
# WatchDog

## The Fraud Detection System

## Administrator manual

## Confidentiality notice



## Trademarks



## Document version

3.4.7

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# About This Guide

The Watchdog - Administrator Manual is a reference and a training material for WatchDog system administrators. It describes the system administration settings. It also gives an overview of the WatchDog system from a technical point of view as well as from a functional point of view.

All chapters in this manual have the same disposition, as described below.

- A short introduction (overview).
- A screen shot, showing the user interface.
- A detailed description of the functionality.

## Prerequisite knowledge

Administrators of WatchDog are expected to have attended a WatchDog training held by Basset Telecom Solutions or by a local trainer that have attended the WatchDog training.

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Chapter 1

# Technical Overview

## Overview

### Introduction

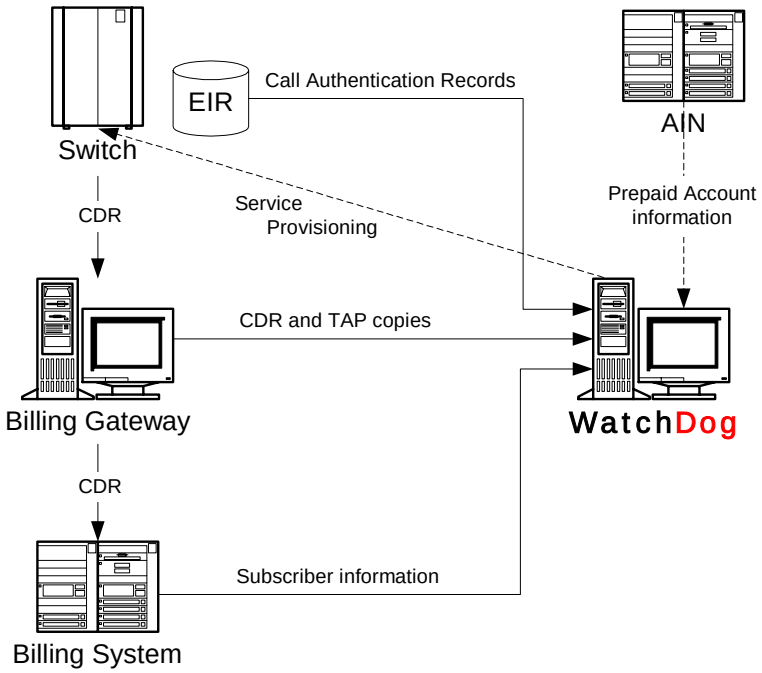
This chapter gives an overview of the WatchDog system. It describes its position in a network, basic functionality, and some technical issues.

### In this chapter

This chapter is organized as follows.

# WatchDog in your network

WatchDog collects call data and call related information from a number of different sources. This data is then analysed. The picture below describes a typical WatchDog setup and how it interacts with the surrounding network entities.

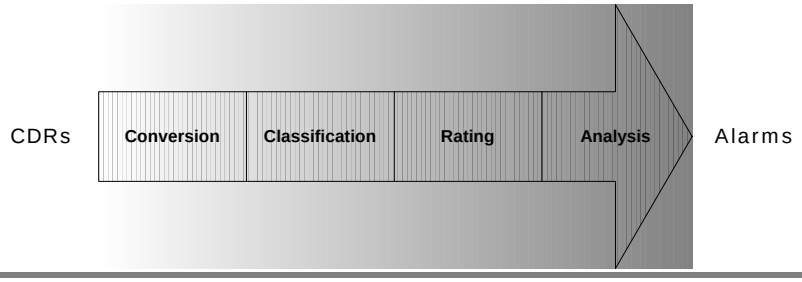



*This is a typical WatchDog setup. Please note that the support of service provisioning is not included in the standard WatchDog package.*

The following sections describe how WatchDog handles the information.

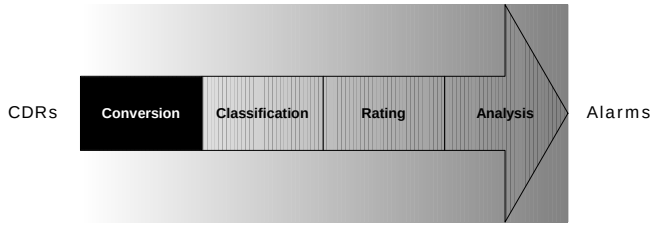
# The alarm analysis process

This section describes how WatchDog handles the call data, from collection to analysis. These tasks can all be set to run automatically according to system schedules.



## Call data record conversion

When WatchDog receives the CDR files they are converted into a standard WatchDog format. A built in mediation functionality enables WatchDog to collect CDR files of any format.




WatchDog's mediation device is a high performing product, handling up to 15 000 records per second!

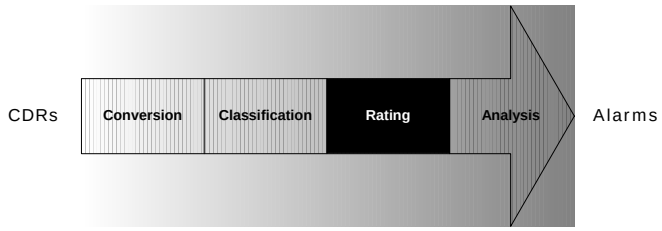
## Call classification

When the CDR files have been converted into WatchDog standard format, WatchDog analyses each record and classifies them into local calls, long distance calls, international calls, call forwarding, etc., according to each operator's number plan.


In the classification process WatchDog also filters CDRs that will not be useful for the alarm analysis. These records are removed to optimise the performance of the system. Examples of such records are not successful calls, incomplete CDRs and erroneous CDRs.

## Rating

After the classification, WatchDog rates the calls. The reason to rate the calls is to enable WatchDog to present and analyse a customer's calling behaviour based both on time and a monetary value. The rating also makes it easy for the WatchDog users to immediately see for how much a subscriber has been calling, without needing information about the type of subscription, rating plans, etc. This functionality simplifies the analysis of alarms and calling behaviour. Another advantage with an internal rating functionality is that WatchDog can collect data directly from the switches. That means the call data will be analysed with a minimum of delay and it eliminates the risk that the input data is distorted by another system.

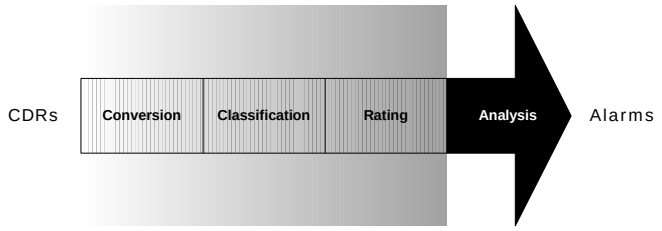



The rating may be specified based on e.g. destination telephone number, destination country, whether the call is incoming or outgoing, a specific CDR position's value, the cell site used, called number prefix, time of the day, type of call, calling classification, etc. – or a combination of parameters. The rating is done using the operator's local currency or any other currency.

WatchDog is not a billing system, still the rating will be very similar to the rating that is performed in the operator's billing system.

### Call analysis

The last step is to analyse the call data according to the call data, alarm settings, customer information and previous call data. This process is described in more detail in the following chapters.




information collection

WatchDog collects different kinds of data from a number of sources. This section describes the data collection.

## WatchDog information sources

### Call data records

The call data records (CDRs) are the essential input to WatchDog. They are used for the calculation of almost all alarms. Normally the CDR files are stored by your network somewhere on the LAN. WatchDog constantly searches for files on this LAN location.

The CDRs can be collected in different stages of the CDR handling process.

1. **Immediately from the switches.** This is the best way to collect CDRs. The data has not been distorted by any other network entities, and WatchDog can start analysing the calls with no delay.
2. **From the mediation device, before the CDRs are converted to a standard format.** This is the most frequently used method to transfer call data to WatchDog.
3. **From your mediation device, after the CDRs have been converted to a standard format.**
4. **From the billing system, before the rating.** Basset does not recommend this solution since call data may be lost or distorted before WatchDog receives the files. The alarm analysis will also be delayed.
5. **From your billing system, after the rating.** Basset does not recommend this solution since call data may be lost or distorted before WatchDog receives the files. The alarm analysis will also be delayed.

## Customer information

Another important source of information is customer data such as subscriber name, address, subscription type, number of unpaid invoices, etc. This information is displayed on different alarm presentation, and alarm analysis, windows. It is also used for finding subscribers activated in the switches but not in the billing system (internal fraud).

The customer data is collected on a regular basis from the billing system. The following methods can be used.

1. **From your billing system.** The customer information is copied from your billing system and the file contents are converted into WatchDog standard format.
2. **From a copy of the customer data.** Most operators have a copy of the customer database, which is used e.g. by the customer care centre. The most common way to transfer customer information to WatchDog is to make a copy of this internal customer data.

The customer information that can be collected and presented by WatchDog includes:

| | |
|---|---|
| IMSI | AccountID |
| SubscriberNumber | SubscriberTypeID |
| PhoneNumber | TariffPlan |
| UnitID | Services |
| Company | Permissions |
| Name | Balance |
| Address1 | UnbilledAmount |
| Address2 | NoOfUnpaidBills |

| | |
|---|---|
| Phone (fixed) | ActivationDate |
| Zip | Registration date |
| City | CreditLimit |
| Country | BillCycle |
| VATNo | LastInvoiceDate |
| SubscriptionID | LastInvoiceAmount |

WatchDog can also present miscellaneous customer data, as selected by each operator currently WatchDog supports up to 255 fields to be presented.

### Prepaid account information

WatchDog collects information from the prepaid account systems. This information is used to generate the prepaid alarms.

### Roaming information

WatchDog can collect roaming information and TAP files from any source in the network.

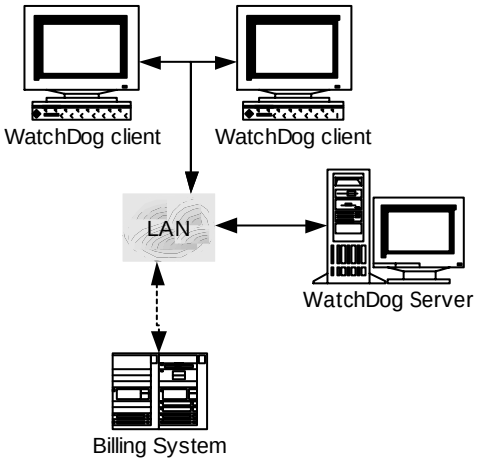
### Equipment Identity Register information

WatchDog collects OME records from the Equipment Identity Register (if any in your network). The contents are presented in the alarms lists.

## The WatchDog Clients

The WatchDog users use their own WatchDog client applications that are connected to the WatchDog server via the local network (LAN). Any person connected to the LAN can have access to WatchDog, if they have the WatchDog client application installed on their computers, and if they have the correct access level in the WatchDog server.

The following picture describes how the users are connected to the WatchDog server.




The WatchDog system administrator (employed by you) will have access to the client application setup program. This makes it possible to install the client application on any computer connected to your LAN, at any time – without help from Basset.

Chapter 2

# Functional Overview

## Overview

### Introduction

This chapter gives a general description of the WatchDog alarms and analysis functionality.

### In this chapter

This chapter is organized as follows.

# The WatchDog Alarms

WatchDog includes many different alarms for detecting fraud in mobile and fixed networks. Most alarm settings are set by the system user, the settings can be changed at any time.

The following alarms are included in WatchDog.

- Call collision
- Credit limit
- EIR alarm
- Exclude lists
- Extended services
- Extended EDR validation
- Global fraud
- High-risk cell sites
- High-risk countries
- High usage
- International call collision
- International velocity
- Lists: Blacklist
- Lists: Hotlist
- Multiple destinations
- Rating validation
- Long duration calls
- Profiling
- Roaming partners
- Same called number
- Short duration calls
- Switch audit
- Tumbling
- Used services
- Velocity
- Zero usage

# Features

The following features and analysis functionality are included in WatchDog.

**Flexibility**

- Any number of users can work with the system at the same time. The connections to the WatchDog server are via your standard LAN or WAN.
- The alarm settings can be changed and adjusted at preferable time by your system administrator.
- The alarm settings can be adjusted per individual customer. Every individual subscriber has five "multipliers" which are adjustable. WatchDog can recommend suitable multipliers for each single user and alarm type. The multipliers make it possible to adjust each subscriber's alarm thresholds, without changing the global alarm parameters.
- WatchDog enables the operator to change any of the system settings and parameters included in WatchDog – without help from Basset Telecom Solutions.
- Additional parameters are included in the alarm setting windows. These parameters enables customisation of the alarm settings, and the customisation can be adjusted per individual operator, at any time, by the System Administrators.
- It is possible to set different alarm thresholds for different roaming partners, e.g. USD 100 for visiting subscribers from Sweden and USD 200 for visiting subscribers from Taiwan. The example is using USD, but you would use your local currency.
- It is possible to set different alarm thresholds for different hotlisted countries, e.g. maximum USD 100 during 24 hours for subscribers calling to Sweden and USD 200 for subscribers calling to Taiwan. The example is using USD, but you would use your local currency.

**Flexible Alarm Presentation**

- Possibility to see every single alarm or all alarms summarized per customer. This makes it possible to create cases for each subscriber. The user can choose the layout he or she prefers.
- All alarms are associated to a customer's name and address. This is possible since WatchDog is collecting customer data from your customer database.
- Sorting of the alarms. All alarms included in the alarm list can be sorted, separately by any WatchDog user. The sorting can

be based on any parameter included in the alarms (telephone number, alarm value, severity level, monetary value of the alarm, user working with the alarm, alarm type, etc.).

- Filtering of the alarms. All alarms included in the alarm list can be filtered, separately by any WatchDog user. The filtering can be based on any parameter included in the alarms (telephone number, alarm value, severity level, monetary value of the alarm, user working with the alarm, alarm type, etc.).
- The System Administrator can delete several alarms, simultaneously, e.g. after a long weekend when a lot of alarms have been generated and the agents do not have the time to handle the low priority alarms. The deleting can be based on type of alarm, user assigned to the alarm, age of the alarm, etc.

**Rating of all Calls**
All calls are rated in your local currency. The rating engine is very flexible and the System Administrator can change the settings at desired time. Different rating tables can be used for different types of subscribers.

# Analysis Functionality

**Detailed information window about the customer that has triggered an alarm**
This window includes a lot of information, which is extracted from your customer database, such as address, date of contract signing, number of unpaid bills, etc. It also includes a log including actions performed in WatchDog on the specific subscriber, and comments made by the users.

**A selectable number of days' calling pattern graph, including all calls made by a specific subscriber**
All calls are separated into local calls, long distance calls, international calls, roaming calls, and calls made to premium rate numbers. The information can be displayed in money (your local currency) or in time (minutes).

**WatchDog does also include a selectable number of days of aggregated calling graph**
The graph can be displayed in money (your local currency) or in time (minutes).

**A selectable number of days of detailed calling information**
The information is presented per separate call, and every post in the presentation list includes information such as; used telephone unit, called number, used operator (for roaming calls), used cell

site, used switch, start of the call, end of the call, value of the call (in your local currency), total call length, service invoked, etc.

**Detailed information about call collision (cloning) cases**
This window includes detailed information about the two calls that have collided.

**Detailed information about velocity (cloning) cases**
This window includes information about the involved calls, and the required speed to travel between the used cell sites.

**Detailed information about tumbling cases**
Different windows make it possible to further investigate the tumbling of telephone units and/or telephone numbers. All available information is presented, and a summary of used numbers and telephone units is presented in an easy to understand manner.

## Reporting

**Advanced reporting functionality**
All included reports in WatchDog can be viewed on the screen, printed on paper, or saved as a file.

**Advanced statistics functionality**
Any statistical report in WatchDog can be viewed on the screen or printed on paper.

**Automatic sending of e-mails containing roaming (high usage) reports to your roaming partners**
Your users can neglect the roaming alarms, and the reports will be e-mailed to the correct roaming partner without any work required by your staff anyway.

**Automatic printing of letters to your subscribers**
WatchDog includes a functionality that makes it possible for you to include a number of different pre-defined letters that can be sent to chosen subscriber using the network. This makes it possible to semi-automatically send letters to disconnected subscribers or subscribers that you want to make payments before they are allowed to continue calling in the network.

**I2 Link**
WatchDog also includes an interface for extracting alarm- and calling information to external analysis tools, e.g. the analysis tool "Link" from I2 in the UK.

Chapter 3

# System Administration Overview

## Overview

**Introduction**
This chapter gives a general description of the WatchDog alarms and analysis functionality.

**In this chapter**
This chapter is organized as follows.

| Topic |
| --- |
| System Administration Overview |

# System Administration Overview

The administration functionality in WatchDog is organised in a number of menus. This section gives an overview of the system administration possibilities, organised according to these menus.

## The Admin Menu

The **Admin** menu includes the following commands.

| | |
|---|---|
| **Alarm settings** | This is where the alarm thresholds are set. |
| **System** | This menu contains commands to set up functionality such as auto-mail, subscriber letters, multipliers, and to define and schedule system management tasks. |
| **Actions** | This menu includes a command for batch deletion of alarms. |

All areas above are further described below in this document.
Note! Please contact Basset staff before you make any changes of the settings, if you are not completely sure how to use them.

### The Window Menu

The Window menu includes the following types of commands.

| | |
|---|---|
| **Window appearance commands** | These commands are used to control how the user interface windows should appear on the screen. |
| **Edit Subinfo layout** | This command controls the appearance of the header on the main window. |

Chapter 3

# Alarms Settings

## Overview

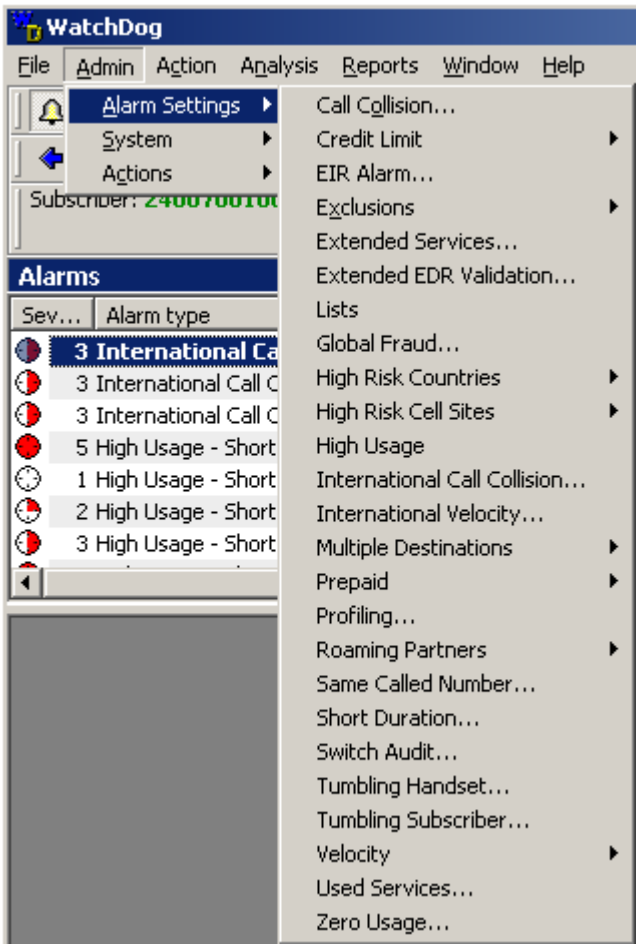
**Introduction**
This chapter describes all the alarm settings available in the WatchDog system. These settings are all found on the **Admin/Alarm Settings** menu.

**In this chapter**
This chapter is organized as follows.

# Alarms Overview

## The alarms

The **Alarms Settings** menu includes the following commands.




All alarm settings are described in detail in the following sections.

**Call collision**
The call collision alarm detects situations where two calls are being made at the same time from the same handset. This is an indication of cloning.

**Credit limit**
The credit limit alarm detects subscribers that exceed the credit limit set in the billing system. The alarm is based on call data and information that is sent from the billing system. The settings enable detection of subscribers before they exceed the credit limit.

**EIR alarm**
The EIR alarm is specific for GSM networks. An EIR, Equipment Identity Register, is used to prevent calls from stolen or unauthorized handsets. The switches will list call attempts from handsets that are not valid according to the EIR. WatchDog can collect these lists and display them for the user.

**Exclusions**
It is possible to exclude values from some alarm analyses. This concerns subscribers from the high usage alarm and handsets from the tumbling subscriber alarm.

**Extended services**
This alarms detects subscriptions with a high usage of extended services relative to the total usage. Extended services include services such as call forwarding, call waiting, and three party calls. Via this command it is possible to activate alarms for different services and sets thresholds for each service.

**Extended EDR validation**
The Extended EDR validation alarm allows WatchDog to verify and alarm if the raw CDR does not fulfil any set requirement. The configuration of this alarm is flexible and normally the check is done on the raw CDRs. If e.g. a subscriber is a prepaid subscriber the raw CDR must contain a specific set of information to be considered valid. WatchDog can perform this check and alert if the CDRs are not complying with the rules. This alarm is used to detect internal fraud or incorrect configuration in switches.

**Lists: Blacklist**
It is possible to blacklist telephone numbers (A numbers), telephone units, and cell sites. This means that WatchDog will generate alarms each time any of the listed items are being used. This alarm can be used for investigating the behaviour of a certain subscriber or to survey the traffic from a certain area.

**Lists: Hotlist**
It is possible to hotlist telephone numbers (B numbers), telephone units, and cell sites. This means that WatchDog will generate alarms each time a call is made to any of the listed items. This alarm can be used e.g. to investigate which subscribers that are using a certain service.

**Global fraud**
This alarm is generated if a subscriber calls more than a specified number of different countries within a specified period of time.

**High-risk cell sites**
This alarm is a complement to the high usage alarm, enabling lower thresholds for calls from certain cell sites. The settings

include a list of all cell sites that should be considered as high-risk cell sites, and thresholds for each item.

**High-risk countries**
This alarm is a complement to the high usage alarm, enabling lower thresholds for calls to certain countries. The settings include a list of all countries that should be considered as high-risk countries, and thresholds for each item.

**High usage**
The high usage alarms detect subscribers making calls representing high amounts of money. The number of time periods is flexible, as the duration of each period. The high usage alarm can be based on different quantitative units, such as monetary value, duration, number of calls, and percentage of total monetary value.

**International call collision**
As the call collision alarm, this alarm detects situations where two calls are being made at the same time from the same handset. This is an indication of cloning. This alarm does however analyse roaming data to detect cloned phones that are used abroad.

**International velocity**
As the velocity alarm, this alarm detects situations where two calls are being made from the same handset, and the distance between the locations where the calls have been made is abnormal considering the time span between the calls. This is an indication of cloning. This alarm does however analyse roaming data to detect cloned phones that are used abroad.

**Multiple Destinations**
The multiple destinations alarm detects if a subscriber calls a high number of national destinations. The alarm configuration allows grouping all national prefixes into national destinations groups; the threshold is set as calling above a number of destinations within a time period.

**Prepaid**
WatchDog offers the following prepaid alarms.

**Rating validation.** This alarm is generated if the prepaid CDRs pre-rated amount differs more then x percent or a fixed amount against the WatchDog rating.

**Prepaid audit.** This alarm is generated if a prepaid customer, who is not activated in the prepaid platform, is making calls.

**Internal prepaid fraud.** This alarm is generated if a prepaid customer makes calls that are not being registered in the prepaid platform. This is an indication of that the subscriber is activated in the switch and not in the prepaid platform.

**Multiple loading of prepaid account.** This alarm is generated if a prepaid customer loads his account more times than the alarm threshold.

**High amount on status.**

This alarm is generated if a prepaid customer's account balance exceeds the alarm threshold. The account balance files must be fed to Watchdog and can be configured by subscriber type.

**High amount on prepaid account in CDR.** This alarm is generated if a prepaid customer's account balance in the CDR exceeds the alarm threshold.

**Load several accounts with same voucher.** This alarm is generated if several prepaid accounts have been loaded using the same voucher (PIN code).

**Profiling**
The profiling functionality is analysis tools intended to detect two types of events, cloning and known fraudsters that return to the network. Cloning can be detected by comparing the calling pattern for one subscriber but during two different time periods. The known pattern analysis compares a subscriber's calling pattern to known fraudsters' calling patterns.

**Roaming partners**
This command controls high usage settings for visiting roamers. The settings include a list of the roaming partners, and functionality to automatically send information to them about their subscriber's usage.

**Same called number**
This alarm is generated if a subscriber calls the same number more than a specified number of times and within a specified period of time.

**Short duration calls**
If a subscriber exceeds a number of short duration calls, an alarm will be generated.

**Switch audit**
This alarm detects subscribers that are activated in the switch but not in the billing system.

**Tumbling**
The tumbling alarm detects situations of two types. Tumbling handset means that one subscriber (MIN/IMSI) is using many different handsets (ESN/IMEI). Tumbling subscriber means that one handset (ESN/IMEI) is being used by many different subscribers (MIN/IMSI).

**Used services**
An alarm will be generated if a subscriber is using services that are not included in the subscription.

**Velocity**
The velocity alarm detects situations where two calls are being made from the same handset, and the distance between the locations where the calls have been made is abnormal considering the time span between the calls. This is an indication of cloning.

**Zero usage**
As opposed to the high usage alarm, WatchDog offers a zero usage alarm. If a subscription is not used for a specified period of time, an alarm will be generated.

## General alarm settings

**Severity level**
One way to simplify the ranking of alarms in order of priority is to use the severity level field. Each alarm can be classified in terms of severity and this value can be used when sorting generated alarms in the alarms list.

For each alarm type, either of the following severity levels can be selected.

**1** Lowest

**2** Low

**3** Medium

**4** High

**5** Highest

**On/Off**
All alarms can be turned on and off.

**On** The alarm is activated, i.e. alarms of this type can be generated. It is possible to make changes to the alarm settings.

**Off** The alarm is deactivated, i.e. alarms of this type cannot be generated. It is not possible to make changes to the alarm settings.

## Interface symbols

The user interface makes use of a set of general symbols for different tools. These tools and symbols are listed and described below.

| | | |
|---|---|---|
|  | **Add** | Add a new setting item. |
|  | **Edit** | Edit an existing setting item. Select the item to edit and click this symbol. |
|  | **Delete** | Delete an existing item. Select the item to delete and click this symbol. A deletion will also have to be confirmed. |

**Properties** Some of the alarm settings have general settings that apply to all setting items. Click this symbol to access these settings.

# Call Collision

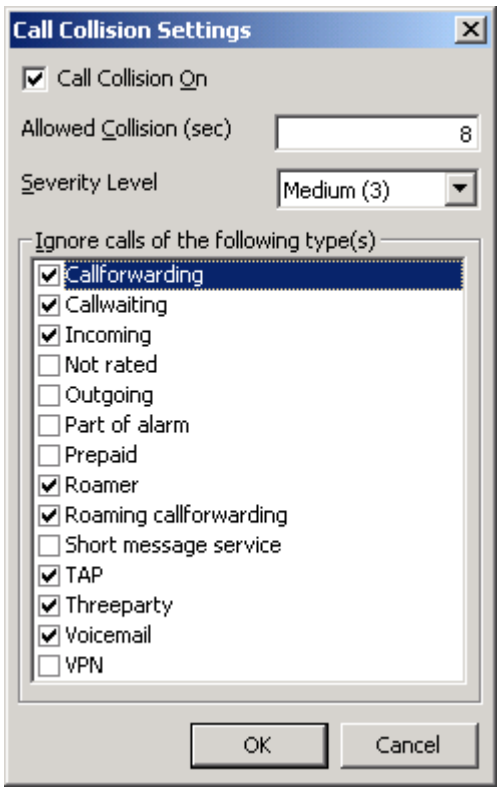
## Overview

The call collision alarm detects situations where two calls are being made at the same time from the same handset. This is an indication of cloning.

**Access the call collision alarm settings**
To access the **Call Collision** alarm settings, point to **Alarm Settings** on the **Admin** menu, and click **Call Collision**.

## The settings

The **Call Collision Settings** window looks as follows.




The following settings are available.

| | |
|---|---|
| **On** | Select the **On** check box to activate the alarm. |
| **Allowed Collision** | If call collision is allowed for a certain |

| | |
|---|---|
| **(sec)** | time, due to e.g. non-synchronised switches, this time is specified here. |
| **Severity level** | The grade of importance for this type of alarm. |
| **Ignore calls of the following type(s)** | Some call types always give raise to call collisions and we do not want alarms to be generated for these cases. An example is calls put on hold, while an ongoing call is being finished. These settings allow exclusion of these call types.<br>Select the call types that should be ignored in the call collision analysis. |

# Credit Limit

## Overview

The credit limit alarm detects subscribers that exceed the credit limit set in the billing system. The alarm is based on call data, information that is sent from the billing system, and alarm settings. The settings allow detection of subscribers before they exceed the credit limit.

To make this alarm work, information such as each subscriber's credit limit and current account balance has to be provided. Additional information that can be used in the analysis is line rent, e.g. fixed monthly fees a subscriber has to pay and hence should be included in the credit limit calculation.

**Alarm parameters**
The credit limit alarm uses the following parameters to calculate if a subscriber has exceeded the credit limit.

| Value | Description | Source |
|---|---|---|
| **Unbilled amount** | The unbilled amount is an aggregation of call charges backwards from now to the date of the last invoice (according to the subscriber file). If specific dates are specified they are used. The calculation of charges is based on information from the WatchDog calls history database. | Calculated by WatchDog based on the call information in the database |
| **Line Rent** | The line rent amount is the monthly subscription fee per rate plan. | Setting in the WatchDog client in combination with tariff plan |

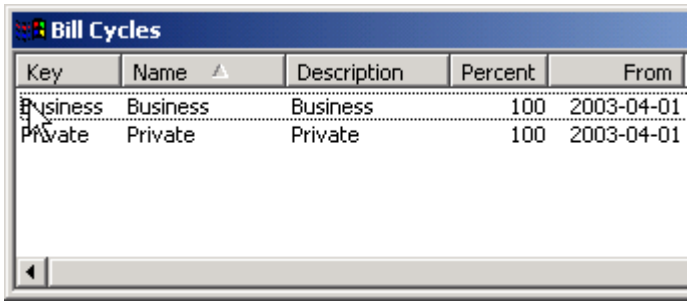
| | | |
|---|---|---|
| | | in subscriber file |
| **Balance** | The subscriber's current credit balance, i.e. the total billed amount that yet hasn't been paid. | Subscriber file |
| **Credit Limit** | The maximum amount a subscriber is allowed to spend in the network without being billed. | Subscriber file |
| **Credit Limit Threshold** | If total usage is greater than credit limit, an alarm is generated. | Setting in the WatchDog client |
| **Last invoice date** | The date when the latest invoice was sent. | Subscriber file |
| **Bill cycle** | The bill cycle is used to specify for which subscribers the current alarm generation should be run. This value is matched between the subscriber file and the alarm settings in the WatchDog client. | Subscriber file and settings in the WatchDog client |
| **Tariff plan** | The tariff plan value is used to specify the line rent for different subscribers. This value is matched between the subscriber file and the alarm settings in the WatchDog client. | Subscriber file and settings in the WatchDog client |

**Access the credit limit alarm settings**
To access the **Credit Limit** alarm settings, point to **Alarm Settings** on the **Admin** menu, then point to **Credit Limit**, and click **Bill Cycles** or **Tariff Plans**.

## Bill cycles

The bill cycle settings are used to configure if the exact credit limit amount should be used or if a percentage of the credit limits should be used. These settings are also used to configure the time period for the alarm generation.

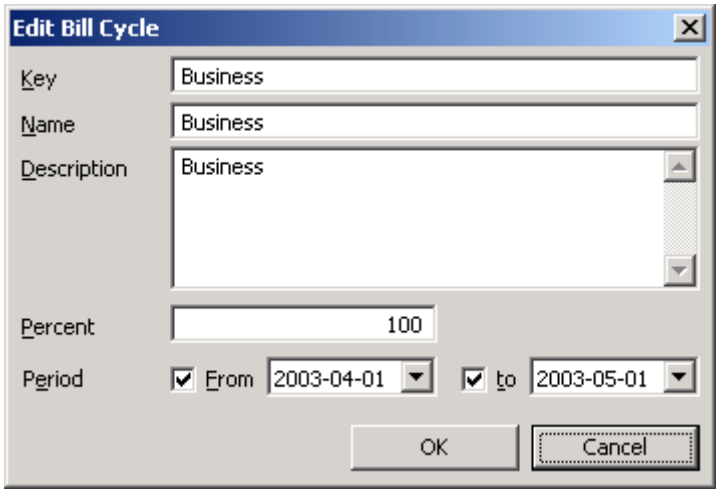
The bill cycles list looks as follows.




**Search for non-registered bill cycles**
The subscriber file may contain bill cycles that have not been defined in WatchDog. To verify this, click the **Search** icon on the toolbar.

If new bill cycles are found this is indicated by the following message box. New bill cycles will also be automatically added to the bill cycle list with standard settings.


**Editing bill cycles**
When editing bill cycles the following dialog box appears.




The following parameters are available.

**Key** The key name must be the exact name of the bill cycle as it appears in the subscriber file.

**Name** A name of the cycle.

**Description** A description of the cycle.

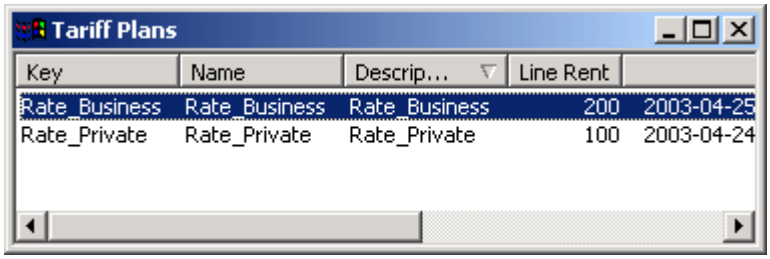
**Percent** The credit limit alarm can be run using a percentage of each subscriber's credit limit as threshold. If a subscriber has 250 as credit limit and this field is set to 90, a credit limit of 225 (250*0.9) will be used.

**Period** It is possible to define a time period for the credit limit alarm calculation. Select the **Period** check boxes to activate the settings. If this option is not activated, the **From** field will be set to the last invoice date according to the subscriber file and the **To** field will be set to today's date.

## Tariff plans

The tariff plan settings are used to define tariff plans and line rents for each tariff plan.

The tariff plan list looks as follows.



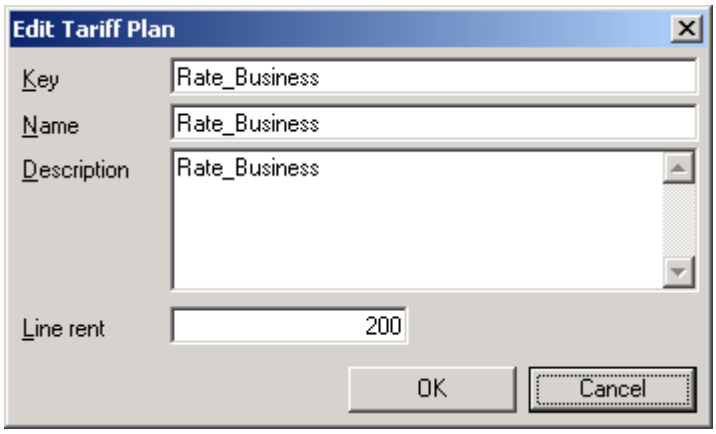

### Search for non-registered tariff plans

The subscriber file may contain tariff plans that have not been defined in WatchDog. To verify this, click the **Search** icon on the toolbar.

If new tariff plans are found this is indicated by the following message box. New tariff plans will also be automatically added to the bill cycle list with standard settings.


### Editing tariff plans

When editing tariff plans the following dialog box appears.




The following parameters are available.

**Key** The key name must be the exact name of the tariff plan as it appears in the subscriber file.

**Name** A name of the tariff plan.

**Description** A description of the tariff plan.

**Line Rent** The line rent for the tariff plan.

### Credit Limit Alarm Execution

To start the execution of the credit limit alarm, point to **Actions** in the **Admin** menu and select **Credit Limit Alarm…**.

Please refer to the **Actions** chapter for more information.

### Alarm presentation

If alarms are generated they appear in the **Alarms** list as seen below.

| | | |
|---|---|---|
| Credit Limit | 126 GBP | [Credit Limit Alarm: (100 + 16.66( |
| Credit Limit | 230 GBP | [Credit Limit Alarm: (0 + 200 + 30 |

The Info column contains details about each alarm.

Example: [Credit Limit Alarm: (100 + 16.6667 + 10)>100% of 50

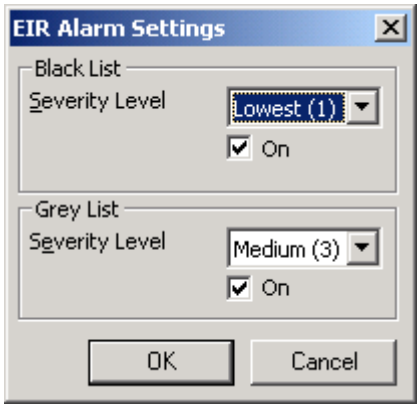
The following information is included:

(Unbilled + Line Rent + Balance) > Percentage of Credit limit of Actual Credit Limit.

## The EIR Alarm

The EIR alarm is specific for GSM networks. An EIR, Equipment Identity Register, is used to prevent calls from stolen or unauthorized handsets. The switches will list call attempts from handsets that are not valid according to the EIR. WatchDog can collect these lists and display them for the user.

The **EIR Alarm Settings** window looks as follows.




The following information should be specified.

**Black list**
The black list contains handsets that of some reason are barred. The switch rejects call attempts from these handsets.

**Severity level** The grade of importance for this type of alarm.

**On** Select the **On** check box to activate the alarm. Call attempts by black listed handsets will be collected from the switches and listed in WatchDog.

**Grey list**
Grey listed handsets are allowed to access the network but the traffic will be tracked.

**Severity level** The grade of importance for this type of alarm.

**On** Select the **On** check box to activate the alarm. Calls by grey listed handsets will be collected from the switches and listed in WatchDog.

# Exclusions

## Overview

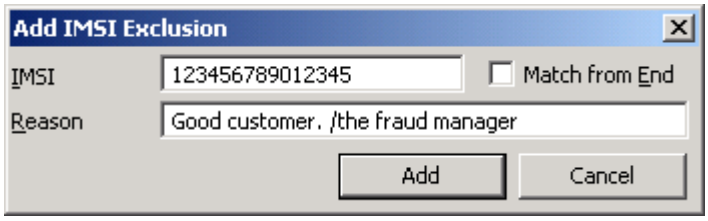
It is possible to exclude values from some alarm analyses. This concerns subscribers from the high usage alarm and handsets from the tumbling subscriber alarm.

## High usage IMSI

IMSI numbers added to this list will not be included in the analysis for high usage alarms. This is useful e.g. for subscribers

that use their subscriptions frequently but have a history of paying their bills.

When adding IMSI numbers to this list, the following dialog box appears.




The following information should be specified.

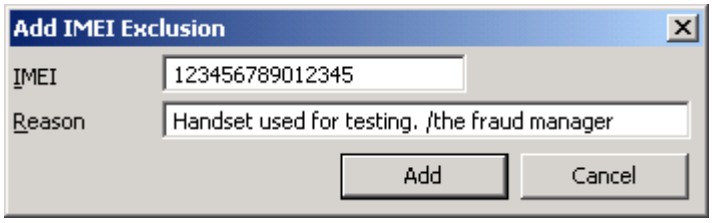
**IMSI** The IMSI number that should be excluded.

**Reason** A comment why the IMSI number has been added to the list.

### Tumbling IMEI

IMEI numbers added to this list will not be included in the analysis for tumbling subscribers. This is useful e.g. if there are handsets that are used with different SIM cards for test purposes or for handsets that are rented out.

When adding IMEI numbers to this list, the following dialog box appears.




The following information should be specified.

**IMEI** The IMEI number that should be excluded.

**Reason** A comment why the IMEI number has been added to the list.

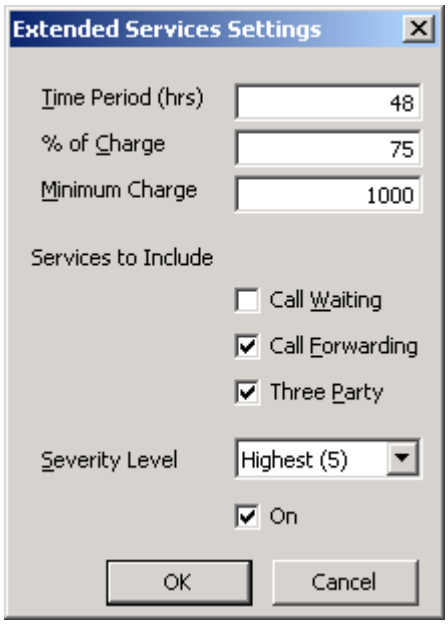
## Extended Services

### Overview

This alarms detects subscriptions with a high usage of extended services relative to the total usage. Extended services include services such as call forwarding, call waiting, and three party calls. Via this command it is possible to activate alarms for different services and sets thresholds for each service.

## The settings

The **Extended Services** window looks as follows.




The following parameters should be specified.

| | |
|---|---|
| **Time period** | The usage analysis will be performed for the time span set by this parameter. |
| **% of Charge** | This value indicates the maximum percentage (%) of a subscriber's calling amount that is allowed to be "call waiting", "call forwarding", "three party", etc., before an alarm is generated. The percentage applies to the time period set in the first parameter. |
| **Minimum charge** | Alarms may not be relevant if the total value of the analysed calls is low. This parameter indicates the minimum value of the calls that has to be exceeded before an alarm can be generated. |
| **Services to include** | Select the services that should be included in the alarm analysis. At least one option has to be selected. |
| **Severity level** | The grade of importance for this type of alarm. |
| **On** | Select the **On** check box to activate the alarm. |

# Extended EDR Validation

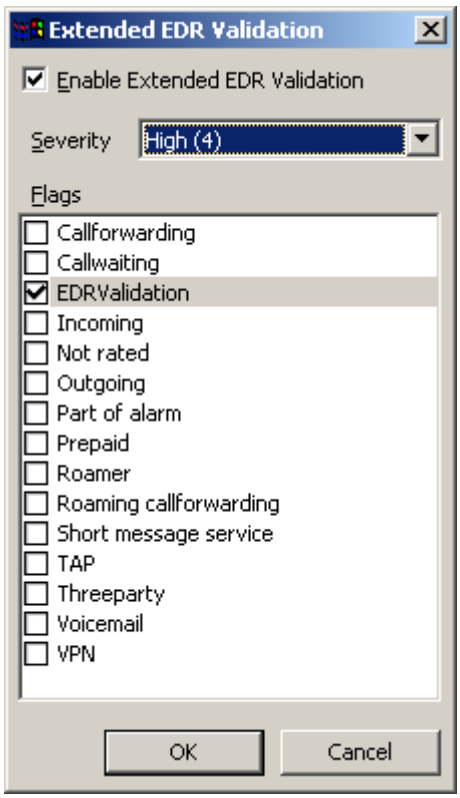
## Overview

The Extended EDR validation alarm allows WatchDog to verify and alarm if the raw CDR does not fulfil any set requirement. The configuration of this alarm is flexible and normally the check is done on the raw CDRs. If e.g. a subscriber is a prepaid subscriber the raw CDR must contain a specific set of information to be considered valid. WatchDog can perform this check and alert if the CDRs are not complying with the rules. This alarm is used to detect internal fraud or incorrect configuration in switches.

Note! The rules that should be utilized must be verified and implemented by Basset.

## The settings

The **Extended EDR Validation** window looks as follows.




The following parameters should be specified.

| | |
|---|---|
| **Enable Extended EDR Validation** | Select this check box to activate the alarm. |
| **Flags** | Select the flag that the Extended CDR Validation should verify. WatchDog supports selection of one or several flags. |

| | |
|---|---|
| **Severity level** | The grade of importance for this type of alarm. |

# Lists

## Overview

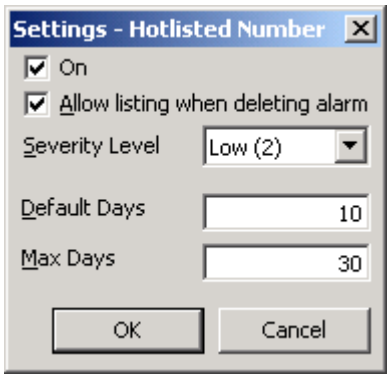
WatchDog offers a number of ways to keep track of network usage. This can be done specifically for certain telephone numbers, handsets, and cell sites, and either via the blacklist or the hotlist functionality.

**Blacklist**
It is possible to blacklist telephone numbers (A numbers), telephone units, and cell sites. This means that WatchDog will generate alarms each time any of the listed items are being used. This alarm can be used for investigating the behaviour of a certain subscriber or to keep track of the traffic from a certain area.

**Hotlist**
It is possible to hotlist telephone numbers (B numbers), telephone units, and cell sites. This means that WatchDog will generate alarms each time a call is made to any of the listed items. This alarm can be used for investigating which subscribers that are using a certain service.

## The Lists properties

There is a set of property settings for the list. Click the **List Properties symbol** to open the property settings dialog box.




The following property settings are available.

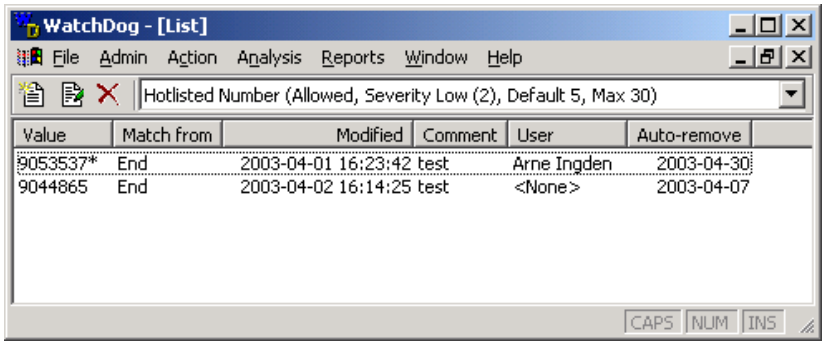
| | |
|---|---|
| **On** | Select the **On** check box to activate the **Lists** alarm. |
| **Allow listing when deleting alarms** | When deleting alarms from the alarms list, the subscribers can be black- and/or hotlisted from the **Delete** dialog box. |

| | |
|---|---|
| | Select this check box to enable this functionality. |
| **Severity level** | The grade of importance for this type of alarm. |
| **Default days** | When adding items to the lists, an expiration date can be specified. This parameter is used to calculate a default value for this date. The default expiration date will be set to the current date plus the number of days specified here. |
| **Max days** | When adding items to the lists, an expiration date can be specified. This parameter is used to set the maximum number of days it should be possible to list an item at each time. |

## The Lists settings

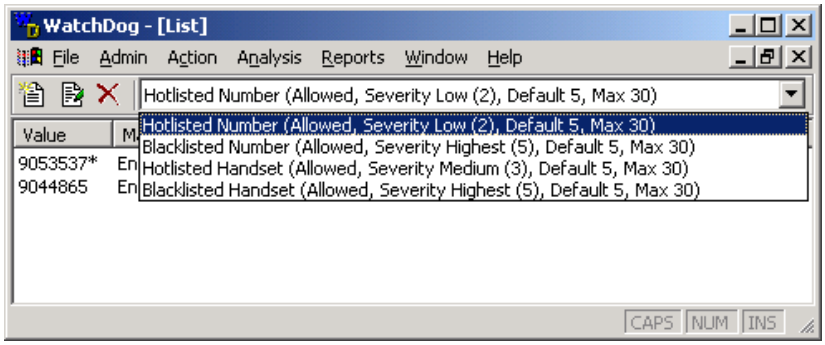
### The Lists window

When the **Lists** functionality is accessed, the following window appears.




### The Lists alternatives

There are six alternatives to set up black- and hotlists. They can all be selected from an item list.



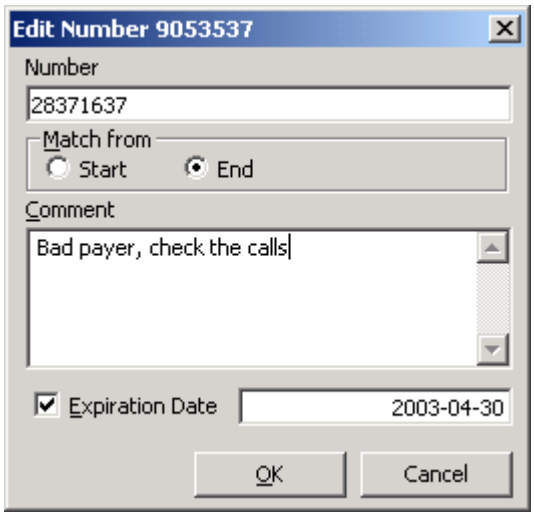

The following alternatives available.

- Hotlisted Number

- Blacklisted Number
- Hotlisted Handset
- Blacklisted Handset

Select an alternative and the existing settings, which correspond to the alternative, appear in the list.

**Edit the lists**
When editing the list settings, the following dialog box appears.




The **Edit** dialog box includes the following parameters. Enter the appropriate values, and click **OK** to save the settings.

**Item ID** The identification number of the item that should be black- or hotlisted. It could be either of the following values:

| | |
|---|---|
| **Hotlisted number** | B number. WatchDog will generate an alarm each time someone makes a call to this number. |
| **Blacklisted number** | A number. WatchDog will generate an alarm each time someone makes a call from this number. |
| **Hotlisted handset** | Handset ID (IMEI/ESN). WatchDog will generate an alarm each time someone makes a call to this handset. |
| **Blacklisted handset** | Handset ID (IMEI/ESN). WatchDog will generate an alarm each time someone makes a call from this handset. |

**Match from** The item ID doesn't have to be specified as a complete number. Parts of it can be entered and the value can then be matched to the call data.

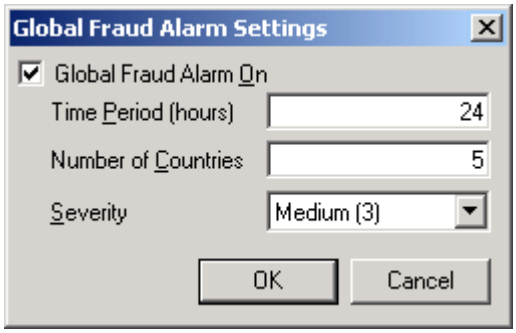
| | | |
|---|---|---|
| | **Start** | The item ID will be matched to the first positions of the call data id field. |
| | **End** | The item ID will be matched to the last positions of the call data id field. |
| **Reason** | A reason for adding an item to the list. | |
| **Expiration date** | If a date is specified, this setting item will be valid only to this date. Also select the check box, if this date should be active. | |

# Global Fraud

This alarm is generated if a subscriber calls more than a specified number of different countries within a specified period of time.

## The settings

The **Global Fraud Alarm Settings** window looks as follows.




The following parameters should be specified.

| | |
|---|---|
| **Global Fraud Alarm On** | Select the **Global Fraud Alarm On** check box to activate the alarm. |
| **Time period (hours)** | The **Time Period** parameter specifies the time span during which the number of countries should be calculated. |
| **Number of Countries** | If a subscriber is making calls to a minimum of this number of countries during the specified time period, an alarm will be generated. |
| **Severity** | The grade of importance for this type of alarm. |

# High-risk Cell Sites

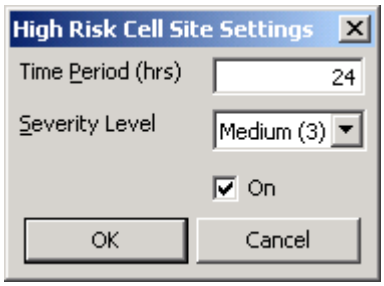
This alarm is a complement to the high usage alarm, enabling lower thresholds for calls from certain cell sites. The settings include a list of the cell sites that should be considered as high-risk cell sites, and thresholds for each cell site.

The settings consist of two parts, general settings and the high-risk cell site list. The cell site list is the same list that is used in the Velocity alarm. The general settings specify the time period that should be applied for the alarm analysis. The high-risk cell site list specifies the cell site-specific thresholds.

All parameters are described in the following sections.

## General settings

The parameters on the **High-risk Cell Site Settings** window apply to all setting items in the high-risk cell site list. It looks as follows.

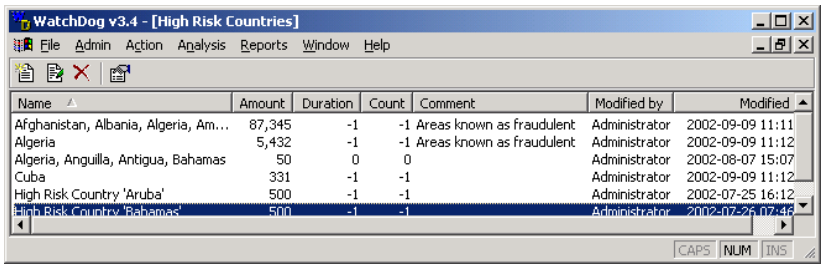



The following parameters should be specified.

| | |
|---|---|
| **Time period** | Each high-risk cell site has a threshold that specifies how much a subscriber is allowed to call from this cell site. This value is specified in the **High-risk Cell site List** window. The **Time Period** parameter specifies the time span during which the value should be calculated. |
| **Severity level** | The grade of importance for this type of alarm. |
| **On** | Select the **On** check box to activate the alarm. |

## The High-risk Cell site List

The high-risk cell site list is used to set the cell site-specific thresholds. The **High-risk Cell site List** window looks as follows.




The following information is available. Please see the edit settings section for more information about each field.

**Name** The name of the item.

**Amount** The maximum allowed amount of calls from the cell sites in the current item.

**Duration** The maximum allowed total duration for calls from the cell sites in the current item.

**Count** The maximum allowed number of calls from the cell sites in the current item.

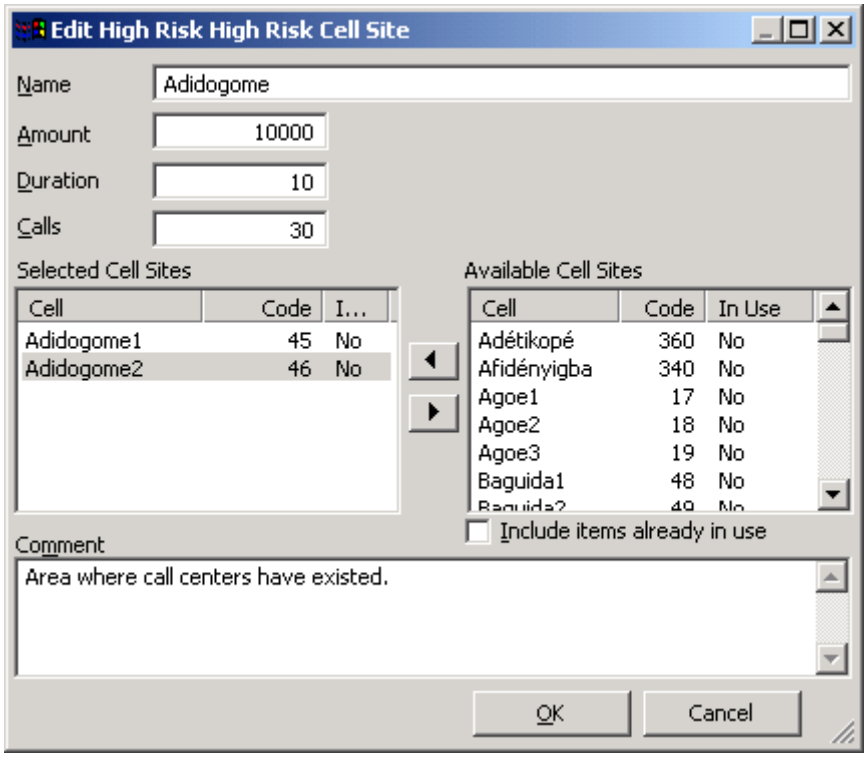
**Comment** A description of the item.

**Modified by** The user name of the user who latest updated the item.

**Modified on** The date and time when the item was latest updated.

It is possible to add, edit, and remove any number of cell sites in the list. When making changes to the settings, the following window appears.

Note! When an alarm is created, it is connected to the settings item, which specify the thresholds the alarm was based on. The name of the alarm in the **Alarms** list is the name of the settings item. If the name is changed, also the name of the alarm will change.




The following parameters should be specified.

**Name** An arbitrary name can be given to each list item. This may be useful e.g. if cell sites are handled in groups.

**Amount** The usage threshold in local currency. The threshold applies to the period of time that is specified in the general settings. If a subscriber calls from the specified cell site, and the value of the calls exceeds this value, an alarm will be generated.

**Duration** The usage threshold in duration. The threshold applies to the period of time that is specified in the general settings. If a subscriber calls from the specified cell site, and the total duration of the calls exceeds this value, an alarm will be generated.

**Calls** The usage threshold in number of calls. The threshold applies to the period of time that is specified in the general settings. If a subscriber makes a number of calls from the specified cell site that exceeds this value, an alarm will be generated.

**Selected cell site codes** A list of the cell sites, which are included in the current item. To add a cell site to the list, select it in the **Available cell site codes** list and click the left arrow.

**Available cell** A list of the cell sites, which are available for

| | |
|---|---|
| **site codes** | the high-risk cell site settings. Please also refer to **Selected cell site codes** for more information. |
| **Comment** | A comment about the current item. |

# High-risk Countries

This alarm is a complement to the high usage alarm, enabling lower thresholds for calls to certain countries. The settings include a list of the countries that should be considered as high-risk countries, and thresholds for each country.

The settings consist of two parts, general settings and the high-risk country list. The general settings specify the time period that should be applied for the alarm analysis and the high-risk country list the country-specific thresholds.

All parameters are described in the following sections.

## General settings

The parameters on the **High-risk Countries Settings** window apply to all countries in the high-risk country list. It looks as follows.

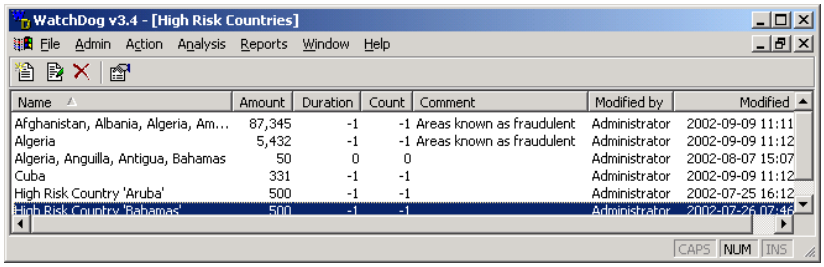

The following parameters should be specified.

| | |
|---|---|
| **Time period** | Each high-risk country has a threshold that specifies how much a subscriber can make calls to this country. This value is specified on the **High-risk Country List** window. The **Time Period** parameter specifies the time span during which the value should be calculated. |
| **Severity level** | The grade of importance for this type of alarm. |
| **On** | Select the **On** check box to activate the alarm. |

## The High-risk Country List

The high-risk country list is used to set the country-specific thresholds. The **High-risk Country List** window looks as follows.

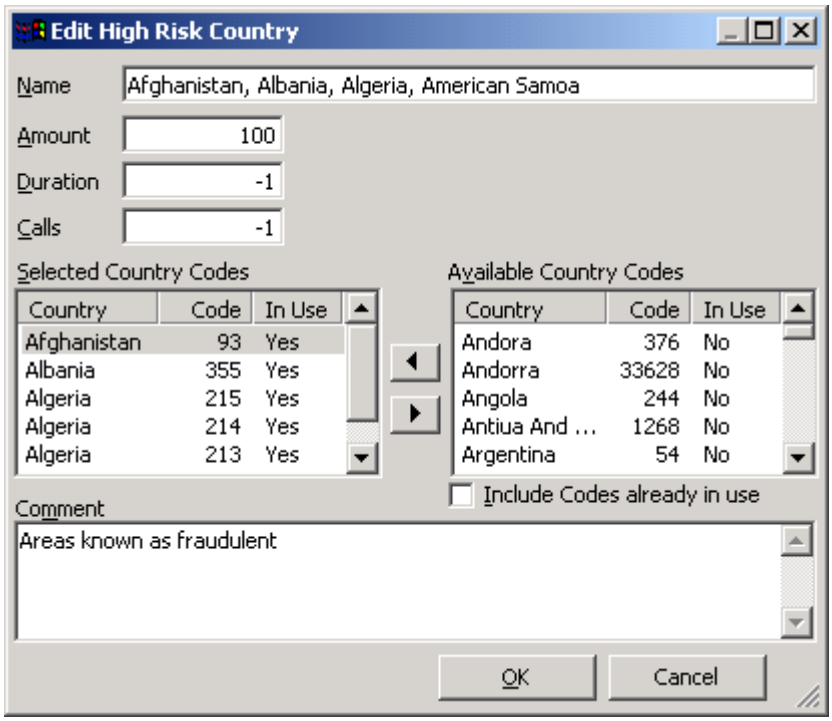
Note! When an alarm is created, it is connected to the settings item, which specify the thresholds the alarm was based on. The name of the alarm in the **Alarms** list is the name of the settings item. If the name is changed, also the name of the alarm will change.




The following information is available. Please see the edit settings section for more information about each field.

| | |
|---|---|
| **Name** | The name of the item. |
| **Amount** | The maximum allowed amount of calls to the countries in the current item. |
| **Duration** | The maximum allowed total duration for calls to the countries in the current item. |
| **Count** | The maximum allowed number of calls to the countries in the current item. |
| **Comment** | A description of the item. |
| **Modified by** | The user name of the user who latest updated the item. |
| **Modified on** | The date and time when the item was latest updated. |

It is possible to add, edit, and remove any number of countries in the list. When making changes to the settings, the following window appears.




The following parameters should be specified.

**Name** An arbitrary name can be given to each list item. This may be useful e.g. if countries are handled in groups.

**Amount** The usage threshold in local currency. The threshold applies to the period of time that is specified in the general settings. If a subscriber calls to the specified country, and the value of the calls exceeds this value, an alarm will be generated.

**Duration** The usage threshold in duration. The threshold applies to the period of time that is specified in the general settings. If a subscriber calls to the specified country, and the total duration of the calls exceeds this value, an alarm will be generated.

**Calls** The usage threshold in number of calls. The threshold applies to the period of time that is specified in the general settings. If a subscriber makes a number of calls to the specified country that exceeds this value, an alarm will be generated.

**Selected country codes** A list of the countries, which are included in the current item. To add a country to the list, select it in the **Available country codes** list and click the left arrow.

**Available country codes** A list of the countries, which are available for the high-risk country settings. Please also refer to **Selected country codes** for more

| | |
|---|---|
| | to **Selected country codes** for more information. |
| **Comment** | A comment about the current item. |

# High Usage

The high usage alarms detect subscribers making calls representing high amounts of money. The number of time periods is flexible, as the duration of each period. The high usage alarm can be based on different quantitative units, such as monetary value, duration, number of calls, and percentage of total monetary value.

## High usage units

The high usage settings can be made based on a number of units.

**Time periods**
The high usage alarms are divided into three different time periods, deciding for how long time calling data (CDR's) should be included in the high usage calculation:

- Short – normally 8 hours
- Medium – normally 24 hours
- Long – normally 14 days

**Call types**
The alarms are also divided into different call types:

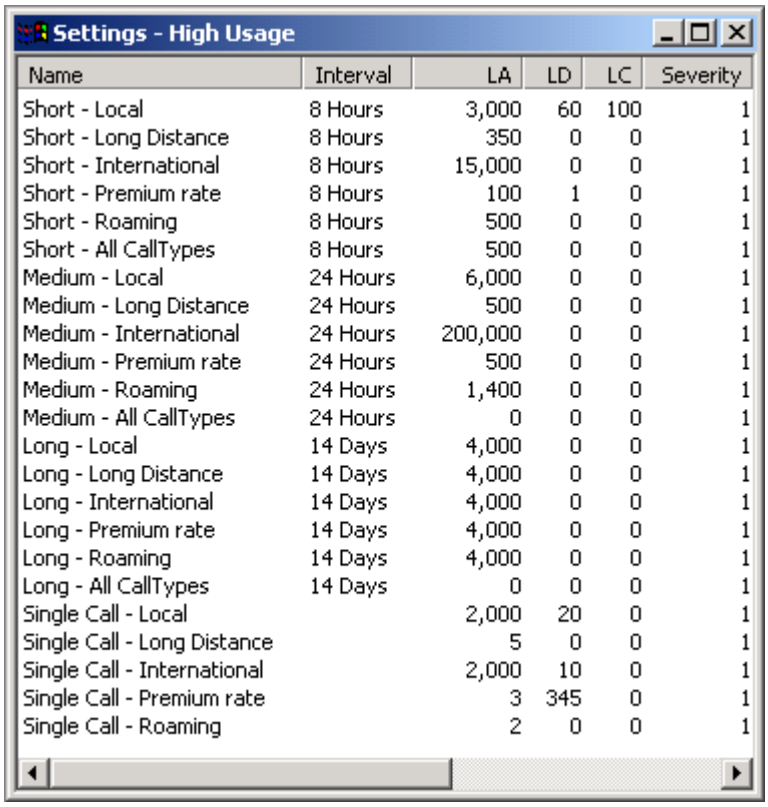
- All calls
- Local calls
- Long distance calls
- International calls
- Calls to premium rate numbers
- Roaming

**Quantitative units**
Three different quantitative units can be used when setting the high usage thresholds:

- Amount
- Duration
- Number of calls

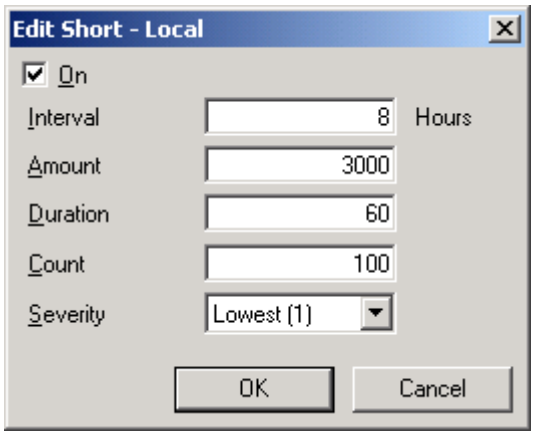
## Edit the settings

When editing the high usage settings, a list of the current settings appears.




| Name | Interval | LA | LD | LC | Severity |
|---|---|---|---|---|---|
| Short - Local | 8 Hours | 3,000 | 60 | 100 | 1 |
| Short - Long Distance | 8 Hours | 350 | 0 | 0 | 1 |
| Short - International | 8 Hours | 15,000 | 0 | 0 | 1 |
| Short - Premium rate | 8 Hours | 100 | 1 | 0 | 1 |
| Short - Roaming | 8 Hours | 500 | 0 | 0 | 1 |
| Short - All CallTypes | 8 Hours | 500 | 0 | 0 | 1 |
| Medium - Local | 24 Hours | 6,000 | 0 | 0 | 1 |
| Medium - Long Distance | 24 Hours | 500 | 0 | 0 | 1 |
| Medium - International | 24 Hours | 200,000 | 0 | 0 | 1 |
| Medium - Premium rate | 24 Hours | 500 | 0 | 0 | 1 |
| Medium - Roaming | 24 Hours | 1,400 | 0 | 0 | 1 |
| Medium - All CallTypes | 24 Hours | 0 | 0 | 0 | 1 |
| Long - Local | 14 Days | 4,000 | 0 | 0 | 1 |
| Long - Long Distance | 14 Days | 4,000 | 0 | 0 | 1 |
| Long - International | 14 Days | 4,000 | 0 | 0 | 1 |
| Long - Premium rate | 14 Days | 4,000 | 0 | 0 | 1 |
| Long - Roaming | 14 Days | 4,000 | 0 | 0 | 1 |
| Long - All CallTypes | 14 Days | 0 | 0 | 0 | 1 |
| Single Call - Local | | 2,000 | 20 | 0 | 1 |
| Single Call - Long Distance | | 5 | 0 | 0 | 1 |
| Single Call - International | | 2,000 | 10 | 0 | 1 |
| Single Call - Premium rate | | 3 | 345 | 0 | 1 |
| Single Call - Roaming | | 2 | 0 | 0 | 1 |

When editing an item, the following dialog box is used.




The following information should be specified.

| | |
|---|---|
| **On** | Select the **On** check box to activate this alarm. |
| **Interval** | This value specifies the length of the period for which this alarm should apply to. |

| | |
|---|---|
| **Amount** | An alarm will be generated if the total value of the calls that a subscriber makes within the time period exceeds this value. |
| **Duration** | An alarm will be generated if the total duration of the calls that a subscriber makes within the time period exceeds this value. |
| **Count** | An alarm will be generated if the number of calls that a subscriber makes within the time period exceeds this value. |
| **Severity** | The grade of importance for this type of alarm. |

# International Call Collision

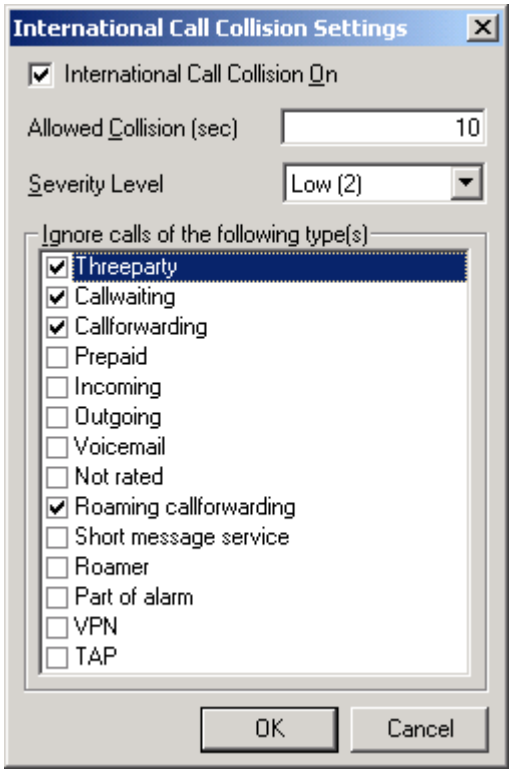
## Overview

As the call collision alarm, this alarm detects situations where two calls are being made at the same time from the same handset. This is an indication of cloning. This alarm does however analyse roaming data to detect cloned phones that are used abroad.

**Access the international call collision alarm settings**
To access the **International Call Collision** alarm settings, point to **Alarm Settings** on the **Admin** menu, and click **International Call Collision**.

## The Lists properties

The **International Call Collision Settings** window looks as follows.




The following settings are available.

| | |
|---|---|
| **International Call Collision On** | Select the **International Call Collision On** check box to activate the alarm. |
| **Allowed Collision (sec)** | If call collision is allowed for a certain time, due to e.g. non-synchronised switches, this time is specified here. |
| **Severity level** | The grade of importance for this type of alarm. |
| **Ignore calls of the following type(s)** | Some call types always give raise to call collisions and we do not want alarms to be generated for these cases. An example is calls put on hold, while an ongoing call is being finished. These settings allow exclusion of these call types.<br>Select the call types that should be ignored during the call collision analysis. |
| **On** | Select the **On** check box to activate this alarm. |

# International Velocity

## Overview

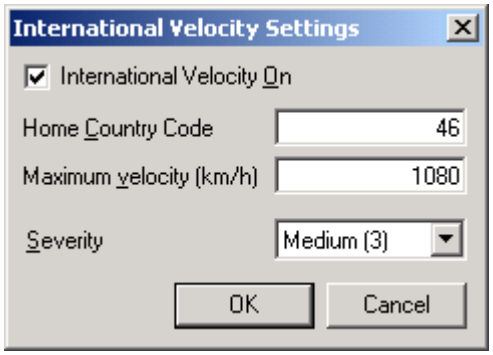
As the velocity alarm, this alarm detects situations where two calls are being made from the same handset, and the distance between

the locations where the calls have been made is abnormal considering the time span between the calls. This is an indication of cloning. This alarm does however analyse roaming data to detect cloned phones that are used abroad.

**Access the international velocity settings**
To access the **International Velocity** alarm settings, point to **Alarm Settings** on the **Admin** menu and point to **International Velocity**.

### Settings

The **International Velocity Settings** window looks as below.




The following parameters are available.

| | |
|---|---|
| **International Velocity On** | Select the **International Velocity On** check box to activate the alarm. |
| **Home Country Code** | The number that is dialled when making international calls to your country. |
| **Maximum velocity (km/h)** | The maximum speed a subscriber is allowed to travel at between making two calls in two different countries. |
| **Severity** | The grade of importance for this type of alarm. |

**Severity** The grade of importance for this type of alarm.

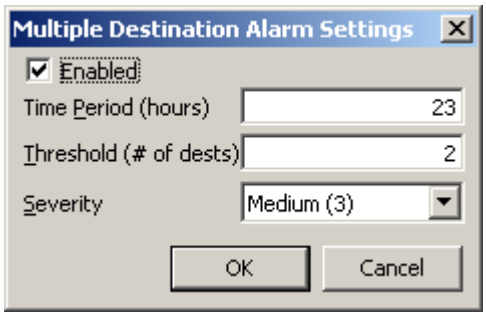
## Multiple destinations

The multiple destinations alarm detects if a subscriber calls a high number of national destinations. The alarm configuration allows grouping of all national prefixes into national destinations groups; the threshold is set as calling above a number of destinations within a time period.

All parameters are described in the following sections.

## General settings

The parameters on the **Multiple Destinations** window apply to all setting items in the multiple destinations list. It looks as follows.




The following parameters should be specified.

**Time period** The time period specifies in how many hours the threshold is calculated.

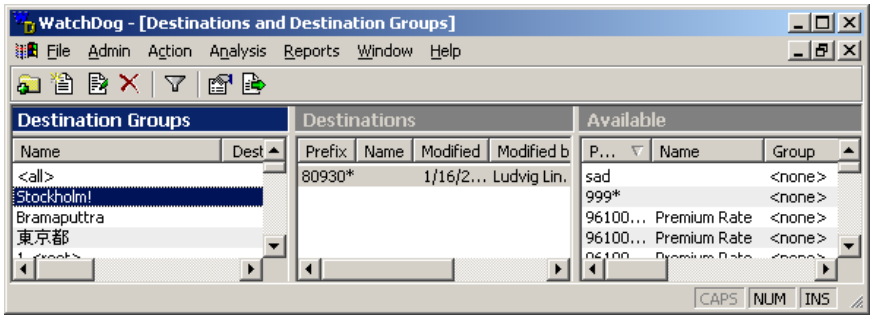
**Threshold** The multiple destinations alarm has a threshold that specifies how many a different destinations a subscriber is allowed to call. The alarm does not count a destination if the call is done within the destination from which the subscriber is calling.

**Severity level** The grade of importance for this type of alarm.

**Enabled** Select the **Enabled** check box to activate the alarm.

## The Multiple Destinations List

The **Multiple Destinations** list is used to configure destinations (prefixes) into groups. The **Multiple Destinations** window looks as follows.

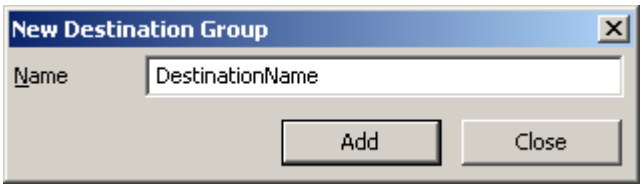



The settings are divided into three different panes: Destinations groups, Destinations and Available.

### Destinations Groups

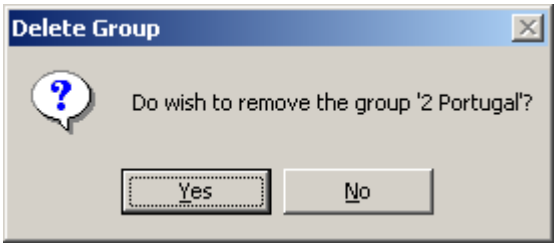
The **Destination Groups** list contains groups that can contain one or more destinations. By selecting a destination group all destinations that are configured to the selected destination group is displayed in the Destinations list.

To add a destination group click the **New Destination Group** button and enter a destination name.

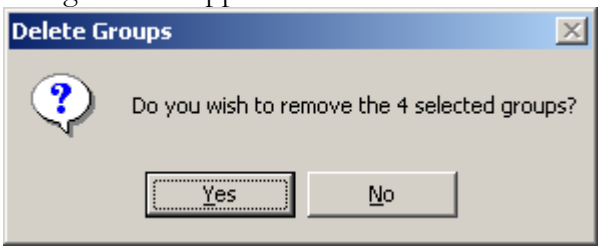



The destination will appear in the **Destination Group** list.

To remove destination groups click the **Remove** button and the selected Destination groups will be removed.




If more than one group is selected the following dialog box will appear.




To edit an existing destination click the **Edit** button or double click the destination group name in the list.

### Destinations

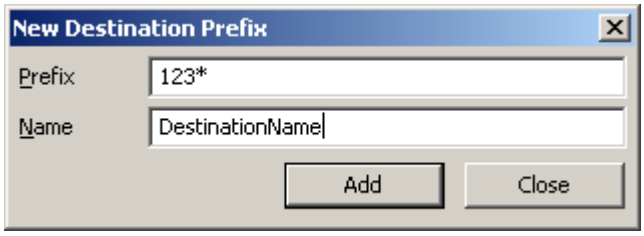
The **Destinations** list contains destinations for the selected destination group.

To move a destination between a **Destination group** and the **Available** list select the destination and press the Enter or Delete button.

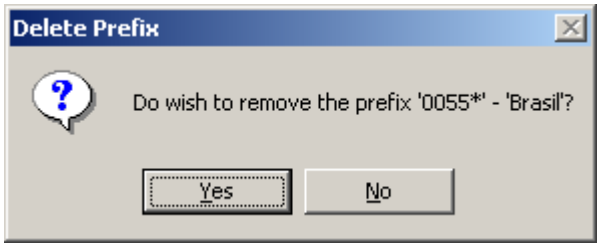
### Available

The **Available** list displays destinations (prefixes) that have not been grouped or all available destinations, depending on the filter setting.

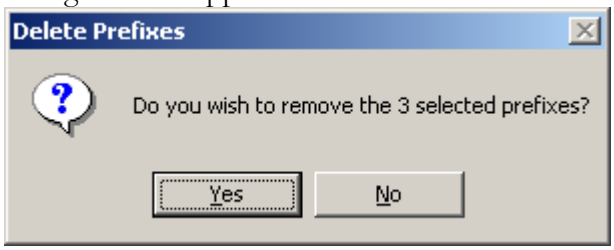
To add new destinations click the **Add** button. Depending on if the **Destinations** list or the **Available** list is selected; the new destination will be added to the selected list.




To delete a destination select the destination and click the **Delete** button.




If more then one destination is selected the following dialog box will appear.




To edit an existing destination, select an item and click the **Edit** button.

To import destinations from Basset's Rating Module click the **Import Destinations** button to open an Abacus Global file to import all available destination groups and destinations.

# Prepaid

WatchDog offers the following alarms to detect fraud committed in the area of prepaid calling.

**Rating Validation.** The Rating Validation alarm allows comparing the pricing performed in the prepaid platform and the pricing performed in WatchDog. If the pricing differs more then the threshold an alarm is generated.

**Prepaid audit.** This alarm is generated if a prepaid customer, who is not activated in the prepaid platform, is making calls.

**Internal prepaid fraud.** This alarm is generated if a prepaid customer makes calls that are not being registered in the prepaid platform. This is an indication of that the subscriber is activated in the switch and not in the prepaid platform.

**Multiple loading of prepaid account.** This alarm is generated if a prepaid customer loads his account more times than the alarm threshold.

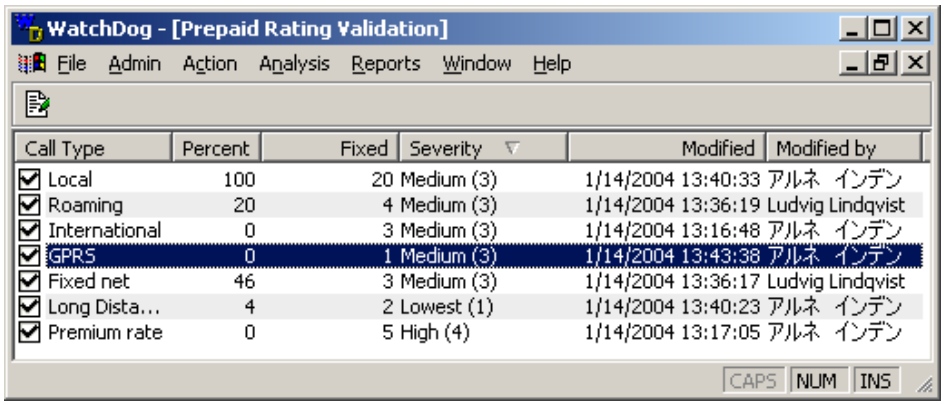
**High amount on status.** This alarm allows WatchDog to process files from the prepaid platform that contains account balance and subscriber type. Thresholds can then be set for maximum or minimum amount per subscriber type.

**High amount on prepaid account in CDR.** This alarm is generated if a prepaid customer's account balance specified in the CDR exceeds the alarm threshold.

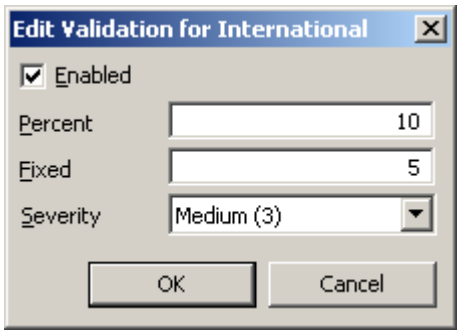
**Load several accounts with same voucher.** This alarm is generated if several prepaid accounts have been loaded using the same voucher (PIN code).

## Rating validation

The rating validation alarm allows comparing the pre-rated CDR with the Basset rating module price. If the price differs above or below the threshold an alarm is generated. The thresholds can be set per call type.




The following setting can be set per call type.



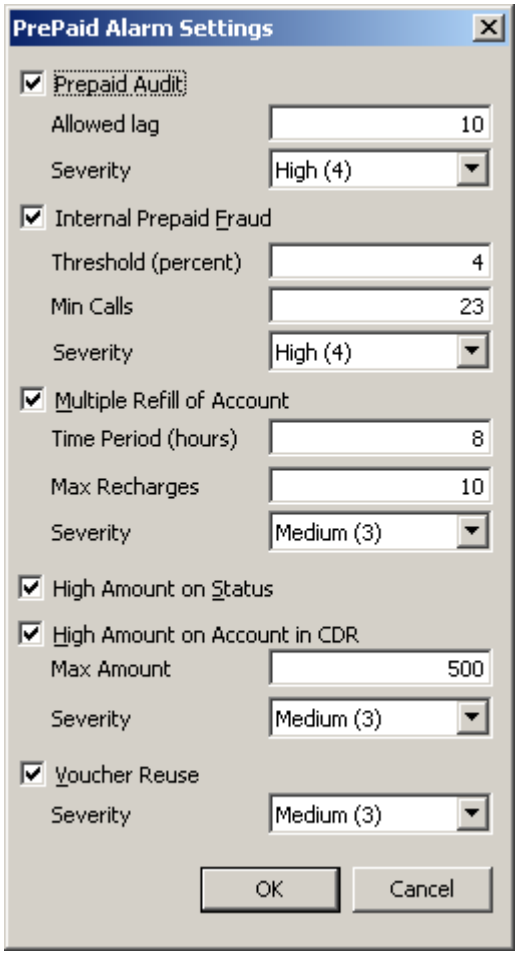

**Enabled** Select the Enabled check box to activate the alarm.

**Percent** If the pre-rated CDR and the WatchDog rating differs more then X percent an alarm is generated.

| | |
|---|---|
| **Fixed** | If the pre-rated CDR and the WatchDog rating differs more then X local money an alarm is generated. |
| **Severity** | The grade of importance for this type of alarm. |

## The settings

The **Prepaid Alarm Settings** window looks as follows.



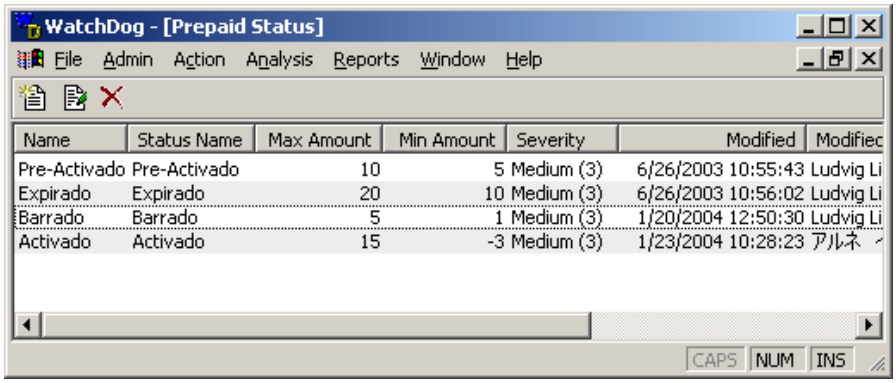

The following parameters should be specified.

| | |
|---|---|
| **Prepaid Audit** | Select the **Prepaid Audit** check box to activate the alarm. |
| **Allowed lag** | If a prepaid customer is not found in the prepaid subscriber file delivered from the prepaid platform, the reason may be that it is a new customer and that an updated file has not yet been delivered. WatchDog will not create the alarm until the number of hours specified here has passed, to allow a new file to arrive |

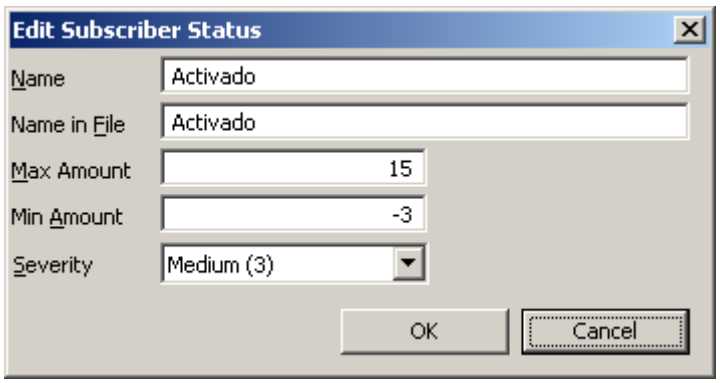
| | |
|---|---|
| | and hence not create false alarms. |
| **Severity** | The grade of importance for this type of alarm. |
| **Internal Prepaid Fraud** | Select the **Internal Prepaid Fraud** check box to activate the alarm. |
| **Severity** | The grade of importance for this type of alarm. |
| **Multiple Refill of Account** | Select the **Multiple Refill of Account** check box to activate the alarm. |
| **Time Period (hours)** | The **Time Period** parameter specifies the time span during which the number of refills should be calculated. |
| **Max Recharges** | If a minimum of this number of refills has been made within the specified time period, an alarm will be generated. |
| **Severity** | The grade of importance for this type of alarm. |
| **High amount on Status** | Select the **High amount on Status** check box to activate the alarm. To configure the alarm please refer to **Status** chapter below. |
| **High Amount on Account in CDR** | Select the **High Amount on Account in CDR** check box to activate the alarm. |
| **Max Amount** | If a subscriber's account balance reaches a minimum of this amount, an alarm will be generated. |
| **Severity** | The grade of importance for this type of alarm. |
| **Voucher Reuse** | Select the **Voucher Reuse** check box to activate the alarm. |
| **Severity** | The grade of importance for this type of alarm. |

## Status

The following settings applies for the **High amount on Status**, to set threshold for a maximum and minimum value for the subscriber account balance. The account balance is sent to WatchDog in file format.




The following settings can be set per subscriber status.

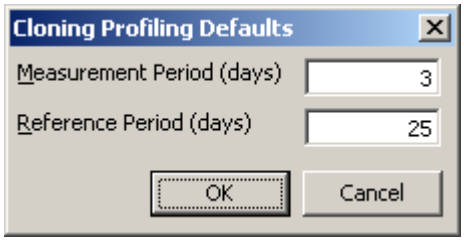



| | |
|---|---|
| **Name** | A name for the subscriber status. |
| **Name in File** | The exact name for the subscriber status as specified in the file. |
| **Max Amount** | The maximum account balance allowed. |
| **Min Amount** | The minimum account balance allowed. |
| **Severity** | The grade of importance for this type of alarm. |

# Profiling

The profiling functionality is analysis tools intended to detect two types of events, cloning and known fraudsters that return to the network. Cloning can be detected by comparing the calling pattern for one subscriber but during two different time periods.

These settings are used to set some rules and defaults values for these analyses. The **Profiling Settings** window looks as follows.




**Cloning defaults**
The cloning defaults settings are used for the cloning analysis, where one subscriber's calling pattern is analysed by comparing two different time periods. The analysis tool presents the called numbers, B numbers, for two different time periods. If the calling pattern has suddenly changed, it is an indication of that the subscription has been closed.

The following parameters should be specified. These values are default values for the analysis. When using the analysis tool, they can however be temporarily changed.

| | |
|---|---|
| **Measurement period** | The number of days of the measurement period. Example: If measurement period is set to 3, the called numbers during the last three days will be compared to the numbers made during the reference period. |
| **Reference period** | The number of days of the reference period. Example: If reference period is set to 25, the called numbers made during the measurement period will be compared to the numbers that have been called during the preceding 25 days. |

# Roaming Partners

## Overview

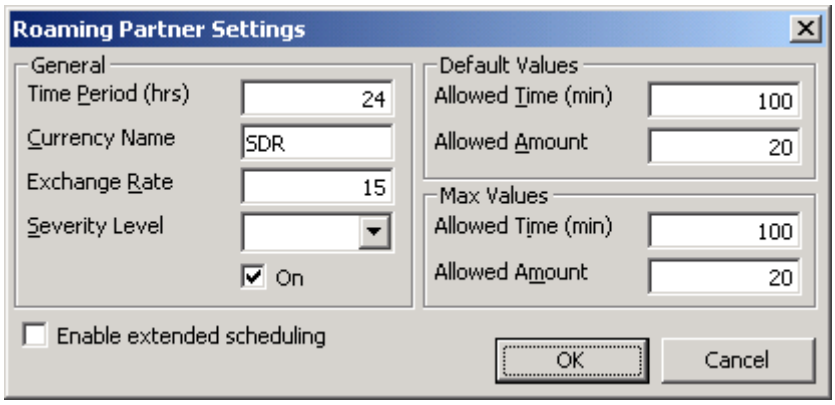
This alarm analyses high usage for visiting roamers. The settings include a list of the roaming partners with individual thresholds, and functionality to automatically send information to them about their subscribers' usage.

The settings consist of two parts, general settings and the roaming partner list. The general settings specify e.g. the time period that should be applied for the alarm analysis and the roaming partner list the partner-specific thresholds.

All parameters are described in the following sections.

## General settings

The parameters on the **Roaming Partners Settings** window apply to all partners in the roaming partner list. It looks as follows.




The following parameters should be specified.

**Time Period** Each roaming partner has a monetary threshold, which specifies how much its subscribers are allowed to spend. This amount is specified on the **Roaming Partner List** window. The **Time Period** parameter specifies the time span during which the spent amount should be calculated.

**Currency Name** The currency that should be used in the roaming high usage reports.

**Exchange Rate** A multiplier that is used to convert the call charges in local currency to the selected currency.

**Default Values** Each roaming partner has its own time and amount thresholds. Please refer to the edit roaming partner list section for more information.
These parameters define default values that will be used if no specific values are set for a roaming partner.

- **Allowed Time** The maximum time a roaming subscriber is allowed to call in your network before an alarm is generated. The value applies to the time period defined in **Time Period**.
- **Allowed Amount** The maximum amount a roaming subscriber is allowed to spend in your network before an alarm is generated.

The value applies to the time period defined in **Time Period**.

**Max Values** Each roaming partner has its own time and amount thresholds. Please refer to the edit roaming partner list section for more information.
These parameters define the maximum values that can be set.

| | |
|---|---|
| **Allowed Time** | See **Default Values**. |
| **Allowed Amount** | See **Default Values**. |

**Enable extended scheduling** It is possible to utilise specific scheduling settings for each roaming partner. These settings are in that case specified in the roaming partner settings.

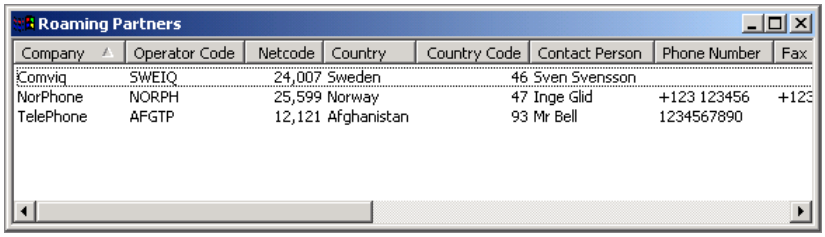
Select this option if specific schedules should be used. If no scheduling settings have been made for a roaming partner, the standard system settings will be used.

**CDR delay** ???ny bild ovan

**Severity level** The grade of importance for this type of alarm.

**On** Select the **On** check box to activate the alarm.

**Roaming Partner List**
The **Roaming Partner List** window looks as follows.




Most roaming partner information is available in the list. All fields are described in more detail in the **Edit Roaming Partner** section. The following fields can however be seen only in the list.

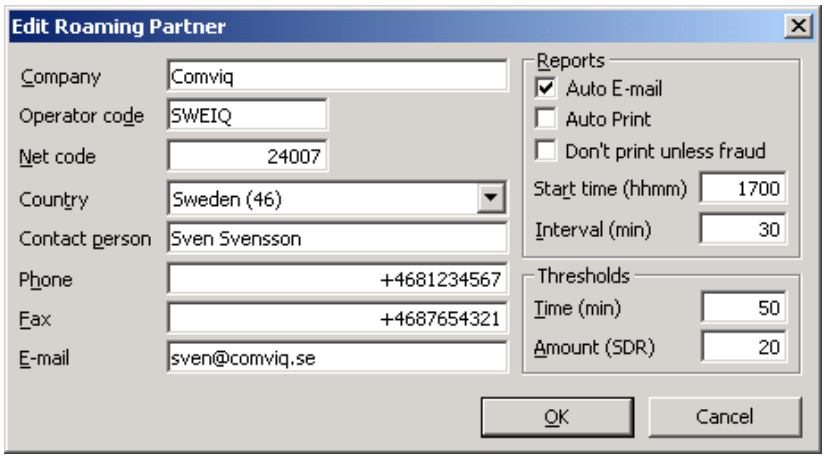
**Report** The selected reporting options for the roaming partner.

**Modified by** The user name of the user that latest modified the current item.

**Modified on** The date and time when the current item was latest modified.

| | |
|---|---|
| **Created by** | The user name of the user that created the current item. |
| **Created on** | The date and time when the current item was created. |

When editing the roaming partner information, the **Edit Roaming Partner** window appears.




The following information should be specified.

| | |
|---|---|
| **Company** | The name of the roaming partner. |
| **Operator code** | The name of the Public Land Mobile Network (PLMN). |
| **Netcode** | The network code is a numerical code, defined by the GSM Forum, which identifies a network. The five first positions of the IMSI number are the same as this number. |
| **Country** | The country where the roaming partner is located. The country should be selected from a drop-down list box. |
| **Contact person** | The name of a contact person at the roaming partner's site. |
| **Phone** | Phone number to the roaming partner. |
| **Fax** | Fax number to the roaming partner. |
| **E-mail** | E-mail address to the roaming partner. |
| **Auto e-mail** | Select this option if the roaming high usage report should be automatically sent to the roaming partner. The reports will be sent to the address specified in the **E-mail** text box. |
| **Auto print** | Select this option if the roaming high usage report should be automatically printed. The reports will be printed on the WatchDog server's default printer. |
| **Don't print unless** | The roaming high usage report should |

| | |
|---|---|
| **fraud** | be created only if there has been an alarm created for a subscriber belonging to the current roaming partner. |
| **Start time** | The roaming high usage reports can be generated at different times for each roaming partner. This field is used to specify when the report schedule should start. The format is HHMM.<br>Example: If **Start time** is set to 02:00, the first report will be created at this time.<br>Please also see the **Interval** settings.<br>Note! To activate this functionality, the **Enable extended scheduling** option has to be selected on the general roaming partner settings.<br><br>The general setting RoamingCDRDelay sets the time offset on which data that should be included in the report. If StartTime is 02:00 with a RoamingCDRDelay of 1800 (1800 seconds / 60 seconds = 30 minutes) the report will include calls ended before 01:30. |
| **Interval** | The roaming high usage reports can be generated at different times for each roaming partner. This field is used to specify how often the reports should be generated. The unit for this parameter is minutes.<br>Example: If **Start time** is set to 02:00, the first report will be created at this time. If **Interval** is set to 480, that means that a report will be created at every eight hours (8 * 60 = 480), i.e. 02:00, 10:00, and 18:00.<br>Please also see the **Start time** settings.<br>Note! To activate this functionality, the **Enable extended scheduling** option has to be selected on the general roaming partner settings. |
| **Time** | The maximum time a roaming subscriber, who belongs to the current roaming partner, is allowed to call in your network before an alarm is generated. The value applies to the time period defined in **Time Period** in the general roaming partner settings. |

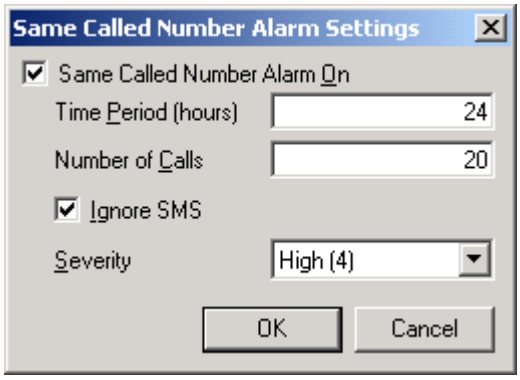
| | |
|---|---|
| **Amount** | The maximum amount a roaming subscriber, who belongs to the current roaming partner, is allowed to spend in your network before an alarm is generated. The value applies to the time period defined in **Time Period** in the general roaming partner settings. ???I vilken valuta? |

# Same Called Number

This alarm is generated if a subscriber calls the same number more than a specified number of times and within a specified period of time.

## The settings

The **Same Called Number Alarm Settings** window looks as follows.




The following parameters should be specified.

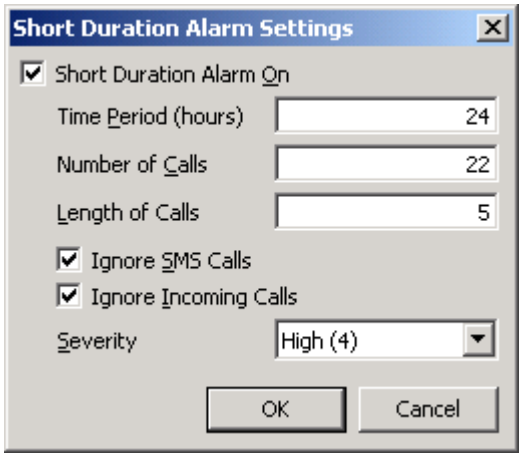
| | |
|---|---|
| **Same Called Number Alarm On** | Select the **Same Called Number Alarm On** check box to activate the alarm. |
| **Time Period (hours)** | The **Time Period** parameter specifies the time span during which the number of calls should be calculated. |
| **Number of Subscribers** | If a minimum of this number of calls has been made to the same number, an alarm will be generated. |
| **Ignore SMS** | Select this check box if SMS calls should be excluded from the analysis. |
| **Severity** | The grade of importance for this type of alarm. |

# Short Duration Calls

If a subscriber exceeds a number of short duration calls, an alarm will be generated.

## The settings

The **Short Duration Alarm Settings** window looks as follows.



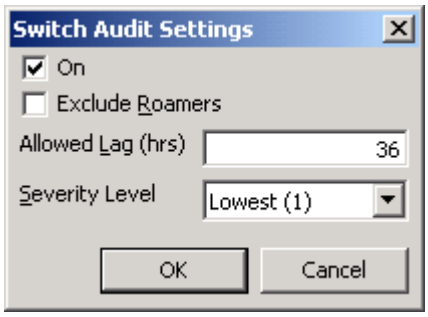

The following parameters should be specified.

| | |
|---|---|
| **Short Duration Alarm On** | Select the **Short Duration Alarm On** check box to activate the alarm. |
| **Time Period (hours)** | The **Time Period** parameter specifies the time span during which the number of calls should be calculated. |
| **Number of Calls** | If a minimum of this number of calls is made during the specified time period, an alarm will be generated. |
| **Length of Calls** | This is the maximum length in seconds for a call that should be considered as a short duration call. |
| **Ignore SMS Calls** | Select this check box if SMS calls should be excluded from the analysis. |
| **Ignore Incoming Calls** | Select this check box if incoming calls should be excluded from the analysis. |
| **Severity** | The grade of importance for this type of alarm. |

# Switch Audit

This alarm detects subscribers that are activated in the switch but not in the billing system. Each subscriber identity that is found in the call data is matched to the customer database. If a match isn't found, it means that someone is making calls without being present in the billing system. This may be an indication of fraud. The reason may also be as simple as that the customer database is not yet updated. Therefore, the alarm includes a time lag to avoid false alarms of this reason.

The **Switch Audit Settings** window looks as follows.




This window contains the following information.

| | |
|---|---|
| **On** | Select the **On** check box to activate the alarm. |
| **Exclude roamers** | Visiting roamers are normally not included in the customer database. All their calls would hence generate this alarm. Select this option to exclude visiting roamers from the switch audit analysis. |
| **Allowed lag** | The maximum number of hours a subscriber is allowed to be activated in the switch without being included in the customer database. |
| **Severity level** | The grade of importance for this type of alarm. |

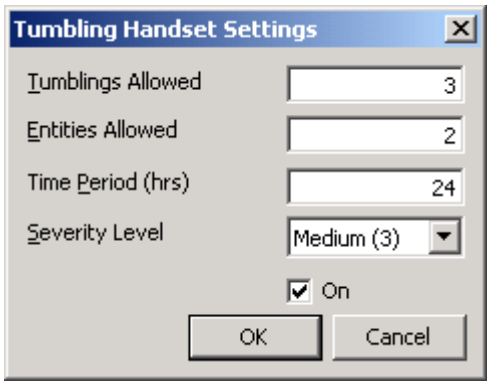
# Tumbling

## Overview

The tumbling alarm detects situations of two types. Tumbling handset means that one subscriber (MIN/IMSI) is using many different handsets (ESN/IMEI). Tumbling subscriber means that one handset (ESN/IMEI) is being used by many different subscribers (MIN/IMSI).

## Tumbling handset settings

The **Tumbling Handset Settings** window looks as follows.

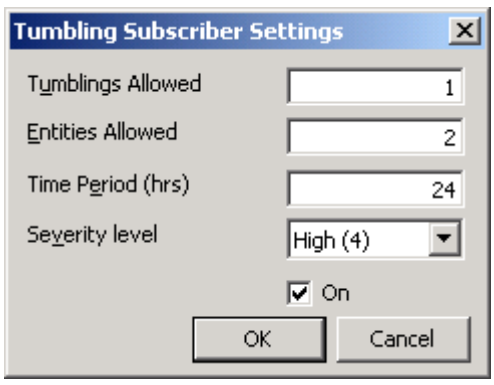



This window contains the following information.

| | |
|---|---|
| **# Tumblings allowed** | The number of tumblings that are allowed during the time span set in **Time Period**. For this alarm, the number of tumblings means the number of different handsets (IMEI/ESN) that is used by one subscriber (IMSI/MIN). |
| **Entities allowed** | If a subscriber repeatedly switches between two handsets, each switch will be counted as a tumbling event. Alarms for this type of activities may not be considered as interesting. This parameter can therefore be used as a complement to the **Tumblings allowed** parameter. It sets the number of handsets that a subscriber may use, without having an alarm generated. |
| **Time period (hrs)** | The number of tumblings is calculated during the specific time period as set here, normally 24 hours. |
| **Severity level** | The grade of importance for this type of alarm. |
| **On** | Select the **On** check box to activate the alarm. |

## Tumbling subscriber settings

The **Tumbling Subscriber Settings** window looks as follows.




This window contains the following information.

| | |
|---|---|
| **# Tumblings** | The number of tumblings that are allowed |

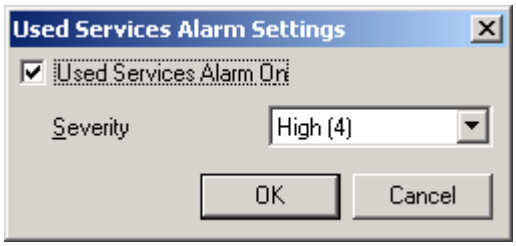
| | |
|---|---|
| **allowed** | during the time span set in **Time Period**. For this alarm, the number of tumblings means the number of different subscribers (IMSI/MIN) that can use the same handset (IMEI/ESN). |
| **Entities allowed** | If two subscribers repeatedly switch between the same handset, each switch will be counted as a tumbling event. Alarms for this type of activities may not be considered as interesting. This parameter can therefore be used as a complement to the **Tumblings allowed** parameter. It sets the number of subscribers that may use the same handset, without having an alarm generated. |
| **Time period (hrs)** | The number of tumblings is calculated during the specific time period as set here, normally 24 hours. |
| **Severity level** | The grade of importance for this type of alarm. |
| **On** | Select the **On** check box to activate the alarm. |

# Used Services

An alarm will be generated if a subscriber is using services that are not included in the subscription. If a subscription includes only national calls, an alarm will be generated if a subscriber with this type of subscription makes international calls.

## The settings

The **Used Services Alarm Settings** window looks as follows.




The following parameters should be specified.

| | |
|---|---|
| **Used Services Alarm On** | Select the **Used Services Alarm On** check box to activate the alarm. |
| **Severity** | The grade of importance for this type of alarm. |

# Velocity

## Overview

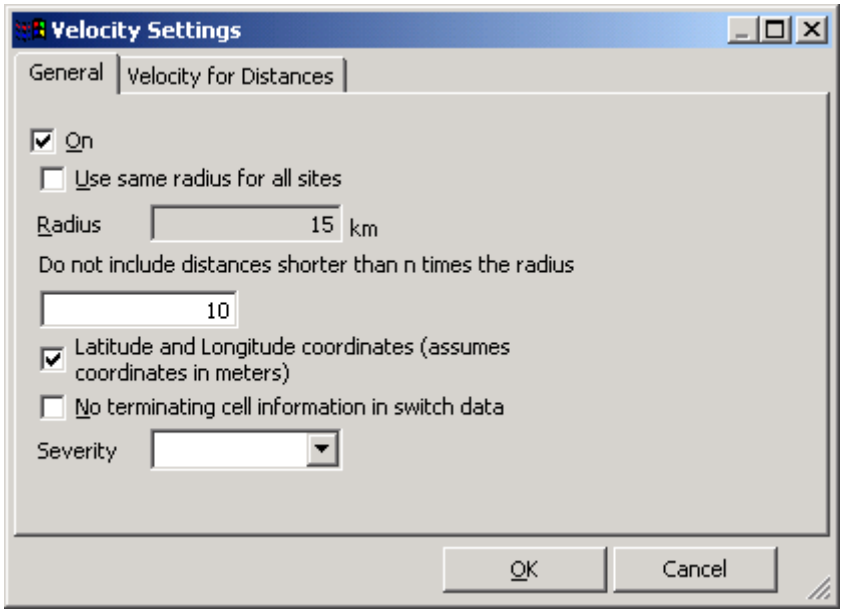
The velocity analysis is a complement to the call collision alarm to detect cloning. This alarm detects cloning cases even if a call collision has not occurred. WatchDog analyses the moving patterns of the subscribers. If two calls have been made from two different locations, and the time between the calls indicates that an abnormal speed was required to move between these places, WatchDog generates an alarm. The speed and distance settings are flexible and can be changed by the system administrator at any time.

**Access the velocity settings**
To access the **Velocity** alarm settings, point to **Alarm Settings** on the **Admin** menu, point to **Velocity,** and click either **Settings** or **Site list…**.

## Settings

The **Settings** window consists of two tabs, **General** and **Velocity for distances**. Each tab is described in the following sections.

**The General tab**
The **General** tab contains (yes!) general settings for the velocity alarm. It looks as below.



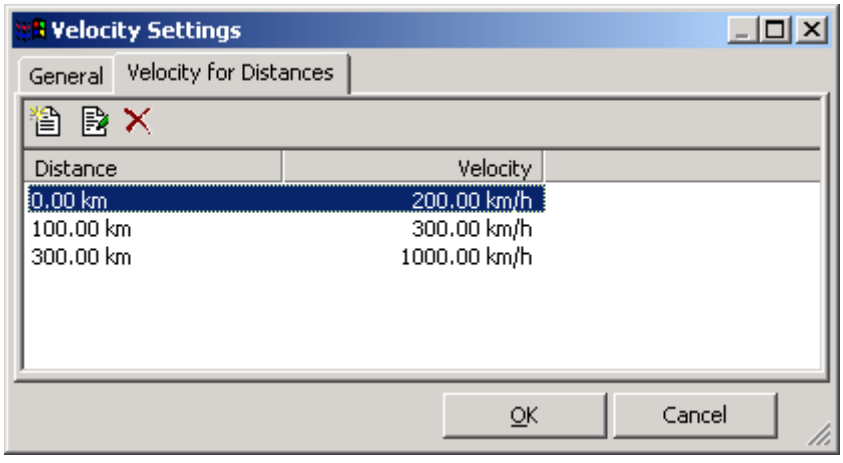

The following parameters are available.

| | |
|---|---|
| **On** | Select the **On** check box to activate the alarm. |
| **Use same radius** | Select this option if the same cell site radius |

| | |
|---|---|
| **for all sites** | should be used for all cell sites. |
| **Radius** | This information should only be included if the cell site radius is estimated to be similar for all sites in the network, and the **Use same radius for all sites** option has been selected.<br>If a value is entered, no radiuses can be specified for the specific cell sites in the **Site List** settings. |
| **Do not include…** | Example: The value "2" in this field indicates that no velocity check should be performed if the distance the subscriber has moved is shorter than two cell site radiuses. |
| **Latitude and longitude co-ordinates** | Select this option if you are using latitude and longitude when setting the cell site locations. |
| **No terminating cell information in switch data** | Select this option if the CDRs do not include information about which cell site that was used when the call terminated (the call ended). |

**The Velocity for Distances tab**

The **Velocity for Distances** tab contains the settings that specify distances and the maximum allowed speeds for travelling these distances. This tab looks as below.

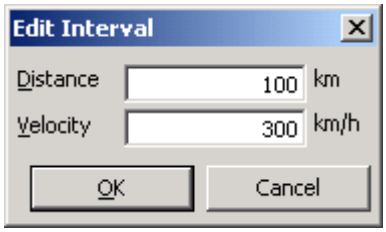



This tab lists the existing settings. The following information is available.

| | |
|---|---|
| **Distance** | The maximum distance a subscriber is allowed to travel with a speed up to what is specified in the **Velocity** column. |
| **Velocity** | The maximum speed a subscriber is allowed to travel at when not travelling further than the distance specified in the **Distance** column. |

In the example above the maximum speed allowed is 200 km/h when the subscriber has travelled between 0 and 100 km between two calls, 300 km/h when the distance is between 100 km and 300 km, and 1.000 km/h when the distance is over 300 km.

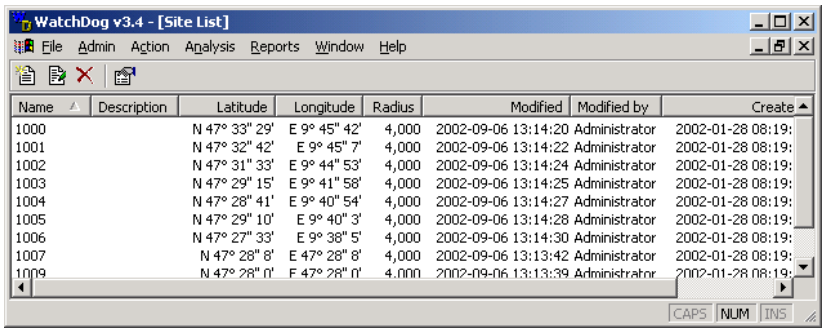
When adding or editing setting items, the following dialog box appears.




The contents are described earlier in this section.

## Site List

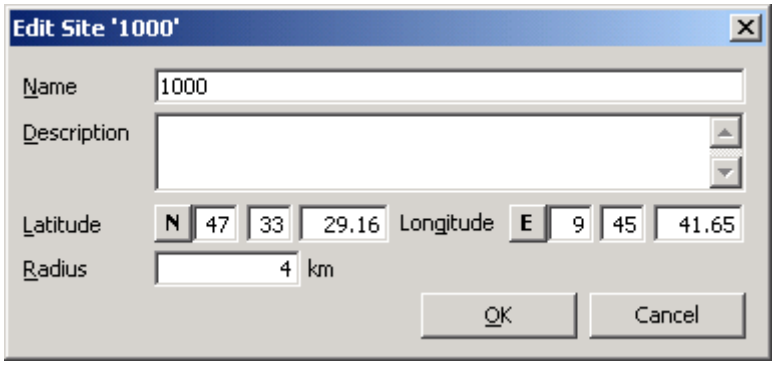
**Site List**
The **Site List** window looks as follows.




The following information is available in the list.

| | |
|---|---|
| **Name** | The name of the cell site. |
| **Description** | A description of the cell site. |
| **Latitude** | The latitude where the cell site is located. |
| **Longitude** | The longitude where the cell site is located. |
| **Radius** | The radius of the cell. |
| **Modified** | The date and time when the current item was latest modified. |
| **Modified by** | The user name of the user that latest modified the current item. |
| **Created** | The date and time when the current item was created. |

When adding or editing cell site items, the following dialog box appears.




The contents were described earlier in this section.

**Name** The name of the cell site.

**Description** A description of the cell site.

**Latitude** The latitude where the cell site is located. N stands for North. Click N, and the value changes to S, South.

**Longitude** The longitude where the cell site is located. E stands for East. Click E, and the value changes to W, West.

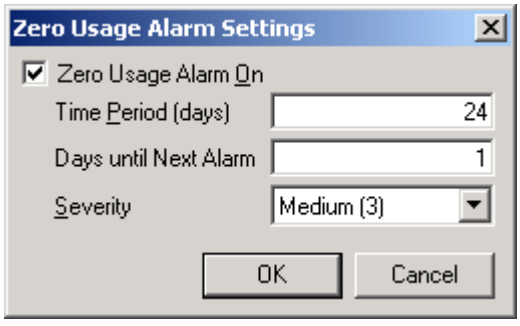
**Radius** The radius of the cell. A radius is not possible to specify if a default site radius has been set in **Settings**.

# Zero usage

As opposed to the high usage alarm, WatchDog offers a zero usage alarm. If a subscription is not used for a specified period of time, an alarm will be generated.

## The settings

The **Zero Usage Alarm Settings** window looks as follows.




The following parameters should be specified.

**Zero Usage Alarm On** Select the **Zero Usage Alarm On** check box to activate the alarm.

**Time Period** The **Time Period** parameter specifies the time

| | |
|---|---|
| **(days)** | span during which a subscription should remain unused before an alarm is generated. |
| **Days until Next Alarm** | If an alarm has been generated, a new alarm will be generated if the subscription is unused still when this number of days have passed. |
| **Severity** | The grade of importance for this type of alarm. |

Chapter 4

# Reference Settings

## Overview

### Introduction

This chapter describes settings that are used to define other WatchDog functions, such as auto-mail, subscriber layout, and subscriber letter.

### In this chapter

This chapter is organized as follows.

# Reference Settings Overview

## The System Command on the Admin Menu

The reference settings are used to set up general WatchDog features. The reference settings commands are found when pointing to **System** on the **Admin** menu.


The following reference settings are available:

**Auto-mail**
This command provides the possibility to have e-mails automatically created and sent to notify the fraud management upon certain alarms.

**Multipliers**
This command makes it possible to view, set and adjust high usage multipliers used in WatchDog. The multipliers are used to allow subscribers to have higher thresholds than set in the alarm settings.

**Subscriber layout**
This command controls the appearance of the **Subscriber Info** window.

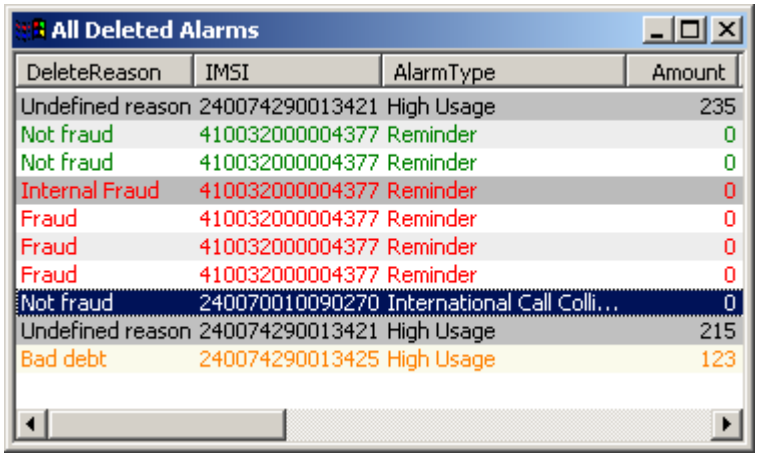
**Subscriber letter**
This command makes it possible to add and edit subscriber letters that can be automatically printed.

Each command is described in detail in the following sections.

# All Deleted Alarms

All deleted alarms functionality allows for a user to manually change the delete reason for an already deleted alarm. This

functionality is useful when an alarm has been deleted as fraud but is defined later as for example bad dept, this allows the reports to be up to date and the known pattern profiling is only used for subscribers with fraudulent behaviour.




## Filter the deleted alarm list

To easealy find the deleted alarms in the alarm list it is possible to filter the list.


**Filter list** This list contains all already created filters, global or non-global. A global filter is created by a user but visible for all other users.

Create new filter
Opens up the filter screen, described below.

Edit an existing filter.

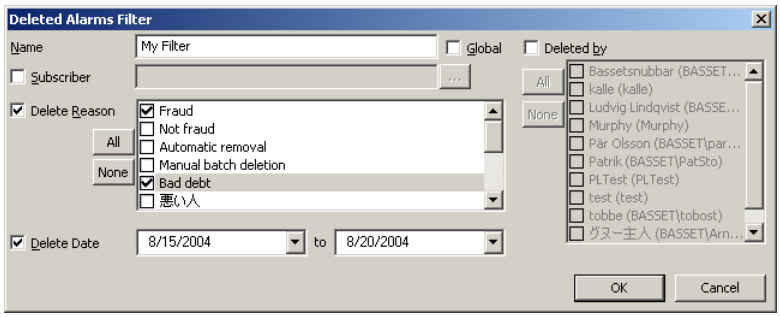
Delete an existing filter.

Save filter configuration a, unsaved filter is displayed with an asterix symbol in the filter list, for example:


Reset filter, this refreshes the list to its original configuration.

### Create a filter

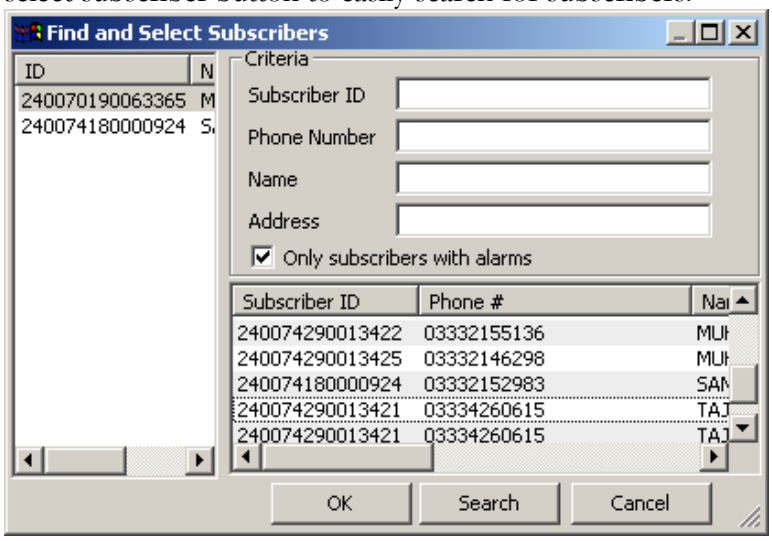
To create a filter click on the new filter icon, the following screen appears:




**Name** The name of the filter that will be displayed in the filter list.

**Global** A global filter is visible for all system users.

**Subscriber** Allows specifying one or more subscribers, use the find and select subscriber button to easily search for subscribers.



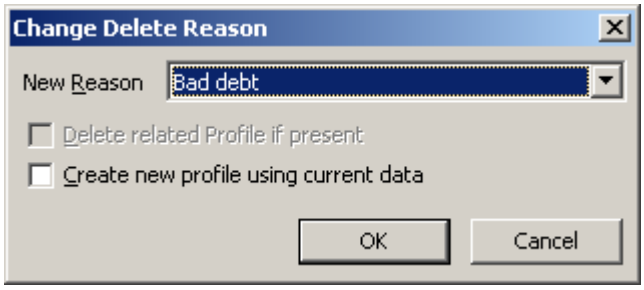

**Delete reason** Specify one or more delete reasons to filter the list with.

**Delete date** Specify a date span to filter the list.

**Deleted by** Specify which users that has deleted the alarm to filter the list.

## Change delete reason

 Opens up the change delete reason screen



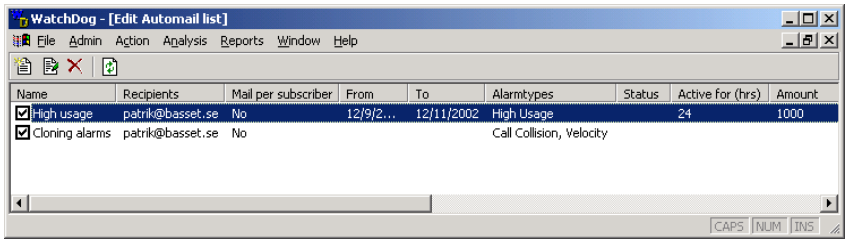
| | |
|---|---|
| **New reason** | Select the new delete reason from the list, the list is maintained from Delete reasons. |
| **Delete related Profile if present** | Deletes the profile for the subscriber, use full when an alarm has been deleted incorrectly as fraud and then changed to Not fraud. |
| **Create new profile using current data.** | This options updates the known pattern profile with the data currently present on the subscriber i.e subscriber data and call data. |

# Auto-mail

WatchDog can automatically create and send e-mail messages to notify the fraud management upon certain alarms. The **Edit Automail list** displays a list of the settings made for this purpose.

## The Edit Automail list

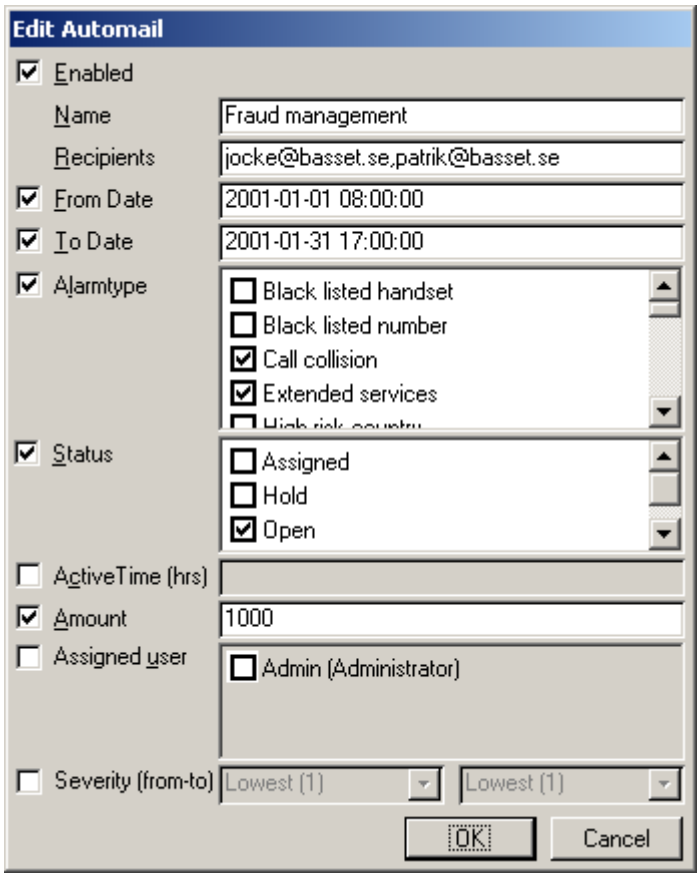
The **Edit Automail list** window looks as follows.




To change the settings, use the tool bar.

## The Edit Automail window

This is the **Edit Automail** window.




This window contains the following parameters.

| | |
|---|---|
| **Enabled** | Select **Enabled** to activate the automail item. If **Enabled** is not selected, no e-mail will be created. |
| **Name** | An arbitrary name of the automail item. This is the name that is displayed in the **Name** column in the **Edit Automail** list. |
| **Recipients** | The **Recipients** text box contains the e-mail address to where messages should be sent. It is possible to enter a list of addresses. Use a semicolon (;) to separate each address. |
| **From Date** | If a date is entered, WatchDog will create e-mail messages only for alarms generated from this date. It is also possible to add a specific time (see the example). |
| **To Date** | If a date is entered, WatchDog will create e-mail messages only for alarms generated until this date. It is also possible to add a specific time (see the example). |
| **Alarm type** | WatchDog will generate messages only for the types of alarms that have been selected here. |
| **Status** | WatchDog creates messages only for alarms with the status selected here. |
| **Active Time (hrs)** | If you don't want to have messages sent as soon as an alarm has been given, you can enter how long an alarm must have been active |

how long an alarm must have been active before the e-mail is created. Enter the delay in number of hours.

**Amount** WatchDog will generate e-mail messages only for alarms representing a value exceeding the amount specified here.
Note! Some alarms are not based on a monetary value. Therefore, be cautious when using this entry. If an automail item has any of such alarm types specified in the Alarm type list, this entry should be zero.
Examples of alarm types not being based on a monetary value:

- Blacklisted handset
- Blacklisted number
- Call collision
- Hotlisted handset
- Hotlisted number

**Assigned user** WatchDog will generate a message only if the alarm is assigned to any of the users selected in this list.

**Severity** WatchDog will generate a message only if the alarm has a severity level within the interval specified here.

# Multipliers

Multipliers are used to override the default high usage settings for specific subscribers or groups of subscribers. If a multiplier is set to 2 for a subscriber, that means that alarms will not be generated until he has exceeded the double threshold amounts.

## Multiplier types

A multiplier can be of two different types:

- Subscriber multiplier
- Subscriber type multiplier

**Subscriber multiplier**
Subscriber multipliers are specified specifically for each subscriber. They can be used to eliminate alarms for subscribers with a high usage but that are known as good customers.

**Subscriber Type multiplier**
Subscriber Type multipliers are set for groups of subscribers. The settings are based on the values in the Subscriber Type ID field that is sent from the billings system.

Is this kind of multipliers are used and new customers are added in the network, the multipliers will be adopted also for them.

**Priority order**
When doing the high usage analysis, WatchDog selects the multiplier in this order, in case multipliers exist on all levels:

1. Subscriber multiplier
2. Subscriber Type multiplier

If no multipliers exist, the high usage default settings are used.

## Multiplier settings overview

The **Multiplier** command is divided into four different areas:

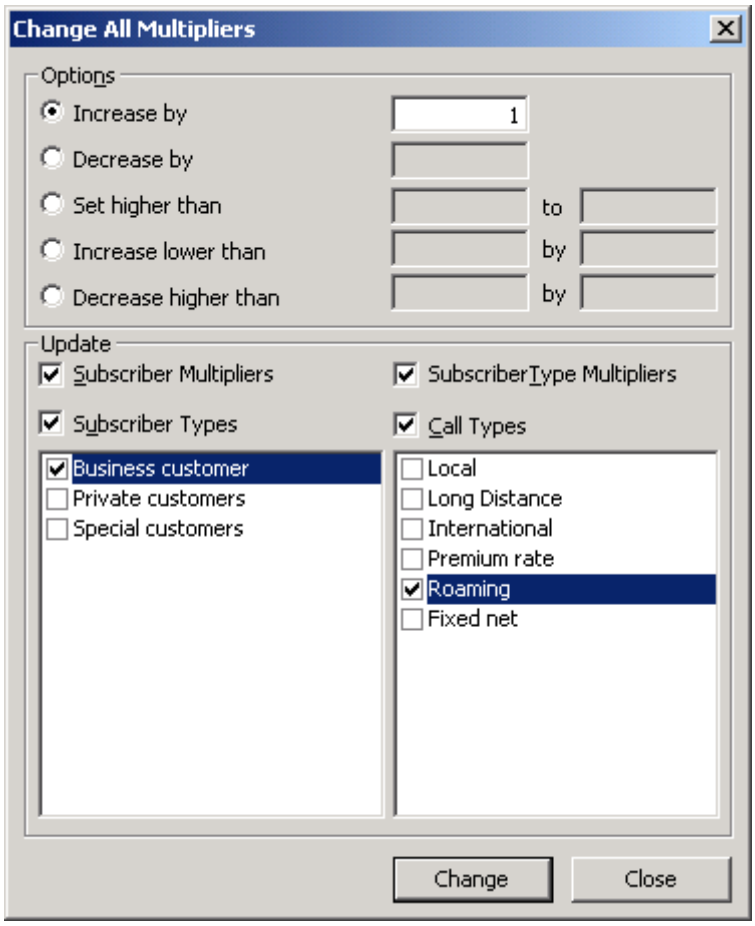
- Change all
- Settings
- Subscribers
- View

All settings are described in detail in the following sections.

## Change all

This command enables the user to update all existing multipliers. The update can be made both for Subscriber Type multipliers and Subscriber multipliers.

The **Change All Multipliers** window looks as follows.




The following criteria can be used to update the multipliers. The multipliers can be defined with one decimal.

**Options**
These parameters control with how much the multipliers should be updated.

| | |
|---|---|
| **Increase by** | All multipliers that match the selection criteria will be increased by this number. |
| **Decrease by** | All multipliers that match the selection criteria will be decreased by this number. |
| **Set higher than to** | All multipliers that match the selection criteria, and are higher than (and not equal to) this value, will be set to the number in the **to** field. |
| **Increase lower than by** | All multipliers that match the selection criteria, and are lower than (and not equal to) this value, will be increased by the value in the **by** field. |
| **Decrease higher than by** | All multipliers that match the selection criteria, and are higher than (and not equal to) this value, will be decreased with the number in the **by** field. |

### Update

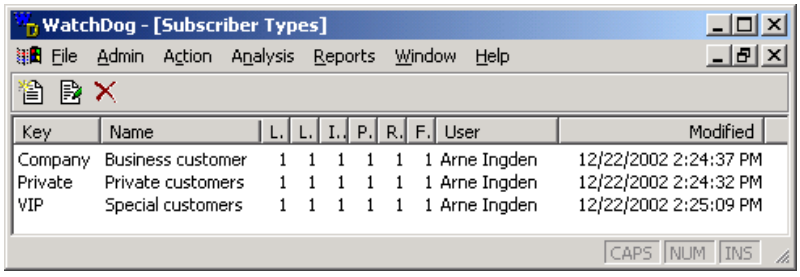
The **Change All Multipliers** command changes all existing multipliers. If only a selection of multipliers should be updated, these parameters should be used.

| | |
|---|---|
| **Subscriber multipliers** | Select the **Update Subscriber** check box if Subscriber multipliers should be updated. |
| **Subscriber Type multipliers** | Select the **Update Subscriber Type** check box if Subscriber Type multipliers should be updated. |
| **Subscriber types** | Select the **Subscriber types** check box if multipliers for a selection of subscriber types should be updated. If the check box is not selected, all subscriber type multipliers will be updated. |
| **Call types** | Select the **Call types** check box if multipliers for a selection of call types should be updated. If the check box is not selected, all call type multipliers will be updated. |

## Settings

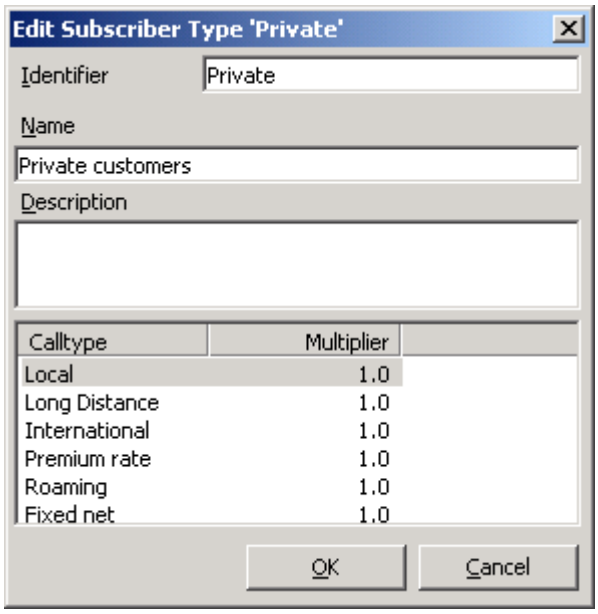
If Subscriber type multipliers should be used, the subscriber types have to be defined and then the multiplier values that should apply to each subscriber type. These settings are done here.

When the Settings command is selected, a list of the existing Subscriber type settings appears. The **Subscriber Types** window looks as follows.




To update the list, use the tool bar.

The **Edit Subscriber Type** window looks as follows.




This window contains the following parameters.

**Identifier** This is the name of the subscriber type as it appears in the subscriber file that is delivered from the billing system. This value has to be an exact match of the subscriber file value.

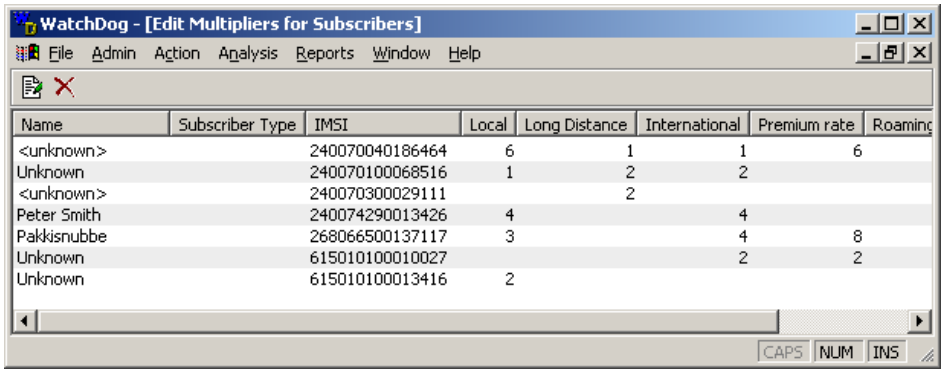
**Name** A description of the subscriber type.

**Multiplier settings list** Double-click the item that should be updated and this dialog box appears.

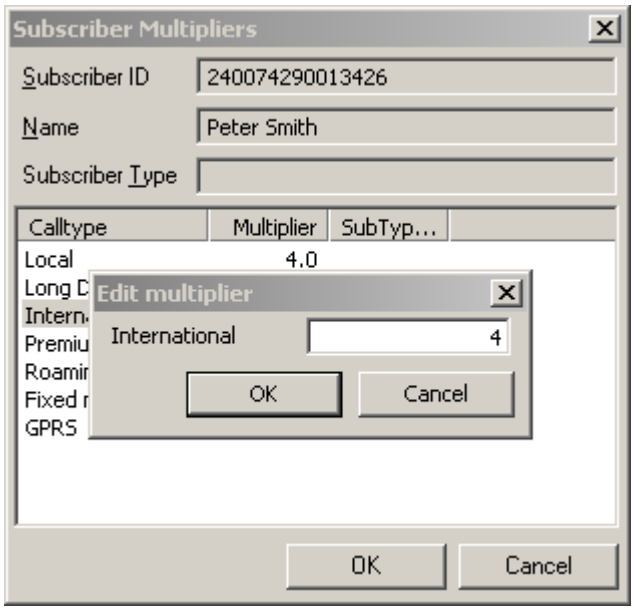

Change the multiplier value and click **OK**.

## Subscribers

The subscriber's list allows analysing subscribes that has been assigned user specific multipliers. From the subscriber list it is possible to change the multipliers the user been assigned to.

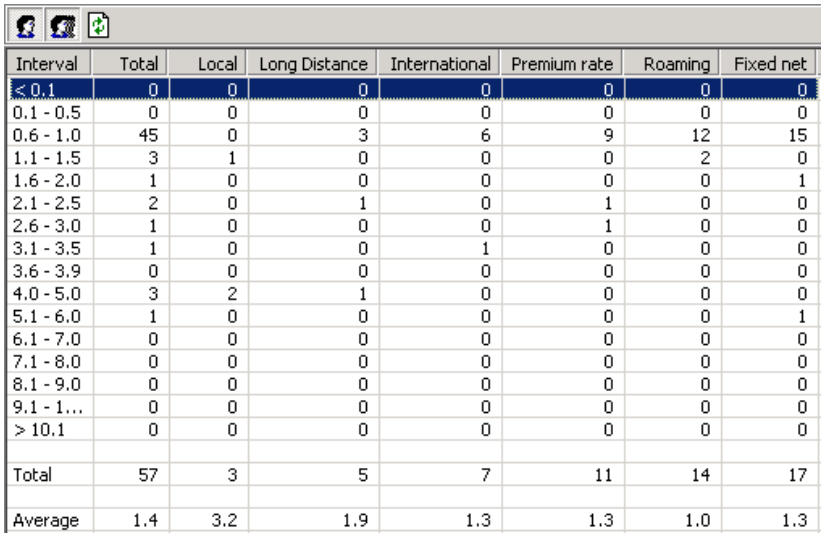



To modify subscribers multipliers double click on the subscriber and change the corresponding multiplier.




## View

The **View** command provides an overview of the existing multiplier settings. The **View** window looks as follows.



| Interval | Total | Local | Long Distance | International | Premium rate | Roaming | Fixed net |
|---|---|---|---|---|---|---|---|
| < 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0.1 - 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0.6 - 1.0 | 45 | 0 | 3 | 6 | 9 | 12 | 15 |
| 1.1 - 1.5 | 3 | 1 | 0 | 0 | 0 | 2 | 0 |
| 1.6 - 2.0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2.1 - 2.5 | 2 | 0 | 1 | 0 | 1 | 0 | 0 |
| 2.6 - 3.0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 3.1 - 3.5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 3.6 - 3.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4.0 - 5.0 | 3 | 2 | 1 | 0 | 0 | 0 | 0 |
| 5.1 - 6.0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6.1 - 7.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7.1 - 8.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8.1 - 9.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9.1 - 1... | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| > 10.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | |
| Total | 57 | 3 | 5 | 7 | 11 | 14 | 17 |
| | | | | | | | |
| Average | 1.4 | 3.2 | 1.9 | 1.3 | 1.3 | 1.0 | 1.3 |

**The Multiplier View bar**
The View window offers a tool bar for view content selection.

| | |
|---|---|
| **Show Subscriber multipliers** | Click this symbol to include or exclude Subscriber multipliers information in the view. |
| **Show Subscriber type multipliers** | Click this symbol to include or exclude Subscriber multipliers information in the view. |
| **Refresh** | If the view selection has been changed, click this symbol to refresh the view. |

**View contents**
The multiplier view presents the following information.

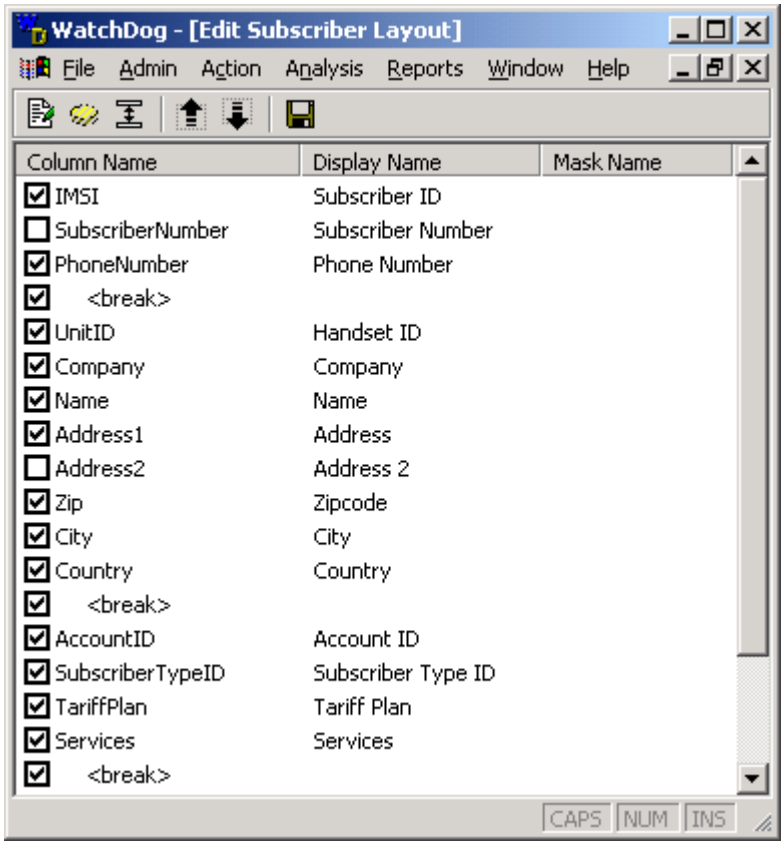
| | |
|---|---|
| **Interval** | Intervals for the multiplier values. |
| **Total (vertical)** | The total number of subscribers that have a multiplier within the interval. |
| **Call types** | The number of subscribers that have a multiplier within the interval, specified per call type. |
| **Total (horizontal)** | The total number of subscribers that have a multiplier within the call type. |
| **Average** | The average multiplier value for the call type. |

# Subscriber layout

Here you define the contents of the **Subscriber Info** window.

## The Settings

The **Edit Subscriber Layout** window looks as follows.



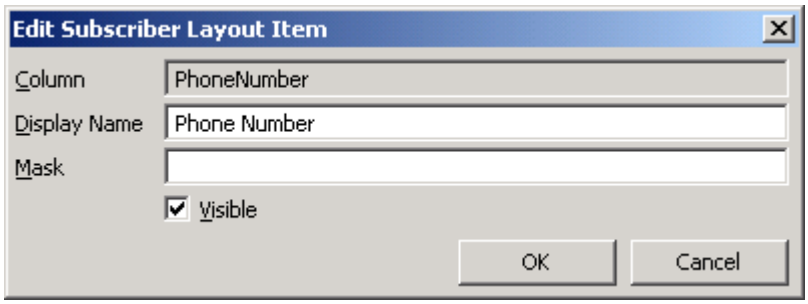

The **Edit subscriber layout** window lists the fields that are included in the subscriber file that is delivered from the billing system. Select each field you want to appear in the **Information for Subscriber** window.

The tool bar is used for more advanced settings.

| | |
|---|---|
| **Edit** | Click this symbol to edit an item. The item first has to be selected. |
| **Show/Hide** | Click this symbol to select if an item should be visible or not on the **Subscriber Info** window. The item first has to be selected.<br><br>This operation is the same as clicking the check box for an item. |
| **Break** | It is possible to divide items into groups in the **Information for Subscriber** window by inserting blank rows.<br><br>1. Click an item in the item list.<br><br>2. Click the **Break** symbol. This operation will insert a blank row before the selected item.<br><br>If you click to clear the **<break>** check box, the item will be removed. |

| | |
|---|---|
| **Up** | With the **Up** and **Down** buttons you can change the order of the fields. In the **Information for Subscriber** window, the fields will appear in the same order as they appear here. To move a field, do the following:<br>1. Click the field you want to move in the item list.<br>2. Click **Up** to move the field up the list, and **Down** to move it down the list. |
| **Down** | See **Up**. |
| **Save** | Click this symbol to save the settings. Please note, if changes have been made to subscriber layout in the database, the layout needs to be updated in the client by pressing the save button. This operation needs only to be done in one client if several are needed. |

**Edit an item**
When editing list items, the following dialog box appears.




The following parameters are available.

| | |
|---|---|
| **Column** | The field's name in the database. It is not open for editing. |
| **Display Name** | The text that will appear as field label in the **Subscriber Info** window. |
| **Mask** | In the **Mask** text box you define how numeric fields should be displayed in the **Information for Subscriber** window. The syntax that is used follows the Microsoft Office standard. Below is a list of the most common characters used when formatting numbers and dates. Some characters described, used i.e. to separate thousands, may differ in different locales. Check **Regional Settings** in the Windows **Control Panel** for the settings on your computer. |

See the next section for details about the **Mask** settings.

## Mask settings

| Character | Description |
|---|---|
| **(0)** | 0 means that a digit or a zero should display. If the field has a digit in the position where a 0 appears in the mask string, display it. Otherwise, display a zero. |
| **(#)** | # means that a digit or nothing should display. If the field has a digit in the position where a # appears in the mask string, display it. Otherwise, display nothing. |
| **(.)** | Decimal place holder, deciding how many digits that should be displayed to the left and to the right of the decimal separator. In some locales, a comma is used as decimal placeholder. |
| **(,)** | Thousand separator, separating thousands from hundreds if the number has four or more places. In some locales, a period is used as thousand separator. |
| **(:)** | Time separator, separating hours, minutes and seconds when time values are formatted. I some locales, other characters may be used to represent the time separator. |
| **(/)** | Date separator, separating day, month and year when date values are formatted. I some locales, other characters may be used to represent the time separator. |

**Examples of mask settings**
Field value: 12345678

System settings:

Decimal symbol: (.)

Time format: HH:mm:ss

Time separator: (:)

Short date format: yyyy-MM-dd

Date separator: (-)

| Mask | Result |
|---|---|
| **0000000000,000** | 0,000,012,345,678 |
| **0,0** | 12,345,678 |
| **0000000000.000** | 0012345678.000 |
| **0.0** | 12345678.0 |
| **#.#** | 12345678. |

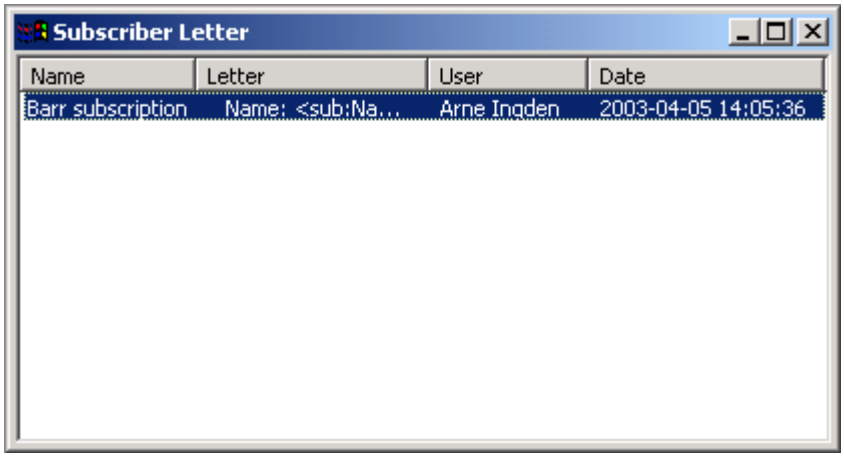
**yyyy-mm-dd hh:mm:ss** 2001-01-25 15:27:08

**mm/dd/yyyy hh:mm:ss** 01-25-2001 15:27:08

Select the **Visible** check box if you want the field to display on the **Information for Subscriber** window.

## Subscriber Letter

The letters included in this window can be printed from the **Delete Alarms** window. The **Subscriber Letter** window looks as follows.




When editing a letter, the following window appears.

The following options are available when designing a letter.

**Name** The name of the letter. This value will appear in the **Delete Alarms** window.

**Tool bar** The tool bar includes Windows standard text format options.

**Letter area** Type the letter contents in this area. It is possible to include system parameters and images.

**Tags** This area includes a list of system parameters. The parameters include information from the subscriber file and call information.

If a system parameter is included in the text, WatchDog will insert the value of this parameter in the text. This enables dynamic letters with e.g. the subscriber's address and current account balance (if available). Please note that the tag options depend on what each operator provides to WatchDog in the subscriber file.

To include a tag, place the cursor where the tag should be included and then double-click the tag.

Chapter 4

# System Settings

## Overview

### Introduction

This chapter describes technical system settings, such as user administration and scheduling of tasks for table cleaning.

### In this chapter

This chapter is organized as follows.

# System Settings Overview

## Administration Menu

The **Main** window includes five administration menus for the WatchDog administrator.

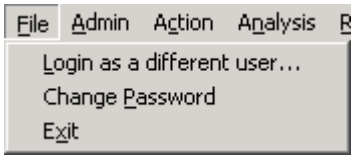
- File (e.g. changing of password)
- Admin (task scheduling, etc.)
- Actions (system actions)
- Window (how to present information on screen)
- Help (version information)

Note! Please contact Basset staff before you make any changes of the settings, if you are not completely sure how to use them.

# The Settings

## The File Menu

The **File** menu includes the following commands.




**Login as a different user**

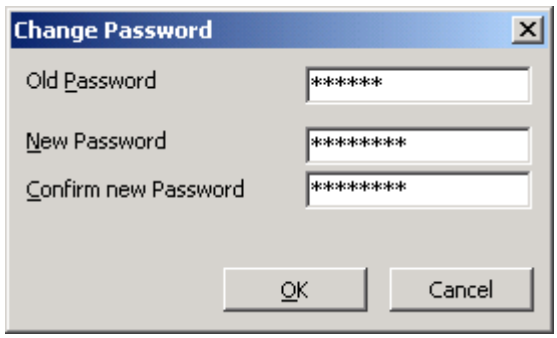
With this command it is possible to change the user name without having to exit WatchDog.


Enter the new user name and the password to log on as another user.

DSN specifies which data source name the

client should use to connect to the database.

**Change Password** With this command it is possible to change the password. This option is only visible if windows authentication is not used.




**Exit** Select this command to exit WatchDog.

## The System Command

The **System** command is found on the **Admin** menu.


This menu includes the following system settings commands.

**Event log**
This command displays a list of all events performed by the WatchDog system or the WatchDog users.

**Countries**
Allows editing the country list displayed in various places in the interface for example all calls and high risk countries.

**General**
This command gives an overview of all WatchDog settings.

**Scheduling**
This command controls when automatic tasks should be executed, e.g. backups, table cleaning, and sending of roaming reports.

**Server File Paths**
The server file paths contain a read only list of the paths from where the server collects the information.

**Table cleaning…**
This command controls for how long the WatchDog data should be stored. Settings can be made separately e.g. for calling data and alarms.

**User manager**
This command is used for user administration such as defining users, and setting access rights and passwords.

## Event log

The **View Log** window lists every important action that is taken by the system users.


From the Event Log toolbar the following information is available.

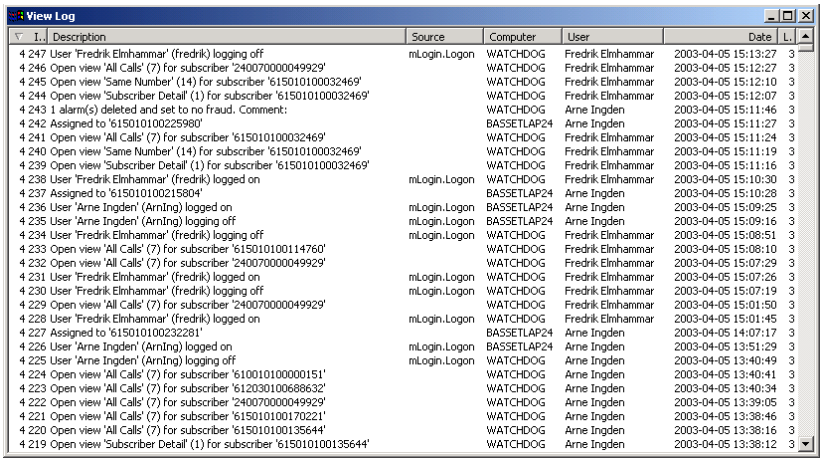
 Refreshes the event log.

 Previous set of days, based on the number of days configured in the filter options.

 Next set of days, based on the number of days configured in the filter options.

 Filter option, please see below.

The event log list:

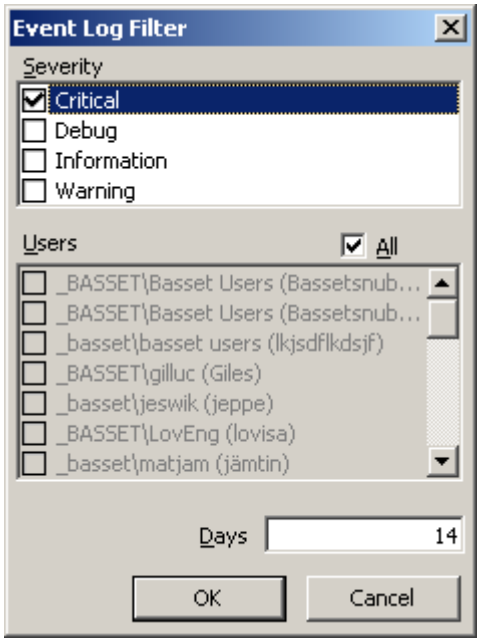



The following information is included in the log list.

| | |
|---|---|
| **Description** | A description of the action or event that gave rise to the log item. |
| **Source** | System references for Basset staff only. |
| **Computer** | The ID of the computer from where the action was taken. |
| **User** | The user who performed the action. |
| **Date** | Date and time when the event occurred. |
| **Level** | System references for Basset staff only. |

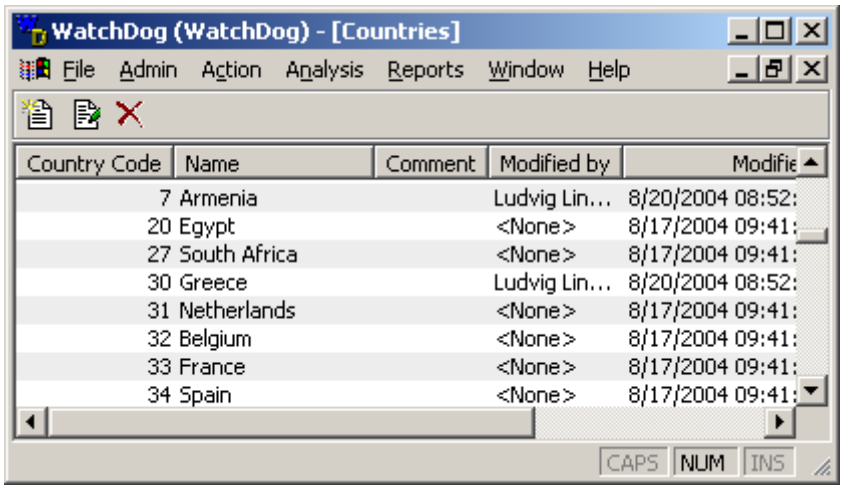
**Event Log filter**
The event log filter is accessed from the filter button in the toolbar, with the filter it is possibly to allow the event log to only display items based on certain conditions.

| | |
|---|---|
| **Severity** | Specify the severity to show. |
| **Users** | Specify which users actions to show. |
| **Days** | Specify the number of days do display, calculated from today. |

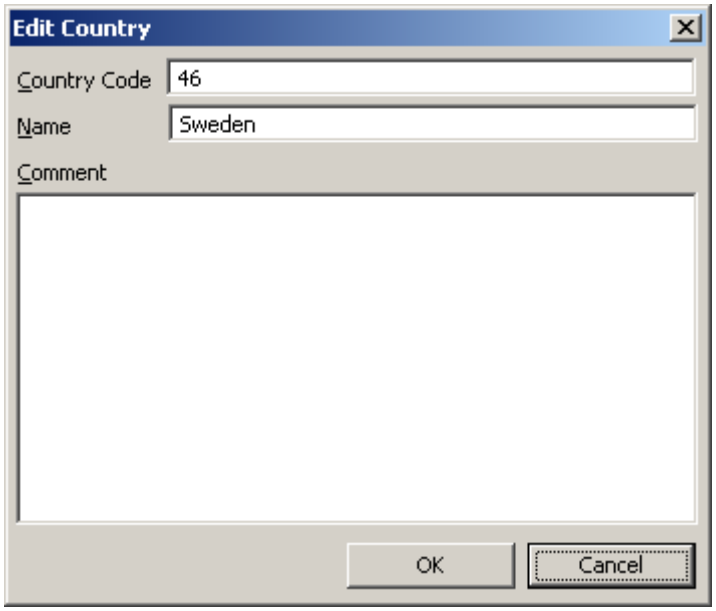



## Countries

The countries screen allow add, edit and delete countries. The countries information is displayed in for example All Calls and High Risk Countries.




When editing a country the following screen is displayed:




It allows specify country code and country name and an additional comment.

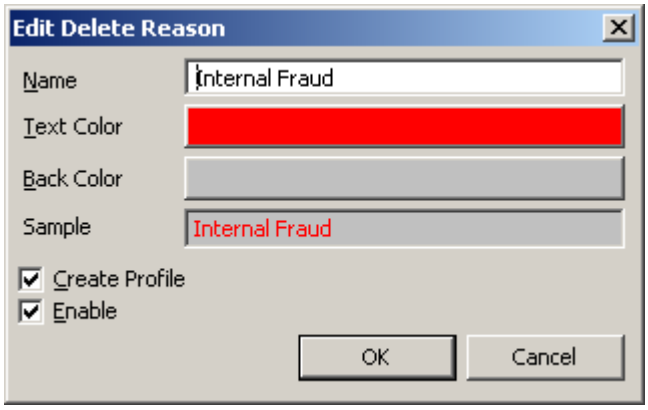
## Delete reasons


The delete reasons used from the Delete Alarms screen can be modified from the Delete reason list. This allows the user to add several different reasons to which an alarm is deleted. Each reason can be set to create a profile. These profiles are used in the known pattern-profiling screen, where it is possible search among known fraudsters and compare their behaviour with the subscriber selected.

**Delete reason list**
The delete reason list contains the following information:


| | |
|---|---|
| **Enabled** | Allows turning a delete reason on and off, a delete reason turned off is not visible in the list of delete reasons in the Delete Alarms screen. |
| **Name** | The name of the delete reason that will be visible in the Delete Alarms screen. |
| **Create profile** | Indication if the delete reason is configured to create a profile to be used with the known pattern profiling. |

**Edit Delete Reason**
When adding or edit a delete reason the following screen appears.




| | |
|---|---|
| **Name** | The name of the delete reason that will be visible in the Delete Alarms screen. |
| **Text color** | Sets the text color, choose from predefined colors or create your own by selecting <other>. |
| **Back color** | Sets the background color, choose from predefined colors or create your own by selecting <other>. |
| **Sample** | The sample text displays the Delete reason name together with the colors picked. |
| **Create profile** | Sets if the delete reason is configured to create a profile to be used with the known |

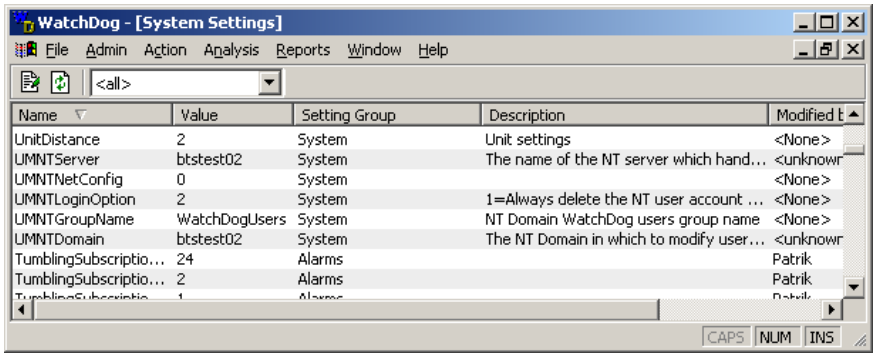
| | |
|---|---|
| | create a profile to be used with the known pattern profiling. |
| **Enabled** | Allows turning a delete reason on and off, a delete reason turned off is not visible in the list of delete reasons in the Delete Alarms screen. |

## General

This command gives an overview of the WatchDog settings. The information on this window can also be found elsewhere in the WatchDog system.

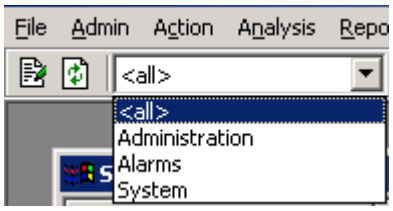
Note! These settings should be changed by Basset staff only!

The **General** window looks as follows.




### Type of settings

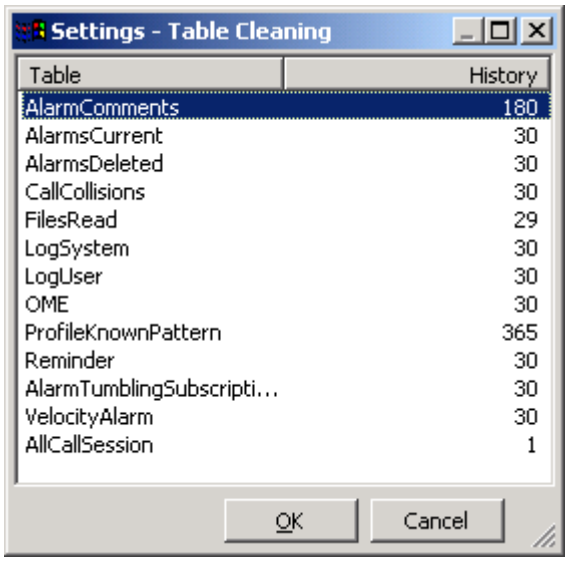
A drop-down list box offers a possibility to select what type of parameters to view.



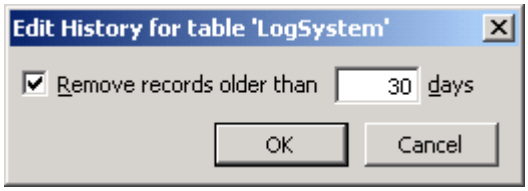

## Table Cleaning

This command controls for how long the WatchDog data should be stored. Settings can be made separately e.g. for calling data and alarms.

The **Table Cleaning** window looks as follows.




When editing the items, the following dialog box appears.

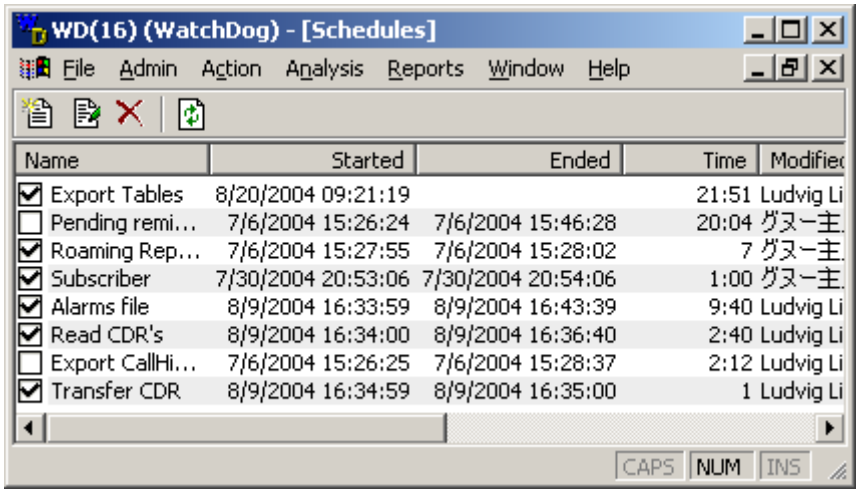



The following parameters are available.

| | |
|---|---|
| **Remove records older than** | Select this check box to activate the table cleaning item. |
| **days** | Specify the number of days to store the information in the WatchDog database. |

## Scheduling

The **Scheduling** command makes it possible to schedule tasks to run at a specific time or on a specific time interval. The "scheduler" (InfoExec.exe) runs as a service in the background on the WatchDog server.




Each schedule can easily be turned on and of by only checking the on/off button. For each schedule the following information is displayed.

**On/Off** Allows turning on and off a schedule, by simply clicking on it.

**Name** The name of the schedule.

**Started** The date and time when the schedule was started.

**Ended** The date and time when the schedule was ended, if nothing is displayed in the ended field the schedule is currently running, press the refresh button to update the window.

**Time** The time difference between Started and Ended.

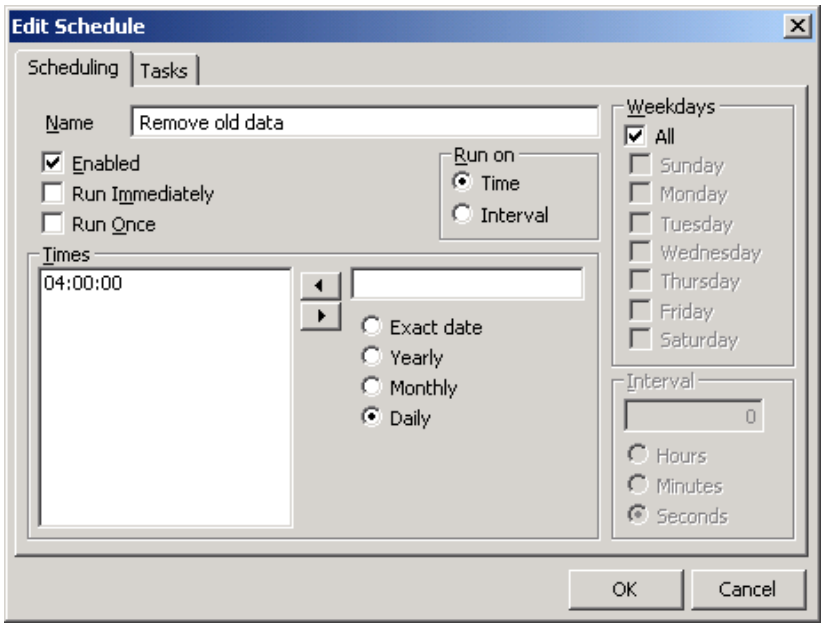
**Modified by** The username of the user last modified the schedule.

**Modified date** The date the schedule was modified.

**Created by** The username of the user created the schedule.

**Created date** The date the schedule was created.

The **Edit Schedule** window looks as follows.




This window consists of two tabs.

| | |
|---|---|
| **Scheduling** | The settings on this tab control when the schedule should be run. |
| **Tasks** | The settings on this tab control which task that should be executed by the schedule. |

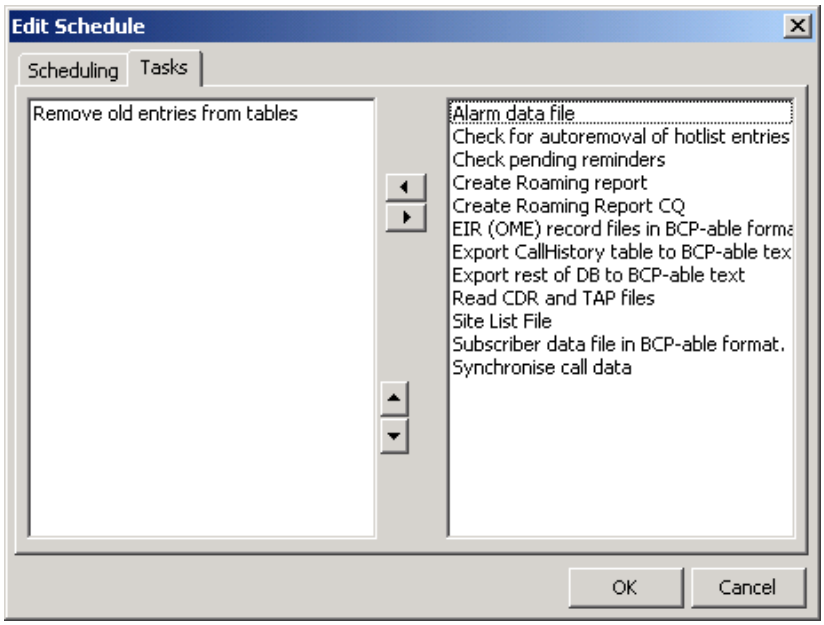
**The Scheduling Tab**

| | |
|---|---|
| **Name** | The name of the scheduled event. |
| **Enabled** | Turns the schedule on or off. |
| **Run immediately** | Run directly after addition. |
| **Run once** | Run the schedule only once. |
| **Run on** | Controls if the schedule should run at a specific time or with a specific interval. |
| **Times** | If **Run on** is set to "Time", one of these options has to be selected. |
| **Weekdays** | The days of the week the schedule should executed. |
| **Interval** | If **Run on** is set to "Interval", this option has to be set. Type a number and select the time unit to apply for this number. |

**The Tasks tab**

On the **Task** tab you select tasks for the schedule. It is divided into three different parts:

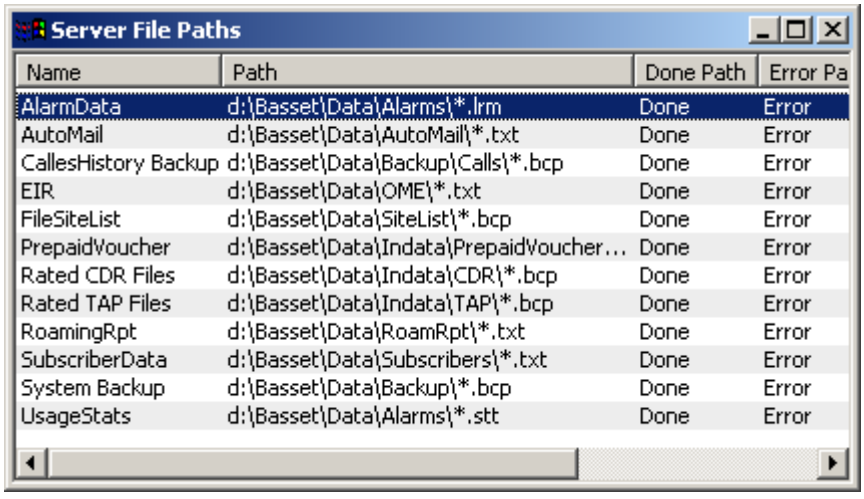
- Available tasks
- Selected tasks
- Action buttons




To move a task between the lists, click a task and move it by clicking the arrows.

## Server File Paths

The server file paths displays a summarized list of all the paths where WatchDog collects or send data.




| Name | Path | Done Path | Error Pa |
|---|---|---|---|
| AlarmData | d:\Basset\Data\Alarms*.lrm | Done | Error |
| AutoMail | d:\Basset\Data\AutoMail*.txt | Done | Error |
| CallesHistory Backup | d:\Basset\Data\Backup\Calls*.bcp | Done | Error |
| EIR | d:\Basset\Data\OME*.txt | Done | Error |
| FileSiteList | d:\Basset\Data\SiteList*.bcp | Done | Error |
| PrepaidVoucher | d:\Basset\Data\Indata\PrepaidVoucher... | Done | Error |
| Rated CDR Files | d:\Basset\Data\Indata\CDR*.bcp | Done | Error |
| Rated TAP Files | d:\Basset\Data\Indata\TAP*.bcp | Done | Error |
| RoamingRpt | d:\Basset\Data\RoamRpt*.txt | Done | Error |
| SubscriberData | d:\Basset\Data\Subscribers*.txt | Done | Error |
| System Backup | d:\Basset\Data\Backup*.bcp | Done | Error |
| UsageStats | d:\Basset\Data\Alarms*.stt | Done | Error |

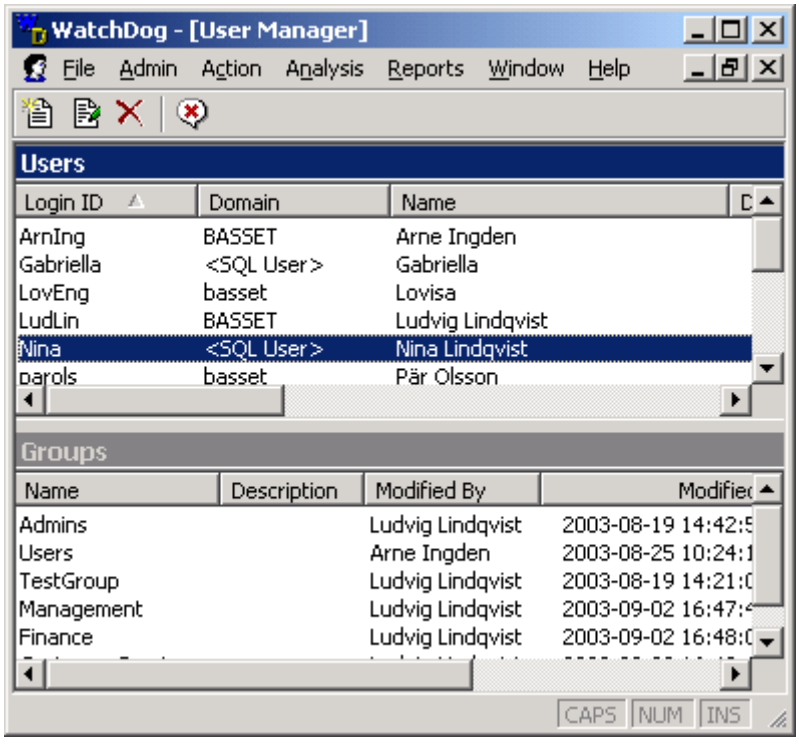
For each path the following information is available.

| | |
|---|---|
| **Name** | The name of the file type. |
| **Path** | The path from where WatchDog reads or puts files |
| **Done Path** | Done path is where WatchDog puts the successful files after processing. The done path is located under the path. i.e. path\done path\ |
| **Error Path** | Done path is where WatchDog puts the error files after processing. The error path is located under the path. i.e. path\error path\ |
| **Code Page** | Code page is used to specify the type of characters used in the file, depending on regional settings. This is to support local characters for example Thai language |

## User Manager

The **User Manager** command is used to define and administer the WatchDog users and groups. User Manager is a powerful tool to allow different users to access different parts of the system, user rights can be set both on user level or on group level

When the **User Manager** command is selected, a list of the current users and groups appears. This list looks as follows.




The user manager screen is divided into 2 different parts users and groups.

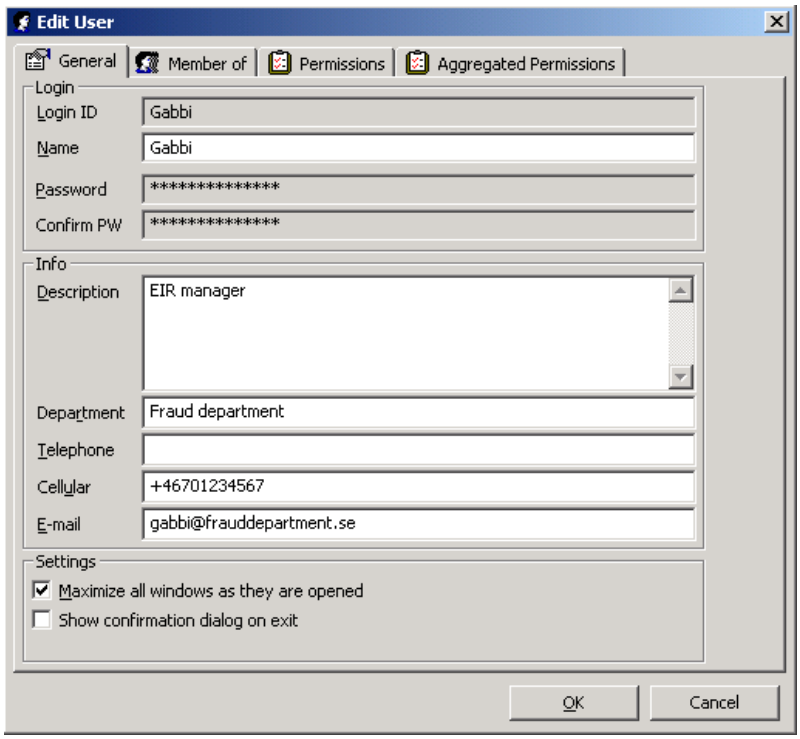
| | |
|---|---|
| **Users** | Contains a list of all configured users in the system. |
| **Groups** | Contains a list of all configured groups in the system. |

To add, edit or delete a user or group, use the toolbar or shortcuts, please note to add user the user list must be selected and to add a group the group list must be selected. In the above screenshot the users list is selected.

## User Manager - Users

The user screen allows configuring user information, which group the user belongs to and specific user permissions.

**Please note:** The "lowest" permission is always applicable, for example a user is member of two different group, each group has a different permission on the Auto Mail configuration, the user has also specific permission on the Auto Mail configuration. When Watchdog determines the specific user and the permissions on the Auto Mail configuration screen it is always the most restricted permission that applies.




The users screen contains four different tabs

- General
- Member of
- Permissions
- Aggregated permissions

Each tab is described below:

**General**
These parameters are mandatory login information.

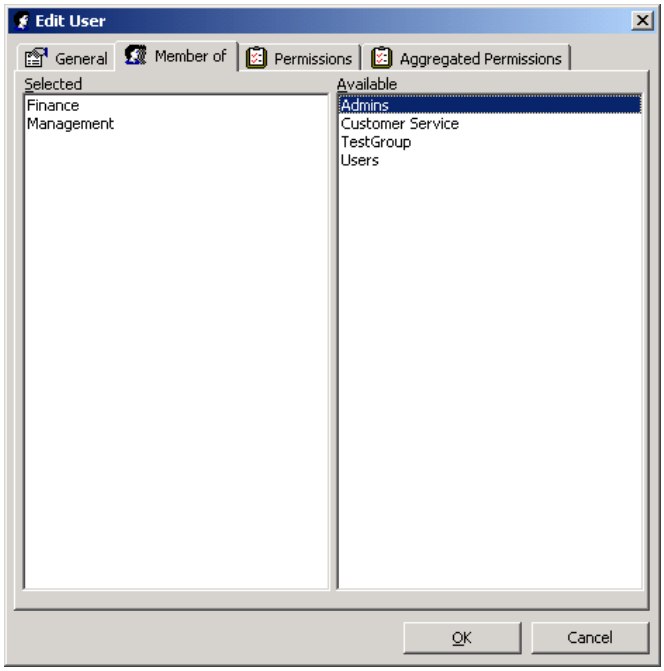
| | |
|---|---|
| **Login ID** | The user's ID that is used when logging on to WatchDog. |
| **Name** | The user's name. |
| **Password** | |
| **Confirm PW** | |
| **Department** | The department where the user works. |
| **Telephone** | The user's phone number. |
| **Cellular** | The user's cell phone number. |
| **E-mail** | The user's e-mail address. |

**Settings**
These parameters control how the user interface should appear for each specific user.

| | |
|---|---|
| **Maximise all windows…** | If this check box is selected, all windows that are opened will be maximised in regards of size. |
| **Close subscriber subforms…** | If this check box is selected, all windows that are open will be closed when another window is opened. |

### Member of

The member of tab of the user displays, which groups the user, is a member of one or several groups. The user is a member of the groups that is in the selected list.




To move an group from the selected list to the available list or vice versa is done either by double click on an item in the list or select it and press enter.

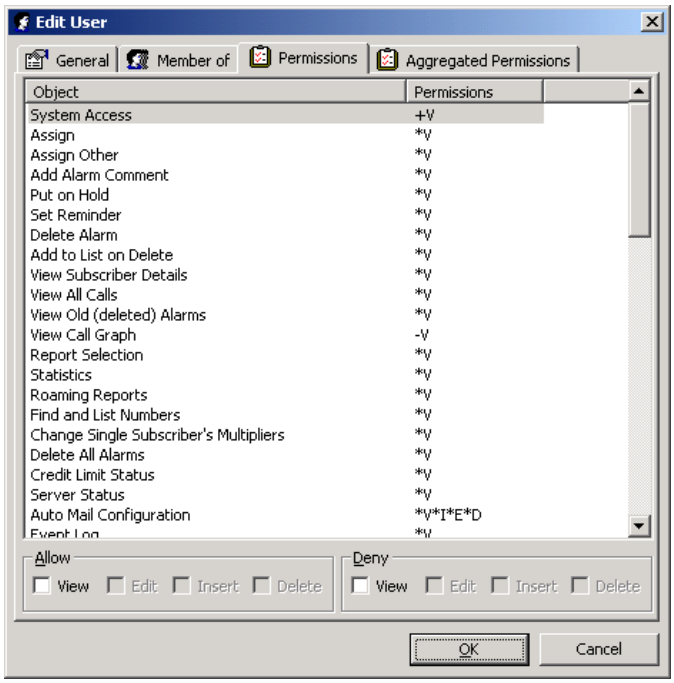
### Permissions

The permission list includes specific settings for specified user. Please note it is possible to set permission on both user and group level and it is the most restricted permission that is applicable.

| Object | Permissions |
|---|---|
| System Access | +V |
| Assign | *V |
| Assign Other | -V |

Each item in the list can have the following status.

| | |
|---|---|
| **+** | The plus sign sets that the user has access to the function. |
| ***** | The asterix sign displays that no explicit permission is set. For example the user has *V on system access and in the group the user is a member of the permission for system access is +V it means that the user has access to the system. |
| **-** | The minus sign sets that the user has no access to the function. |



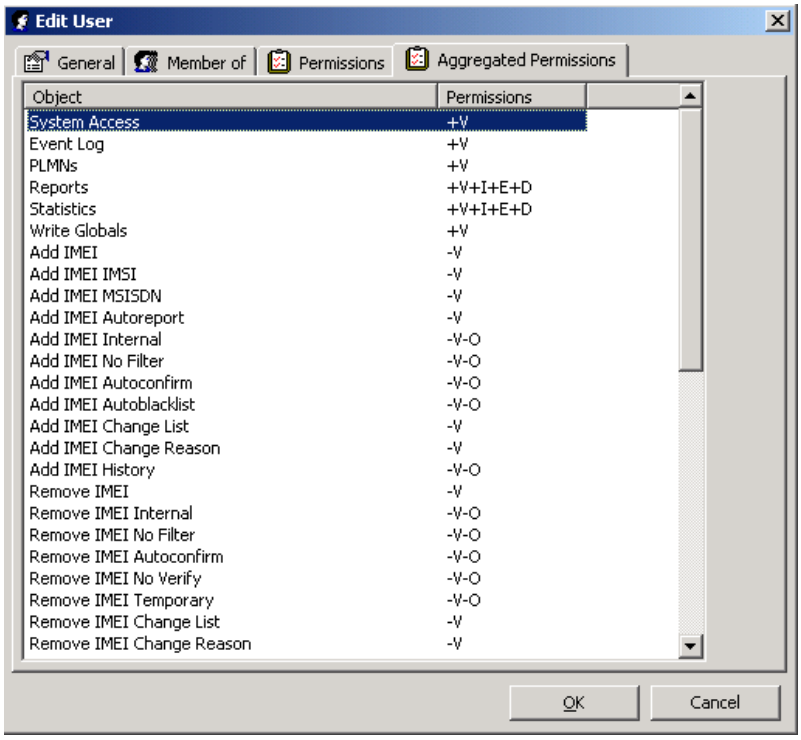

Depending on function the permissions can be set on the following actions:

| | |
|---|---|
| **V** | Sets permission to view a function. |
| **I** | Sets permission to add data related to a function. |
| **E** | Sets permissions to edit data related to the function. |
| **D** | Sets permission to delete data related to a function. |

**Aggregated permissions**

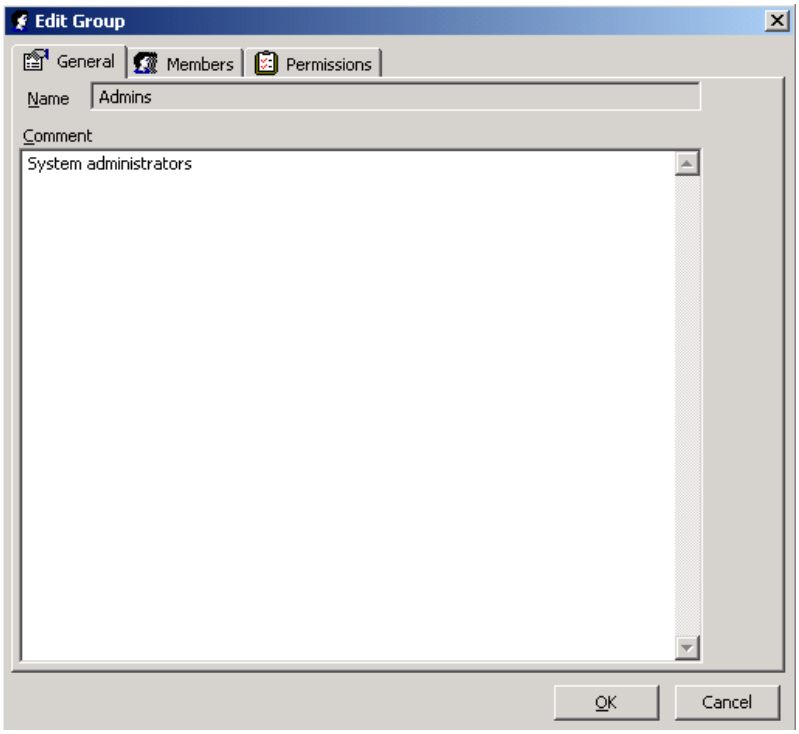
The aggregated permissions displays a combination of the permissions set on the specific user and the groups the user is assigned to. The list displays the real permission that will be applicable for the user.

Displaying the list of aggregated permissions may take a few seconds to load depending on the number of groups the user is assigned to.




## User Manager – Groups

The Groups option allows configuring the groups and the corresponding permissions for a group.




The users screen contains four different tabs

- General

- Member
- Permissions

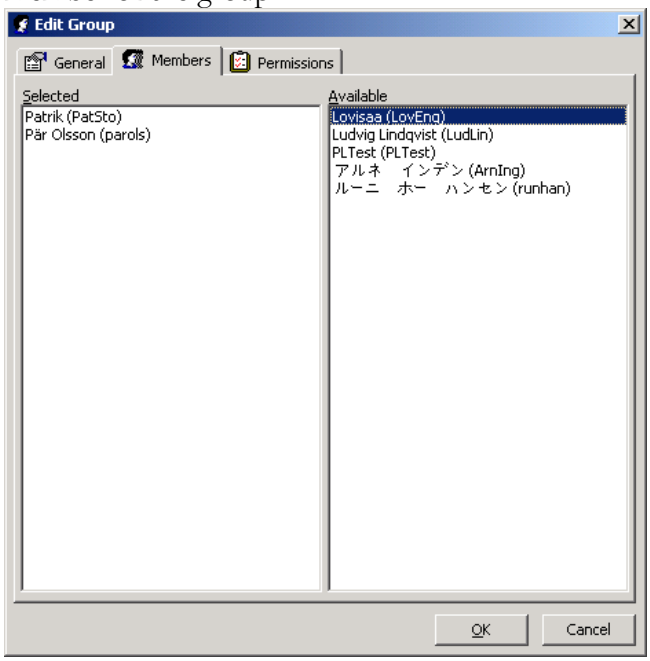
**General**
The general tab contains the following information

**Name** The name of the group.

**Description** A description of the group.

**Member**

The member tab of the group, display which users that is a member of the group. The users that is in the selected list is a member of the group




To move a user from the selected list to the available list or vice versa is done either by double click on an item in the list or select it and press enter.

**Permissions**
The permission list includes specific settings for the group. Please note it is possible to set permission on both user and group level and it is the most restricted permission that is applicable.

| Object | Permissions |
|---|---|
| System Access | +V |
| Assign | *V |
| Assign Other | -V |

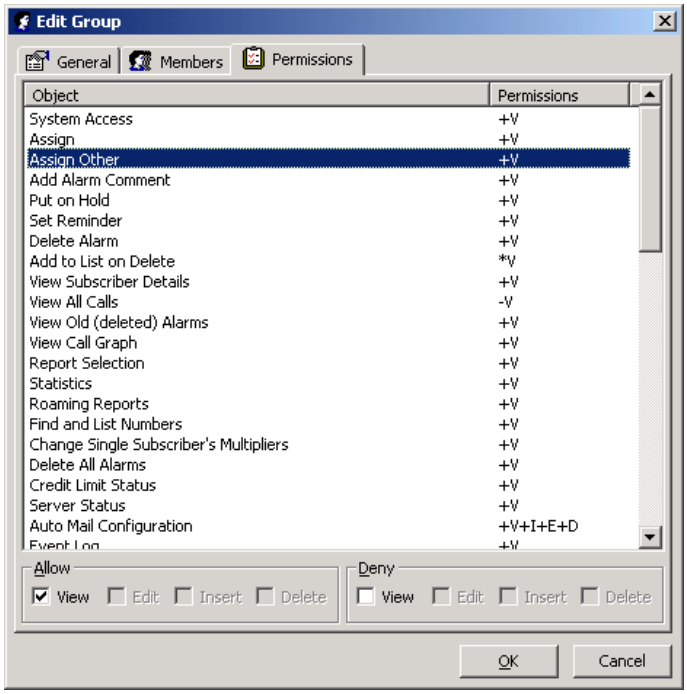
Each item in the list can have the following status.

**+** The plus sign sets that the user has access to the function.

***** The asterix sign displays that no explicit permission is set. For example the user has *V

on system access and in the group the user is a member of the permission for system access is +V it means that the user has access to the system.

**-** The minus sign sets that the user has no access to the function.




Depending on function the permissions can be set on the following actions:

**V** Sets permission to view a function.

**I** Sets permission to add data related to a function.

**E** Sets permissions to edit data related to the function.

**D** Sets permission to delete data related to a function.

Chapter 5

# System Actions

## Overview

### Introduction

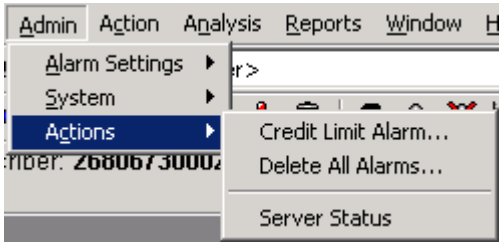
System actions includes two alternatives, Delete all alarms and Server Status. This chapter also describes how to generate a problem report.

### In this chapter

This chapter is organised as follows.

# Overview

The **Actions** command is found on the **Admin** menu.




It includes the following commands.

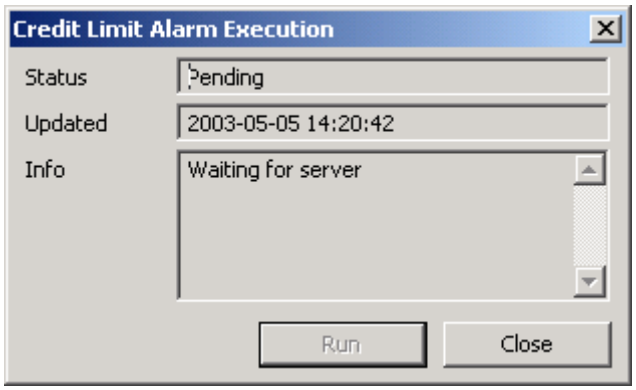
**Credit Limit Alarm…**
Select this command to execute the credit limit alarm.

**Delete All Alarms…**
Select this command to delete multiple alarms in the alarm list.

**Server Status**
Select this command to view server activities, such as CDR handling, alarm generation, backup etc.

# Credit Limit Alarm

The **Credit Limit Alarm** dialog box looks like this.




The following information and functions are available.

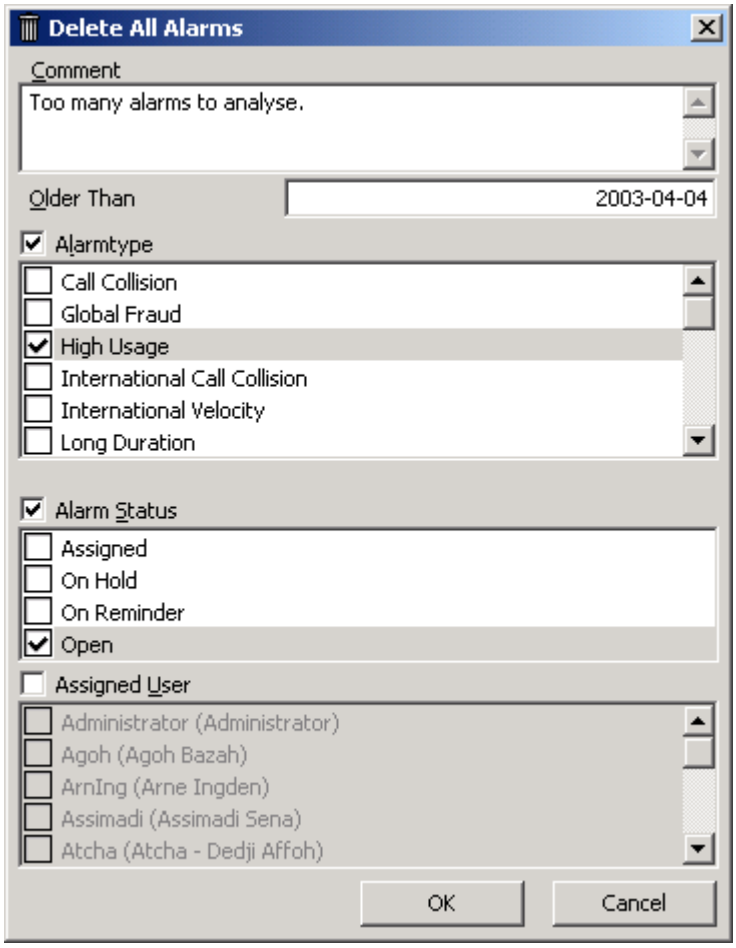
**Status** The status of the alarm execution. The following alternatives are available.

| | |
|---|---|
| **Pending** | The alarm is not active. |
| **Running** | The alarm execution has been started. |

| | | |
|---|---|---|
| | **Finished** | The alarm execution is completed. |
| **Updated** | Date and time when the alarm was latest executed. | |
| **Info** | Information about the current process. | |
| **Run** | Click **Run** to start the alarm execution. WatchDog will then wait for the system scheduler to start the next alarm generation, which will typically happen within minutes. If WatchDogAlarms should be busy with a time consuming task the waiting time may be longer. | |

# Delete All Alarms

The **Delete alarms** window looks as follows.




This action is normally used when there has not been enough time to work with some alarms, e.g. after a long weekend.

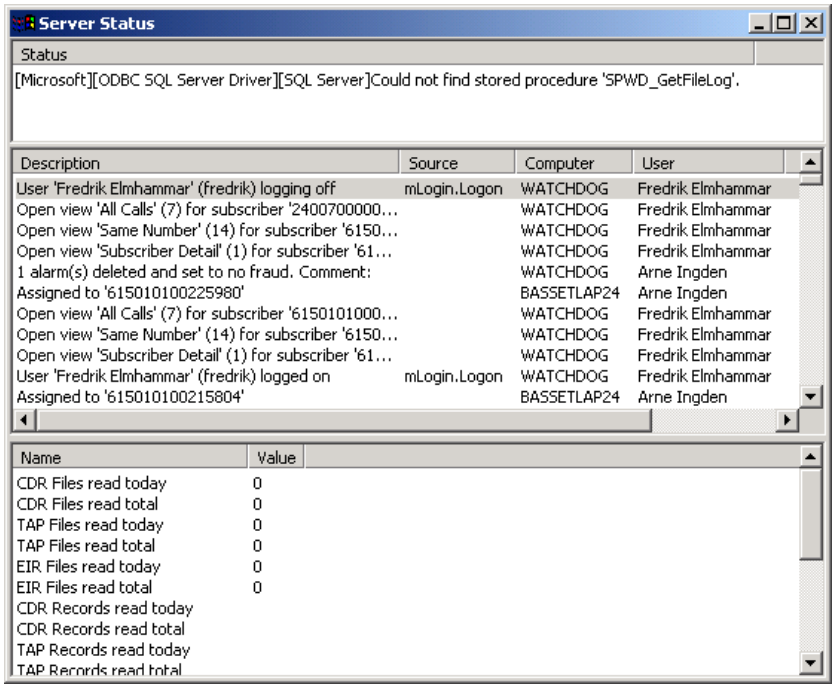
Any and all items described below can be used to make a combination of alarms to delete.

| | |
|---|---|
| **Older than** | It is possible to delete alarms older than a specified date. |

| | |
|---|---|
| **Comment** | A delete reason must be specified before the chosen alarms can be deleted. |
| **Alarm type** | It is possible to delete alarms of all different types (e.g. blacklist, high usage, etc.). |
| **Alarm status** | It is possible to delete alarms with different statuses (e.g. open, hold, reminder, etc.). |
| **Assigned user** | It is possible to delete alarms assigned by a specific agent. |

## Server Status

The **Server Status** window gives an overview of the server actions.




The window is divided into the following three parts.

| | |
|---|---|
| **Last Files Read** | A list of the files read by the system. |
| **Last System Events** | List of events generated on the server. |
| **Statistics** | Statistics generated by the server. |

## Help

The **Help** menu displays information about the version of the system.


About WatchDog
WatchDog
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ControlLib Version 1.0.0.3 (Unicode)
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