

ZABBIX

An Enterprise-Class Open Source
Distributed Monitoring Solution

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Outline



- Biography
- ZABBIX
- New release ZABBIX 1.8
- Activity in Japan

Biography



➤ MIRACLE LINUX

- Linux distributor making “Asianux Server 3 ==MIRACLE LINUX V5” with Red Flag Software and Haansoft
- Providing OSS support including ZABBIX.
- “Asianux Server 3 ==MIRACLE LINUX V5” includes ZABBIX in default.



➤ Takanori Suzuki

➤ A Linux and ZABBIX engineer

➤ Made some patches for ZABBIX

- Fixed ZABBIX agent crash accepted in ZABBIX 1.6.6
- Fixed data loss in the log monitoring
- Added Japanese support for the log monitoring
- Etc...

➤ Developed some products for ZABBIX

- Configuration backup product

➤ A member of ZABBIX-JP, which is an user community in Japan

ZABBIX

What is ZABBIX



- Developed by ZABBIX SIA in Latvia
- Open Source Monitoring Software





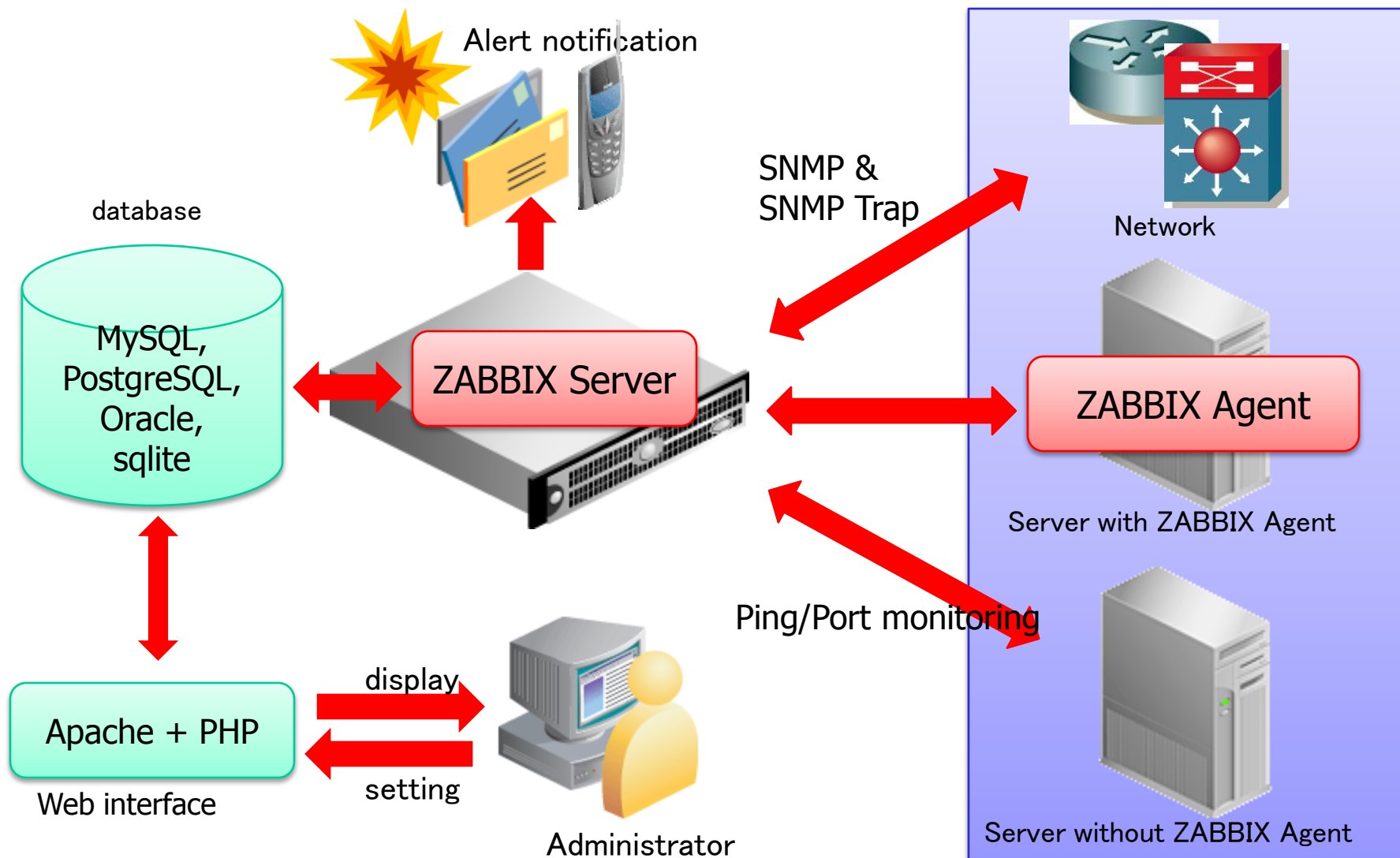
- Monitoring
 - Monitoring target computers
 - Storing history data to RDB
- History data administration and visualization
 - Administration and display of the history data
 - Display of graphs and maps
- Flexible alert notification
 - Flexible setting alert threshold value
 - Notification of failure to administrator

Advantages of ZABBIX



- Open Source
- GUI-based control UI
- Unnecessary knowledge about Linux
- More powerful alert notification and visualization.
- More adapted for large-scale distributed environments
- Supports many platforms

Basic configuration



Many supported platforms



| platform | ZABBIX Server | ZABBIX Agent |
|-----------------|---------------|--------------|
| Linux | Yes | Yes |
| Windows | — | Yes |
| Solaris | Yes | Yes |
| AIX | Yes | Yes |
| HP-UX | Yes | Yes |
| Mac OS X | Yes | Yes |
| FreeBSD | Yes | Yes |
| OpenBSD | Yes | Yes |
| Novell Netware | — | Yes |
| SCO Open Server | Yes | Yes |
| Tru64/OSF | Yes | Yes |

About Linux support



- ZABBIX packages are provided in many Linux distributions.
 - Debian (.deb)
 - Ubuntu (.deb)
 - Fedora Extra (.rpm)
 - Asianux (.rpm)



- ZABBIX

[Monitoring](#)
[Inventory](#)
[Reports](#)
[Configuration](#)
[Administration](#)
[Login](#)

[General](#)
[WEB](#)
[Hosts](#)
[Items](#)
[Triggers](#)
[アクション](#)
[Maps](#)
[Graphs](#)
[Screens](#)
[IT services](#)
[ディスクカバ](#)
[エクスポート/インポート](#)

CONFIGURATION OF ITEMS

Create Item

ITEMS

[Hide disabled items]

グループ

すべて

Host

aktw01

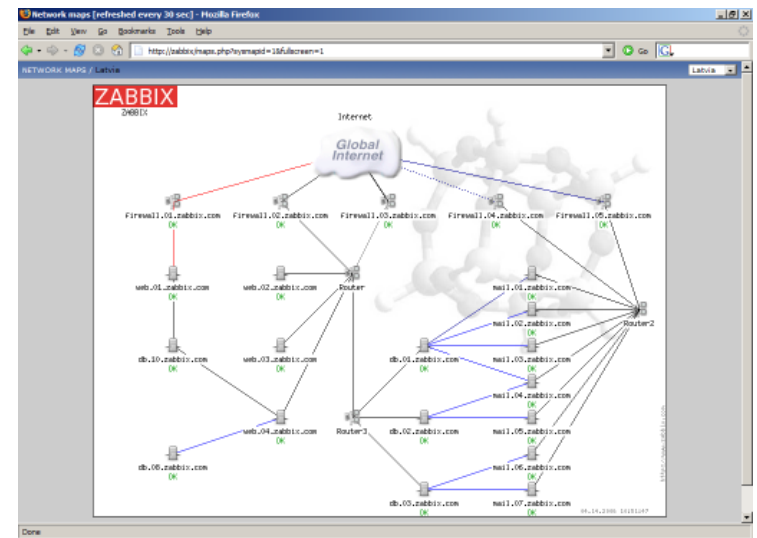
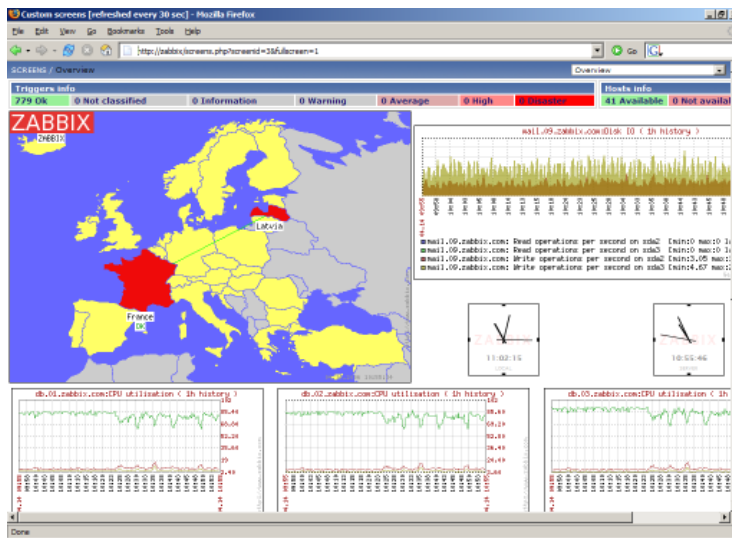
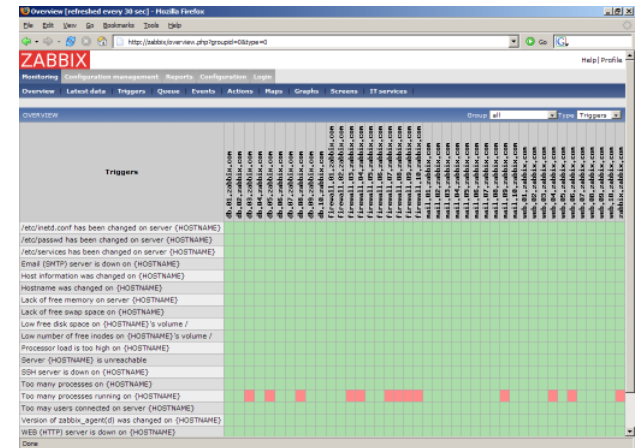
External filter

| 説明 | Key | Update interval | History | Trends | Type | Status | Applications |
|---|---------------------------------------|-----------------|---------|--------|--------------|---------------|----------------------|
| Template_OS_Linux:buffers memory | vm.memory.size[buffers] | 300 | 90 | 365 | ZABBIX agent | Active | Availability, Memory |
| Template_OS_Linux:cached memory | vm.memory.size[cached] | 300 | 90 | 365 | ZABBIX agent | Active | Availability, Memory |
| Template_OS_Linux:free memory | vm.memory.size[free] | 300 | 90 | 365 | ZABBIX agent | Active | Availability, Memory |
| Template_OS_Linux:shared memory | vm.memory.size[shared] | 300 | 90 | 365 | ZABBIX agent | Active | Availability, Memory |
| Template_OS_Linux:total memory | vm.memory.size[total] | 300 | 90 | 365 | ZABBIX agent | Active | Availability, Memory |
| ssh service is running | net.tcp.service[ssh,10.1.0.1] | 300 | 90 | 365 | ZABBIX agent | Active | SSH |
| Template_App_ssh:ssh service is running | net.tcp.service[ssh] | 300 | 90 | 365 | ZABBIX agent | Disabled | SSH |
| Template_OS_Linux:total swap space | system.swap.size[total] | 86400 | 90 | 365 | ZABBIX agent | Active | Swap |
| Template_OS_Linux:Checksum of /etc/fstab | vfs.file.cksum[/etc/fstab] | 3600 | 90 | 365 | ZABBIX agent | Active | Files |
| Template_OS_Linux:Checksum of /etc/group | vfs.file.cksum[/etc/group] | 3600 | 90 | 365 | ZABBIX agent | Active | Files |
| Template_OS_Linux:Checksum of /etc/hosts | vfs.file.cksum[/etc/hosts] | 3600 | 90 | 365 | ZABBIX agent | Active | Files |
| Template_OS_Linux:Checksum of /etc/passwd | vfs.file.cksum[/etc/passwd] | 3600 | 90 | 365 | ZABBIX agent | Active | Files |
| Template_App_named:Checksum of /etc/named.conf | vfs.file.cksum[/etc/named.conf] | 3600 | 90 | 365 | ZABBIX agent | Active | Named |
| Template_App_ntpd:Checksum of /etc/ntp.conf | vfs.file.cksum[/etc/ntp.conf] | 3600 | 90 | 365 | ZABBIX agent | Active | ntp |
| Template_OS_Linux:Checksum of /etc/passwd | vfs.file.cksum[/etc/passwd] | 3600 | 90 | 365 | ZABBIX agent | Active | Files |
| Template_App_named:Checksum of /etc/named.conf | vfs.file.cksum[/etc/named.conf] | 3600 | 90 | 365 | ZABBIX agent | Not supported | Named |
| Template_App_named:Checksum of /etc/misc.conf | vfs.file.cksum[/etc/misc.conf] | 3600 | 90 | 365 | ZABBIX agent | Not supported | Named |
| Template_App_sqld:Checksum of /etc/squid/squid.conf | vfs.file.cksum[/etc/squid/squid.conf] | 3600 | 90 | 365 | ZABBIX agent | Not supported | Squid |
| Template_App_sshd:Checksum of /etc/ssh/sshd_config | vfs.file.cksum[/etc/ssh/sshd_config] | 3600 | 90 | 365 | ZABBIX agent | Not supported | SSH |
| Template_OS_Linux:Checksum of /etc/syslog.conf | vfs.file.cksum[/etc/syslog.conf] | 3600 | 90 | 365 | ZABBIX agent | Active | Files |
| Template_App_xinetd:Checksum of /etc/xinetd.conf | vfs.file.cksum[/etc/xinetd.conf] | 3600 | 90 | 365 | ZABBIX agent | Active | xinetd |
| Template_App_xinetd:Checksum of /usr/lib/cvs/cvs.conf | vfs.file.cksum[/usr/lib/cvs/cvs.conf] | 3600 | 90 | 365 | ZABBIX agent | Active | ESM |

Visualization functions



- Display of monitoring data
- Display of location of failure
- Display of graphs
- Display of maps
- Screen function
(Users can make customized reports)



Screenshot 1 – An overview of monitoring



ZABBIX

ヘルプ | サポート | プロファイル

監視データ | インベントリ | レポート | 設定 | 管理 | ログイン

概要 | ウェブ | 最新データ | トリガー | キュー | イベント | アクション | マップ | グラフ | スクリーン | ディスカバリ | ITサービス

概要

グループ 全てタイプ トリガー

| トリガー | L3SM01 | L3SM02 | Linux01 | Linux02 | Linux03 | Linux04 | Windows01 | Windows02 | Windows03 | Windows04 | Windows05 | Windows06 | Windows07 |
|---|--------|--------|---------|---------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| /etc/group has been changed on server {HOSTNAME} | | | | | | | | | | | | | |
| /etc/passwd has been changed on server {HOSTNAME} | | | | | | | | | | | | | |
| CPU Processor Time is High on {HOSTNAME} | | | | | | | | | | | | | |
| crond is not running on {HOSTNAME} | | | | | | | | | | | | | |
| HP Hardware CPU | | | | | | | | | | | | | |
| HP Hardware Fans | | | | | | | | | | | | | |
| HP Hardware Logical Drive | | | | | | | | | | | | | |
| HP Hardware Memory | | | | | | | | | | | | | |
| HP Hardware Physical Drive | | | | | | | | | | | | | |
| HP Hardware PowerSupply | | | | | | | | | | | | | |
| HP Hardware Share Disk Logical Drive | | | | | | | | | | | | | |
| HP Hardware Share Disk Physical Drive | | | | | | | | | | | | | |
| HP Hardware Temperature (CPU#1) | | | | | | | | | | | | | |
| HP Hardware Temperature (I/O_ZONE) | | | | | | | | | | | | | |
| HP Hardware Temperature (Power Supply Bay) | | | | | | | | | | | | | |
| http is down on {HOSTNAME} | | | | | | | | | | | | | |
| httpd is not running on {HOSTNAME} | | | | | | | | | | | | | |
| IIS Admin Service is not running on {HOSTNAME} | | | | | | | | | | | | | |
| Lack of free memory on server {HOSTNAME} | | | | | | | | | | | | | |
| Lack of free swap space on {HOSTNAME} | | | | | | | | | | | | | |
| Link Down on {HOSTNAME} Interface 0/1 | | | | | | | | | | | | | |
| Link Down on {HOSTNAME} Interface 0/17 | | | | | | | | | | | | | |
| Link Down on {HOSTNAME} Interface 0/19 | | | | | | | | | | | | | |

Screenshot 2 – A view of failure



ZABBIX
ヘルプ | サポート | プロファイル

監視データ | インベントリ | レポート | 設定 | 管理 | ログイン

概要 | ウェブ | 最新データ | **トリガー** | キュー | イベント | アクション | マップ | グラフ | スクリーン | ディスカバリ | ITサービス

トリガーのステータス [22:59:30]
 グループ 全て
 ホスト 全て

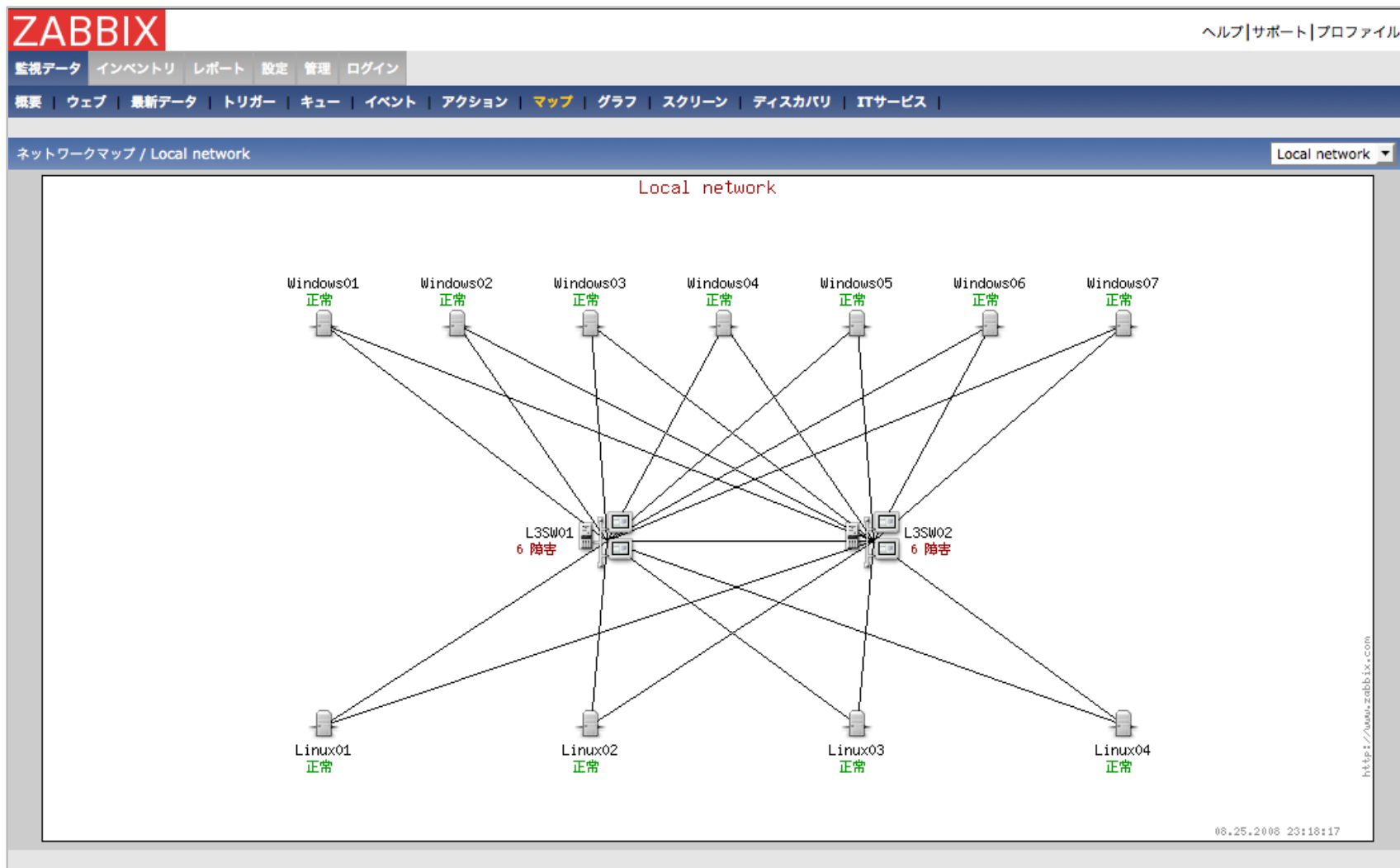
[全てのトリガーを表示] [不明を表示] [アクションを表示] [詳細を表示] [選択]

| ホスト | 名前 | ステータス | 深刻度 | 最新の変更 | 認知済 | | コメント |
|--------|------------------------------------|-------|-------|-----------------|-----|----------|------|
| L3SW01 | Link Down on L3SW01 Interface 0/17 | 障害 | 軽度の障害 | 13 Feb 16:05:42 | | いいえ (認知) | 追加 |
| L3SW02 | Link Down on L3SW02 Interface 0/17 | 障害 | 軽度の障害 | 13 Feb 16:05:42 | | いいえ (認知) | 追加 |
| L3SW01 | Link Down on L3SW01 Interface 0/19 | 障害 | 軽度の障害 | 13 Feb 16:05:42 | | いいえ (認知) | 追加 |
| L3SW02 | Link Down on L3SW02 Interface 0/19 | 障害 | 軽度の障害 | 13 Feb 16:05:42 | | いいえ (認知) | 追加 |
| L3SW01 | Link Down on L3SW01 Interface 0/40 | 障害 | 軽度の障害 | 13 Feb 16:05:42 | | いいえ (認知) | 追加 |
| L3SW02 | Link Down on L3SW02 Interface 0/40 | 障害 | 軽度の障害 | 13 Feb 16:05:42 | | いいえ (認知) | 追加 |
| L3SW01 | Link Down on L3SW01 Interface 0/41 | 障害 | 軽度の障害 | 13 Feb 16:05:42 | | いいえ (認知) | 追加 |
| L3SW02 | Link Down on L3SW02 Interface 0/41 | 障害 | 軽度の障害 | 13 Feb 16:05:41 | | いいえ (認知) | 追加 |
| L3SW01 | Link Down on L3SW01 Interface 0/42 | 障害 | 軽度の障害 | 13 Feb 16:05:42 | | いいえ (認知) | 追加 |
| L3SW02 | Link Down on L3SW02 Interface 0/42 | 障害 | 軽度の障害 | 13 Feb 16:05:42 | | いいえ (認知) | 追加 |
| L3SW01 | Link Down on L3SW01 Interface 0/43 | 障害 | 軽度の障害 | 13 Feb 16:05:42 | | いいえ (認知) | 追加 |
| L3SW02 | Link Down on L3SW02 Interface 0/43 | 障害 | 軽度の障害 | 13 Feb 16:05:42 | | いいえ (認知) | 追加 |
| L2SW01 | L2SW01 is unreachable | 障害 | 軽度の障害 | 13 Feb 16:05:46 | | いいえ (認知) | 追加 |
| L2SW02 | L2SW02 is unreachable | 障害 | 軽度の障害 | 13 Feb 16:05:46 | | いいえ (認知) | 追加 |
| L2SW03 | L2SW03 is unreachable | 障害 | 軽度の障害 | 13 Feb 16:05:46 | | いいえ (認知) | 追加 |

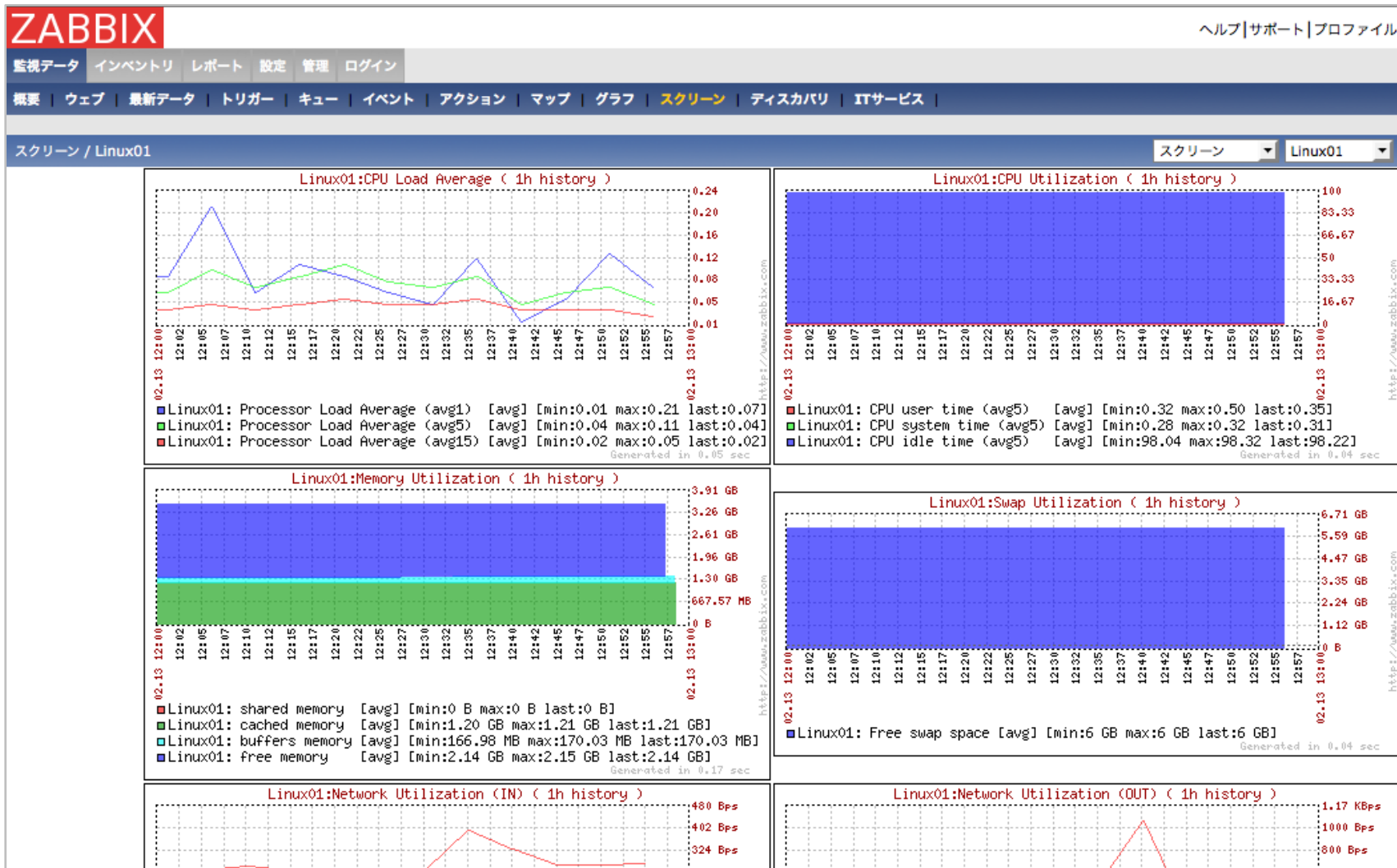
合計: 15

ZABBIX 1.4.5 Copyright 2001-2008 by SIA Zabbix
 次のユーザでログイン中 'Admin'

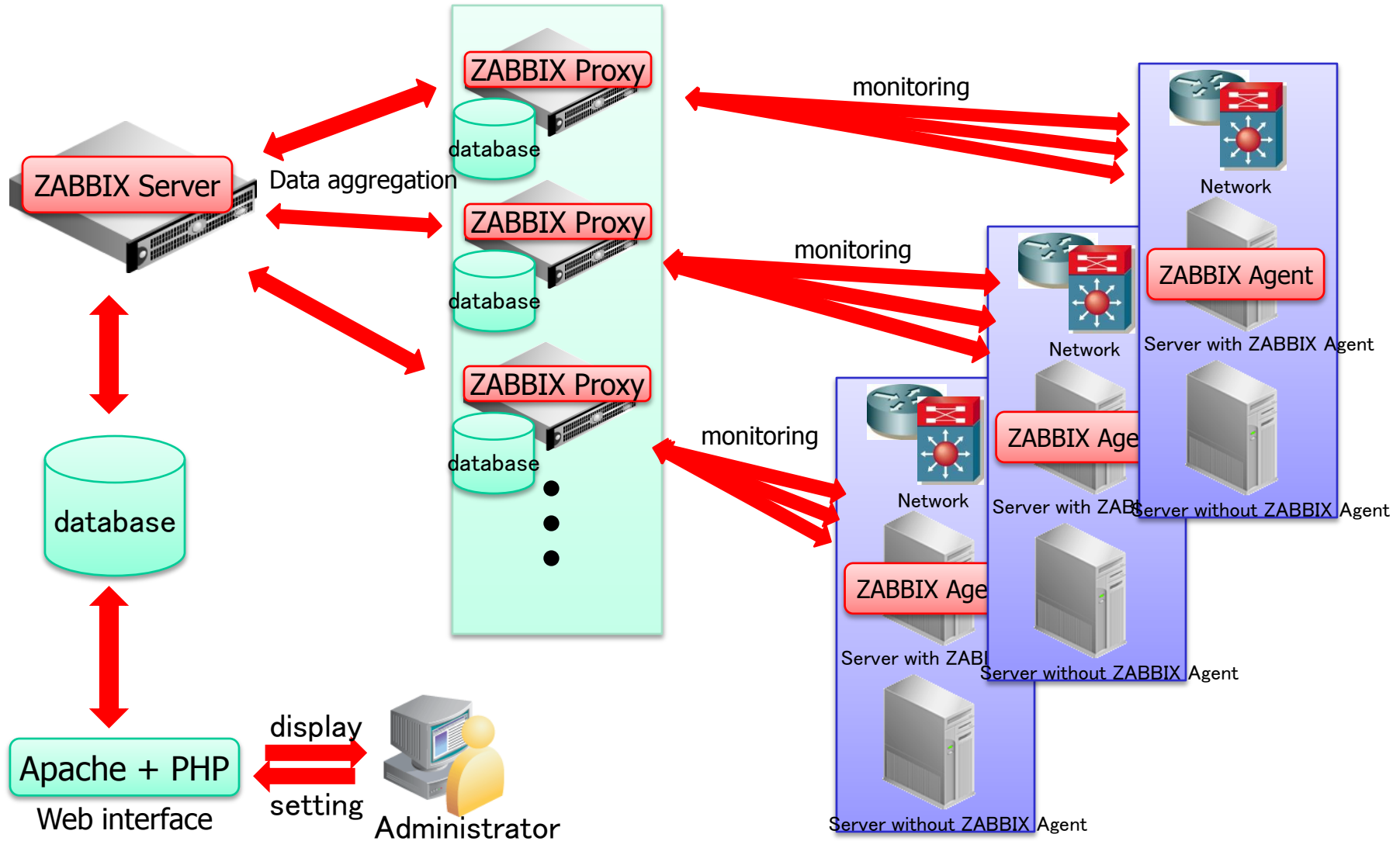
Screenshot 3 – A view of a map



Screenshot 4 – A view of a screen



Distributed monitoring configuration





- There are two ways to monitor distributed environments.

They serve different purpose.

- ZABBIX Node

- 1.4 or later

- ZABBIX Proxy

- 1.6 or later

Node vs. Proxy



| | Node | Proxy |
|-----------------------------|-------------|--------------|
| Lightweight | No | Yes |
| Web GUI on each server | Yes | No |
| Works independently | Yes | Yes |
| Easy maintenance | No | Yes |
| Automatic DB creation | No | Yes |
| Local administration | Yes | No |
| Ready for embedded Hardware | No | Yes |
| One way TCP connections | Yes | Yes |
| Centralized configuration | No | Yes |
| Generates notifications | Yes | No |

About ZABBIX Node and Proxy



- Actual achievement
 - 100K of devices, which have 20 monitoring elements per device
 - 100K x 20 = 2000K monitoring elements
 - Refresh rate is 1 minute
 - Using proxy
 - Central server bandwidth is around 17Mbps

Development status



- The latest stable version
 - 1.6.6
- beta version
 - 1.7
- Next stable version
 - 1.8 (will be released later in October 2009)

New release

ZABBIX 1.8



➤ Release date

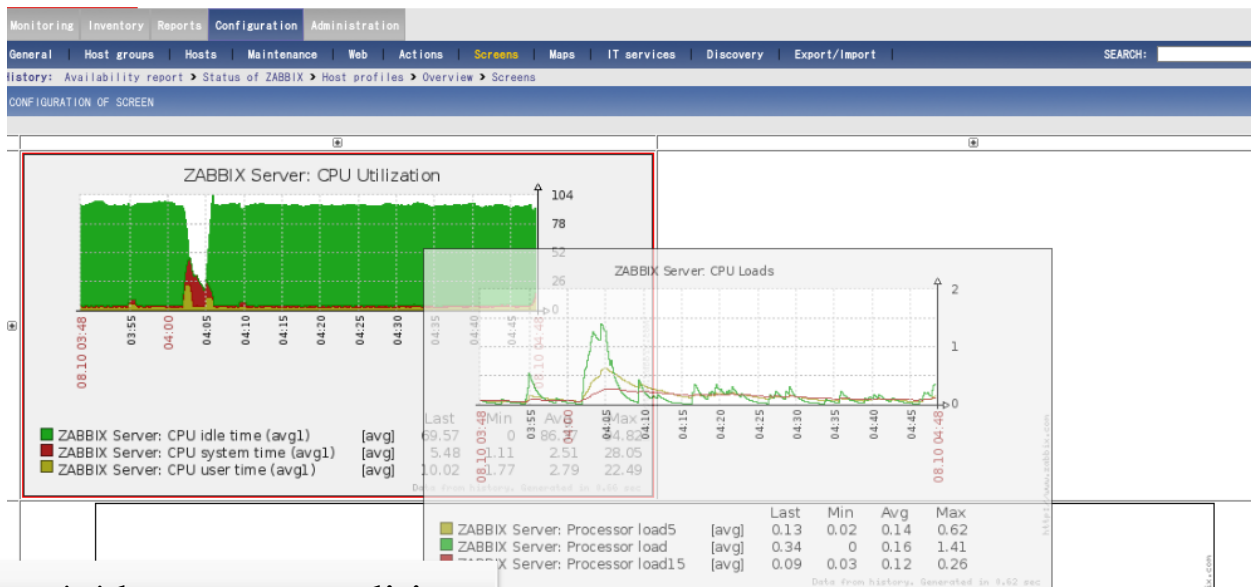
- ZABBIX v1.8 will be released in October 2009.
(from ZABBIX web site)

New features in ZABBIX 1.8



- New features
 - ZABBIX API
 - UI improvements
 - Bar reports
 - Drag'n'drop screen editing
 - Performance improvements
 - Enabled database cache
 - Some other improvements

Screenshots of ZABBIX 1.8



Darg'n'drop screen editing

| | | | | | | | | | |
|--|--------------|-------------------------------|-----|----|-----|--------------|----------|--------------------------|-----------------------------------|
| <div><div></div><div>Template_Linux:Checksum of /etc/passwd</div></div> | Triggers (1) | vfs.file.cksum[/etc/passwd] | 600 | 7 | 365 | ZABBIX agent | Active | Integrity | <div><div></div><div></div></div> |
| <div><div></div><div>Template_Linux:Checksum of /etc/services</div></div> | Triggers (1) | vfs.file.cksum[/etc/services] | 600 | 7 | 365 | ZABBIX agent | Active | Integrity | <div><div></div><div></div></div> |
| <div><div></div><div>Template_Linux:Checksum of /usr/bin/ssh</div></div> | Triggers (1) | vfs.file.cksum[/usr/bin/ssh] | 600 | 7 | 365 | ZABBIX agent | Active | Integrity | <div><div></div><div></div></div> |
| <div><div></div><div>Template_Linux:Checksum of /usr/bin/sshd</div></div> | Triggers (1) | vfs.file.cksum[/usr/bin/sshd] | 600 | 7 | 365 | ZABBIX agent | Active | Integrity | <div><div></div><div></div></div> |
| <div><div></div><div>Template_Linux:Checksum of /vmlinuz</div></div> | Triggers (1) | vfs.file.cksum[/vmlinuz] | 600 | 7 | 365 | ZABBIX agent | Disabled | Integrity | <div><div></div><div></div></div> |
| <div><div></div><div>Template_Linux:CPU idle time (avg1)</div></div> | Triggers (0) | system.cpu.util[,idle,avg1] | 10 | 90 | 365 | ZABBIX agent | Active | CPU, Performance | <div><div></div><div></div></div> |
| <div><div></div><div>Template_Linux:CPU nice time (avg1)</div></div> | Triggers (0) | system.cpu.util[,nice,avg1] | 10 | 90 | 365 | ZABBIX agent | Active | CPU, Performance | <div><div></div><div></div></div> |
| <div><div></div><div>Template_Linux:CPU system time (avg1)</div></div> | Triggers (0) | system.cpu.util[,system,avg1] | 10 | 90 | 365 | ZABBIX agent | Active | CPU, Performance | <div><div></div><div></div></div> |
| <div><div></div><div>Template_Linux:CPU wait time (avg1)</div></div> | Triggers (0) | system.cpu.util[,wait,avg1] | 10 | 90 | 365 | ZABBIX agent | Disabled | CPU, Performance | <div><div></div><div></div></div> |
| <div><div></div><div>Template_Linux:CPU user time (avg1)</div></div> | Triggers (0) | system.cpu.util[,user,avg1] | 10 | 90 | 365 | ZABBIX agent | Active | CPU, Performance | <div><div></div><div></div></div> |
| <div><div></div><div>Template_Linux:Email (SMTP) server is running</div></div> | Triggers (1) | net.tcp.service[smtp] | 60 | 7 | 365 | ZABBIX agent | Active | Services | <div><div></div><div></div></div> |
| <div><div></div><div>Template_Linux:Free disk space on /</div></div> | Triggers (0) | vfs.fs.size[/,free] | 30 | 7 | 365 | ZABBIX agent | Active | Availability, Filesystem | <div><div></div><div></div></div> |
| <div><div></div><div>Template_Linux:Free disk space on /home</div></div> | Triggers (0) | vfs.fs.size[/home,free] | 30 | 7 | 365 | ZABBIX agent | Active | Availability, Filesystem | <div><div></div><div></div></div> |
| <div><div></div><div>Template_Linux:Free disk space on /opt</div></div> | Triggers (0) | vfs.fs.size[/opt,free] | 30 | 7 | 365 | ZABBIX agent | Active | Availability, Filesystem | <div><div></div><div></div></div> |
| <div><div></div><div>Template_Linux:Free disk space on /tmp</div></div> | Triggers (0) | vfs.fs.size[/tmp,free] | 30 | 7 | 365 | ZABBIX agent | Active | Availability, Filesystem | <div><div></div><div></div></div> |

UI improvements

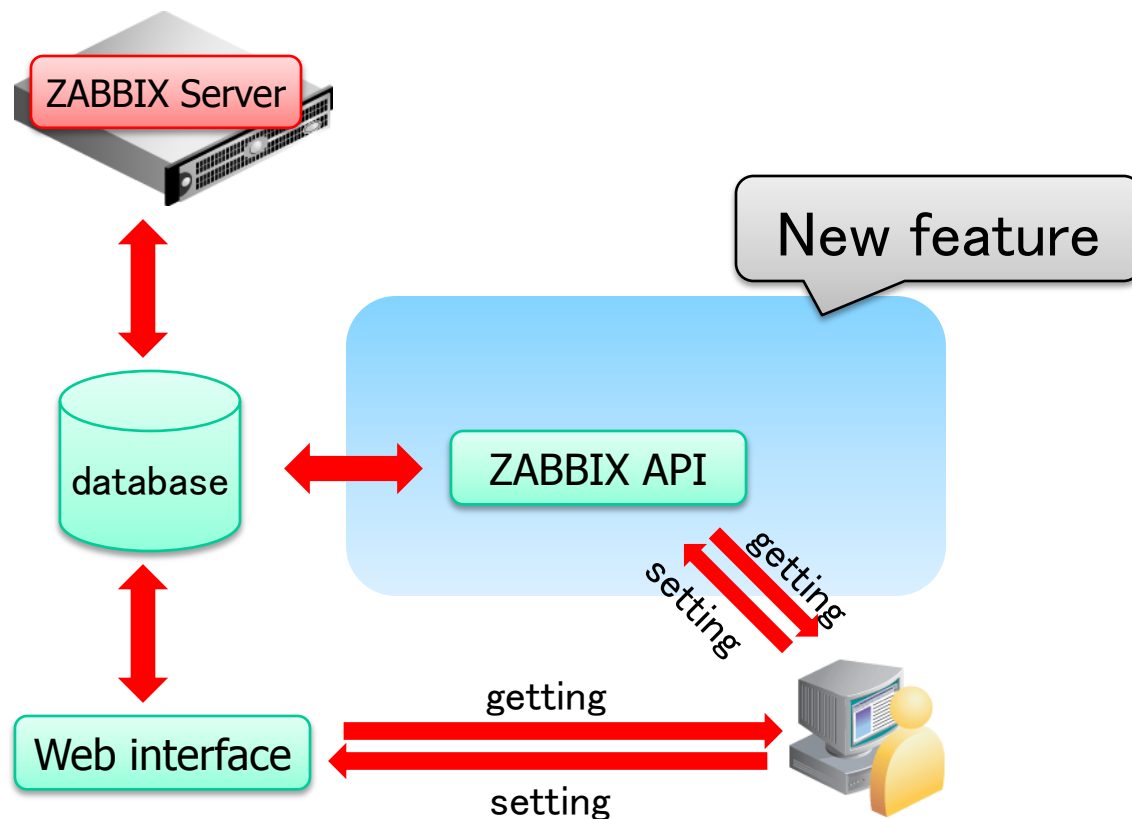
Do the Next, Open your Window

MIRACLE

What is the hottest topic in ZABBIX 1.8?

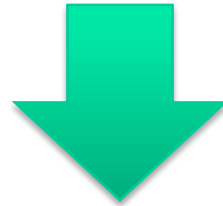


➤ ZABBIX API





- In older version than 1.8, users had to control ZABBIX by GUI. (even if you wanted to control it from command line.)



With ZABBIX API

- Users can access and control ZABBIX by using ZABBIX API. Easy to make ZABBIX control programs.

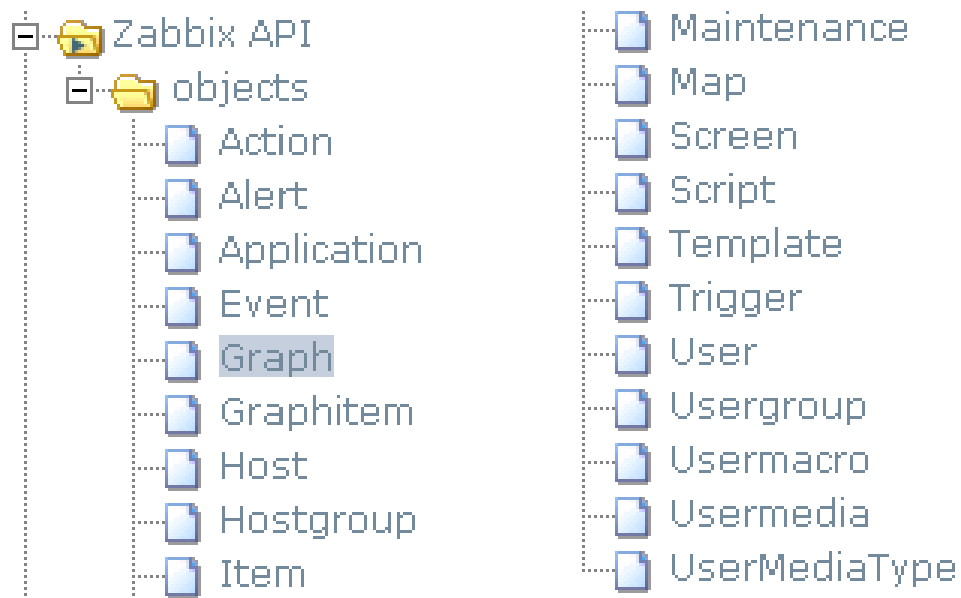


- The protocol is JSON-RPC 2.0
 - JSON-RPC is supported by many languages.
 - JavaScript
 - C
 - C#
 - Java
 - Perl
 - Php
 - Python
 - Ruby

from <http://json-rpc.org/wiki/implementations>



➤ Supported objects



from <http://www.zabbix.com/documentation/1.8/api>

➤ Basic objects are supported.

- Supports add, update, delete objects

➤ No history objects are supported at present.



➤ Sample code

➤ Using python-jsonrpc library with some fixes for JSON-RPC 2.0

➤ <http://json-rpc.org/wiki/python-json-rpc>

```
#!/usr/bin/python
from jsonrpc import ServiceProxy

#API url is "Top directry of ZABBIX frontend" + "/api_jsonrpc.php"
session=ServiceProxy("http://zabbix18-server/zabbix/api_jsonrpc.php")

#Authentication is needed.
sessionid=session.user.authenticate({'user': 'admin', 'password': 'zabbix'})
#Using API.
print session.user.getId.auth(sessionid, {"userid": "1"})
print session.graph.getId.auth(sessionid, {"graphid": "3"})
```

ZABBIX API



```
$ ./zabbix-api.py
{'lang': 'en_gb', 'rows_per_page': '50', 'surname': 'Administrator', 'name':
'Zabbix', 'passwd': '5fceb3e34b520afeffb37ce08c7cd66', 'attempt_clock':
'1255183886', 'userid': '1', 'autologin': '0', 'refresh': '30',
'attempt_failed': '0', 'alias': 'Admin', 'theme': 'default.css', 'url': '',
'autologout': '900', 'attempt_ip': '', 'type': '3'}
{'show_3d': '0', 'ymin_itemid': '0', 'graphid': '3', 'name': 'CPU
Utilization', 'percent_left': '0.0000', 'graphtype': '1', 'height': '200',
'yaxismax': '100.0000', 'width': '900', 'show_legend': '0',
'show_work_period': '1', 'templateid': '0', 'ymax_itemid': '0', 'ymin_type':
'0', 'show_triggers': '1', 'ymax_type': '0', 'yaxismin': '0.0000',
'percent_right': '0.0000'}
```



- Ruby implementation is also available
 - http://trac.red-tux.net/wiki/zbx_api
 - Subversion repository

```
$ svn co http://svn.red-tux.net/ruby/api
```

ZABBIX 1.8 repository



- You can try pre 1.8 (1.7) in subversion repository.
 - `svn://svn.zabbix.com`

Activity in Japan

Activity in Japan



➤ ZABBIX-JP

- An user community in Japan
- Many users use the forum and support themselves.
- Makes patches for multi-byte language support, including Japanese



Activity in Japan



- Japanese community contributed to ZABBIX by supporting Japanese language.
 - Japanese language web interface.
 - ZABBIX-JP made patch.
 - Fixed garbage characters in the graph.
 - ZABBIX-JP made patch.
 - Fixed event triggers to accept multi-byte language.
 - MIRACLE LINUX made patch.
 - Fixed the agents not to send garbage characters in eventlog
 - MIRACLE LINUX made patch.
- Additional bug fixes:
 - Agents crash x 2
 - MIRACLE LINUX made patch.



- Some patches were accepted, but some patches were not.



- ZABBIX-JP released another package, which includes some patches for Japanese users.
 - Especially in 1.4 or 1.6, there is not any multi-byte support in eventlog monitoring in windows.
 - The default web interface language setting is Japanese.

Activity in Japan



- In 1.8, full support of UTF-8 is scheduled.
- Some fixes already exist in repository.
 - Added unicode to pie graphs
 - Added unicode strings to maps
 - Added codepage parameter for log[] metric
 - Added codepage parameter for vfs.file.regexp[] and vfs.file.regmatch[] metric
 - Added support of Unicode for vfs.file.*[] metrics
 - Etc
- Development status, however, is not yet “Done”.

| Functionality | Development | Testing |
|--|-------------|---------|
| Bar graphs | Done | 80% |
| Maintenance period for hosts and host groups | Done | Done |
| Full support of UTF8 | 0% | 0% |

Activity in Japan



- We will pay attentions to multibyte language support in 1.8.
- We will continue to contribute to Japanese language support and improvement in ZABBIX.



Do the Next, Open your Window

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