

1 Network discovery

Overview

Zabbix offers automatic network discovery functionality that is effective and very flexible.

With network discovery properly set up you can:

- speed up Zabbix deployment
- simplify administration
- use Zabbix in rapidly changing environments without excessive administration

Zabbix network discovery is based on the following information:

- IP ranges
- Availability of external services (FTP, SSH, WEB, POP3, IMAP, TCP, etc)
- Information received from Zabbix agent (only unencrypted mode is supported)
- Information received from SNMP agent

It does NOT provide:

- Discovery of network topology

Network discovery basically consists of two phases: discovery and actions.

Discovery

Zabbix periodically scans the IP ranges defined in [network discovery rules](#). The frequency of the check is configurable for each rule individually.

Note that one discovery rule will always be processed by a single discoverer process. The IP range will not be split between multiple discoverer processes.

Each rule has a set of service checks defined to be performed for the IP range.

Discovery checks are processed independently from the other checks. If any checks do not find a service (or fail), other checks will still be processed.

Every check of a service and a host (IP) performed by the network discovery module generates a discovery event.

| Event | Check of service result |
|---------------------------|---|
| <i>Service Discovered</i> | The service is 'up' after it was 'down' or when discovered for the first time. |
| <i>Service Up</i> | The service is 'up', consecutively. |
| <i>Service Lost</i> | The service is 'down' after it was 'up'. |
| <i>Service Down</i> | The service is 'down', consecutively. |
| <i>Host Discovered</i> | At least one service of a host is 'up' after all services of that host were 'down' or a service is discovered which belongs to a not registered host. |
| <i>Host Up</i> | At least one service of a host is 'up', consecutively. |

| Event | Check of service result |
|-----------|--|
| Host Lost | All services of a host are 'down' after at least one was 'up'. |
| Host Down | All services of a host are 'down', consecutively. |

Actions

Discovery events can be the basis of relevant [actions](#), such as:

- Sending notifications
- Adding/removing hosts
- Enabling/disabling hosts
- Adding hosts to a group
- Removing hosts from a group
- Linking hosts to/unlinking from a template
- Executing remote scripts

These actions can be configured with respect to the device type, IP, status, uptime/downtime, etc. For full details on configuring actions for network-discovery based events, see action [operation](#) and [conditions](#) pages.

Linking a discovered host to templates will fail collectively if any of the linkable templates has a unique entity (e.g. item key) that is the same as a unique entity (e.g. item key) already existing on the host or on another of the linkable templates.

Host creation

A host is added if the *Add host* operation is selected. A host is also added, even if the *Add host* operation is missing, if you select operations resulting in actions on a host. Such operations are:

- enable host
- disable host
- add host to a host group
- link template to a host

When adding hosts, a host name is the result of reverse DNS lookup or IP address if reverse lookup fails. Lookup is performed from the Zabbix server or Zabbix proxy, depending on which is doing the discovery. If lookup fails on the proxy, it is not retried on the server. If the host with such a name already exists, the next host would get **_2** appended to the name, then **_3** and so on.

Created hosts are added to the *Discovered hosts* group (by default, configurable in *Administration* → *General* → *Other*). If you wish hosts to be added to another group, add a *Remove from host groups* operation (specifying “Discovered hosts”) and also add an *Add to host groups* operation (specifying another host group), because a host must belong to a host group.

If a host already exists with the discovered IP address, a new host is not created. However, if the discovery action contains operations (link template, add to host group, etc), they are performed on the existing host.

Host removal

Hosts discovered by a network discovery rule are removed automatically from *Monitoring* → *Discovery* if a discovered entity is not in the rule's IP range any more. Hosts are removed immediately.

Interface creation when adding hosts

When hosts are added as a result of network discovery, they get interfaces created according to these rules:

- the services detected - for example, if an SNMP check succeeded, an SNMP interface will be created
- if a host responded both to Zabbix agent and SNMP requests, both types of interfaces will be created
- if uniqueness criteria are Zabbix agent or SNMP-returned data, the first interface found for a host will be created as the default one. Other IP addresses will be added as additional interfaces.
- if a host responded to agent checks only, it will be created with an agent interface only. If it would start responding to SNMP later, additional SNMP interfaces would be added.
- if 3 separate hosts were initially created, having been discovered by the "IP" uniqueness criteria, and then the discovery rule is modified so that hosts A, B and C have identical uniqueness criteria result, B and C are created as additional interfaces for A, the first host. The individual hosts B and C remain. In *Monitoring* → *Discovery* the added interfaces will be displayed in the "Discovered device" column, in black font and indented, but the "Monitored host" column will only display A, the first created host. "Uptime/Downtime" is not measured for IPs that are considered to be additional interfaces.

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