Monitoring a Linux Mail Server

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Various Methods to Monitor Mail Server

- Public Ports
  - SMTP on Port 25
  - POPS on Port 995
  - IMAPS on Port 993
- SNMP
  - Amavis on Port 10024
  - Reinjection Port on 10025
  - Spamassassin on Port 783
- NRPE
  - Virus Signatures
  - Virus Activity
  - Virus Numbers
- Perl Plugin
  - Email Delivery
  - Verify Read Email Headers
  - Verify Read Headers and Content

Various Methods to Monitor Mail Server

- SSH

Amavis on Port 10024
Reinjection Port on 10025
Spamassassin on Port 783
Virus Signatures
Virus Activity
Virus Numbers
Email Delivery
Verify Read Email Headers
Verify Read Headers and Content

Monitor Public Mail Ports

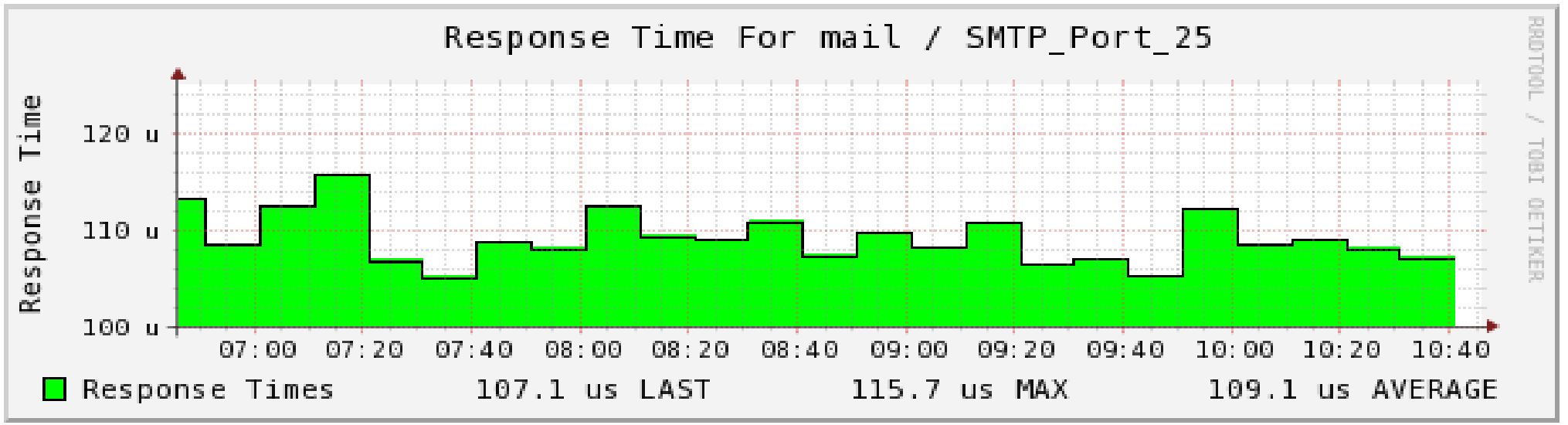
- SMTP Port 25
  - Port Status
  - Response Times
  - Graph Response Times
- IMAPS Port 993
  - Port Status
  - Response Times
  - Graph Response Times
- POP3S Port 995
  - Port Status
  - Response Times
  - Graph Response Times

Monitor Email Delivery

Host: mail **Service:** SMTP Port 25

4 Hours 10.08.11 6:45 - 10.08.11 10:45

Datasource: time



Host: mail **Service:** SMTP Port 25

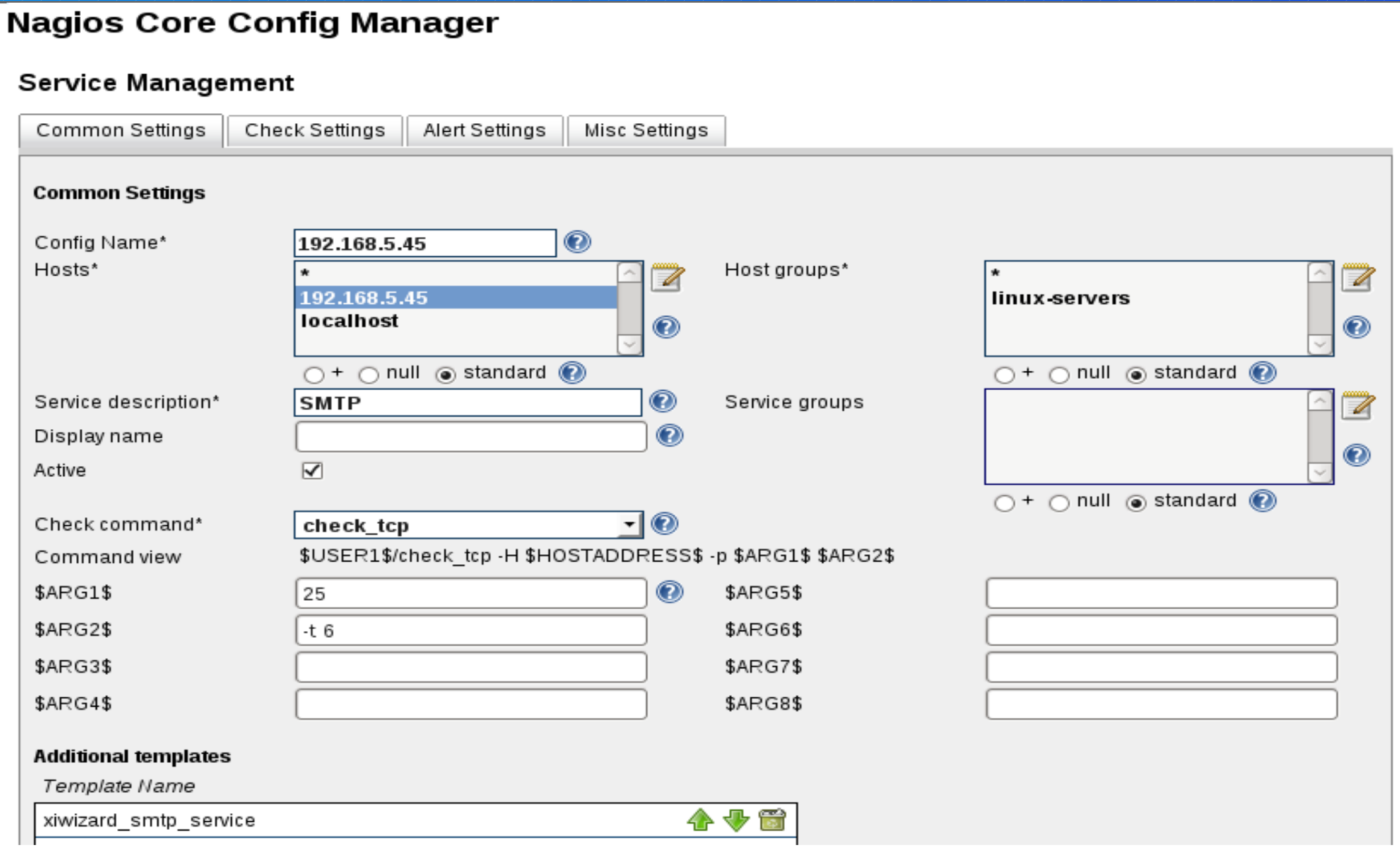
25 Hours 09.08.11 9:45 - 10.08.11 10:45

Monitor Public Mail Ports

Port Status – Connection Time

```
define service{
        use                             generic-service
        hostgroup_name                  debian-servers
        service_description             Postfix Port
        check_command                   check_tcp!25 -w 03 -c 05
}define service{
        use                             generic-service
        hostgroup_name                  debian-servers
        service_description             Secure IMAPS
        check_command                   check_tcp!993 -w 03 -c 06
}
define service{
        use                             generic-service
        host_name                       db
        service_description             POP3S Port 995
        check_command                   check_tcp!995 -w 03 -c 06
}
```

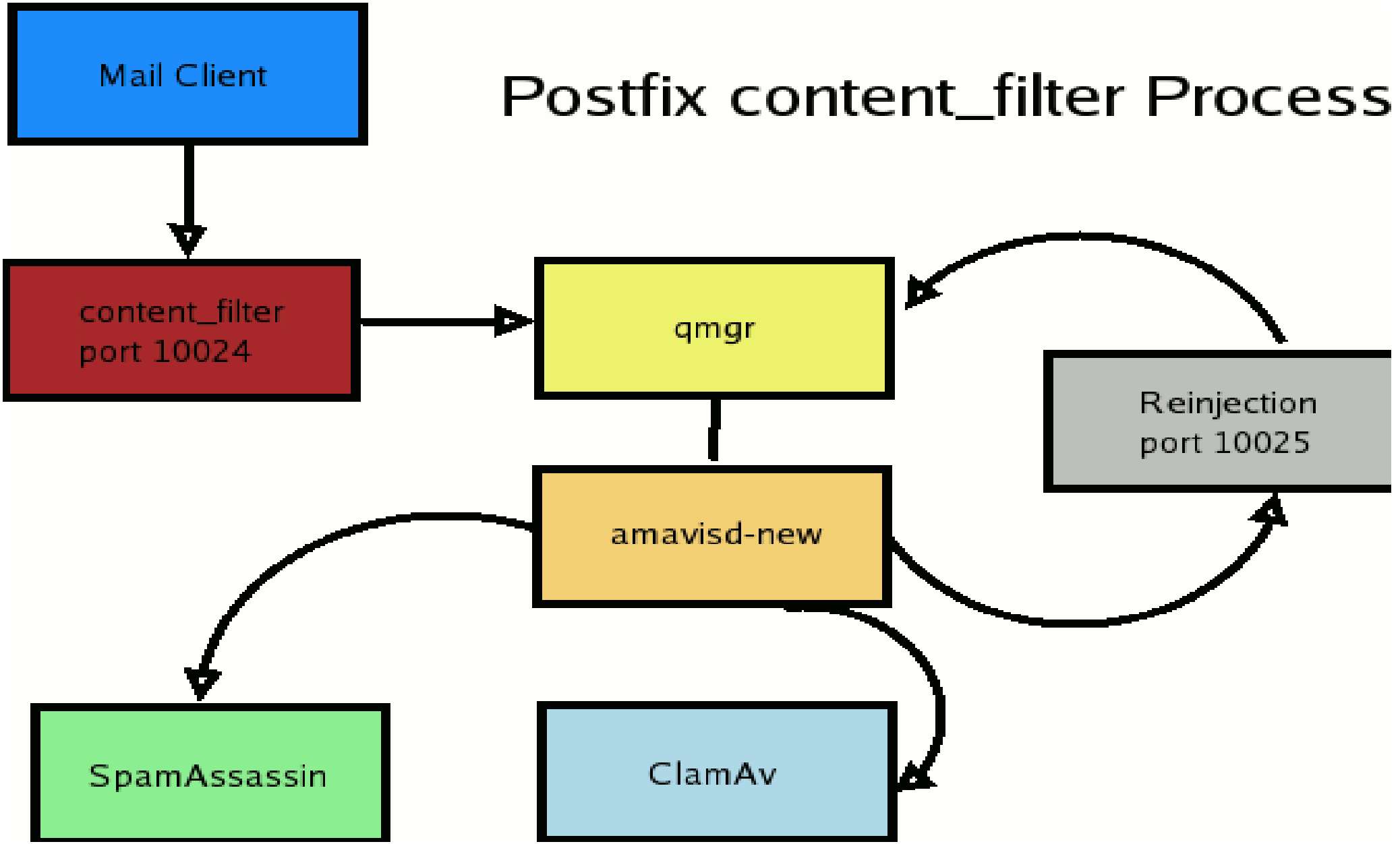
Monitor Public Mail Ports



Monitoring Content Filter, Reinjection and Spamassassin with SNMP

- Content Filter Port 10024
- Reinjection Port 10025
- Spamassassin Port 783

Monitoring Content Filter and Reinjection



Creating Bash Scripts for SNMP

Command Definition

```
define command{
        command_name    check_amavis
        command_line    $USER1$/check_amavis
        }
```

Service Definition

```
define service{
        use                             generic-service
        host_name                       mail
        service_description             Amavis: Virus Protection
        check_command                   check_amavis
        }
```

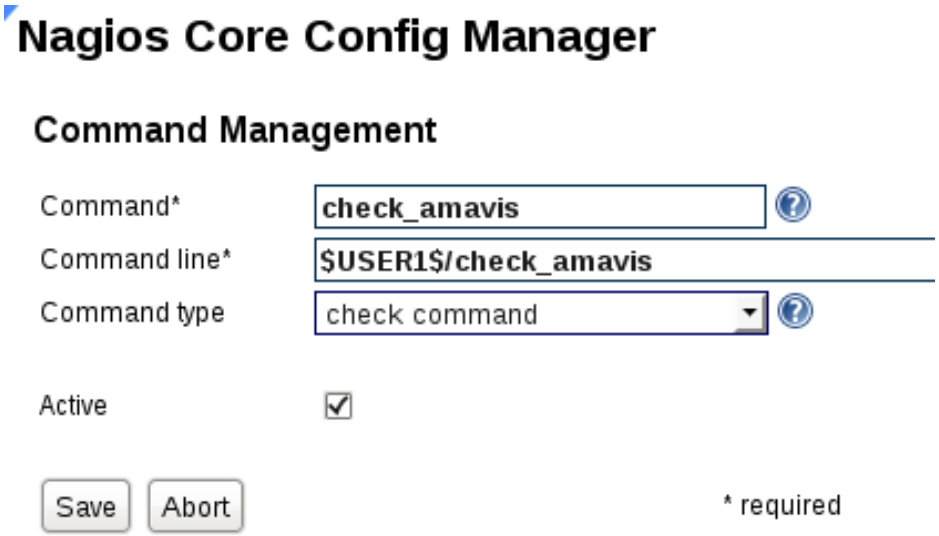
Script Using SNMP

```
#!/bin/bash
amavis=$(snmpnetstat -v 2c 192.168.5.191 -c public -Ca | grep 10024 |wc -l)
if (($amavis >= 1 ))
then echo "Amavis is Running"
stateid=0
else
echo "Danger: Amavis is NOT running, no virus protection"
stateid=2
fi
exit $stateid
```

Creating Bash Scripts for SNMP

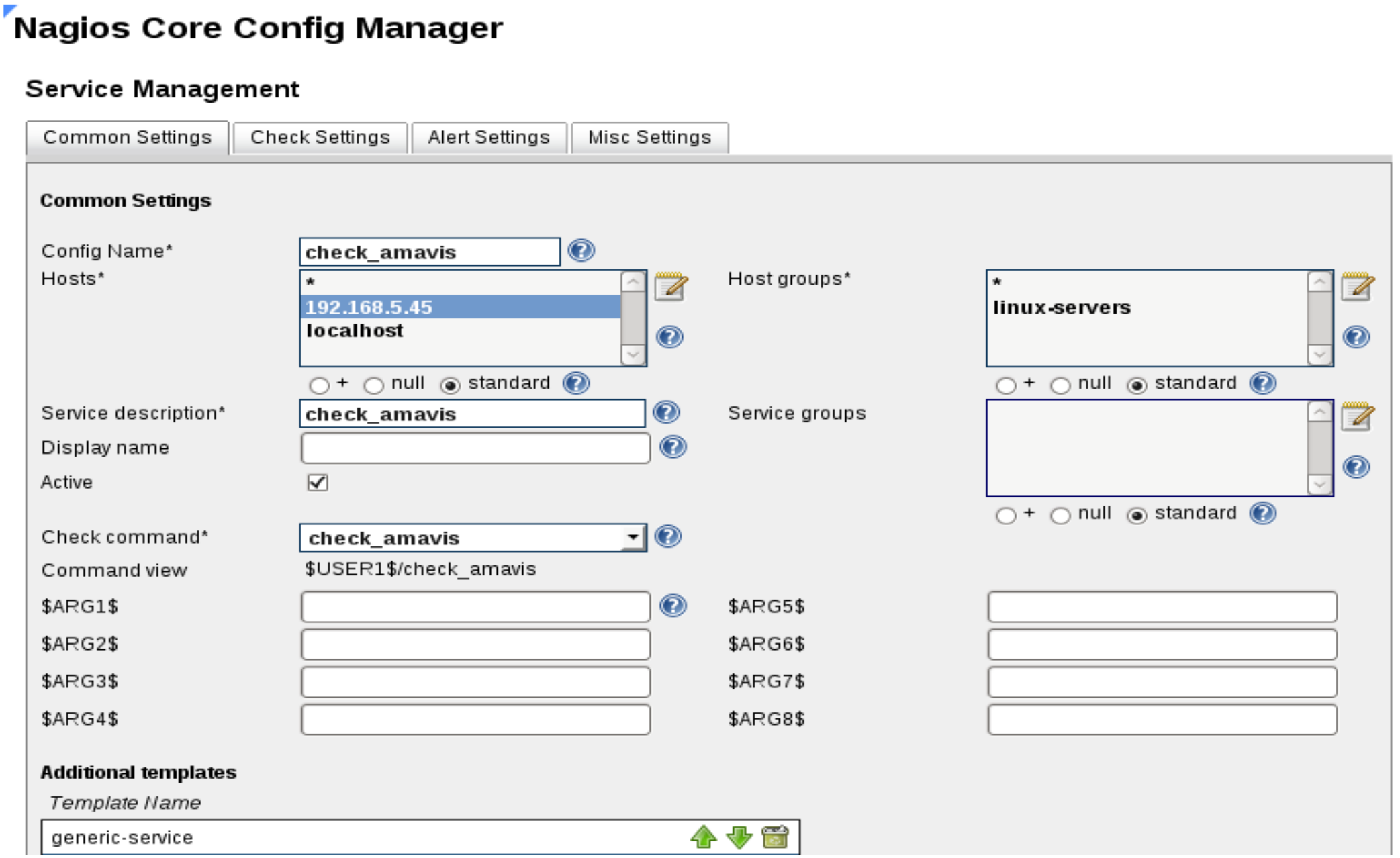
```
snmpnetstat -v 2c 192.168.5.45 -c public -Ca
Active Internet (tcp) Connections (including servers)
Proto Local Address          Remote Address         (state)
tcp   *.ssh                  *.*                    LISTEN
tcp   *.smtp                 *.*                    LISTEN
tcp   *.pop3                 *.*                    LISTEN
tcp   *.sunrpc               *.*                    LISTEN
tcp   *.imap                 *.*                    LISTEN
tcp   *.imaps                *.*                    LISTEN
tcp   *.pop3s                *.*                    LISTEN
tcp   *.5666                 *.*                    LISTEN
tcp   *.38922                *.*                    LISTEN
tcp   localhost.ipp          *.*                    LISTEN
tcp   localhost.783          *.*                    LISTEN
tcp   localhost.10025        *.*                    LISTEN
tcp   192.168.5.45.smtp      192.168.5.4.37932      CLOSEWAIT
tcp   192.168.5.45.smtp      192.168.5.4.39143      CLOSEWAIT
tcp   192.168.5.45.smtp      192.168.5.4.44947      CLOSEWAIT
tcp   192.168.5.45.smtp      192.168.5.4.46752      CLOSEWAIT
tcp   192.168.5.45.smtp      192.168.5.4.50184      CLOSEWAIT
tcp   192.168.5.45.smtp      192.168.5.4.55465      CLOSEWAIT
tcp   192.168.5.45.smtp      192.168.5.4.55674      CLOSEWAIT
tcp   192.168.5.45.smtp      192.168.5.4.59800      CLOSEWAIT
tcp   192.168.5.45.34091     192.168.5.4.http       TIMEWAIT
tcp   192.168.5.45.34094     192.168.5.4.http       TIMEWAIT
tcp   192.168.5.45.34095     192.168.5.4.http       TIMEWAIT
tcp   192.168.5.45.34096     192.168.5.4.http       TIMEWAIT
tcp   192.168.5.45.34097     192.168.5.4.http       TIMEWAIT
tcp   192.168.5.45.34098     192.168.5.4.http       TIMEWAIT
tcp   192.168.5.45.53845     a69-192-195-51.d.httpsCLOSEWAIT
```

Checking Amavis - SNMP

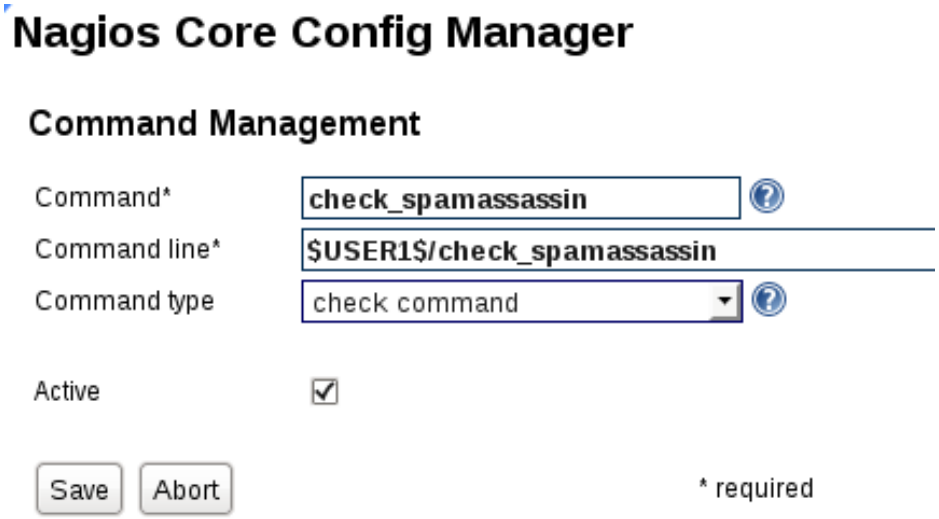


- **Install Script**
  Install any script you want to use in the /usr/local/nagios/libexec with the correct permissions
- **Create Command**
  Whenever you use your own script, you will need to create a command to access the script.
- **Create Check**
  Once the command has been created you will be able to use it for any hosts.

Checking Amavis - SNMP

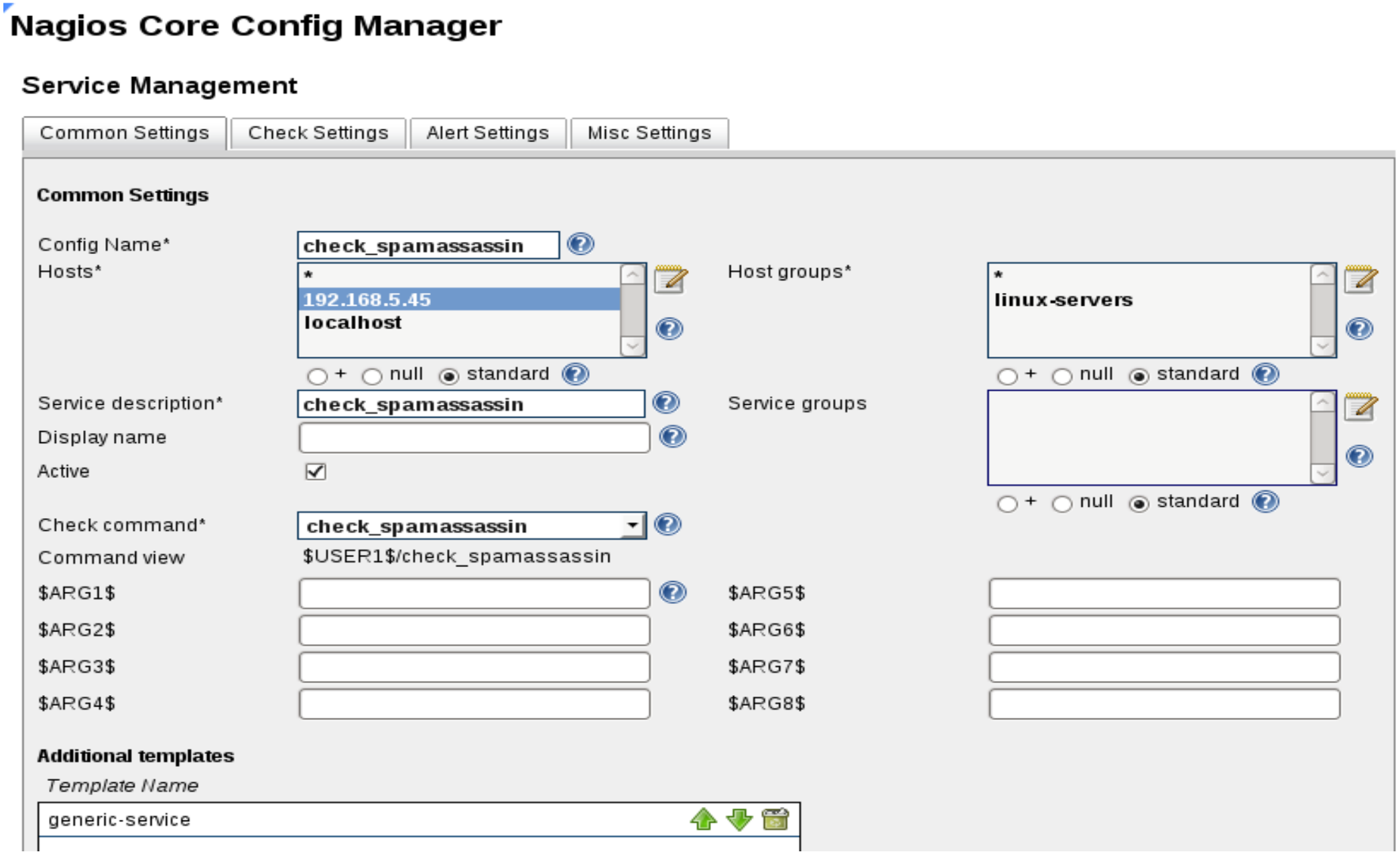


Checking Spamassassin - SNMP



- **Install Script**
  Install any script you want to use in the /usr/local/nagios/libexec with the correct permissions
- **Create Command**
  Whenever you use your own script, you will need to create a command to access the script.
- **Create Check**
  Once the command has been created you will be able to use it for any hosts.

Checking Spamassassin - SNMP



Monitor Virus Activity with NRPE

- Virus Signatures
- Quarantine Status
- Number of Viruses Captured

Checking Virus Signatures – NRPE Daemon

You will need to install xinetd and make sure you have a file in /etc/xinetd.d called nrpe on the client and it looks like this:

```
# default: off
# description: NRPE (Nagios Remote Plugin Executor)
service nrpe
{
        flags           = REUSE
        type            = UNLISTED
        port            = 5666
        socket_type     = stream
        wait            = no
        user            = nagios
        group           = nagios
        server          = /usr/sbin/nrpe
        server_args     = -c /usr/local/nagios/etc/nrpe.cfg --inetd
        log_on_failure  += USERID
        disable         = no
        only_from       = 127.0.0.1 192.168.5.50
}
```

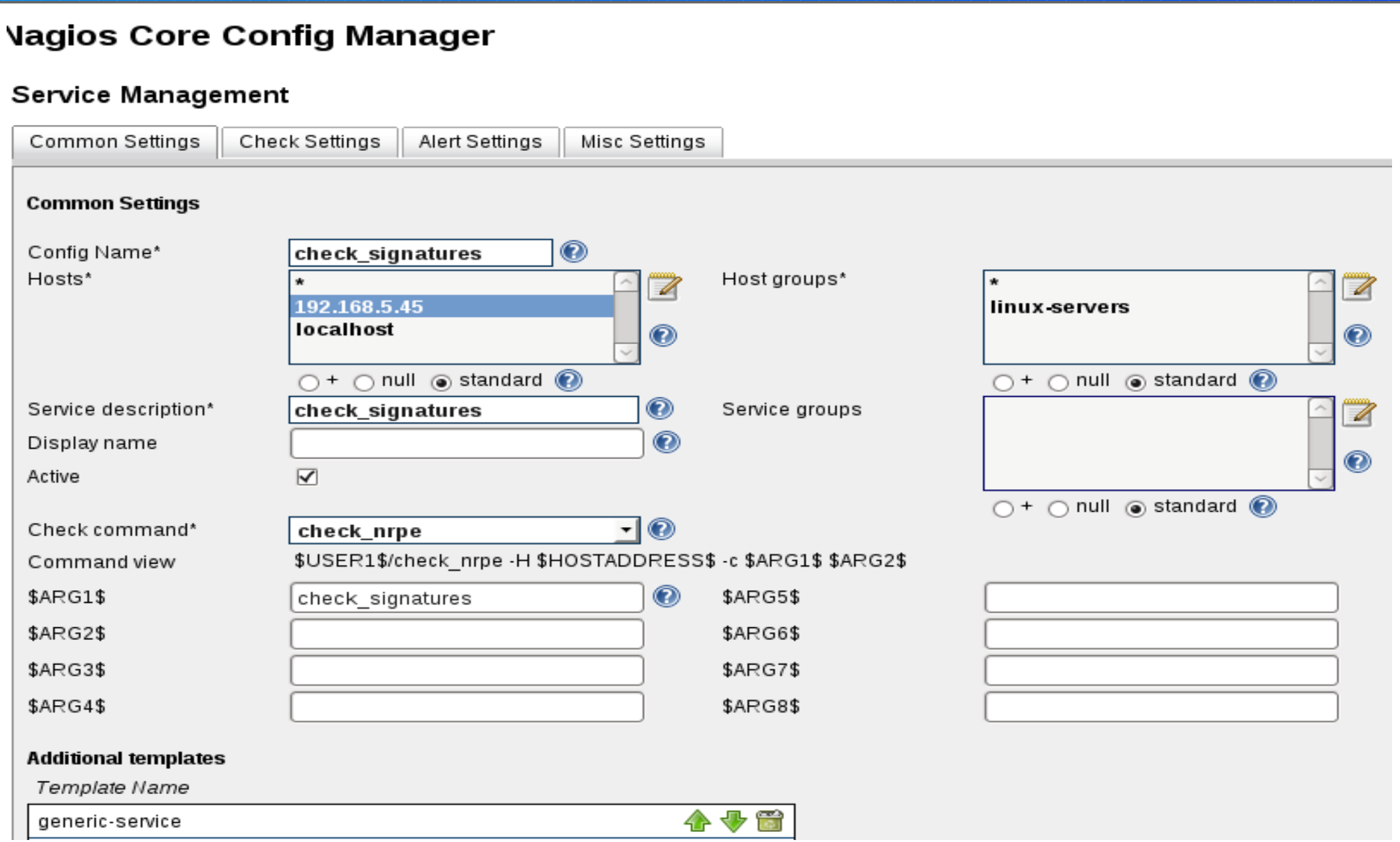
Checking Virus Signatures - NRPE

```
define command{
command_name    check_nrpe
command_line    $USER1$/check_nrpe -H $HOSTADDRESS$ -c $ARG1$
}

define service{
        use                             generic-service
        host_name                       mail
        service_description             Virus Signatures
        check_command                   check_nrpe!check_signatures
        }

command[check_signatures]=/usr/local/nagios/libexec/check_signatures
```

Bash shell script

```
 #!/bin/bash
dbase=$(tail -300 /var/log/clamav/clamd.log| grep "Database correctly reloaded"|wc -l)
sigs=$(tail -300 /var/log/clamav/clamd.log| grep "Database correctly reloaded"| awk -F\( '{print
$2}'|tail -1)
dbdate=$(tail -300 /var/log/clamav/clamd.log| grep "Database correctly reloaded"| awk -F' '
'{print $1,$2,$3}'|tail -1)
if [ "$dbase" -eq 0 ]
then
echo "Virus Signatures Out of Date"
stateid=2
else
echo "Virus Database Updated $dbdate with ($sigs"
stateid=0
fi
exit $stateid
```

Checking Virus Signatures - NRPE



Checking Virus Activity - NRPE

Command Definition

```
define command{
command_name    check_nrpe
command_line    $USER1$/check_nrpe -H $HOSTADDRESS$ -c $ARG1$
}
```

Service Definition

```
define service{
        use                             generic-service
        host_name                       mail
        service_description             Quarantine Status
        check_command                   check_nrpe!check_virus_activity
        }
```

NRPE Command

```
command[check_virus_activity]=/usr/local/nagios/libexec/check_virus_activity
```

Bash Shell Script

```
#!/bin/bash
vmail=$(ls /var/virusmails | grep virus|wc -l)
echo "Virus Activity $vmail"
exit 1
```

Checking Quarantine - NRPE

Command Definition

```
define command{
command_name    check_nrpe
command_line    $USER1$/check_nrpe -H $HOSTADDRESS$ -c $ARG1$
}
```

Service Definition

```
define service{
        use                             generic-service
        host_name                       mail
        service_description             Quarantine Status
        check_command                   check_nrpe!check_virusmail
        }
```

NRPE Command

```
command[check_virusmail]=/usr/local/nagios/libexec/check_virusmail
```

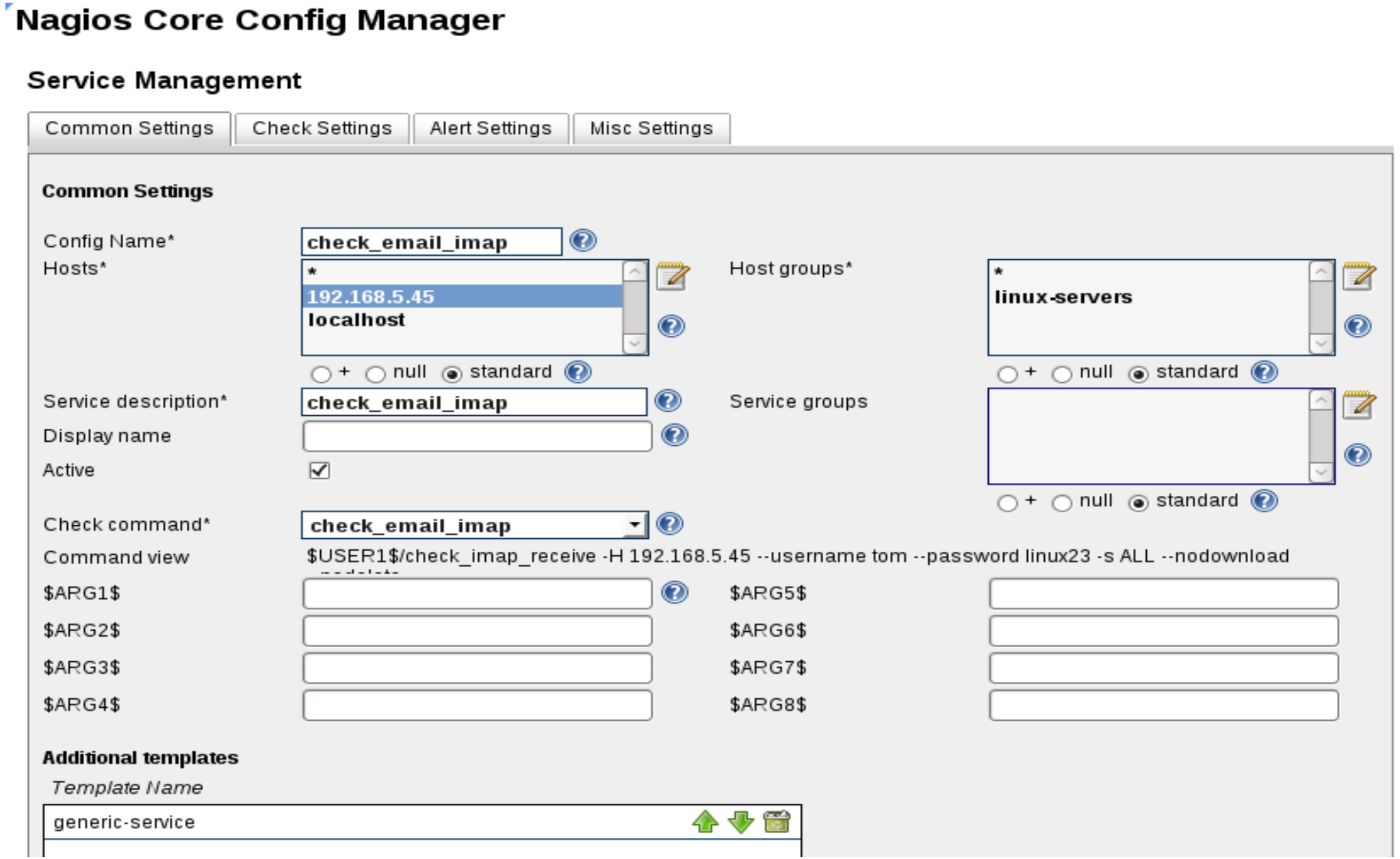
Bash Shell Script

```
#!/bin/bash

vmail=$(ls /var/virusmails | grep virus|wc -l)
vmail_date=$(ls -l /var/virusmails | grep virus| awk -F' ' '{print $6,$7,$8}'|tail -1)

if [ "$vmail" -eq 0 ]
then
echo "No Viruses in Quarantine"
stateid=0
else
echo "Viruses Detected!!! Last Virus Captured $vmail_date"
stateid=1
fi
exit $stateid
```

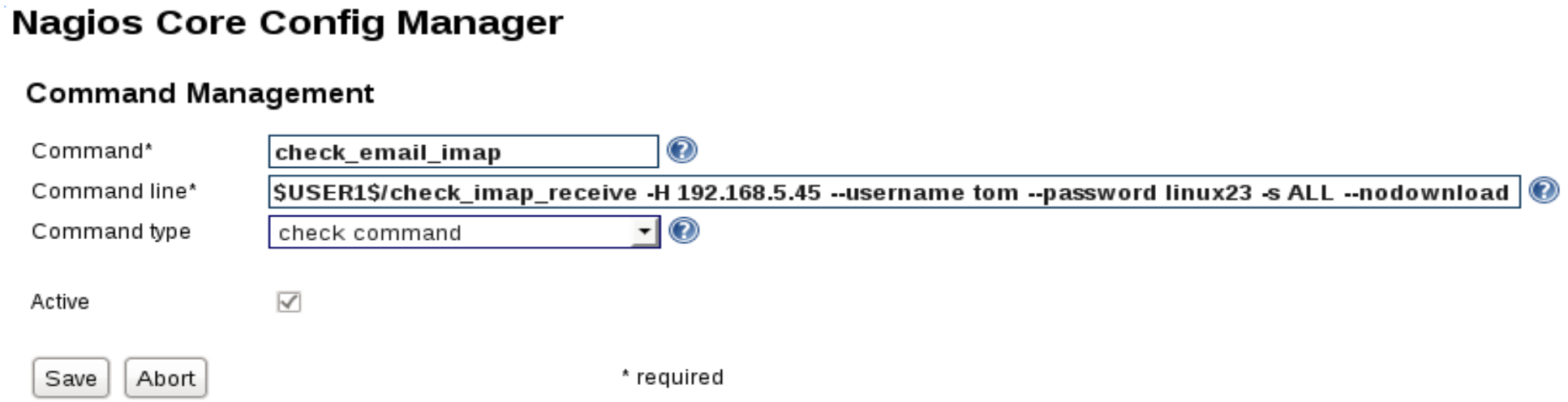
Monitor Email Delivery – Perl Plugin

- Delivery Confirmation to INBOX
  Verify that mail was is deliverable.
- Delivery Confirmation: Read Header
  Read mail header to verify delivery.
- Delivery Confirmation: Read Header/Content
  Read header and content to verify readability.

Checking Mail Delivery



Checking Email Delivery



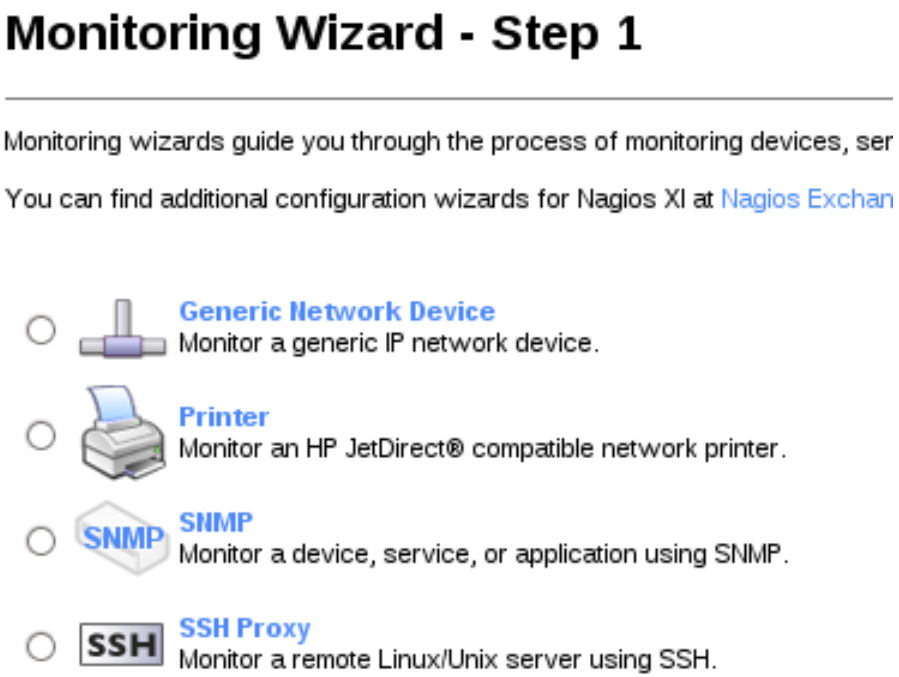
- Create Command
  Whenever you use your own script, you will need to create a command to access the script.
- Create Check
  This example “hard codes” the check until you know it works, then add arguments.

Monitor with SSH Proxy: Secure Communication

- Amavis -SNMP
- Reinjection Port -SNMP
- Spamassassin - SNMP
- Virus Signatures
- Quarantine Status
- Number of Viruses Captured

SSH Proxy

This wizard monitors the remote host using SSH to execute the plugins and scripts.



Download and install the SSH Proxy wizard. Once it is installed select the wizard from the list.

SSH Proxy

In Step 2 you will need to add an IP Address or fully qualified domain name. You will also need to select the operating system of the machine you will connect up to using SSH.

SSH Proxy

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SSH Proxy

SSH

Server Details

IP Address: mail.linuxtrainingcenters.com

Operating System: CentOS

Host Name: mail.linuxtrainingcenters.cor

The name you'd like to have associated with this server.

Server Metrics

Specify which services you'd like to monitor for the server.

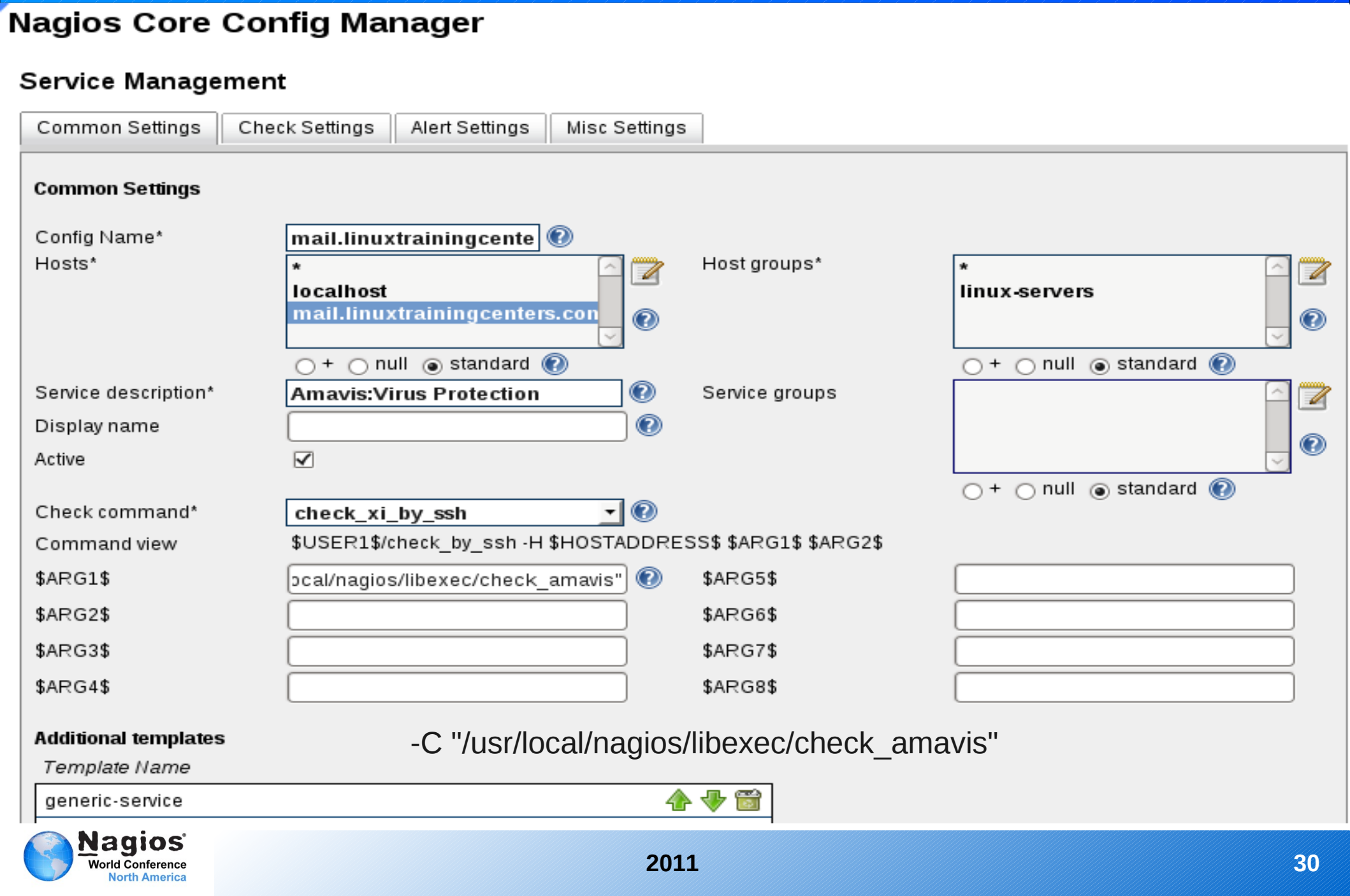
☑ **Ping**
Monitors the server with an ICMP "ping". Useful for watching network latency and general uptime.

SSH Commands

Specify any remote commands that should be executed/monitored on the server using SSH.

	Remote Command	Display Name
☑	/usr/local/nagios/libexec/check_amavis	Amavis:Virus Protection
☑	/usr/local/nagios/libexec/check_spamassassin	Spamassassin
☑	/usr/local/nagios/libexec/check_reinjection	Reinjection Port
☑	/usr/local/nagios/libexec/check_signatures	Virus Signatures
☑	/usr/local/nagios/libexec/check_virus_activity	Virus Activity
☑	/usr/locla/nagios/libexec/check_virusmail	Virus Mail Level

SSH Proxy


Nagios Core Config Manager
Service Management
Common Settings
Check Settings
Alert Settings
Misc Settings
Common Settings
Config Name*
mail.linuxtrainingcente
Hosts*
*
localhost
mail.linuxtrainingcenters.con
+ null standard
Host groups*
*
linux-servers
+ null standard
Service description*
Amavis:Virus Protection
Display name
Active
Service groups
+ null standard
Check command*
check_xi_by_ssh
Command view
$USER1$/check_by_ssh -H $HOSTADDRESS$ $ARG1$ $ARG2$
$ARG1$
ɔcal/nagios/libexec/check_amavis"
$ARG2$
$ARG3$
$ARG4$
$ARG5$
$ARG6$
$ARG7$
$ARG8$
Additional templates
Template Name
generic-service
-C "/usr/local/nagios/libexec/check_amavis"

SSH Proxy – Creating Keys

The key to getting the whole thing to work is setting up the passwordless login ability of the nagios user. On the XI box login as the nagios user:

```
su – nagios
cd /home/nagios
ssh-keygen
```

Use ENTER to select all options as you want to take default locations and you want a password that is empty(be sure to set up the security requirements listed below).
On the host to be monitored follow the same steps. Then on the XI server, log in as nagios and go to the ssh directory.

```
su – nagios
cd /home/nagios/sssh
cp id_rsa.pub nagios_key
scp nagios_key nagios@remote_client:/home/nagios/.ssh/nagios_key
```

You copy the public key to a different name, otherwise you will wipe out the public key on the remote client. Now log into the remote client as nagios and move to the /home/nagios/.ssh directory. Execute these commands:

```
cat nagios_key > authorized_keys
chmod 600 authorized_keys
```

```
ls -l
-rw------- 1 nagios nagios  394 Sep 14 16:24 authorized_keys
-rw------- 1 nagios nagios 1671 Sep 14 16:18 id_rsa
-rw-r--r-- 1 nagios nagios  418 Sep 14 16:18 id_rsa.pub
```

You should now be able to log in to the remote host from Nagios XI without a password.

SSH Proxy – Security

If you are using the nagios login without a password and with an empty key-phrase, it is important that you set a firewall rule to only allow connections using SSH from trusted hosts. Here is an iptables rule (on a CentOS box) which uses one rule to allow the Nagios XI to use several different ports. Notice the rule order is used with this rule being "7" so that you can block all access after this rule.

Firewall

```
iptables -I RH-Firewall-1-INPUT 7 -p tcp  -m state --state NEW -m multiport -s 192.168.1.1
--dports 110,995,993,9202,22 -j ACCEPT
```

In addition set your tcp_wrappers file in /etc/hosts.allow so that only trusted hosts can get access to the server using SSH. Be sure to edit this file carefully so you do not lock yourself out. You will also need to edit /etc/hosts.deny to deny everything you do not allow.

```
# hosts.allow   This file describes the names of the hosts which are
#               allowed to use the local INET services, as decided
#               by the '/usr/sbin/tcpd' server.
#
ALL:     127.0.0.1
SSHD:    192.168.1.1
SMTP:    ALL
POP3:    ALL
IMAPS:   ALL

# hosts.deny
ALL:    ALL
```