND_ADDR	Network interface to listen for units and users connections. Default value is '*', which means 'any interface'.
ADF_AVL_COMM_SERVER	Communication server configuration. The format to set the parameter: <comm-server-name>:<avl-server-host>:<avl-server-port>:<scan-hw_dir>. Default value is '31189'. The parameter *scan-hw-dir* is optional (by default, its value is '0'). It means enabling autoscanning of new devices types when the system is being initialized.
WIALON_AUTO_CREATE_UNITS	If the value is '1', unit which does not exist in the system but sends messages, will be automatically created.

See also Full list of supported tracking hardware with instructions about hardware configuration for Wialon.

Database and Backup System

Here are the parameters to configure the storage system. How parameters are set, read in Wilaon Configuration.

Variable	Description
ADF_STORAGE_PATH	The path to storage files. Default directory is *./storage* (in root directory).
ADF_STORAGE_CACHE_SIZE	The size of RAM (in Mb) to store the cache of unit properties. The value should be a power of 2. Default value is 16 Mb.
ADF_STORAGE_MESSAGES_CACHE_SIZE	The size of RAM (in Mb) to store the cache of messages. The value should be a power of 2. Default value is 64 Mb.
ADF_STORAGE_DEFRAG_INTERVAL	This parameter is to set the interval of automatic defragmentation of database (in days). In addition, the time when defragmentation is done can be specified. The form is: <interval> or <interval>:<hour>. To turn off the defragmentation, set '0'. By default, the defragmentation is done everyday at 3AM (local time).
ADF_STORAGE_BACKUP_INTERVAL	The interval (in minutes) of how often database and transaction files are backed up. Default value is 60 min.
ADF_STORAGE_BACKUP_FULL_INTERVAL	*For Wialon 0909 only*. The interval of creating the full (not incremental) backup (in days). By default, it is 1 day.
ADF_STORAGE_BACKUP_HOLD_INTERVAL	*For Wialon 0909 only*. The number of last full backups to store. Default is 7 backups.
ADF_AVL_UNIT_HISTORY_PERIOD	The period to store unit history (in days). Used for database servers only. If not set or the value is '0', unit history is not deleted automatically.
ADF_STORAGE_TRASH_KEEP_PERIOD	The period (in days) to store deleted objects in the trash folder with the possibility to restore them. By default, 30 days.
ADF_STORAGE_BACKUP_PATH	The location to store database backup. Default is *backup* directory.

Network settings to connect **Wialon Pro Client** to the server Wialon Pro:

Variable	Description
ADF_STORAGE_NET_SERVER	Set the port and network interface address to listen connections by the form <port>:<IP address>. IP address can be skiped to listen on all local network interfaces. Default port is 31188. To initialize server part in the trusted mode to any connected user (that is the authorization is not needed, and the connected user has the maximum access to all local objects), the third parameter set as '1' is needed, for example, '31188:*:1'.
ADF_STORAGE_NET_REMOTE_SERVER	*For Wialon Pro Client only*. Set the port and network interface address where Wialon Pro is located (main database). The format is: <port>:<IP address>. Default port is 31188.

Maps

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Wialon system deals with **vector maps** in the proper closed format **AVD**.

Two main software configurations exist:

- with **embedded GIS server**, such as Wialon Standard and some configurations of Wialon Pro;
- with **external WebGIS server** (some configurations of Wialon Pro).

At the present time, embedded GIS server is selected by default. To start using an external GIS server, make a request at any time.

Maps in AVD format are located in the directory **maps** of the program or of an external WebGIS server. After adding or deleting maps, the service automatically detects changes within several seconds.

The size of RAM needed for normal operation of GIS is in direct proportion to the size of maps used. On average, GIS subsystem requires 512MB + 1.5*<total size of all maps files>.

Note:
Precompiled maps in AVD format are available here.

Variables

This is a set of variables which can be added to your configuration file /custom/config.txt.

Variable	Description
GIS_DRIVER_TYPE	Define GIS server type: gis_avd_driver (embedded) or gis_net_driver (external).
ADF_GIS_NET_REMOTE_SERVER	DNS and IP address of WebGIS server. Used for external WebGIS server.
WIALON_WEB_GOOGLE_KEYS	Keys to activate Google Maps API for different URLs. To get keys for your site, make a request here. How to set the value for this variable is described below.
WIALON_WEB_GOOGLE_DEFAULT	If the value is **on** and Google Maps API keys are available, this type will be active by default.
WIALON_WEB_YANDEX_KEYS	Keys to activate Yandex Maps for different URLs. To get keys for your site, make a request here. How to set the value for this variable is described below.
WIALON_WEB_YANDEX_DEFAULT	If the value is **on** and Yandex Maps keys are available, this type will be active by default.
WIALON_WEB_MAPSERVER_URL	The list of URLs of WebGIS-3 servers from which WebGIS maps will be loaded by clients. The addresses must be given as full URL with prefix *http* and separated by comma. For example, http://dns1.map.ru,http://dns2.map.ru,http://dns3.map.ru. For maximum efficiency, it is recommended to have maximum four URLs. The variable can be used for external WebGIS server or for using the already existing WebGIS server.
WIALON_WEB_DEFAULT_POS	Set the default map position and zoom when the monitoring site is opened. Enter latitude, longitude, and zoom level, separating them by colon (for example, WIALON_WEB_DEFAULT_POS = 55.739162:49.199269:9).

Google and Yandex Maps

The variables **WIALON_WEB_GOOGLE_KEYS** and **WIALON_WEB_YANDEX_KEYS** contain keys for proprietary cartographic systems linked to a certain URL.

For example, clients connect to Wialon Web server from two different URLs: http://local.dns.ru:8022 and http://remote.dns.ru. To activate Google and Yandex Maps, get activation keys for both URLs and enter them in the configuration file using the following scheme:

```
WIALON_WEB_GOOGLE_KEYS = <dns1<:port>> <KEY for dns1> <dns2> <KEY for dns2> ...
```

The result will be like this:

```
WIALON_WEB_GOOGLE_KEYS = local.dns.ru:8022 KEY_VALUE1 remote.dns.ru KEY_VALUE2
```

Note that:

- DNS addresses are set without *http:* prefix;
- If you use the standard port (80), it is not required to indicate it.

If the keys are entered correctly, the option to enable Google/Yandex Maps will appear in the User Settings dialog (in the monitoring site).

External WebGIS Server

First, install an external WebGIS server.

Let us assume, you have installed a proper WebGIS server accessible through an external static IP x.x.x.x with default configuration. It means that the maps can be viewed in a browser on the address http://x.x.x.x:8020. You would like to use this WebGIS to display map, detect addresses, search a place on the map. To do this, in the configuration file *custom/config.txt* set the following parameters and values:

```
ADF_GIS_NET_REMOTE_SERVER = x.x.x.x
WIALON_WEB_MAPSERVER_URL = http://x.x.x.x:8020
```

Instead of IP addresses DNS names can be used. If WebGIS server is located on the same server as Wialon, for the variable **ADF_GIS_NET_REMOTE_SERVER** the value **localhost** can be entered.

Creating Vector Maps

Using the application *AVD Mapper* you can create vector maps in AVD format using vector maps in different formats like MP, MapInfo, ESRI Shape, OSM (OpenStreetMap). Note that the source map must be in coordinate projection WGS-84 in grades.

The application *avd_mapper* is launched from the console and is managed through the command line. Linux and Windows operating systems are supported. The application *avd_mapper_win* is a shell for the console utility which allows Windows OS users to adjust input parameters through graphical user interface.

Monitoring Site

The documentation for using monitoring site is located on a separate resource, see Wialon User Guide.

There are some parameters to configure management site. They can be added to the configuration file.

Variable	Description
WIALON_WEB_WEBSERVER	Network parameters for Wialon Web in the form <DNS-name>:<port-number>:<network-interface-IP-address>. Default value is *wialon_web:8022:**. DNS name can simply indicate a unique server name or the real DNS name if the same port number is used by other servers Network interface IP address can be skipped or set as '*' to allow operating on all network interfaces.
WIALON_WEB_LANGUAGES	The list of additional languages for monitoring site interface. Separate the languages by semicolon. By default, English and Russian are available. For example, if *fi:suomi* is set, the Finnish will be added.
WIALON_WEB_DEFAULT_LANGUAGE	Set the default language for the monitoring site in the form of <domain>.
ADF_SMTP_SERVER	SMTP server address is set in the form <host>:<port>. This server is used to send messages from software. By default, the local computer and the port 25 are used. SMTP server must maintain the operation without autentification from monitoring server IP address.
AVL_NOTIFICATIONS_EMAIL_FROM	Form this e-mail address the notifications are sent by default.
AVL_JOBS_EMAIL_FROM	The default e-mail address used to fulfil jobs.
AVL_UNIT_ICON_MAX_SIZE	The size of icon (in pixels) to display devices on the map and in the lists. Default value is *64*, maximum value is *256*.
AVL_UNIT_DEFAULT_ICON	The path to the default icon used to display devices. If this parameter is not set, the plugin initializes it to proper file.
AVL_GROUP_DEFAULT_ICON	The path to icons used to display devices groups. If this parameter is not set, the plugin initializes it to proper file.
ADF_AVL_MAP_MARKERS_PATH	The location of image files used to display markers.

More specific parameters to set monitoring site design and configuration are described in the following topics:

- **Internationalization**
- **Monitoring Site Design**
- **Report Custom Configuration**
- **Personal Design for Your Clients**

Mobile Site

Mobile site has simplified interface (in comparison with monitoring site) and allows to track devices via pocket PCs or mobile phones.

Variable	Description
WIALON_MOBILE_WEBSERVER	Set network parameters of mobile site in the form: <DNS-name>:<port-number>:<network-interface-IP-address>. The default value is *wialon_web:8024:**. DNS name can simply indicate a unique server name or the real DNS name if the same port number is used by other servers Network interface IP address can be skipped or set as '*' to allow operating on all network interfaces.

Attention! This site is licensed separately and can be not included in your package.

Management Site

Management site (or CMS Manager) is designed to manage users and other system objects, assign access rights and perform some administration functions. The documentation for using management site is located on a separate resource, see Wialon Manager Guide.

There are some parameters to configure management site. They can be added to the configuration file.

Variable	Description
CMS_MANAGER_WEBSERVER	Network parameters for CMS Manager operation are set in the form: <DNS-name>:<port-number>:<network-interface-IP-address>. Default value is *wialon_web:8023:**. DNS name can simply indicate a unique server name or the real DNS name if the same port number is used by other servers Network interface IP address can be skipped or set as '*' to allow operating on all network interfaces.

Attention! This site is licensed separately and can be not included in your package.

Administration Site

There are some parameters to configure management site. They can be added to the configuration file.

Variable	Description
AVL_ADMIN_WEBSERVER	Network parameters for administration site are set in the form: <DNS-name>:<port-number>:<network-interface-IP-address>. Default value is avl_admin:8021:*. DNS name can simply indicate a unique server name or the real DNS name if the same port number is used by other servers Network interface IP address can be skipped or set as '*' to allow operating on all network interfaces.

All Variables

UNITS & DEVICES	
ADF_AVL_HW_BIND_ADDR	Network interface to listen for units and users connections. Default value is '*', which means on any interface.
ADF_AVL_COMM_SERVER	Communication server configuration. The format to set the parameter: <comm-server-name>:<avl-server-host>:<avl-server-port>:<scan-hw_dir>. Default value is '31189'. The parameter *scan-hw-dir* is optional (by default, its value is '0'). It means enabling autoscanning of new equipment types when the system is being initialized.
WIALON_AUTO_CREATE_UNITS	If the value is '1', unit which does not exist in the system but sends messages, will be automatically created.
DATABASE	
ADF_STORAGE_PATH	The path to storage files. Default directory is *./storage* (in root directory).
ADF_STORAGE_CACHE_SIZE	The size of RAM (in Mb) to store the cache of unit properties. The value should be a power of 2. Default value is 16 Mb.
ADF_STORAGE_MESSAGES_CACHE_SIZE	The size of RAM (in Mb) to store the cache of messages. The value should be a power of 2. Default value is 64 Mb.
ADF_STORAGE_DEFRAG_INTERVAL	This parameter is to set the interval of automatic defragmentation of database (in days). In addition, the time when defragmentation is done can be specified. The form is: <interval> or <interval>:<hour>. To turn off the defragmentation, set '0'. By default, the defragmentation is done everyday at 3AM (local time).
ADF_STORAGE_BACKUP_INTERVAL	The interval (in minutes) of how often database and transaction files are backed up. Default value is 60 min.
ADF_STORAGE_BACKUP_FULL_INTERVAL	*For Wialon 0909 only*. The interval of creating the full (not incremental) backup (in days). By default, it is 1 day.
ADF_STORAGE_BACKUP_HOLD_INTERVAL	*For Wialon 0909 only*. The number of last full backups to store. Default is 7 backups.
ADF_AVL_UNIT_HISTORY_PERIOD	The period to store unit history (in days). Used for database servers only. If not set or the value is '0', unit history is not deleted automatically.
ADF_STORAGE_TRASH_KEEP_PERIOD	The period (in days) to store deleted objects in the trash folder with the possibility to restore them. By default, 30 days.
ADF_STORAGE_BACKUP_PATH	The location to store database backup. Default is *backup* directory.
WIALON PRO	
ADF_STORAGE_NET_SERVER	Set the port and network interface address to listen connections by the form <port>:<IP address>. IP address can be skiped to listen on all local network interfaces. Default port is 31188. To initialize server part in the trusted mode to any connected user (that is the authorization is not needed, and the connected user has the maximum access to all local objects), the third parameter set as '1' is needed, for example, '31188:*:1'.
ADF_STORAGE_NET_REMOTE_SERVER	*For Wialon Pro Client only*. Set the port and network interface address where Wialon Pro is located (main database). The format is: <port>:<IP address>. Default port is 31188.
MAPS	
GIS_DRIVER_TYPE	Define GIS server type: gis_avd_driver (embedded) or gis_net_driver (external).
ADF_GIS_NET_REMOTE_SERVER	DNS and IP address of WebGIS server. Used for external WebGIS server. If WebGIS server is located on the same server as Wialon, for the variable the value *localhost* can be entered.
	Keys to activate Google Maps API for different URLs. To get keys for

WIALON_WEB_GOOGLE_KEYS	your site, make a request here. How to set the value for this variable is described below.
WIALON_WEB_GOOGLE_DEFAULT	If the value is **on** and Google Maps API keys are available, this type will be active by default.
WIALON_WEB_YANDEX_KEYS	Keys to activate Yandex Maps for different URLs. To get keys for your site, make a request here. How to set the value for this variable is described below.
WIALON_WEB_YANDEX_DEFAULT	If the value is **on** and Yandex Maps keys are available, this type will be active by default.
WIALON_WEB_MAPSERVER_URL	The list of URLs of WebGIS-3 servers from which WebGIS maps will be loaded by clients. The addresses must be given as full URL with prefix *http* and separated by comma. For example, http://dns1.map.ru,http://dns2.map.ru,http://dns3.map.ru. For maximum efficiency, it is recommended to have maximum four URLs. The variable can be used for external WebGIS server or for using the already existing WebGIS server.
WIALON_WEB_DEFAULT_POS	Set the default map position and zoom when the monitoring site is opened. Enter latitude, longitude, and zoom level, separating them by colon (for example, WIALON_WEB_DEFAULT_POS = 55.739162:49.199269:9).
SITES	
WIALON_WEB_WEBSERVER	Network parameters for Wialon Web in the form <DNS-name>:<port-number>:<network-interface-IP-address>. Default value is *wialon_web:8022:**. DNS name can simply indicate a unique server name or the real DNS name if the same port number is used by other servers Network interface IP address can be skipped or set as '*' to allow operating on all network interfaces.
WIALON_MOBILE_WEBSERVER	Set network parameters of mobile site in the form: <DNS-name>:<port-number>:<network-interface-IP-address>. The default value is *wialon_web:8024:**. DNS name can simply indicate a unique server name or the real DNS name if the same port number is used by other servers Network interface IP address can be skipped or set as '*' to allow operating on all network interfaces.
AVL_ADMIN_WEBSERVER	Network parameters for administration site are set in the form: <DNS-name>:<port-number>:<network-interface-IP-address>. Default value is avl_admin:8021:*. DNS name can simply indicate a unique server name or the real DNS name if the same port number is used by other servers Network interface IP address can be skipped or set as '*' to allow operating on all network interfaces.
CMS_MANAGER_WEBSERVER	Network parameters for CMS Manager operation are set in the form: <DNS-name>:<port-number>:<network-interface-IP-address>. Default value is *wialon_web:8023:**. DNS name can simply indicate a unique server name or the real DNS name if the same port number is used by other servers Network interface IP address can be skipped or set as '*' to allow operating on all network interfaces.
LANGUAGE	
WIALON_WEB_LANGUAGES	The list of additional languages for monitoring site interface. Separate the languages by semicolon. By default, English and Russian are available. For example, if *fi:suomi* is set, the Finnish will be added.
WIALON_WEB_DEFAULT_LANGUAGE	Set the default language for the monitoring site in the form of <domain>.
MAILING SYSTEM	
ADF_SMTP_SERVER	SMTP server address is set in the form <host>:<port>. This server is used to send messages from software. By default, the local computer and the port 25 are used. SMTP server must maintain the operation without autentification from monitoring server IP address.
AVL_NOTIFICATIONS_EMAIL_FROM	Form this e-mail address the notifications are sent by default.
AVL_JOBS_EMAIL_FROM	The default e-mail address used to fulfil jobs.
IMAGES AND ICONS	
AVL_UNIT_ICON_MAX_SIZE	The size of icon (in pixels) to display units on the map and in the lists. Default value is *64*, maximum value is *256*.

AVL_UNIT_DEFAULT_ICON	The path to the default icon used to display units. If this parameter is not set, the plugin initializes it to proper file.
AVL_GROUP_DEFAULT_ICON	The path to icons used to display unit groups. If this parameter is not set, the plugin initializes it to proper file.
ADF_AVL_MAP_MARKERS_PATH	The location of image files used to display markers.
MONITORING SITE DESIGN	
WIALON_WEB_TITLE	The custom title of the page in browser.
WIALON_WEB_COPYRIGHT_TEXT	The text at the bottom center of the page, like you company name.
WIALON_WEB_COPYRIGHT_URL	The hyperlink for this text opening in a new window, like your company web site address.
WIALON_WEB_SKIN	The name of the file containing color scheme, fonts, etc. for the site. The file has to be located in *custom/skins*.
REPORTS	
AVL_REPORTS_STYLES_FILE	The path to XML file containing the configuration for reports styles.

Administration Site

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Administration site is accessible only for users who are administrators of the server. The site helps to manage the service: create, delete, restore system objects, inquire and receive information about the service, read system logs.

Service administrator is a user who configures the service and manages it. This is the only user who can create billing plans. An administrator can like a manager, can create users, accounts, and devices, but the main administrator's job is to create a source account with its billing plan and create users-managers.

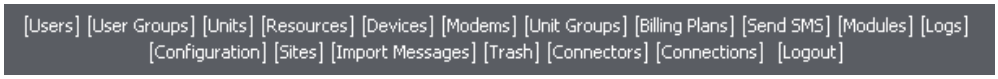
Login and Logout

To login to the administration site, use your login name and password. Put a check mark near **Remember on this computer** if needed, and press OK.

To logout from the site, press **logout** item (the last item in the main menu). This action will guide you back to the login page.

Site Structure

The structure of the site is simple and intuitively clear. On the top of the page there is the main menu which is a set of links (17 items).



Click on these links to manage the corresponding elements of the service. Find details in the topics listed below:

- **Users**
- **User Groups**
- **Units**
- **Resources**
- **Devices (Hardware)**
- **Modems**
- **Unit Groups**
- **Billing Plans**
- **Send SMS**
- **Modules**
- **Logs**
- **Configuration**
- **Sites**
- **Messages Import**
- **Trash**
- **Connectors**
- **Connections**

Users

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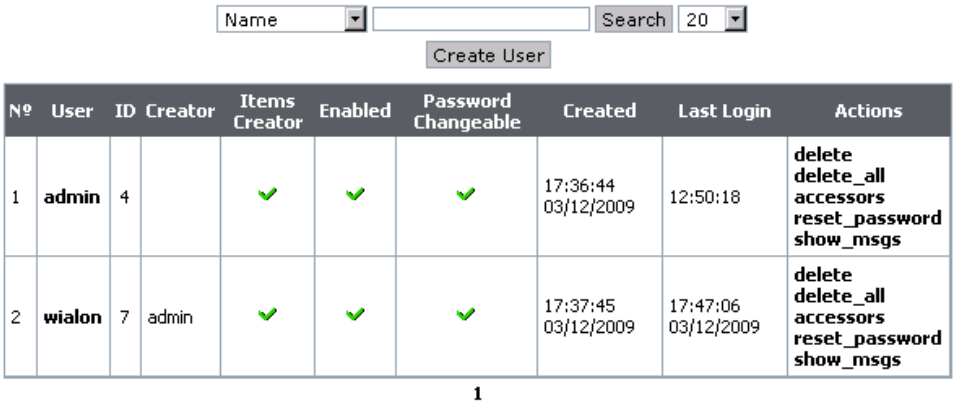
When you login to the site, the Users page opens. Here you can manage all users of the system.

The first two users are created automatically. One is **admin** with password reset to you by e-mail. The other one is **wialon** with password **wialon** needed to enter the monitoring site. It is recommended to change this password later on.



№	User	ID	Creator	Items Creator	Enabled	Password Changeable	Created	Last Login	Actions
1	**admin**	4		✔	✔	✔	17:36:44 03/12/2009	12:50:18	**delete delete_all accessors reset_password show_msgs**
2	**wialon**	7	admin	✔	✔	✔	17:37:45 03/12/2009	17:47:06 03/12/2009	**delete delete_all accessors reset_password show_msgs**

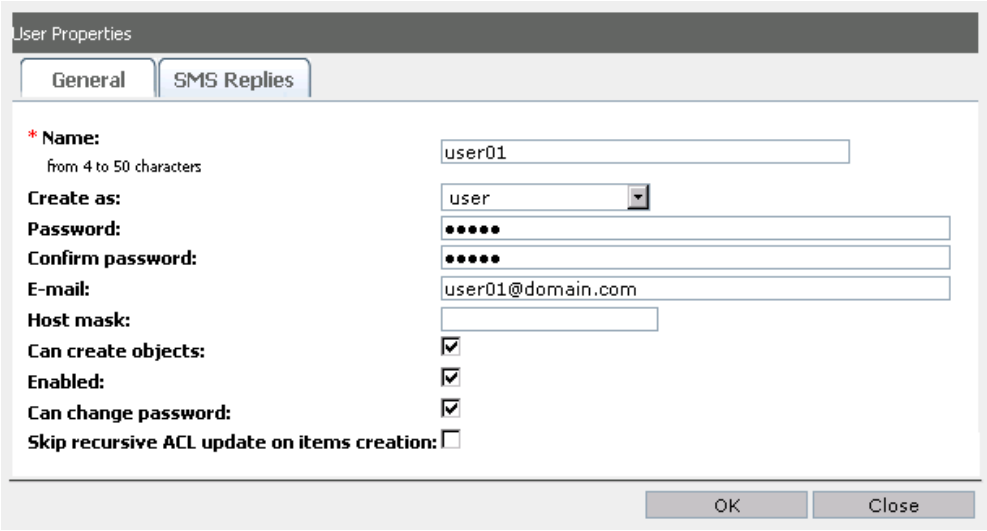
1

The table displays a list of users and their main properties such as name, creator, activity, last login, date created, id (assigned automatically by the system), etc. To quickly find a needed user, apply a filter. Use the asterisk sign (*) which replaces any number of unknown characters and can be placed at the beginning, at the end, at the middle of your inquiry or in several places simultaneously. You can filter users not only by name, but also by creator, creation date, last login, account, and billing plan.

Users created on this page can enter monitoring and management sites (if you not deny the access). To be able to create monitoring objects like geofences, notification, etc., a user must have an account. To attach an account to a user, go to the Resources page and create a resource as this user or give this user access to some other resource.

User Properties Dialog

To create a new user, press the **Create User** button.



Name
Enter login name for a new user. This is the only obligatory field, the rest is optional.

Create as
Indicate the creator for the user. The creator will have full access rights to this user. The user inherits creator's account and billing plan.

Password
Enter password for the user and confirm it.

E-mail
Enter user's e-mail.

Host mask
Here enter IP addresses from which the user cannot login to the system.

Can create objects
Mark this check box to allow the user to create objects on the monitoring site like units, geofences, reports templates, etc.

Enabled
Mark this check box to activate the user right after creation. If a user is enabled, it means, it can login to the system. Otherwise, you can you can do it later.

Can change password
If activated, the user will have possibility to change the password to enter the monitoring site.

Skip recursive ACL update on items creation
If this option is not activated, superior system users will automatically receive access to the objects created by this user. To avoid this situation, mark this check box.

SMS Replies
In the SMS Replies tab enter user's phone number which will be authorized by the system.

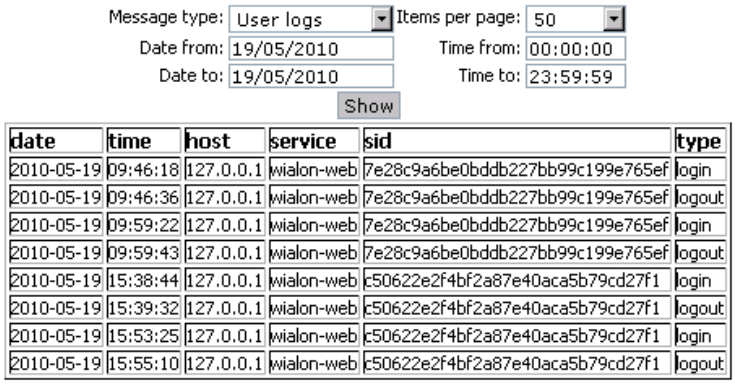
At the end press **OK**. In the popup window read the result of your action. Press **Close** to cancel.

Click on a user name in the table to view and edit properties described above. While editing a user, you can also indicate the basic **account** for the user.

Actions

The following actions can be performed over a user as system object:

- **delete** - delete user. User cannot be deleted until any objects created as this user exist in the system.
- **delete_all** - delete user and all abjects created by this user.
- **accessors** - manage access to the user (described below).
- **reset_password** - reset password. New password will be displayed in a modal window. After this action, it is impossible restore the old password.
- **show_msgs** - show messages of this user (logins to the system & logouts). Choose time interval and press **Show**.

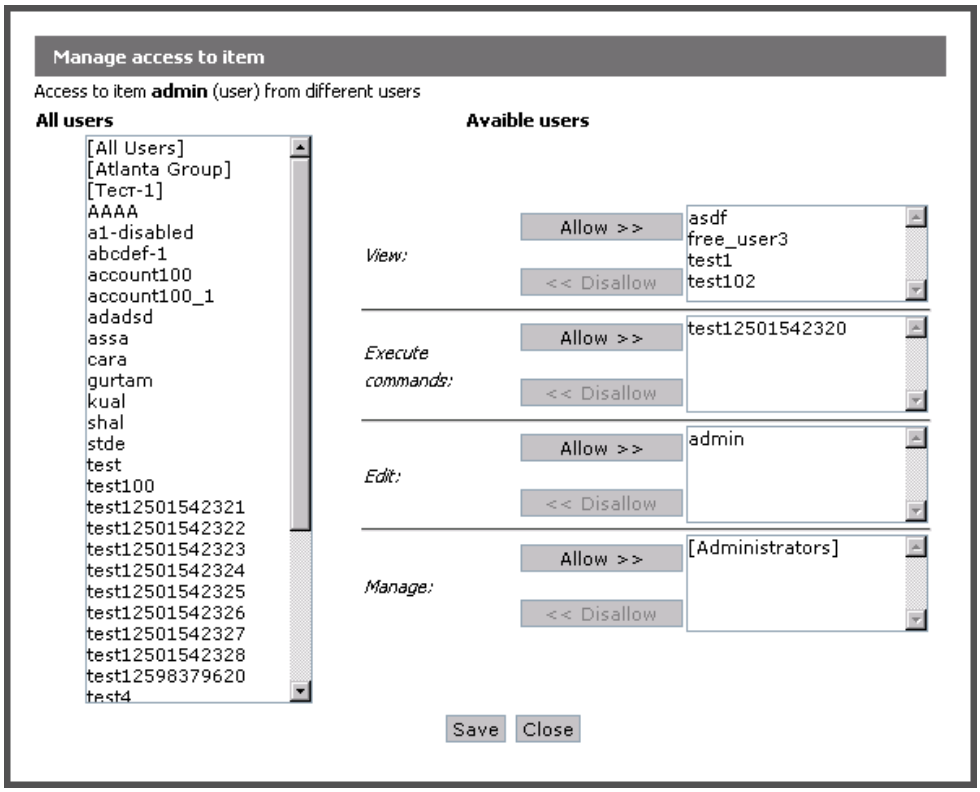


date	time	host	service	sid	type
2010-05-19	09:46:18	127.0.0.1	wialon-web	7e28c9a6be0bddb227bb99c199e765ef	login
2010-05-19	09:46:36	127.0.0.1	wialon-web	7e28c9a6be0bddb227bb99c199e765ef	logout
2010-05-19	09:59:22	127.0.0.1	wialon-web	7e28c9a6be0bddb227bb99c199e765ef	login
2010-05-19	09:59:43	127.0.0.1	wialon-web	7e28c9a6be0bddb227bb99c199e765ef	logout
2010-05-19	15:38:44	127.0.0.1	wialon-web	c50622e2f4bf2a87e40aca5b79cd27f1	login
2010-05-19	15:39:32	127.0.0.1	wialon-web	c50622e2f4bf2a87e40aca5b79cd27f1	logout
2010-05-19	15:53:25	127.0.0.1	wialon-web	c50622e2f4bf2a87e40aca5b79cd27f1	login
2010-05-19	15:55:10	127.0.0.1	wialon-web	c50622e2f4bf2a87e40aca5b79cd27f1	logout

Access Management

When press **accessors** button, you can control access to a user from other users. Four access levels are available:

- **View**: selected users can see the objects created by this user;
- **Execute commands**: the same as *view* level (this access level is applied mainly to units);
- **Edit**: selected users can change the user's properties;
- **Manage**: selected users will have all above mentioned rights and even can delete the user from the system.

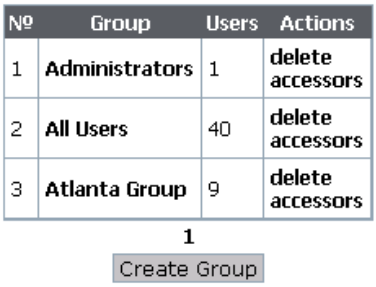


At the left there is a list of all users available. To assign rights to a user, select it from the list and press the **Allow** button against the needed access level. To deny the access, select the needed user (in one of lists on the right) and press **Disallow**.

In square brackets there are user groups. If a right is assigned to user group, it is applied to all users in this group.

User Groups

Two groups are created by default while installing the service - **Administrators** and **All Users**. They cannot be deleted. All newly created users are added to *All Users* group automatically.

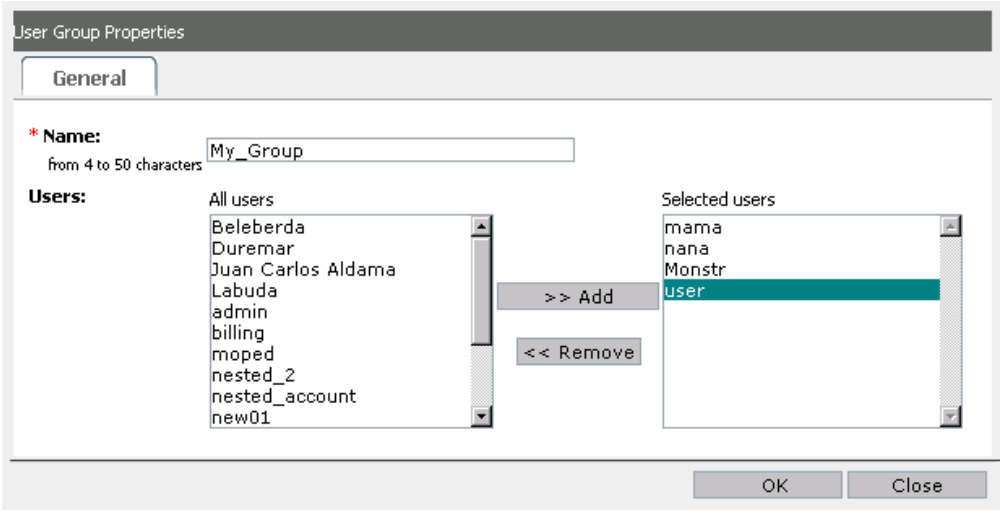


№	Group	Users	Actions
1	Administrators	1	delete accessors
2	All Users	40	delete accessors
3	Atlanta Group	9	delete accessors

1

Create Group

To create a new group, press **Create User Group** button below the list of groups.



Enter a name for the group and select users to form it (add users from the left column to the right). Then press OK button.

To edit a group, click on its name. In the group properties dialog you can change the name of the group or add/remove users to/from it.

To delete a group, press the **delete** button against its name. Deleting a group does not mean deleting users which belongs to this group.

Access right to user group are assigned in the same way as for separate users. See Access Management for details. If a right is assigned to a group, it means that it is applied to all abjects which belong to this group. However, if higher access was given earlier to a certain user, this high level will be preserved.

ATTENTION!
When editing groups never delete yourself (your login) from the group of administrators because you will lose the right to enter admin site.

Units

Table of Contents

On this page you can manage units and their properties. To add a new unit to the system, push **Create Unit** button. To edit an existing unit, click on its name. Unit properties dialog has several tabs described below.

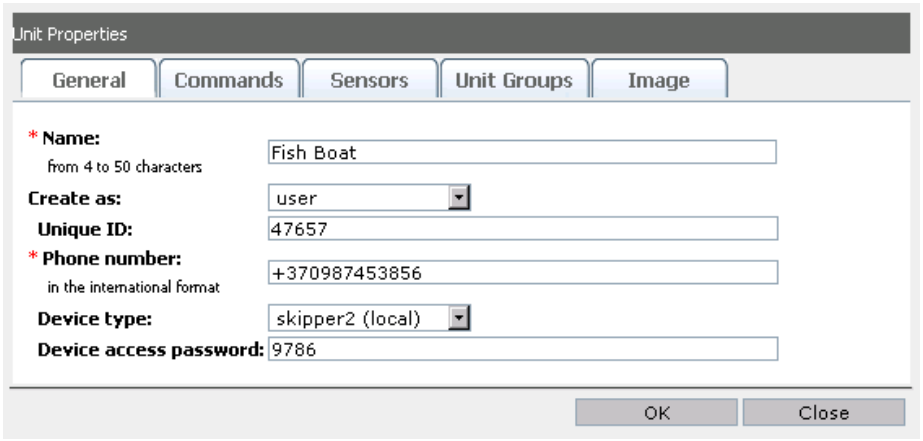
However, note that creating and managing units is more handy on the management site. On the administration site, the functionality for units is limited (no trip detector, no fuel consumption, custom fields, advanced options, etc.) and in some cases read only.

№	Unit	ID	Creator	HW Type	Unique ID	Phone	Links	Count (last day)	Last Message	Last Position	Actions
1	**20090319005f**	125		Wialon Retranslator (local)	200903190000025f		0	0	13:58:08 28/02/2009	13:58:08 28/02/2009	**delete accessors show_msgs**
2	**artal**	138	user	ARTAL (local)			0	0	17:13:26 02/09/2009	11:18:17 07/05/2009 (4.70 km from Международное 13, Москва)	**delete accessors show_msgs**
3	**sms_sim1**	109		Skipper 2 (local)		+375299000003	1	5905	14:05:42	14:05:42 (Садовая-Кудринская, Москва)	**delete accessors show_msgs**
4	**sms_sim2**	110		Skipper 2 (local)		+375299000002	0	0			**delete accessors show_msgs**

To quickly find a needed unit in the list, use the filter. First choose the criteria of search (by name, creator, phone, ID, hardware, account, billing plan). Enter a name of a part of a name (creator, phone, etc.) using asterisk sign (*) to replace any number of characters at any place of the inquiry. Push the Search button. Units which fit your request will be displayed on the list. To return all units back to the list enter '*' in the search field and apply.

General

Here you indicate name, creator, device type, unique ID, phone number (SIM card number embedded to the unit), and access password (if needed) for the unit being created.



- **Name**: enter unit name from 4 to 50 characters.
- **Create as**: choose creator from the dropdown list.
- **Unique ID**: enter a unique ID for the unit to be identified by the system. Usually it is IMEI or serial number.
- **Phone number**: here type phone number of the unit if it has embedded SIM card. Phone number should be written in international format, that means they start from "+", then follow country code, communication statement code and the phone number itself. Examples: +7903726154,+15557654321).

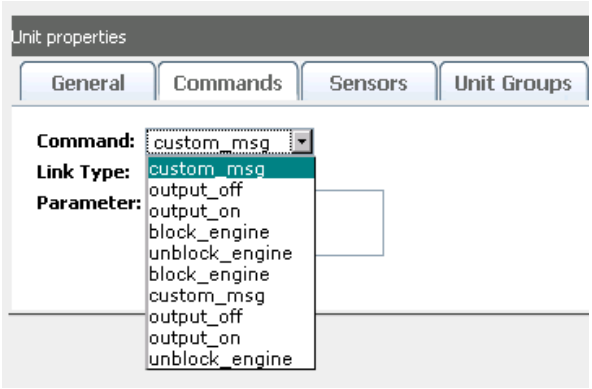
Device type: select unit type from the list of supported hardware. You can see the complete list of available hardware on the Hardware page.

- **Device access password**: type password to manage unit remotely if needed.

Commands

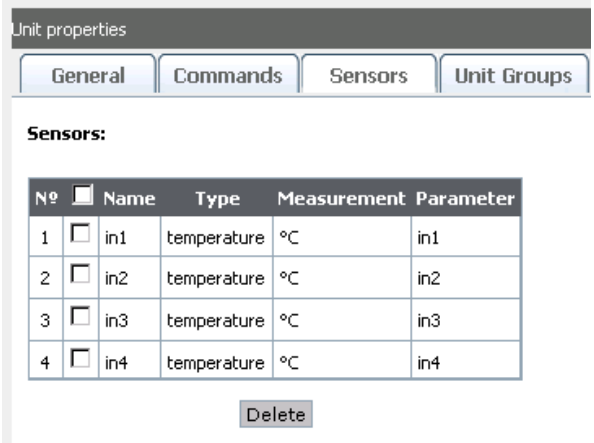
On this tab you can execute commands over units. Note that if a command is executed via GPRS, the unit has to be connected to server at the moment. To execute GSM command, an active modem on the server has to be accessible for the unit.

Choose a **command** in the dropdown list. Indicate **link type** (TCP/IP, UDP/IP, GSM) if you know which channel should be used for this command. Otherwise, leave *Any*. If the command supports custom parameters (or if it is custom text), enter them in the **parameters** field. At the end, push **Execute**.



Sensors

On this tab you can see which sensors are attached to the unit.



If needed, you can tick a sensor and delete it with the help of the appropriate button.

Unit Groups

If the unit is included into any units group(s), they are listed on this tab. Unit groups can be created and managed on the Unit Groups page.

Image

On the Icon tab you see the image that is currently used for the unit. You can also load another image (press **Browse**, select an image file, and then press **Upload**). You may reset the image to defaults by using empty file field and pressing **Upload**. The changes are applied after pressing OK.

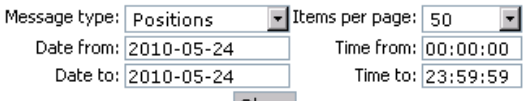
Actions

As you can see in the image, lines in the table can be of different colors. They indicate unit activity. Orange background means that the unit sent last message more than one day ago. Yellow background means that the last message was more than an hour ago. Green - last message within an hour. White - messages were never received from this unit.

The following actions can be performed over a unit as system object:

- **delete** - delete unit.

- **accessors** - manage access to the unit. Access to units is assigned in the same way as for users - see Access Management for details.
- **show_msgs** - show messages received from the selected unit. To view messages, select time interval and press **Show**. Types of messages are: SMS messages, positions (coordinated, speed, and other parameters), and commands sent to unit.



date	time	x pos	y pos	z pos	speed	course	satellites	inputs	outputs	adc1
2010-05-24	10:21:32	37.65644	55.76416	0.0	43	345	255	1	0	0.64453125
2010-05-24	10:21:41	37.64983	55.76875	0.0	34	315	255	1	0	0.515625
2010-05-24	10:21:44	37.63728	55.77235	0.0	32	290	255	1	0	0.38671875
2010-05-24	10:21:49	37.62713	55.77359	0.0	20	285	255	1	0	0.2578125
2010-05-24	10:21:56	37.62713	55.77359	0.0	0	285	255	1	0	0.2578125
2010-05-24	10:22:08	37.62713	55.77359	0.0	0	285	255	1	0	2.3203125
2010-05-24	10:22:17	37.62713	55.77359	0.0	0	285	255	1	0	6.4453125
2010-05-24	10:22:28	37.62713	55.77359	0.0	0	285	255	1	0	10.5703125
2010-05-24	10:22:37	37.62713	55.77359	0.0	0	285	255	1	0	14.6953125
2010-05-24	10:22:47	37.62713	55.77359	0.0	0	285	255	1	0	18.8203125
2010-05-24	10:24:04	37.60886	55.77339	0.0	50	255	255	1	0	18.5625
2010-05-24	10:24:08	37.60565	55.77301	0.0	50	248	255	1	0	17.53125
2010-05-24	10:24:20	37.60378	55.77228	0.0	50	245	255	1	0	17.2734375
2010-05-24	10:24:27	37.5998	55.77114	0.0	50	240	255	1	0	17.015625

Resources

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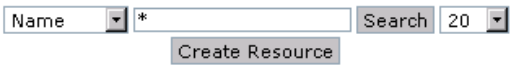
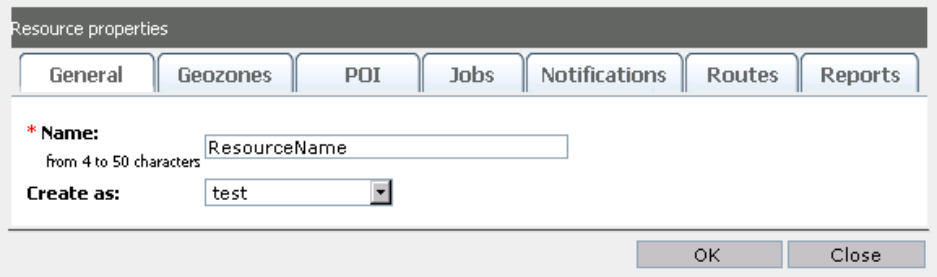
On this page you define possibilities available to each user. If a user is not attached to a resource, this user will be not allowed to create objects like geozones, places, etc.



№	Resource	Creator	Actions
1	**new_resours**	new01	**delete accessors show_msgs**
2	**res01**		**delete accessors show_msgs**
3	**res02**	novaja	**delete accessors show_msgs**
4	**res03**	user	**delete accessors show_msgs**
5	**user**	user	**delete accessors show_msgs**

Creating a Resource

To create a resource, push **Create Resource** button.

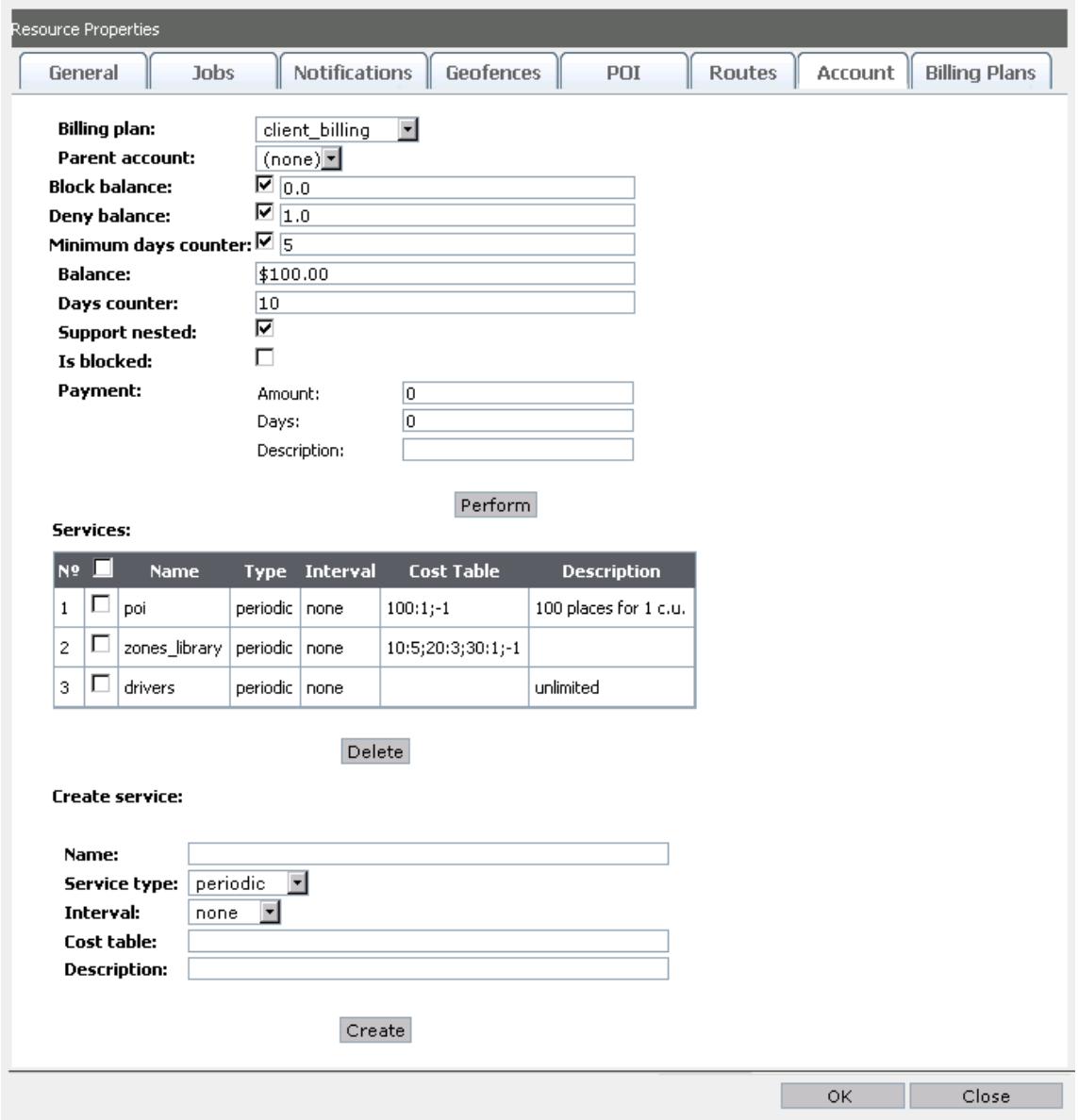


In the dialog enter a name and select a creator. A creator is required for resource to activate a billing plan.

Account and Billing Plan

When a resource is created, to view or edit its properties, click on its name in the table. On several tabs the information about geofences, POI, jobs, notifications, reports, and other objects is presented. You can view lists of objects created by users attached to this resource and delete these objects as needed.

When viewing a resource after its creation, a new tab **Account** may appear in properties dialog (the resource must have a creator). Here you assign billing plan and manage resource activity and balance (make payments, block, etc.).



To apply a billing plan to the resource, select a plan in the dropdown list and press **Activate account** button.

On the account tab you define **Billing plan** applied to the resource and **Parent plan** if needed. Parent plan is a plan of higher level of hierarchy. If some service is blocked in parent plan, it automatically becomes unavailable in dependant plans.

Define balance and/or days to automatically limit user's activity in case of nonpayment. **Block balance** is a balance to deny access to services and stop account operation. **Deny balance** is a balance block paid operations to user. **Minimum days counter** works automatically and independently of balance controller. When you make a payment, you can add not only money but days. When this period is over, account is blocked even if the balance is enough. You can block the account manually marking **Is blocked** check box.

Below you see the current **Balance** and **Days counter** showing how much days left. The counter changes automatically each day.

On the same tab you can add a payment or/and days. Enter amount, days, description, and press **Perform**. Changes in the balance will be seen when you open this dialog next time.

Support nested concerns accounts. If nested accounts are allowed, dependent accounts can be created, and they can have different billing plan. If nested accounts are not supported, all account created on this resource will be like a part of the current account and will use its billing plan.

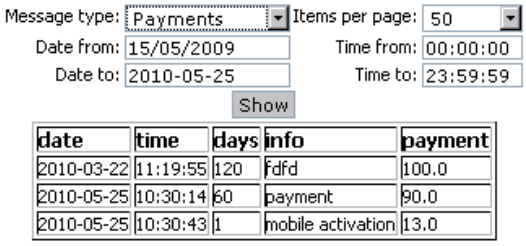
The services and their costs are inherited from the billing plan, but you can precise them in the **Services** table below as needed.

If nested accounts are supported, the tab **Billing Plan** becomes available (reload the dialog if not). Here you define which billing plans are available to resource creator. The creator then could assign these billing plans to accounts when creating them.

Actions

The following actions can be performed over a user as system object:

- **delete** - delete resource.
- **accessors** - manage access to the resource. Access rights are assigned in the same way as for users (see Access Management for details).
- **show_msgs** - show messages concerning the resource: notifications, balance or payments. Choose messages type, indicate time interval and press **Show**.



date	time	days	info	payment
2010-03-22	11:19:55	120	fdfd	100.0
2010-05-25	10:30:14	60	payment	90.0
2010-05-25	10:30:43	1	mobile activation	13.0

Devices (Hardware)

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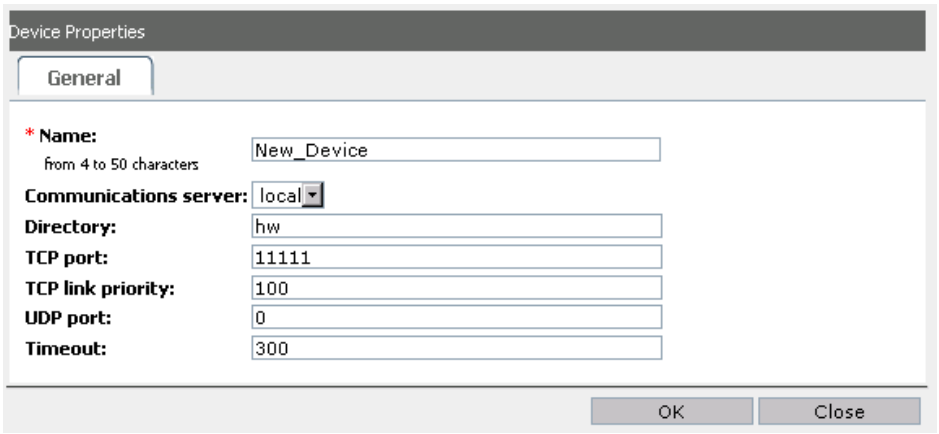
On this page you see the full list of supported device, and you can also add your own hardware.

№	Hardware type	Server	TCP port	UDP port	Timeout	TCP Commands	UDP Commands	GSM Commands	Link Priority	Communications	Actions
1	**800C**	local	0	20191	300	0	0	2	100	✔	delete begin_comm end_comm
2	**AC3.X**	local	4998	0	300	6	0	0	100	✔	delete begin_comm end_comm
3	**ALT-P12**	local	20212	0	300	0	0	0	100	✔	delete begin_comm end_comm
4	**AMIGO GPRS**	local	20196	0	300	0	0	0	100	✔	delete begin_comm end_comm
5	**ARTAL**	local	20130	0	300	0	0	0	100	✔	delete begin_comm end_comm
6	**AT-300**	local	20101	0	300	3	0	3	100	✔	delete begin_comm end_comm

Device Properties

Push the **Create Device** button to add a new hardware. It assumes that you have hardware protocol and a script written specially for this kind of device.



- Enter device's **name**.
- Choose **communication server** from available servers (the server to which data will be sent).
- Enter a name for the **directory** where to locate the script. By default, this directory is located in Wialon installation directory *…/plugins/avl_comm_server/hw/*.
- Define **TCP port** to transfer data. If you use firewall, do not forget to open this port.
- Define **TCP link priority** for communications channel from 0 to 100.
- Indicate **UDP port** to transfer data. If you use firewall, do not forget to open this port.
- Define **timeout** (default value is 300 sec). This is time to maintain TCP connection before break it if there is no incoming data. Here you can use negative values which means that this hardware is used as a retranslator. Even in this case timeout value is taken into account. It is not recommended to change timeout default value.

To edit these properties, click on device name in the table.

Actions

The following actions can be performed over a user as system object:

- **delete** - delete hardware.

- **begin_comm** - begin commutation that is activate the script when data through this port comes.
- **end_comm** - end commutation that is stop executing the script. In this case all data coming through this port will be lost.

Modems

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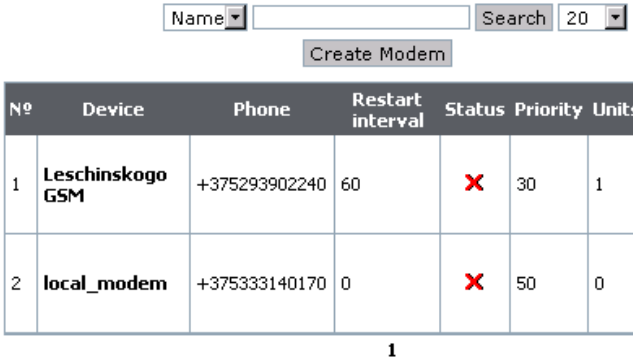
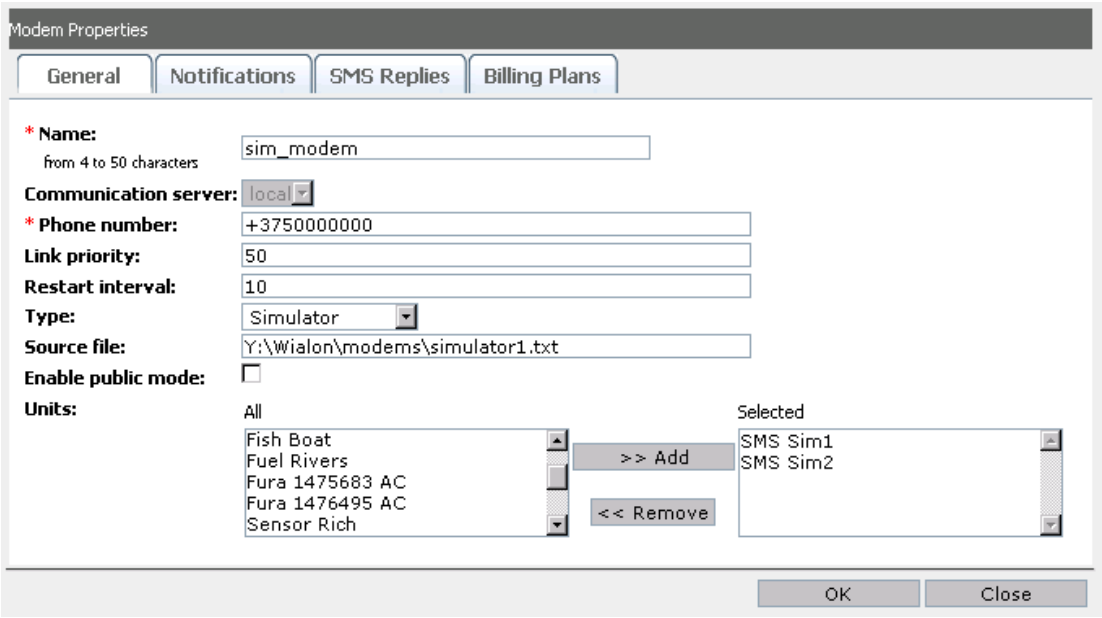
The Modems page contains a list of connected modems. Here you can manage existing modems (edit their properties, activate/deactivate commutation, manage access rights, delete modems, etc.) and create new modems.

Any GSM modem connected to the server can be used in the system. It is recommended to use a modem connected via COM port. If this is USB modem, you will likely have to install a driver for it.



Modem Properties

To add a new modem, push **Create Modem** button. Modem properties dialog has several tabs: General, Billing Plans, and Notifications.



- **Name**: enter a name for the modem.
- **Communications server**: choose communications server from the dropdown list.
- **Phone number**: enter phone number of SIM card installed on the modem.
- **Link priority**: define communications channel priority.
- **Restart Interval**: indicate restart interval as needed (zero is not recommended).
- **Type**: select modem type. Depending on your choice, adjust additional properties dedicated for the selected type (see instructions below).
- **Enable public mode**. The modem in public mode is available to all objects regardless the list of supported devices. If such modems are several and they have the same link priority, the modem that is free at the moment will work. In case modems have different priorities, the modem with a greater priority will work.
- **Units**. If public mode is disabled, you have to form the list of devices which will be assigned to this modem to execute any operations. Units become available after creating the modem. To complete creating the modem, press OK button. If the modem is created successfully, units become available to assign.

GSM modem

Indicate **Serial port** where the modem is located. Indicate **Port speed**. If any errors appear while operating, descend this value. Usually, **SMS service center** is strictly indicated on the SIM card, and you do not have to enter it here.

Indicate the relative path to the **Log file**. For example, if you enter *logs/modem.log*, the log will be located in Wialon installation directory in the *logs* folder in the file *modem.log*.

Indicate **Additional initialization AT commands** as needed (consult instructions manual for the modem). Check **Use 8-bit encoding only** if needed.

Simulator

In this case indicate the absolute path to the **Source file** from which the simulator will take data. You can use the variable *${ADF_ROOT_PATH}* that means the path of Wialon installation.

Network modem

Indicate **Server host** (you can enter IP address or DNS name), **Server port** to connect through, and the **Server password** to connect to the server.

SMPP gateway

Indicate **Server host** (you can enter IP address or DNS name), **Server port** to connect through, the **Server password** to connect to the server. If needed, indicate **Server type**, for example, *VMS* (voice mail system), *OTA* (over-the-air activation system), etc.

Enter **Account name** (login) and the **Source address** to recognize the sender (like phone number, company name or both). **SMPP synchro mode** is needed to make hardware diagnostics (while there is no notification that the first SMS was delivered, the second one will not be sent).

Check **Use 8-bit encoding only** if needed.

Actions

The following actions can be performed over a modem:

- **delete** - delete a modem.
- **begin_comm** - begin communication that is start getting data from the modem.
- **end_comm** - end communication that is stop getting data from the modem.
- **accessors** - manage the access of different users to this modem. Access to modems is assigned in the same way as for users - see Access Management for details.

Billing Plans

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Billing plan is a dedicated storage system object. It can be managed *only through the administration site*.

Before managing the service, it is strongly recommended to acquaint with basic notions because you need to built a model of system objects with complicated dependences between them. Correctly built objects system is needed for your service to operate successfully.

Billing System

Wialon uses embedded billing subsystem which basic purpose is to control and limit user's activity. A billing plan is assigned to a resource (account) and defines allowed activity of users who use this resource. Billing plan is a system object defined by its name and the set of possibilities included in it.

With billing system enabled, storage system kernel performs a check for different operations (like creating objects) to be allowed. In case there is no billing plan assigned or the limit of objects is reached or the balance is not enough, the kernel will prohibit operation.

Billing plan defines the set of available services and some basic properties such as minimum balance to block an account, minimum balance to deny services, balance output format (unit of money), etc.

A billing plan also allows:

- to limit modems available to users and units;
- to limit hardware types available to users;
- to set an e-mail address from which various background operations (like notifications delivery and reports mailing, etc.) are performed;
- to adjust an individual design for reports (color, fonts, logos, signature, etc.)
- to limit any provided services.

A billing plan can operate in two basic modes:

- allow unknown services (that is services which are not prescribed in it) with zero cost and put limitations on defined services;
- allow only those services which are prescribed in it and prohibit all other services.

The second way is more reliable.

Recursive (propagated) billing plans are accessible and in many cases handful. In case of recursion, if the information about a service is not found in the current billing plan, it will be inquired recursively. The level of recursion is not limited. It is convenient to describe all used services in a basic billing plan, and make other billing plans derivative of it.

Creating a Billing Plan

Go to **Billing Plan** page to create and manage billing plans. Here you see the list of all plans created:

№	Plan	Parent Plan	Services	History	Flags	Deny Balance	Block Balance	Min Days	Currency Format	Actions
1	**Test2**	--	1	0	37	0.0	-20.0	10	$%.02f	**delete**
2	**billing**	--	7	0	37	0.0	0.0	0	$%.02f	**delete**
3	**test**	--	6	60	4	0.0	0.0	0	$%.02f	**delete**

1

Create Billing Plan

To create a new billing plan, press **Create Billing Plan** button. Billing plan properties are presented on several tabs.

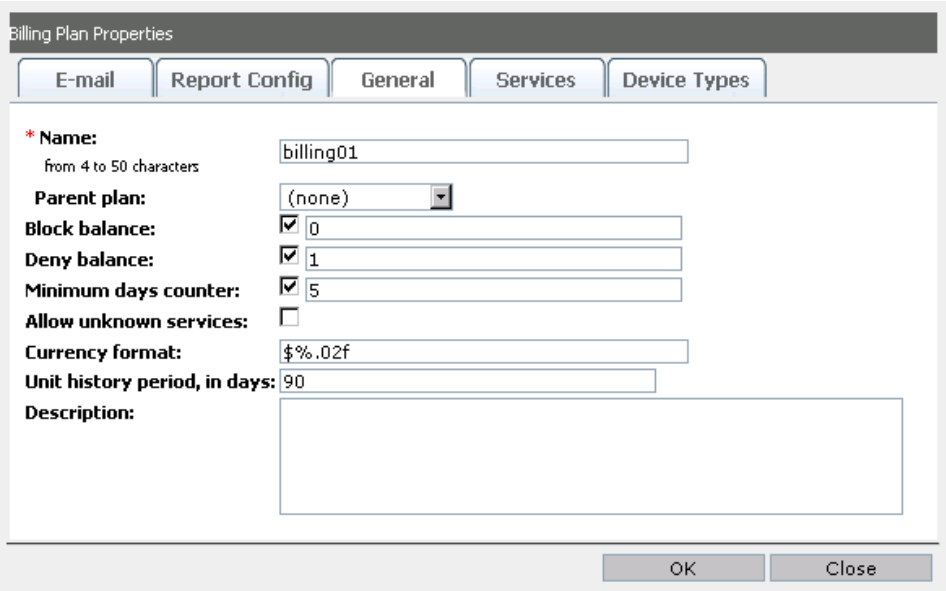
E-mail

Here you can enter e-mail address from which various system messages (notifications, reports, etc.) will be sent.

Report Config

To apply your custom style to report files read Reports Custom Configuration.

General



Name
Enter a name for a billing plan.

Parent plan
Choose a parent plan if needed. If a parent plan is selected, the billing plan beeing created at the moment will recursively inherit its settings.

Block balance
Enter balance reaching which the account will be blocked.

Deny balance
Enter balance reaching which services will be denied.

Minimum days counter
Days left before the account is blocked.

Allow unknown services
If this option is activated, all services will be available on this resource if they are not blocked in service table. If this option is disabled, only services listed in service table will be available.

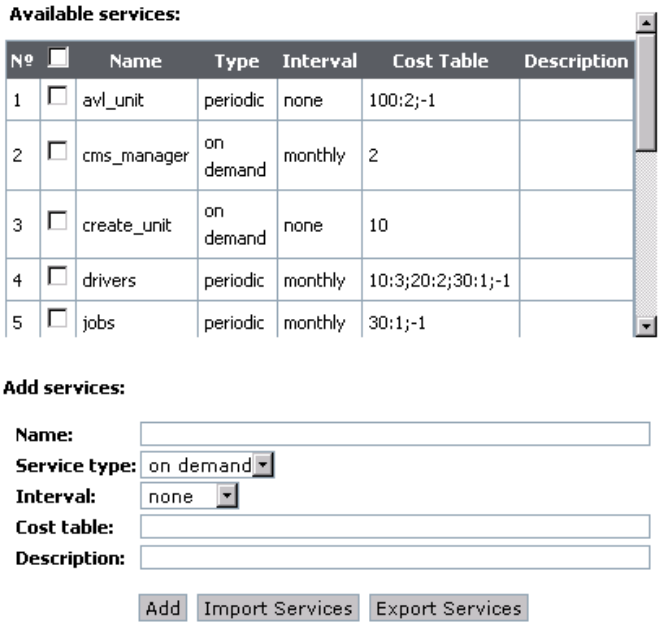
Currency format
Enter currency sign before or after '%.02f'.

Unit history period, in days
The time period to store unit history. Of the value is '0', the history is never deleted. If, for example, '100', messages older than 100 days are automatically deleted.

Description is optional.

Services

On this tab you activate services and define costs for them. To add a service, fill in a small form:



Enter a valid service **Name** (see services table below to check how the names are correctly given).

Select **Service type**: *periodical* or *on demand*.

- **Periodical** services have a counter that changes automatically (by the kernel, when objects are created or deleted) or with a software-based method. If an interval is preset (like hourly, daily, weekly, monthly), then when the time comes, account's balance is reduced by counter value multiplied by fee for this service. In price table you can enter maximum allowed value for a counter, for example, to limit geofences allowed to create.
- Services **on demand** are transactions which cab be performed by a used as the need arises, like sending SMS or a command to a unit. Time interval for such a service (hourly, daily, weekly, monthly) defines how often the counter of a service should be reset. In this way you can limit the number of allowed SMS messages for the indicated period, for example, no more than three SMS per day.

Select **Interval** to reset counter (none, hourly, daily, weekly, monthly). If time interval is not set, services used are not calculated, and you just define the charge for a unit of service. Enter **Cost table** that is the charge for a service (or a unit of service) and limitation on amount of units. **Description** is optional. At the end push **Create** button.

To quickly create billing plans, use **import/export option**. You can import/export separate services and whole service tables from one billing plan to another.

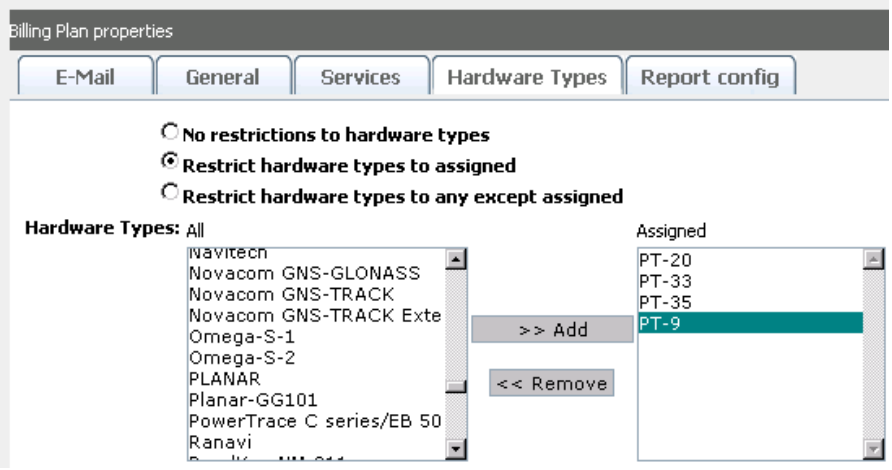
To import services, press **Import services** button. The table of all billing plans already created and their services will be displayed. Tick needed services or whole billing plans to be imported and press the Import button. If a service with the same name already exists, it is not replaced. To clear all existing services and replace them with selected services, mark **Delete all existing services** check box. To return to the previous window, press **Back**.

To export services from the current billing plan to another one, mark necessary services and press **Export services**. In the next window choose billing plans to export to and press the Export button. You can indicate additionally to replace services with the same names by new services or synchronize services (replace all with new).

Services are imported and exported with their type, cost table, description, etc.

Device Types

By default, no restrictions are applied to device types. But you may need to limit access to some equipment. Then choose *Limit device types by assigned* or *Limit device types by any except assigned* and select needed hardware.



Cost Table

Follow the rules to built a cost table:

- The format for a table: COUNTER1:VALUE1;COUNTER2:VALUE2;VALUE3.
- A counter is always positive and integer, a value can be fractional (like *2.5*).
- Each next counter must be greater than the previous one.
- If a counter is not set, the system will consider it equal to the previous counter +1.
- To block the service, set a negative value (like *-1*). Negative value is convenient at the end of the line to indicate a limitation. If their is no negative value at the end, the last cost will be applied to all newly created objects exceeding the last counter.
- To make the service free and unlimited, leave a cost table empty.

Cost table example:

Service	Value	Description
sms	3:0;-1	First three SMS are free, the forth SMS is not allowed.
sms	1:0;10:1.5;-1	The first SMS is free, from second to tenth the cost for one SMS is 1.5 charge units. The eleventh SMS is denied.
periodic	0:10;-1	10 charge unit are withdrawn from an account periodically (the interval is set separately).
avl_unit	1:0;5:10;10:3;50:1	The first unit is free, from second to 5th will cost 10, from 6th to 10th - 3, from 11th to infinity - each for 1.
zones_library	5:0;-1	5 geofences can be create (for free). The creation of a sixth geofence is prohibited.
alarm	1:0	Alarms are not limited.

Services Table

The full list of services which can form a billing plan. Note that when setting a billing plan, services names must be entered as in the table below.

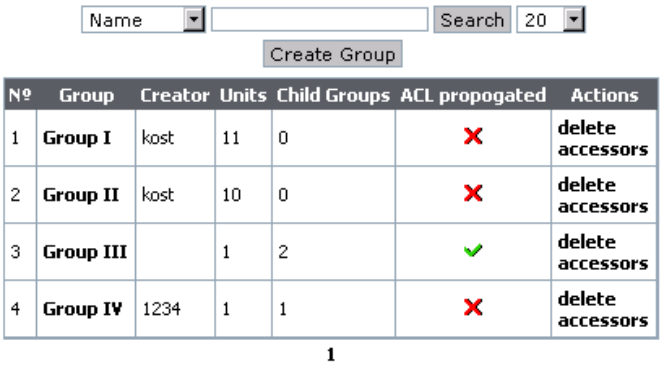
Service	Type	Description
avl_unit	periodic	Activate ability to create monitoring units
avl_unit_group	periodic	Unit groups
storage_user	periodic	Users to be created (minimum one user must be allowed to create)
avl_resource	periodic	Accounts (minimum one account must be allowed to create)
create_units	on demand	For monitoring site to activate *Create Unit* button.
create_users	on demand	For monitoring site to activate *Create User* button.
create_unit_groups	an demand	For monitoring site to activate *Create Group* button.
alarms	periodic	Alarms activated.
jobs	periodic	Jobs to be performed
notifications	periodic	Notifications allowed to create
routes	periodic	Routed controlled
drivers	periodic	Ability to create and manage drivers, use them in monitoring and reports.

zones_library	periodic	Geofences
pois	periodic	POIs
sms	on demand	Sending SMS messages.
email_report	on demand	Sending a report by e-mail (job module).
email_notification	on demand	Sending notifications by e-mail.
reports	periodic	Report mode, possibility to create report templates and generate reports by them. This service is also responsible for trip detection and fuel consumption tabs in unit properties.
reportsdata	periodic	Data in reports.
unit_sensors	periodic	Sensors allowed for one unit.
custom_fields	periodic	Custom fields for an object.
net_access	on demand	Authorization through a service connector (Wialon Pro Client).
cms_manager	on demand	Access to CMS Manager site.
wialon_web	on demand	Access to Wialon Web site.
wialon_mobile	on demand	Access to Wialon Mobile site.
wialon_taxi	on demand	Access to Wialon Taxi site.
retranslator	on demand	Ability to activate/deactivate retranslator.
custom_reports	on demand	Advanced reports on the monitoring site (used for units and users).
periodic	periodic	The parameter to set a periodic charge for service as a whole, like monthly charge for the service.
service_intervals	periodic	Possibility to set service intervals, control them, register services and generate reports on them.

Unit Groups

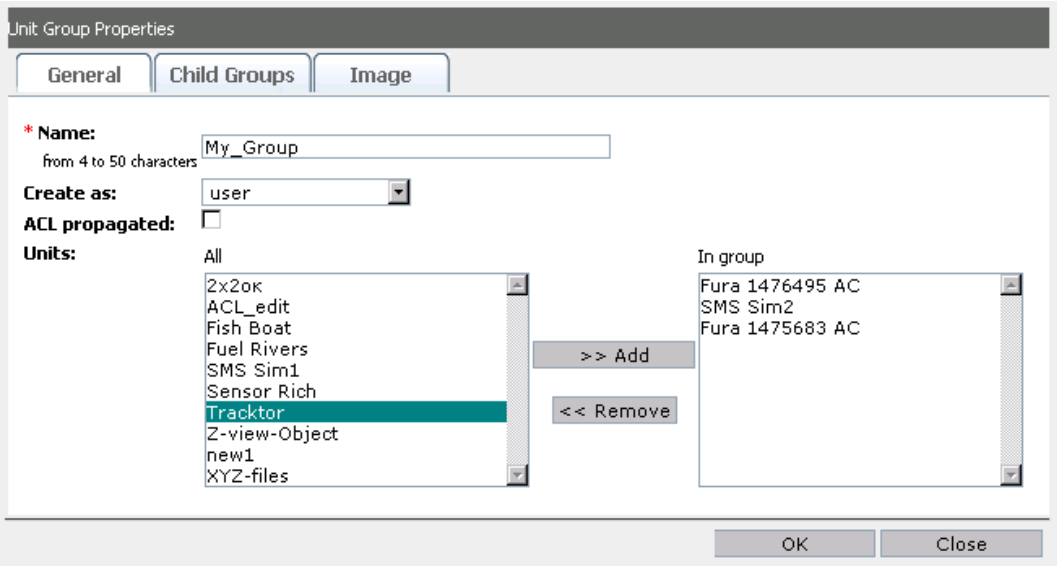
Table of Contents

Unit group is a unity including several units which have something in common. In many cases it is convenient to operate a group of units instead of performing an action over each unit individually. For example, you can assign access rights to a whole group at once.



Unit Group Properties

To edit a group, just click on its name in the table. To create a group, press **Create Unit Group** button.



General

Enter a name for the group and assign a creator. Choose units from the list to be included to the group. Select unit in the list on the left and move it to the right by pressing the **Add** button. To exclude an object from a group, select the object in the list on the right and press the **Remove** button.

If **ACL propagated** property is activated, units in the group will inherit access rights assigned here. If the flag is set and an object is included to the group, in unit properties this group will be mentioned. If the flag is not set, the group will be not indicated in unit properties, however the unit will be a part of the group.

Important! After a group is created, it is impossible to change ACL propagation.

Child Groups

Here you can indicate that some other groups belong to this one.

Image

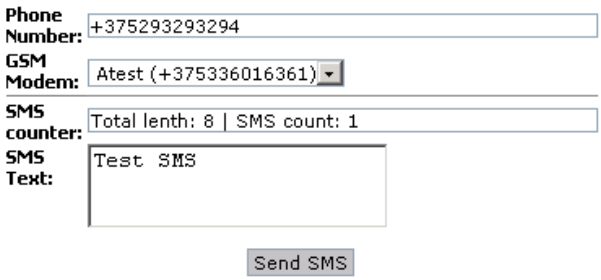
On the Icon tab you see the image that is currently used for the group. You can also load another image (press **Browse**, select an image file, and then press **Upload**). You may reset the image to defaults by using empty file field and pressing **Upload**. The changes are applied after pressing OK.

Actions

- **delete** - delete group.
- **accessors** - manage access to the group. Access rights are assigned in the same way as for users (see Access Management for details).

Send SMS

Here you can send custom messages to units. To do it, fill in the form.



To send SMS, enter phone number in the international format where the message should be sent. Choose GSM modem from the list of available. Type message text. SMS counter shows the length (in characters) of the current SMS and the number of messages it will be divided.

After filling in all fields, press **Send SMS**.

Modules

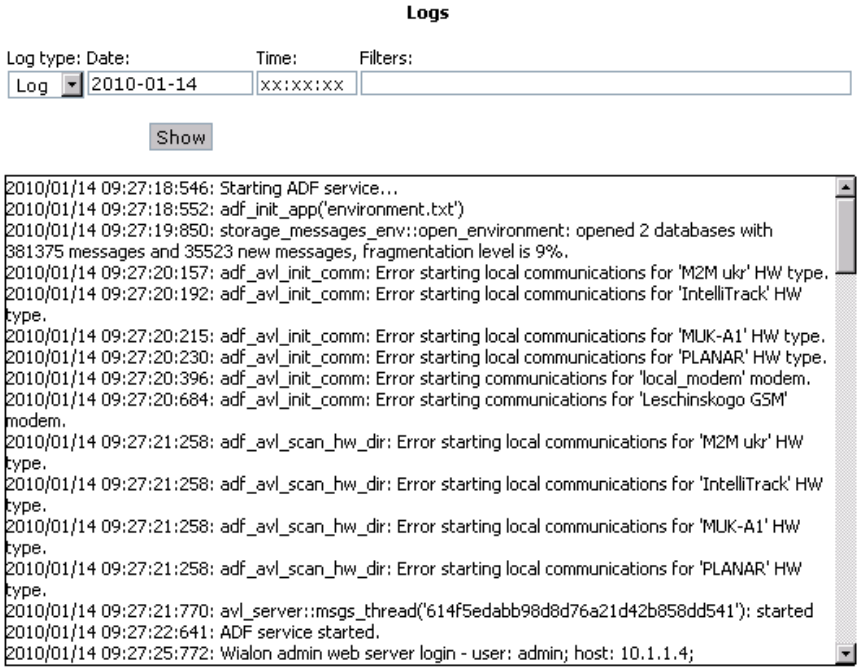
On this page you can control which system modules are loaded and check the version of each module.

Loaded libraries

№	Library	Path	Version
1	adf_core	/home/krsl/projects/apps/wialon/lib/libadf_core.so	3.23.0186
2	adf_image	/home/krsl/projects/apps/wialon/build/debug /libadf_image.so	1.6.0027
3	adf_chart	/home/krsl/projects/apps/wialon/build/debug /libadf_chart.so	1.1.0025
4	adf_gis	/home/krsl/projects/apps/wialon/build/debug /libadf_gis.so	3.9.0050
5	adf_http	/home/krsl/projects/apps/wialon/build/debug /libadf_http.so	3.23.0119
6	adf_zip	/home/krsl/projects/apps/wialon/build/debug /libadf_zip.so	3.3.0014
7	gis_net_driver	/home/krsl/projects/apps/wialon/build/debug /libgis_net_driver.so	1.4.0010
8	adf_net	/home/krsl/projects/apps/wialon/build/debug /libadf_net.so	7.2.0087
9	adf_avl	/home/krsl/projects/apps/wialon/lib/libadf_avl.so	5.19.0134
10	adf_serial	/home/krsl/projects/apps/wialon/build/debug /libadf_serial.so	3.12.0084

Logs

All events that are happenning in the system are registered, and the log can be viewed. When you open or refresh the page, is shows the log for the current date.



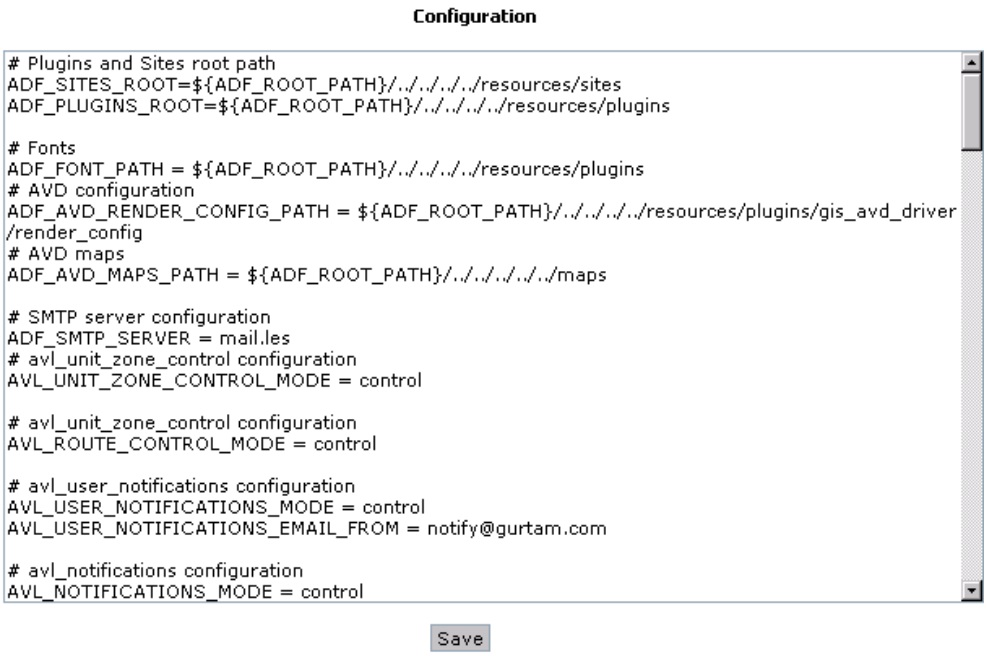
First, select log type. It can be **Log** (a short log containing http sessions mainly) or **Trace** (the full log containing all messages and errors).

Indicate date and time. You can inquire messages for a whole day or specify time. For example, to get messages for an specified hour, imput the hour only (like *10:xx:xx*) and press **Show**. The same can be done with minutes and seconds.

To make you request even more precise, use filter where you can imput any ward/phrase which is contained in messages you are searching for (for example, *databases defragmentation*).

Configuration

On this tab you can see and edit Wialon configuration file (*./custom/config.txt*). All variables, their meaning and possible values were described above, in Wialon Configuration.



admin/config.txt · Last modified: 25/05/2010 14:48 by alek

Sites

This page gives information about sites open at the moment: site name, when started, host name, user, last access time. You can forcibly **Disconnect** a user from a site if needed or **Stop** a site at all. When disconnecting a user, its name disappear from the list.

Site name are bold. Under each site mane you see the list of users and connections to this site. Sites with green flag are accessible at the moment, sites with red mark are not active (use the **Start** button to launch the site).

Site List

№	Site	Started	Host	User	Last Access Time	Action
1	**avl_admin**	✔	**wialon-admin**			**stop**
1.1	avl_admin	13:50:08	10.1.1.4	admin	13:52:18	Disconnect
2	**wialon_web**	✔	**wialon_web**			**stop**
2.1	wialon_web	12:33:05	10.1.3.2	user_test	13:52:18	Disconnect
2.2	wialon_web	12:34:08	10.1.4.2	user_test	13:52:17	Disconnect
2.3	wialon_web	13:50:02	10.1.1.4	user01	13:51:18	Disconnect
3	**wialon_mobile**	✔	**wialon_mobile**			**stop**
4	**cms_manager**	✔	**cms_manager**			**stop**
4.1	cms_manager	13:51:19	10.1.1.4	user01	13:52:18	Disconnect
5	**trace_orange**	✘	-			**start**
6	**agrogps**	✘	-			**start**
7	**wialon**	✔	**wialon**			**stop**

Messages Import

This page is to import messages from files to a unit. The instructions of how to do it are given right on the page.

Supported formats are:

- Raw GPRMC navigator logs in formats defined by NMEA 0183 specification - searched in files with extension .txt or .log
- Rainbow Skipper messages from MMC card - searched in files with extension .gps

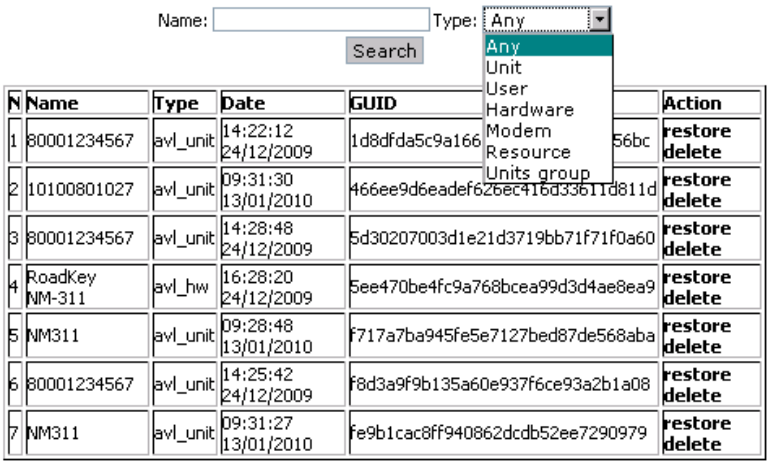
To improve upload performance, you may first compress files with ZIP or GZIP utility for your operating system. After upload is complete, files will be unpacked on the server and processed.

Choose a destination unit in the dropdown list. Then indicate the path to its messages file. If the messages are located in several files, you can **Add File**. At the end press the **Upload** button to start the process. The result will be reported on the top.

Trash

If any object of the system was deleted, it is placed into the trash folder, and can be restored during an defined period of time. The default period is 30 days but it can be altered in the configuration file (ADF_STORAGE_TRASH_KEEP_PERIOD variable, see Wialon Configuration => Database for details…)

To see all deleted objects located in the trash folder, just press **Find**. However, it is more convenient to search object using special instruments. First of all you can filter them by type: unit, user, hardware, modem, resource, unit group (select the type in the dropdown list). If you know object's name or part of its name, enter it in the search field, replacing unknown symbols by asterisk signs.



N	Name	Type	Date	GUID	Action
1	80001234567	avl_unit	14:22:12 24/12/2009	1d8dfda5c9a166 56bc	restore delete
2	10100801027	avl_unit	09:31:30 13/01/2010	466ee9d6eadef626ec416d33611d811d	restore delete
3	80001234567	avl_unit	14:28:48 24/12/2009	5d30207003d1e21d3719bb71f71f0a60	restore delete
4	RoadKey NM-311	avl_hw	16:28:20 24/12/2009	5ee470be4fc9a768bcea99d3d4ae8ea9	restore delete
5	NM311	avl_unit	09:28:48 13/01/2010	f717a7ba945fe5e7127bed87de568aba	restore delete
6	80001234567	avl_unit	14:25:42 24/12/2009	f8d3a9f9b135a60e937f6ce93a2b1a08	restore delete
7	NM311	avl_unit	09:31:27 13/01/2010	fe9b1cac8ff940862dcdb52ee7290979	restore delete

In the table you see object name and type, date deleted, and object's GUID (globally unique identifier of the object). Found object can be restored (**restore** button) or deleted from the system completely (**delete** button).

Connectors

If any computers or programs are directly connected to the server at the moment, they are listed on this page. Logistics server, unit connection server or another database server can be considered as computers. A client application which requires connection to the server can be considered as a program.

Active connectors

№	GUID	Host	Started	Trusted local	Trusted remote	Users	Actions
1	7837bef7d1b0085582660fe35b872453	10.2.2.6	14/11/08 21:47:09	✗	✗	trace_front	Disconnect
2	91ef0ade5a12212487141230524b3bb1	10.2.1.8	20/11/08 07:19:20	✓	✗		Disconnect
3	5f4251551c647b89777d49aa349368cf	10.2.1.7	20/11/08 07:19:32	✓	✗		Disconnect
4	270ce61c0671251232ba1b31c304329e	10.2.1.5	21/11/08 06:13:43	✓	✓		Disconnect
5	f8e87db80f47bc333ec0563a81ddd8fc	10.2.1.6	21/11/08 11:42:46	✓	✗		Disconnect

In the table you see connector's GUID (globally unique identifier), host, activation time, trusted mode, user.
Trusted local means that connected client has full access to all local objects and does not require authorisation.
Trusted remote shows that the server can get access to manage other computer or application without authorization and has full access to all local objects of the client. You can **disconnect** a computer or a program if needed.

These parameters are set in the configuration file - see Database configuration, variable ADF_STORAGE_NET_SERVER.

Connections

Active connections are displayed on this page (equipment connected to the server at the moment). In the table you see hardware type, connection type, host and port, unit name, time when connected. As needed, an item cam be disconencted.

Active connections

№	Hardware type	Connection type	Host	Port	Unit	Started	Action
1	CKAYT Retranslator	TCP	89.223.47.135	20117		10:06:30	disconnect
2	RoadKey NM-311	TCP	178.92.99.174	20182		11:31:32	disconnect

Advanced Features

adv/start.txt · Last modified: 29/01/2010 17:09 by alek

User Registration through the Web Interface

It is possible to register new user in the system without administrator. It can be useful to quickly give users test access to monitoring site.

Select (or create) a user which will be creator for other users. Remember its ID (you can check it on the users page on the administration site).

Then from the registration page send a request in the form:

```
http://DNS-name[:port]/webavl_sdk/wialon_service.html?
svc=create_user&creator_id=USER_ID&name=NEW_USER_NAME&password=NEW_USER_PASSWORD
```

where:

- DNS is the monitoring site address (port number is optional);
- USER_ID is creator's identification number;
- NEW_USER_NAME is the name for a user you are creating;
- NEW_USER_PASSWORD is a password for this user.

Automatic Login to the Monitoring Site

To create an automatic login to the monitoring site, use a link like of the following form:

```
http://DNS/login_action.html?user=USER_NAME&passw=USER_PASSW&action=login&skip_auto=1&lang=LANG
```

where:

- DNS is the monitoring site address;
- USER_NAME is user name of a user to login to the site;
- USER_PASSW is this user's password;
- LANG is interface language For example, *en* for English).

Internationalization

To translate the monitoring site to your language is simple. Through our technical support service make a request for a file this phrases to translate: **wialon_web_site.lng**.

The file is in UTF-8 format. We recommend NotePad++ to edit it.

The file contains the original phrases in English and their equivalent in the destination language. Here is a small example (translation to Russian):

```
msgid " Last time job was performed"
msgstr " Время последнего выполнения задания"

msgid "#"
msgstr ""

msgid "%%UNIT%% break speed limitations. %s"
msgstr "%%UNIT%% нарушил ограничения по скорости. %s"

msgid "%%UNIT%% went out of %s. %s"
msgstr "%%UNIT%% вышел за пределы %s. %s"

msgid "%%UNIT%% went to %s. %s"
msgstr "%%UNIT%% вошел в %s. %s"

msgid "%%UNIT%%: %s"
msgstr ""

msgid "%%UNIT%%: %s digital input %d. %s"
msgstr "%%UNIT%%: %s цифровой вход %d. %s"

msgid "%.0f m"
msgstr "%.0f м"

msgid "%.3f km"
msgstr "%.3f км"

msgid "%.3f km, (%.3f m)"
msgstr "%.3f км, (%.3f м)"

msgid "%.3f km², (%.3f m²)"
msgstr "%.3f км², (%.3f м²)"

msgid "%d of %d"
msgstr "%d из %d"

msgid "%d satellites locked"
msgstr "%d спутников захвачено"
```

When translatin, it is important to preserve the order and format of all special symbols (most of them begin from %). If the translation is not needed for a phrase or is not clear, such phrases can be skipped - in the resulting file they will remain in the initial state. After completing the translation, create the directory *i18n/<domain>* and place the file there. Then restart the server to apply changes. Domain is a two-lettered sign to indicate the country, for example, lv - Latvia, ru - Russia, nl - Netherlands, etc.

To make this translation available on the monitoring site, add the line like that is below to the configuration file (/custom/config.txt):

WIALON_WEB_LANGUAGES = <domain>:<country>

and for set the language to be selected automatically:

WIALON_WEB_DEFAULT_LANGUAGE = <domain>

Here is an example for Finnish

```
WIALON_WEB_LANGUAGES = fi:suomi
WIALON_WEB_DEFAULT_LANGUAGE = fi
```

After this operation you can continue editing this file online. If you have any changes to apply, it is not needed to restart the service each time. After saving translation file, it is just required only to resave the configuration file */custom/config.txt* (for example, add and delete a space, and press Ctrl-S).

Proxy Server for HTTP(S) Queries

Wialon and WebGIS-3 servers contain embedded HTTP/1.1 web server. That is why it is possible to connect to them through through web browser directly.

However, if:

- other services are located on the same server with Wialon and IP address is shard,
- you would like to use SSL protected access to server,
- you would like to reach the maximum high performance and safety,

then it is recommended to render services to your client through reverse proxy server.

One of the best proxy servers is **nginx**. It is easy to install (for Debian before Lenny version it is better to install it from source code):

```
wialon-pro:~# apt-get install nginx
```

Let us assume, your server DNS name is **monitor.gps.ru** (**mobile.gps.ru** for mobile site and **manager.gps.ru** for management site) and Wialon uses default ports. Then the configuration of files is approximately the following:

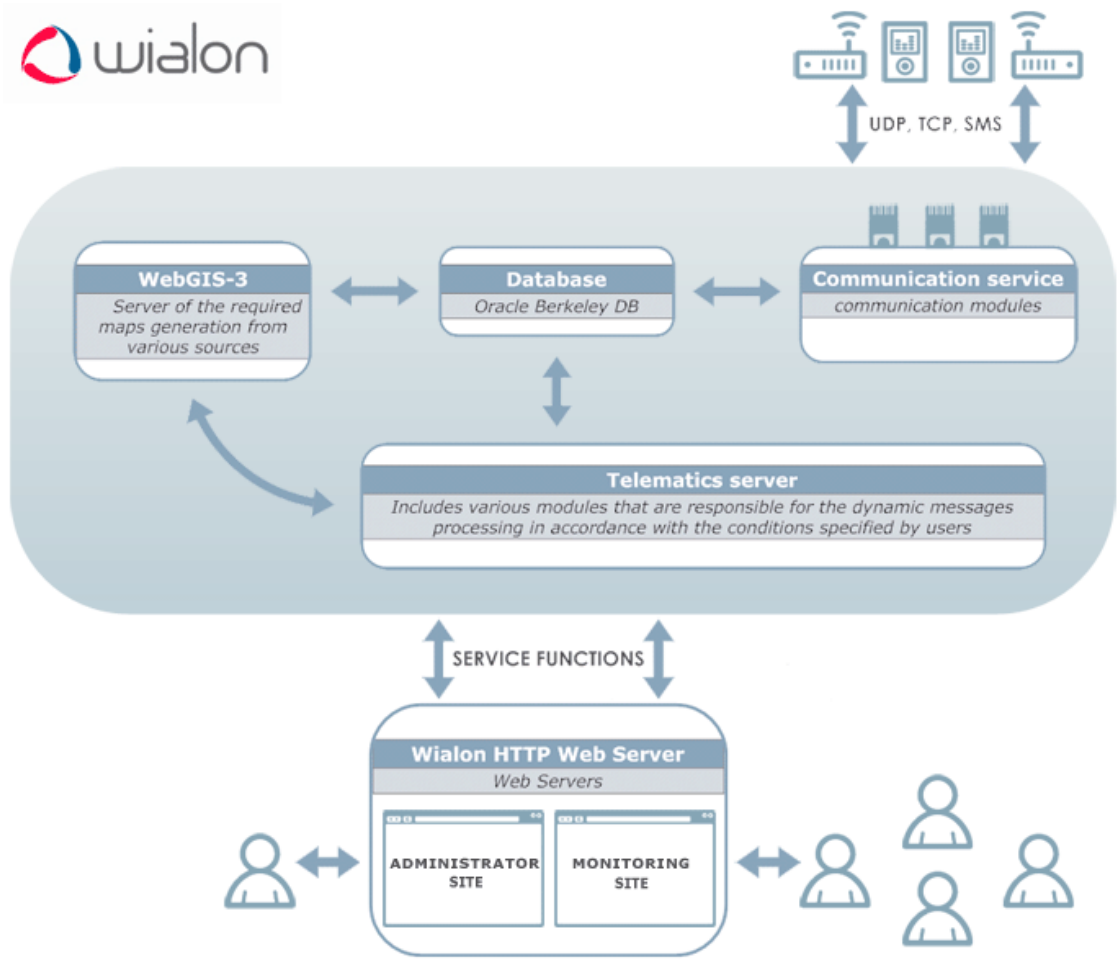
/etc/nginx/sites-enabled/wialon:

```
server {
        listen 80;
        server_name www.monitor.gps.ru;

        rewrite ^(.*) http://monitor.gps.ru$1 permanent;
}
server {
        listen 80;
        server_name monitor.gps.ru;

        proxy_set_header  X-Forwarded-Server    monitor.gps.ru;
        proxy_set_header  X-Forwarded-For       $remote_addr;
        client_max_body_size                    8m;
        access_log                              /var/log/nginx/wialon.access.log;

        location / {
                proxy_pass                      http://localhost:8022;
        }
}
server {
        listen 80;
        server_name mobile.gps.ru;

        proxy_set_header  X-Forwarded-Server    mobile.gps.ru;
        proxy_set_header  X-Forwarded-For       $remote_addr;
        access_log                              /var/log/nginx/wialon.access.log;

        location / {
                proxy_pass                      http://localhost:8024;
        }
}
server {
        listen 80;
        server_name manager.gps.ru;

        proxy_set_header  X-Forwarded-Server    manager.gps.ru;
        proxy_set_header  X-Forwarded-For       $remote_addr;
        access_log                              /var/log/nginx/wialon.access.log;

        location / {
                proxy_pass                      http://localhost:8023;
        }
}
```

/var/lib/wialonb3/custom/config.txt (add a line):

```
ADF_HTTP_FWD_SERVERS = monitor.gps.ru,mobile.gps.ru,manager.gps.ru
```

architecture.png



architecture.png

← Back to Overview and Architecture

Date:	
28/12/2009 17:43	
Filename:	
architecture.png	
Format:	
PNG	
Size:	
43KB	

File System

File System Type

The strength of Linux OS is the opportunity to use file systems of different types. However, the question is how to choose the file system which fits better to *your* objectives.

Over a month, we had administered tests in Wialon Data Center. Three file systems - *ReiserFS*, *XFS* and *ext3* with different settings were tested on various hardware units to find out which file system provides maximum high-performance in work with Wialon monitoring service and WebGIS server.

The result was as follows:

1. The most effective and simple way is to add *noatime,nodiratime* parameters when installing the file system in the file */etc/fstab*.
2. If data level is not low (under 5-10GB), the difference in fast-acting is not considerable - up to 5-10%.
3. The most effective operation was shown by *XFS* file system. It was a lot faster than *ext3* when operating with ten millions of files (WebGIS-3 cache). It was also a bit better in work with large files (up to 1GB) and much faster in work with files of several tens of gigabytes. Embedded tools such as online defragmentation and backup system add advantages in system administration.

The productiveness of *ext4* file system, in theory, is no worse than *XFS*, but for the moment of testing, the support for distribution *Debian 5.0 Lenny* is not irreproachable.

File System Configuration

When configuring file system categories, RAID must be used, software- or hardware-based.

- **/boot** - ext3 - 300MB
- **/** - xfs - 5-10GB + noatime, nodiratime options

We recommand the following file system configuration for Wialon server with the expectation of more than 1000 monitored units. Let us assume that Wialon will be installed in /var/lib/wialonb3:

Dir	FS type	Size	Options
/boot	ext3	~300MB	defaults
(none)	swap	2GB	
/	xfs	5-10GB	noatime,nodiratime
/home	xfs	5-10GB	noatime,nodiratime
/var/lib/wialonb3/tmp	xfs	10-20GB	relatime,nodiratime
/var/lib/wialonb3/storage	xfs	from 50GB	noatime,nodiratime
/var/lib/wialonb3/backup	xfs	from 200GB	noatime,nodiratime

It is recommanded that the directory with backup (.backup) were located on a separate independent drive or even a server (for example, through NFS).

Actually, the following partition is possible:

Dir	FS type	Size	Options
/boot	ext3	~300MB	defaults
(none)	swap	2GB	
/	xfs	5GB	noatime,nodiratime
/var/lib/wialonb3	xfs	(all available)	noatime,nodiratime
/var/lib/wialonb3/tmp	xfs	10-20GB	relatime,nodiratime

If you use embedded GIS server (Wialon Standard or some configurations of Wialon Pro) *tmp* directory is used to store cache for images tiles. That is why the size of 20GB may be insufficient and can be enlarged up to 50-100 GB.

If in trouble with configuring file system, make use of the special distribution located on https://distro.gurtam.com/iso/ and optimized for Wialon installation. Details...

Note: Beginning from 1001 version (release-candidate of November 15, 2009) the repository (*storage* directory) is divided into four categories: messages DB (storage/md), messages DB transaction log (storage/ml),

DB of devices and their properties (storage/pd), devices DB transaction log (storage/pl). Thus, when configuring file system structure, these categories can be located to separate disks, which is actual for monitoring systems containing over 10 000 units.

Automatic Administrator's Scripts (Cron Jobs)

When installing Wialon, the installer requests automatic activation of administrator's scripts:

```
...
Install periodic administrative jobs (in current user crontab)? [no] yes
...
OK, now is time to perform Wialon B3 installation. Check all parameters below are correct:
    Wialon B3 will be installed in:                    /var/lib/wialonb3
...
    Install Wialon B3 cron jobs:                       yes
...
```

These scripts are located in the directory where Wialon is installed.

For correct operation of the warning system it is required to set mailing system on the server.

To enable/disable a script, edit the file:

- for *root* user - **/etc/crontab**
- for ordinary user, the command **crontab -e** in the console

Here is an example of lines which fit to both cases to launch these scripts automatically. Add the lines to the end of the file and indicate the path to each script if needed.

```
0 * * * * /var/lib/wialonb3/wialon-errors-check.sh
*/2 *   * * *   /var/lib/wialonb3/wialon-service-check.sh
*/1 *   * * *   /var/lib/wialonb3/wialon-db-check.sh
1 1   * * *   /var/lib/wialonb3/wialon-space-check.sh
```

The list of scripts:

- **wialon-db-check.sh** is a once-a-minute controll over DB driver and automatic restarting of the service in case of troubles:

#!/bin/sh

SCRIPT_PATH="$0" # Detect base path for service while true; do

```
ROOT=${SCRIPT_PATH%/*}
ROOT=`cd "$ROOT";pwd`
cd $ROOT
if [ -d "$ROOT/plugins" ] && [ -d "$ROOT/scripts" ] ; then
        break
fi
if [ -L "$SCRIPT_PATH" ]; then
        SCRIPT_PATH=`readlink "$SCRIPT_PATH"`
        if [ $? != 0 ]
        then
                echo "Error: Problems with resolving '$SCRIPT_PATH'"
                exit -1
        else
                continue
        fi
fi
break
```

done

if [-d "${ROOT}/logs"] && [-e "${ROOT}/logs/wialonb3_trace.log"] then

```
DT=`date --date="1 minute ago" "+%Y/%m/%d %H:%M"`
errors=`cat "${ROOT}/logs/wialonb3_trace.log"|grep "$DT"|grep "adf_storage_db_error_call"|grep "PANIC"`
if [ "$errors" != "" ]
then
        if [ -f "${ROOT}/adfservice.pid" ]
        then
                $ROOT/adf_script restart
        else
                echo "Skipping server restart"
        fi
fi
```

fi </file>

- **wialon-space-check.sh** is an everyday monitoring of free space on the DB disk:

```
#!/bin/sh

SCRIPT_PATH="$0"
# Detect base path for service
while true; do
        ROOT=${SCRIPT_PATH%/*}
        ROOT=`cd "$ROOT";pwd`
        cd $ROOT
        if [ -d "$ROOT/plugins" ] && [ -d "$ROOT/scripts" ] ; then
                break
        fi
```

```
        if [ -L "$SCRIPT_PATH" ]; then
                SCRIPT_PATH=`readlink "$SCRIPT_PATH"`
                if [ $? != 0 ]
                then
                        echo "Error: Problems with resolving '$SCRIPT_PATH'"
                        exit -1
                else
                        continue
                fi
        fi
        break
done

# Check associated service
if [ -e "$ROOT/adf_script" ]
then
        res=`df $ROOT/storage/|grep /`
        cnt=0
        for i in $res; do
        if [ $cnt == 4 ]
        then
                len=${#i}
                if [ $len -gt 2 ] && [ ${i:0:2} -gt 80 ]
                then
                        echo "Wialon hard drive space checker notification: $i. Please enlarge space."
                fi
                break
        fi
        let cnt=cnt+1
        done

fi
```

- **wialon-service-check.sh** is a script to check service operability every two minutes and restart it in case of unforeseen cessation:

```
#!/bin/sh

SCRIPT_PATH="$0"
# Detect base path for service
while true; do
        ROOT=${SCRIPT_PATH%/*}
        ROOT=`cd "$ROOT";pwd`
        cd $ROOT
        if [ -d "$ROOT/plugins" ] && [ -d "$ROOT/scripts" ] ; then
                break
        fi
        if [ -L "$SCRIPT_PATH" ]; then
                SCRIPT_PATH=`readlink "$SCRIPT_PATH"`
                if [ $? != 0 ]
                then
                        echo "Error: Problems with resolving '$SCRIPT_PATH'"
                        exit -1
                else
                        continue
                fi
        fi
        break
done

# Check associated service
if [ -e "$ROOT/adf_script" ]
then
        log=`$ROOT/adf_script check`
        if [ "$log" != "" ]
        then
                BASE=`basename $ROOT`
                HOST=`hostname`
                echo "$BASE($HOST): $log"
        fi
fi
```

- **wialon-errors-check.sh** is an every hour check inspection of the service log file to detect such text as *error* (various errors) and notify the administrator about these cases:

```
#!/bin/sh

SCRIPT_PATH="$0"
# Detect base path for service
while true; do
        ROOT=${SCRIPT_PATH%/*}
        ROOT=`cd "$ROOT";pwd`
        cd $ROOT
        if [ -d "$ROOT/plugins" ] && [ -d "$ROOT/scripts" ] ; then
                break
        fi
        if [ -L "$SCRIPT_PATH" ]; then
                SCRIPT_PATH=`readlink "$SCRIPT_PATH"`
                if [ $? != 0 ]
                then
                        echo "Error: Problems with resolving '$SCRIPT_PATH'"
                        exit -1
                else
                        continue
                fi
        fi
        break
done

# Check service trace log file for errors
if [ -f "$ROOT/logs/wialonb3_trace.log" ]
then
        DT=`date --date="1 hour ago" "+%Y/%m/%d %H:"`
        cat $ROOT/logs/wialonb3_trace.log|grep error|grep "$DT"
fi
```

Log Files Management

IMPORTANT!!! The size of **log** file must be **no more than 2Gb**. Otherwise, **Wialon will not start** because of OS limitations.

While installing Wialon, the installer requests automatic activation of this option:

```
...
Install Wialon B3 log rotation script (into /etc/logrotate.d/wialonb3) [no] yes
...
OK, now is time to perform Wialon B3 installation. Check all parameters below are correct:
    Wialon B3 will be installed in:                  /var/lib/wialonb3
...
    Install Wialon B3 log rotation script:           yes
...
```

This option is set automatically as default with the first installation if you install Wialon as *root* user. In this case, you do not need to configure this option manually.

You can control log size manually (periodically cleaning it) or automatically. To apply the automatic cleaning, use **logrotate** utility. The utility functions in the following way. Log rotation is used to control disk space occupied by logs. As the result, one active log file is left (this is a log file where data is recorded by the server at the moment) and several archival quality files compressed by a special archiver.

To start rotation, place a file like **wialonb3** (or any other like "wialonb3.txt") to the directory */etc/logrotate.d*. The contents of the file may be as follows:

```
/var/lib/wialonb3/logs/*.log {
  weekly
  missingok
  rotate 5
  compress
  delaycompress
  notifempty
  create 0664 root root
}
```

Unattended Startup of the Service

Unattended startup of the monitoring service software in Debian-like systems is easy to set. To do this, choose the option **Install Wialon B3 as system service** while installing the distribution or create symbolic link to service startup script *adf_script* manually in */etc/init.d/*:

```
wialon-pro:/var/lib/wialonb3# ln -s $PWD/adf_script /etc/init.d/wialonb3
```

To activate automatic startup of the service execute the command:

```
wialon-pro:/var/lib/wialonb3# update-rc.d wialonb3 defaults
```

To disable automatic sturtup execute another command:

```
wialon-pro:/var/lib/wialonb3# update-rc.d -f wialonb3 remove
```

If you have installed Wialon and are planning to start it not as *root* user, please, read the instructions, otherwise when starting the server, it will be run as *root* user.

config_software/linux_autostart.txt · Last modified: 25/05/2010 14:58 by alek

Wialon 1001

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Wialon 1001 version has been available since November 2009. The official release - January 2010.

Some new devices types were supported: PT-20, Locometr X-1, GSM VENDING, IntelliTrac X8, Atomica-300, Novacom GNS -TRACK Extended , Azimut GSM.

Two new modules were developed. They can be purchased and embeded into your Wialon Pro configuration:

- **Drivers** module allows you to create drivers and bind them to devices. The automatic definition of drivers by means of **iButton** system is also supported. A photo and any additional information can be attached to each driver. Information on drivers is represented in different kinds of reports when the driver is identified.
- **ActiveX** is a special component which is used to connect to Wialon server from your own applications (as well as from Word, Excel, 1C-Predprijatije and SAP R3) and get telematic data about devices.

Attention! *Now users-administrators have no access to the monitoring and management sites for security reasons.*

Software for Monitoring Server

- **Data storage system optimization**
  Data storage system was improved: messages processing became faster, and above all reliability strengthened. The **write-ahead** transaction security system was adopted for Wialon: before any changes are applied, first they are registered. Database of massages, devices and their properties, as well as transaction logs are stored in different directories - this allows using them on different file systems and I/O devices. Messages database is divided automatically into parts and makes defragmentation of each part only achieving a definite level of fragmentation.
- **Backup system optimization**
  The 'backup' directory contains two subfolders which are 'curr' (current backup) and 'prev' (previous backup). That means that old copies are automatically located to previous backup and then deleted. Storage system for messages database and devices database is different.
- **Wialon Pro Client optimization**
  Wialon Pro Client now does not use local database cash but inquires it from the server.
- **Embeded web server optimization**
  Now embeded web server consumes less processor resources and RAM which allows operating faster in many situations.

Monitoring Site

- More user friendly **system of switching modes**(map, messages, reports) is now available. Reports and messages modes are presented as additional layers which means the map is common for all modes. This lightens monitoring site operation in the way that the map is only one and not three. Besides, there are more possibilities to work with the map and information on it.
- When generating a reports or mapping a track (or performing other actions requiring time interval selection), **the system uses the timezone selected in user settings** and not in browser settings or something.
- Now **the log contains messages only from devices in the work list** and not all devices available to the given user as it was before.
- **New tabular display system** allows displaying almost unlimited number of objects in the list: devices, geozones, POIs, etc. This is done by means of virtual lists.
- **Filter** for Devices, Users, Devices Groups panels is update. Its value is not saved in user settings. Besides, it is always in sight and is not scrolled with the list of items.
- In the Login page **a link to service owner** appeared. It is located in copyright values.
- **Programmed system of displaying devices** is developed for special Wialon versions. It can be also implemented on the basis of your requirements specification. This feature is designed to change device visualization on the map according to the values of their sensors (for example, concrete mixer, alarm, taximeter is on).

- **User Settings are categorized** for your convenience and faster access. This concerns monitoring settings and device visualization on the map.
- You can **set any point as map center**. When entering the service, the map will always open on this point.
- **New tool to map routes between two points** has been developed. It engages side systems as Google and/or Visicom. A mapped route can be saved as geozone and be used in future in different system modules.
- **Distance tool** is supplied with additional features. Now it is possible to get also **intermediate distance** from the initial point.
- **Area tool** is improved. Now it can also **calculate intersecting polygons**.
- The possibility to adjust **the sensor to be displayed in the monitoring panel** and visualize its value (state) according to selected color palette. See Device configuration Advanced.
- **The set of columns displayed in the Monitoring panel** is now customizable. See User Settings).
- **Sensors visualization in the popup window** is added. All sensors are presented in the alphabetical order. Some sensors are skiped because cannot be visualised (such as impulse consumption fuel sensor and some others).
- **Expanded devices search dialog**: by name, creator, phone number, unique ID, equipment type, users access, geozone, devices group, sensors, driver. More information here.
- The option of **sensor-based track color** and **speed-based track color** appeared. It can be adjusted in Device Configuration Advanced. Get to know more....
- The bugs appeared when creating a device copy are fixed.
- New tab **Groups** is added to the device configuration dialog. Here you can include|exclude the device into|form groups.
- Now **a command can be sent to a group of devices**.
- **Visicom maps** are available now and can be activated on a contractual basis with the Ukrainian company.
- **SVG graphics system for drawing the map** is completely revised, and the devices drawing became faster.
- The operation of the monitoring site in **Internet Explorer 7.0+** has been optimized.

Geozones Module

- Now you have possibility to choose **the custom color for each geozone**. This colos is used in the online monitoring as well as in the reports. In the device popup window the line indicating device presence in geozone uses geozone color.
- The **filter** for geozones has been added.
- The operation of displaying and hiding geozones are fastened considerably.
- The way of displaying geozone information differs form the previous version.

POI Module

- The places in the list are given in the **alphabetical order**.
- There is a **filter** to sort places by name.
- The bug of displaying POI names on the map has been fixed.

Events/Notifications Module

- New notification type - **entrance to/departure form a group of geozones**. In addition, you can set allowed speed range for the group of zones under control.
- New notification type - **idles control**.
- A new tag **%ZONE%** now can be applied to geozone control in the text of notification.
- When getting a notification by **e-mail**, the device name is used as the mail topic.

Reports Module

- **Markers on the map**
  The number of markers which can be used in reports has considerably raised. Now you can add markers corresponding to different kinds of events like trips start and end points, GSM and GPS errors, violations and events, speedings, rides (start/end points, uncompleted rides), engine hours (engine on/off), and many more. Details here.

- **Addresses identification**
  Now the search of address by coordinates is narrowed from 10 to 1 km which has speeded up the process of generating reports considerably.

- **Captions in charts**
  The caption used for X axis in charts have been changed in the way to let more space for the chart itself: vertical captions have been transferred to horizontal.

- **Sensors values in statistics**
  This is a new option in reports configuration. It can be applied for mileage or engine hours sensors. In the statistics section you can get initial, final values, the difference between them or the sum.

- **Trips routes on map**
  When choosing to show trips routes on the map there are two options here. One of them (it was the only one for the previous version of the software) is to display track corresponding to trips detected. Another one is to display in the track all messages. More information...

- **Custom sensors chart**
  This is a new report type allowing to obtain a chart for any of your digital sensors.

- **Split sensors charts**
  By default, if there are several sensors of the same type, their curves are displayed in one chart. But they can be displayed in separate charts due to this option.

- **Two kinds of report for digital sensors**
  Digital sensors activity report shows statistics information on sensor operation: how long it was on or off. *Digital sensors changes* give exhaustive information about all activations/deactivations (when, where, for how long).

- **All visited streets**
  Two columns were added to the report: average speed and mileage for each street visit.

- **Stops and stays detection**
  A different algorithm now is used to detect stops ans stays. It is adjusted as before in Device Configuration => Trip Detector.

- **Rides detalization**
  The report was supplied with additional information about fuel consumption. See details here.

- **Uncompleted rides**
  This is a new report type that allows getting information about rides started in the *ride beginning* point but did not reach the *ride end* point.

- **Movement chronology**
  This kind of report gives information about all trips, stops and stays, as well as fuel fillings and thefts, violations and events. This information is presented in the chronological order from the beginnings to the end of the reported period.

- **Export to Excel**
  There was an error of displaying time when exporting report to MS Excel that was caused by switching the click to winter time.

- **Fuel consumption calculation method**
  The algorithm of calculating fuel fillings, thefts, consumption has been updated. Depending on vehicle type, fuel consumption can be calculated by mileage or by time.

- **New sensors types:**
  Instant fuel consumption sensor (calculates how much fuel was consumed between two messages);
  Impulse fuel consumption sensor (calculates fuel level as the difference in values and time between two neighbour messages).

- **Fuel fillings and thefts detection**
  There as a new check box in Trip Detector - 'Detect fuel filling only while stopped'. This option makes fuel level detection more exact in many cases.

- **Trips ans stays/stops detection**
  Now one more message is added to the beginning of the trip is this message corresponds to trip parameters by time and distance. It increases the time of the trip a little but makes the mileage calculation more precise.

Billing Module

- The facility to **block/unblock accounts** has appeared on the management site. Besides, in billing plan settings you can define the way money are charged off (for each client individually) and indicate the balance to automatically block the account.

- **Advanced features in billing system** allow to activate/deactivate access for users to different services, as well as apply additional limitations on notifications, jobs, SMS messages, management site access (sub-manager), mobile site access, number of devices, geozones, reports, etc.

- The option of **automatic days count** has been added to billing sub-system. An account can be blocked/unblocked when exceeding preset period. This option is activated by service administrator (or technical support service). After activation when making a payment, not only the sum of many can be recognized on an account but the number of days as well. These two counters operate independently. In case of delay or default user gets the appropriate notification when entering the monitoring or management site.
- In the billing sub-system **the association of accounts** is actively used (parent and derivative accounts). For security reasons, all key operations over accounts (like payment, billing plan change, etc.) can be performed under one of parent accounts only.

Release Candidate 1001C4

- Minor errors were fixed in various modules.
- The automatic system for preparing a quick start form a backup copy was backported from the current version.
- Several scripts for supported hardware types were updated.
- The feature to create advanced reports on scripts was backported.

Release 1001R1

- Potential errors in billing counters were fixed.
- Some scripts for devices were corrected.
- Some potential errors in network subsystem concerning Pro Client and WebGIS coordination were fixed.
- Administrator's capacity to enter monitoring and management sites is back, however it can be turned off by the variable CMS_ALLOW_ADMIN_LOGIN = 0.
- Now you can specify the radius to search addresses by coordinates (for site and reports). For 10 km: ADF_AVL_LOC_SEARCH_RANGE = 10000; by default - 1 km.
- Now you can control the usage of external or embedded GIS server manually. By default, the embedded GIS server is used.

Wialon 0909

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Wialon 0909 has been available for testing since July 2009. Official release - 15.09.2009.

New hardware types have been supported - Krot, ARTAL-GSM-AE, Novacom GNS-TRACK, eLoc GL-100, FleetGuard, Emcraft MTDS-300, M2M-UA GPS, Planar-GG101.

Mobile Navigator software supplied with Globus GPS GL-800 navigators now more closely integrated to tracking interface. Possibility of two-sided exchange of text messages between drivers and operators via GPRS appeared. There is an alarm button for driver. With just one click of a mouse the operator can send destination point to device, and at once it will be directed to **Navitel Navigator**.

Two new modules can be purchased and included in **Wialon Pro**:

- **Advanced Reports**
  This is a new module designed to generate reports on other system elements (not devices), for example, unit groups, geozones, and users.
- **Retranslator**
  This is a new module designed to retranslate device messages in real time mode from your Wialon B3 server to other servers and systems including Wialon B2.

Telematic Server

- The method of tagging alarm messaged is changed. Alarm messages registered before installing updates will not be marked as alarm.
- DB optimization: reading rate and data storage protection improved, automatic defragmentation is now off by default.
- We has implemented improved reliability in backup operations.

WebGIS Server

- WebGIS server has improvements in address detection algorithm, address search works much faster now.
- WebGIS server has brand new algorithm for storing tile caches (rendered images) with minimal requirements to RAM and file system performance.

Wialon tracking interface

- **Group overlapped devices icons**. If one or more units overlay on the map, their icons can be grouped into one. It lightens visual reception of the map. The exception is in two biggest zooms where all icons are displayed regardless their overlapping.
- **Replace devices icons with direction arrows**. If marked, devices icons are hidden, and all units are displayed with motion direction arrows (if they are in motion) or with blue rhomb shaped marker (if they are standing).
- **Custom fields** can be applied to device and user settings. They can contain any information: user name /surname, his/her phone, device registration number, model, color, etc. Custom fields' values can be included in reports (depending on report configuration) and represented in the Total chart. They are also displayed in device popup window.
- **Track player**. While watching device messages one can activate track player for dynamic display of motion.
- **Engine state** is added to tracking panel. If a device has ignition sensor, its state (on/off) is shown.
- **Icons to display device motion state (standing or moving)** in the tracking panel. If the last message from device was received more than an hour ago, these icons become grey (instead of green and red) for additional visualization.
- **Calculation table wizard** allows creating calibration table for automatic selection of coefficients when setting up a sensor. This wizard simplifies the process of registration and configuration of sensors.
- **Store map coordinates and zoom**. User settings Maps Store coordinates and zoom. Map current position and zoom can be remembered and loaded when starting Wialon the next time.
- **WebGIS server URL**. User settings Maps WebGIS server URL. Here you can indicate a new WebGIS URL address to use it in tracking site. In case of slow connection to the Internet, it is necessary to load

map images from a local server.

Reports Module

- **Fuel consumption**: there is a new parameter for detecting fuel discharges - minimum time of standing.
- **Geozones as address source**. Now geozones can be used as addresses. This leads to full customization of reports.
- **Smooth Charts** is a new feature for reports that makes visualization of charts better.
- **Digital sensors**. Now it is possible to input custom units of measure in the corresponding field. The feature is applied to digital sensors only. Entering the unit of measure, use slash. Input measurement units will be displayed in device popup window as well as given in reports on Digital Sensors Changes.
- **Reports on Groups of Geozones**. Selecting this type of report results in adding statistics to report. To display also a detalized information about geozones visited, you should also include Geozones Visits Detalization.
- **Connection Quality Report**. The implementation and detection of connection problems was optimized.

Advanced Reports module

- **Group report on trips**: statistics on trips of all units in group has been added.
- **Group report on Engine Hours**: statistics on engine hours of all units in group has been added.
- **Report on geozone visit**. This kind of report shows how frequently and which devices visited an indicated geozone, how much time they spent their, etc.
- **Report on groups of geozones visited**. This kind of report is similar to previous one with the difference that it is generated for a group of zones.
- **Report on user**. Shows all user's logins and logouts.

Notifications module

- **Geozone control**. Now controlling geozone visit one can set also limitations of speed allowed. In such a way one can control speed overrun in a given zone.

Release 0909R2

Updates for release candidate 0909R2 are as follows:

- The radius to search addresses in reports is narrowed from 10 km to 1 km which resulted in generating reports which became significantly faster.
- File backup and defragmentation of message database was improved.
- The error of incorrect calculation of timezone DST flag in browser was fixed.
- A minor bug in scripts and jobs subsystem was fixed.

Release 0909R3

Updates for release candidate 0909R3 are the following:

- In Excel files the local time is considered when exporting a report when reported period beginning and end get to different timezones.
- A potential error (CPU looping while drawing charts with smoothing) was fixed.

Release 0909R4

Updates for release candidate 0909R4 are the following:

- Billing error fixed: there was no automatic write-off of a custom sum (like monthly charge) if the counter is zero.
- Billing error fixed: javascript error when viewing statistics on the management site.
- OC Linux installer now creates automatic systems to control service operation: automatic launch when the system starts, errors monitoring with notification by e-mail, control of disk free space, log files rotation, etc. Details...

Monitoring Site Design

Your monitoring site can have a unique design (colors, logo, copyright, title, etc.).

Page Title in Browser

To substitute the standard title for your custom, in the configuration file *config.txt* set the value **WIALON_WEB_TITLE**, for example:

```
WIALON_WEB_TITLE=Welcome to our service
```

Copyright

The standard copyright is *Curtam Software*. To substitute it for your own, use two variables:

- **WIALON_WEB_COPYRIGHT_TEXT** - the text at the bottom center of the page.
- **WIALON_WEB_COPYRIGHT_URL** - the hyperlink for this text, opens in a new window.

```
WIALON_WEB_COPYRIGHT_TEXT=Your company
WIALON_WEB_COPYRIGHT_URL=<nowiki>http://your_company_url</nowiki>
```

Logo

To set your logo on the monitoring site, replace the file **label.png** in *<install_dir>/custom/skins/your_skin/images/label* with your logo.

Tips.\\Note that logo image default size is 300×25 pixels. If you logo is higher, then in the file *color.js* set the value *top_panel_height* corresponding to your logo. For instance, for a logo 300×25 top_panel_height=42, for a logo 300×40 top_panel_height=57.

Color Theme

The location of the default theme is *<install_dir>/sites/wialon_web/default_skin*. All custom themes are located in the directory **<install_dir>/custom/skins**.

The theme is formed by the files of following types:

- CSS - cascading style sheets.
- JS - JavaScript files.
- Images (PNG, GIF, JPEG).

Modifying files that form the theme helps to alter color scheme and main images. **Attention!** Is it not allowed to change site functional elements layout.

Preparing a New Theme

To create a new theme:

- Make a full copy of folder **default_skin** from *<install_dir>/sites/wialon_web* to *<install_dir>/custom/skins*, rename it, for example, **your_skin**.
- In the configuration file set the variable **WIALON_WEB_SKIN**:

```
WIALON_WEB_SKIN=your_skin
```

- Restart the server.

Adjusting Colors and Sizes

Color format is like in CSS, for example, *#FF0000*, *red*, *#F00*. The format for sizes (width, hight) is set in pixels.

colors.js (*<install_dir>/custom/skins/your_skin/js*) file contains colors and dimensions of the main panels.

- Monitoring mdoe:
  - **top_panel_bg_clr** - background color of the top panel;
  - **top_panel_fg_clr** - foreground color of the top panel;
  - **bottom_panel_bg_clr** - background color of the bottom panel;

- **bottom_panel_fg_clr** - foreground color of the bottom panel;
- **left_panel_bg_clr** - background color of the left panel;
- **left_panel_fg_clr** - foreground color of the left panel;
- **center_panel_bg_clr** - background color of the central panel;
- **center_panel_fg_clr** - foreground color of the central panel;
- **top_panel_height** - top panel hight in pixels (42 by default);
- **bottom_panel_height** - bottom panel hight in pixels (35 by default);
- **left_panel_width** - left panel width in pixels (350 by default);

- Messages Mode:
  - **msg_filter_panel_bg_clr** - background color of the left panel (messages filter);
  - **msg_filter_panel_fg_clr** - foreground color of the left panel;
  - **msg_map_panel_bg_clr** - background color of the central panel (map);
  - **msg_map_panel_fg_clr** - foreground color of the central panel;
  - **msg_table_panel_bg_clr** - background color of the bottom panel (messages table);
  - **msg_table_panel_fg_clr** - foreground color of the bottom panel;
  - **msg_filter_panel_width** - left panel width in pixels (messages filter, 350 by default);
  - **msg_map_panel_height** - central panel hight in pixels (map, 400 by default);

- Reports Mode:
  - **report_filter_panel_bg_clr** - background color of the left panel (reports filter);
  - **report_filter_panel_fg_clr** - foreground color of the left panel;
  - **report_map_panel_bg_clr** - background color of the central panel (map);
  - **report_map_panel_fg_clr** - foreground color of the central panel;
  - **report_table_panel_bg_clr** - background color of the bottom panel (resulting report table);
  - **report_table_panel_fg_clr** - foreground color of the bottom panel;
  - **report_filter_panel_width** - left panel width in pixels (reports filter, 350 by default);
  - **report_map_panel_height** - central panel hight in pixels (map, 400 by default);

- Dialogs:
  - **dlg_title_top_clr** - starting color for gradient of dialog title (set without symbol '#');
  - **dlg_title_bottom_clr** - ending color for gradient of dialog title (set without symbol '#');

- Log:
  - **log_panel_fade** - log panel transparency rate (valued from 0.0 to 1.0, 0.0 - totally transparent, 1.0 - opaque);

Color gamut and visual properties of embedded panels are altered through CSS files that are located in: *<install_dir>/custom/skins/your_skin/css*.

Product Author's Information

In the system login page as well as at the right top corner of the main window **Wialon** logo is placed . It cannot be removed or replaced. If hover the logo, the tooltip *Powered by Wialon* is displayed. This logo is not the link to the site of the product developer.

Reports Custom Configuration

A personal style can be applied to report files like color, fonts, alignment, etc. To do this:

1. Create an XML file in UTF-8 coding (like *custom/reports_config.xml*) which stores report style.
2. In the configuration file *custom/config.txt* set the variable **AVL_REPORTS_STYLES_FILE** with the value **$ADF_ROOT_PATH/custom/reports_config.xml** (the path to XML file containing the configuration for reports styles).

Individual report configuration can be applied to each billing plan. To do this, copy report configuration code to **Report config** tab in the **Billing Plan** page.

An example of report configuration file:

```
<report bg_color="e5e8e9" indent="20,20,20,20">
        <images>
                <img1 align="l" src="plugins/trace_front/images/trace_b2b.png"></img1>
        </images>
        <fonts chart="DejaVuSans.ttf" default="DejaVuSans.ttf"></fonts>
        <head align="cc" bg_color="57a4c1" border="3" border_color="ffffff" font_color="ffffff"
font_size="15" img="img1" space_after="50"></head>
        <content bg_color="e5e8e9" font_size="15"></content>
        <unit_name align="cc" bg_color="57a4c1" border="3" border_color="ffffff" font_color="ffffff"
font_size="12" min_height="50" space_after="40"></unit_name>
        <table_defs>
                <trips_table>
                        <table_name align="cc" bg_color="aaaac1" border="1" border_color="57a4c1"
font_color="000000" font_size="12" min_height="0" space_after="50"></table_name>
                        <table_header align="cc" bg_color="cfd1d1" border="1" border_color="57a4c1"
column_no_wrap="0,2" font_size="10" repeat_header="1"></table_header>
                        <table_body align="lc" bg_color="e5e8e9,f4f4f4" border="1" border_color="57a4c1"
colors_to_rows="1" font_size="10" space_after="30"></table_body>
                </trips_table>
                <total_table>
                        <table_name align="cc" bg_color="aaaac1" border="1" border_color="57a4c1"
font_color="000000" font_size="12" min_height="0" space_after="50"></table_name>
                        <table_header align="cc" bg_color="cfd1d1" border="1" border_color="57a4c1"
font_size="10" repeat_header="1"></table_header>
                        <table_body align="cc" bg_color="e5e8e9,f4f4f4" border="1" border_color="57a4c1"
colors_to_rows="1" font_size="10" space_after="30"></table_body>
                </total_table>
                <default>
                        <table_name align="cc" bg_color="aaaac1" border="1" border_color="57a4c1"
font_color="000000" font_size="12" min_height="0" space_after="50"></table_name>
                        <table_header align="cc" bg_color="cfd1d1" border="1" border_color="57a4c1"
font_size="10" repeat_header="1"></table_header>
                        <table_body align="lc" bg_color="e5e8e9,f4f4f4" border="1" border_color="57a4c1"
colors_to_rows="1" font_size="10" space_after="30"></table_body>
                </default>
        </table_defs>
        <tables>
                <style def_id="trips_table" table="Trips"></style>
                <style def_id="total_table" table="Total"></style>
        </tables>
        <chart caption_top="1" dset_color="ff0000,ff00,ff" font="chart" font_axis_size="16"
font_name_size="40" grid_color="0000cc" height="350" scale="2"></chart>
</report>
```

Common report options: <report>

```
orientation_landscape: "0" page format A4, orientation portrait
                       "1" page format A4, orientation landscape

password:               "any string" set password for reading document[only pdf]
                        "" no password

indent:                 "n,n,n,n" set page indents[only pdf]
                        [left,right,top,bottom]

content:                "0" do not make content table
                        "1" make content table

unit_new_page:          "0" unit placement without page transfer
                        "1" each unit on new page

bg_color                "rrggbb" set report background color
```

Font aliases, used in report: <fonts>

```
alias="font_file.ttf", like default="DejaVuSans.ttf{B}"
possible flags after font name: {B} - bold : {I} - italic : or its combination [html only]
```

Images, used in report: <images>

On the first place set unique name of image (img1 src="…" align="r")

```
src             "path_to_image" (only PNG picture)
align           "s" set image align (right or left)
```

Report header options: <head>

```
bg_color:               "rrggbb" set report header background color
font_color:             "rrggbb" set report header font color
font_size:              "n" set report header font size
font:                   alias from <fonts>
border:                 "n" set report header border width [0 - no border]
align:                  "ss" set report header text align: first char - horizontal align,
possible values 'l' - left; 'c' - center; 'r' - right second char - vertical align, possible
values 't' - top; 'c' - center; 'b' - bottom example : "rt" - text in the right and top corner
min_height:             "n" set report header rect minimal height
space_after:            "n" set free space after header
border_color:           "rrggbb" set report header border color
img                     "unique_name_of_image"
```

Content table options: <content>

```
bg_color:               "rrggbb" set content table background color
font_color:             "rrggbb" set content table font color
font_size:              "n" set content table font size
font:                   alias from <fonts>
border:                 "n" set content table border width [0 - no border]
```

Unit name options: <unit_name>

```
bg_color:               "rrggbb" set table name background color
font_color:             "rrggbb" set table name font color
font_size:              "n" set table name font size
font:                   alias from <fonts>
border:                 "n" set table name border width [0 - no border]
align:                  "ss" set table name text align
min_height:             "n" set table name rect minimal height
space_after:            "n" set table name after header
border_color:           "rrggbb" set unit name border color
```

Data table definition: <table_defs>

Use in this tag unique table name for definition table style:

```
<table_defs>
        <table1>
                <!-- Here use tags for discription table -->
                <table_name> ... </table_name>
                <table_header> ... </table_header>
                <table_data> ... </table_data>
        </table1>
</table_defs>
```

Data table name options: <table_name>

```
bg_color:               "rrggbb" set table name background color
font_color:             "rrggbb" set table name font color
font_size:              "n" set table name font size
font:                   alias from <fonts>
border:                 "n" set table name border width [0 - no border]
align:                  "ss" set table name text align
min_height:             "n" set table name rect minimal height
space_after:            "n" set table name after header
border_color:           "rrggbb" set table name border color
```

Data table header options: <table_header>

```
bg_color:               "rrggbb[,rrggbb,rrggbb,...]" set array of header background colors
font_color:             "rrggbb[,rrggbb,rrggbb,...]" set array of header text colors
font_size:              "n" set table header font size
font:                   alias from <font>
border:                 "n" set table header border width [0 - no border]
align:                  "ss,[ss,ss,...]" set array of cells aligns: see <head align>
column_no_wrap:         "n,[n,n,...]" set array of unwrapped cells
border_color:           "rrggbb" set table header border color
```

Data table body options: <table_body>

```
bg_color:               "rrggbb[,rrggbb,rrggbb,...]" set array of data text colors
font_color:             "rrggbb[,rrggbb,rrggbb,...]" set array of data text colors
font_size:              "n" set table data font size
font, font_normal, font_bold, font_italic:      alias from <fonts>, uses in report row with
flags: AVL_REPORT_ROW_FLAG_BOLD, AVL_REPORT_ROW_FLAG_ITALIC
border:                 "n" set table header border width [0 - no border]
align:                  "ss,[ss,ss,...]" set array of cells aligns: see <head align>
colors_to_rows:         "0" - background and text colors applies to table columns
                        "1" - background and text colors applies to table rows
space_after:            "n" set free space after table
border_color:           "rrggbb" set table body border color
```

Table styles: <tables>

```
table           Real table name, like "Total", "SMS messages"
def_id          Style from <table_defs>
```

Chart options: <chart>

```
font_colors:            "rrggbb,rrggbb,rrggbb[,rrggbb,..]" first three colors applies to chart
name, legend and axis text colors, next triple of colors applies to next chart etc...
bg_color:               "rrggbb[,rrggbb,rrggbb,...]" set array of charts background colors
grid_color:             "rrggbb[,rrggbb,rrggbb,...]" set array of charts grid colors
caption_top:            "0" chart caption draws in the bottom
                        "1" chart caption draws in the top
legend_align:           "s[,s,...]" set charts legend position
                        possible values: "l"(left),"r"(right),"t"(top),"b"(bottom)
x_axis_vertical:        "0"     x axis has horizontal lables
                        "1"     x axis has vertical lables from up to down
                        "2"     x axis has vertical lables from down to up
dset_color:             "rrggbb[,rrggbb,rrggbb,...]" set array of datasets colors (same in the
every chart)
dset_interpolate:       "n[,n,n,...]" set array of datasets to interpolate (same in the every
chart)
                        example "1,0,1" means that 1,3 datasets in the chart draws with
interpolation, 2 - without
font:                   alias from <fonts>
font_name_size:         "n" set chart name font max initial size
font_legend_size:       "n" set chart legend font size
font_axis_size:         "n" set chart axis font size
scale:                  "n" set chart image scale aspect
height:                 "n" set resulting image height
space_after:            "n" set free space after chart
```

Personal Design for Your Clients

Any user can have his/her unique design of the monitoring site with custom logo and copyright. The scheme to do this:

1. Crete copy of existing monitoring site;
2. Develop an individual design for the site;
3. Set remote access to the site.

1. Creating a Copy of the Monitoring Site

Make a copy of the site giving it a corresponding name (in our case it is *new_site*). Make also a copy of the theme. Create the directory *./custom/skins* if needed.

```
krsl@s3:~$ cd /var/lib/wialonb3
krsl@s3:~/var/lib/wialonb3$ cd sites
krsl@s3:~/var/lib/wialonb3/sites$ ln -s wialon_web/ new_site
krsl@s3:~/var/lib/wialonb3/sites$ cd ../custom/skins
krsl@s3:~/var/lib/wialonb3/custom/skins$ cp -r ../../sites/wialon_web/default_skin/ ./new_site
```

Then add this new site to Wialon configuration (*custom/config.txt*):

```
CUSTOM_SITES = new_site
```

Define the port for the new site:

```
NEW_SITE_WEBSERVER = new_site:8025:$LOCALIP
```

Copy existing settings and substitute WIALON_WEB for NEW_SITE everywhere. *Note:* In the example the list of settings is incomplete.

```
# new_site additional site configuration
NEW_SITE_SKIN = new_site
NEW_SITE_TITLE = Навигация - новый сайт
NEW_SITE_COPYRIGHT_TEXT = NEW_SITE.RU
NEW_SITE_COPYRIGHT_URL = http://new_site.ru
NEW_SITE_DEFAULT_POS = 57.62431:39.85551:9
```

After that, restart Wialon. If there is no errors, the new site will become available on 8025 port: http://server-IP:8025

2. Monitoring Site Design

This step was described in detailed above. See Monitoring Site Design.

3. Set Access to Site

1. Create a DNS record at your hoster. Indicate there that the packages for the link *monitor.new_site.com*, for example, are directed to your server external IP.
2. Set to process queries from *monitor.new_site.com* on the port **8025** (see Proxy Server for HTTP(S) Queries.

Wialon Pro Client

Software distribution Wialon Pro Client includes only Wialon Web server. It is connected to the remote database Wialon Pro via TCP/IP connection (Internet or LAN).

The installation process for Windows OS or Linux OS is fully the same as installing server software with the difference that the licence file is not needed. As the distribution includes embedded GIS server, all maps in AVD format must be located to the **maps** directory (localy).

Firewall

These settings are common for all operation systems.

In the table below the default input ports used for the monitoring server software are listed. Which of them should be protected by firewall is decided by the administrator of your server according to your company security policy.

Port	Type	Description
31188	TCP	Remote clients connection (such as Wialon Pro Client). This port is available after purchasing the licence for remote connection from your clients.
20100:20300	TCP/UDP	Подключение устройств по каналу GPRS.
8020	TCP	WebGIS-3 site (if available).
8021	TCP	Administration site.
8022	TCP	Monitoring site.
8023	TCP	Management site.
8024	TCP	Mobile site.

config_software/common_firewall.txt · Last modified: 25/05/2010 14:55 by alek

Log Files Management

These settings are used for Windows OS.

IMPORTANT!!! The size of **log** file must be **no more than 2Gb**. Otherwise, **Wialon will not start** because of OS limitations.

You can control log size manually (periodically cleaning it) or automatically.

To apply the automatic cleaning, you can use the following method. First, create the **bat** file with the contents as follows:

```
"C:\\Program Files\\WinRAR\\rar.exe" a "C:\\Program
Files\\Gurtam\\WialonB3\\logs\\WialonB3_trace.log.rar" "C:\\Program
Files\\Gurtam\\WialonB3\\logs\\WialonB3_trace.log.1"
del "C:\\Program Files\\Gurtam\\WialonB\\logs\\WialonB3_trace.log.1" /Q
rename "C:\\Program Files\\Gurtam\\WialonB3\\logs\\WialonB3_trace.log" "WialonB3_trace.log.1"
```

Here the path must be yours. At that, you need the installed archiver WinRAR (if you have other archiver, replace the first line). This text can be duplicated for any number of log files (*WialonB2.log*, *access.log*)

Then create the job to perform the **bat** file each week.

/etc/sysctl.conf

For the configuration file **/etc/sysctl.conf** the following settings are recommended:

```
# for atop utility better view
vm.overcommit_ratio = 100
# swapiness level
vm.swappiness = 10
# reserve memory always
vm.min_free_kbytes = 65535
# security fix
vm.mmap_min_addr = 65536
```

The most important parameter that influences file system effective operation is **vm.swappiness**. The rest can be ignored.

Firewall

Security is above all. That is why firewall is needed. We recommend using *firehol*:

```
wialon-pro:~# apt-get install firehol
```

After that in the file /etc/default/firehol substitute *NO* for *YES* and configure /etc/firehol/firehol in the way it is shown below. Do not forger indicate your IP address, otherwise the access to server will be denie. *eth0* is your network adapter.

```
version 5
tcpmss auto
FIREHOL_LOG_MODE="ULOG"

######################### trusted IP's ########################
trust_ips="IP (enter IP addresses you trust to separating them by space)"

ext_wialon="IP1"

######################### custom rules ########################
server_wialon_ports="tcp/4998 tcp/20100:20300 udp/20100:20300"
client_wialon_ports="any"

#####################################################################

interface eth0 inet1
        policy                                                  reject
        server          ssh                                     accept src "${trust_ips}"
        server          icmp                                    accept
        server          https                                   accept dst "${ext_wialon}"
        server          http                                    accept dst "${ext_wialon}"
        server          wialon                                  accept dst "${ext_wialon}"
        client          all                                     accept
```

Then run firewall:

```
wialon-pro:~# /etc/init.d/firehol start
```

Network Time Synchronization

For correct processing of data received from devices, it is necessary to set the exact time on Wialon telematic server. Use the following command to set automatic time synchronization with Internet:

```
wialon-pro:~# apt-get install ntp
```

Mail Server

For correct operation of the system, SMTP server is needed. We recommend *postfix*:

```
wialon-pro:~# apt-get install postfix
```

Default settings are acceptable and sufficient to provide a basic operability (sending e-mails from the server).

For system administrator to get messages form the server (see automatic scripts), it is advisable to use aliases to indicate where to redirect mails. For example, if the scripts are set for the user named *root*, in the /etc/aliases can be written:

```
root: your-admin-email@domain.com
```

Service Operation under an Ordinary User

For security reasons Wialon monitoring service can be configured in such a way that it would work under an ordinary user (for example, *wialon* or *wialon* group), and not under *root*. It is needed to create for this user:

```
wialon-pro:~# adduser wialon
```

Then correct system settings to give this user possibility to work with a greater number of file than it is provided by defaults. To do this, add to the file **/etc/security/limits.conf** the following:

```
wialon            hard    nofile          32768
wialon            soft    nofile          16384
```

Let us assume, we installed the distribution to the directory **/home/wialon/wialon-pro**. To provide our user the full access to the service, make it the owner of the following directory:

```
chown -R wialon:wialon /home/wialon/wialon-pro
```

Regardless under which user the service is started, it is required that the service worked under *wialon* user or group. To do so, write the following in the file **/home/wialon/wialon-pro/custom/system_env.sh**:

```
# Optional environment configuration for launching Wialon as system service

# Uncomment following and insert correct user and group name if you like to launch Wialon not as root
user. Be sure that specified user has full control over installation directory:
ADF_USER="--user wialon"
ADF_GROUP="--group wialon"
```

After that, the servoce can be started by the command **/home/wialon/wialon-pro/adf_script start**.