Oracle SBC

Troubleshooting

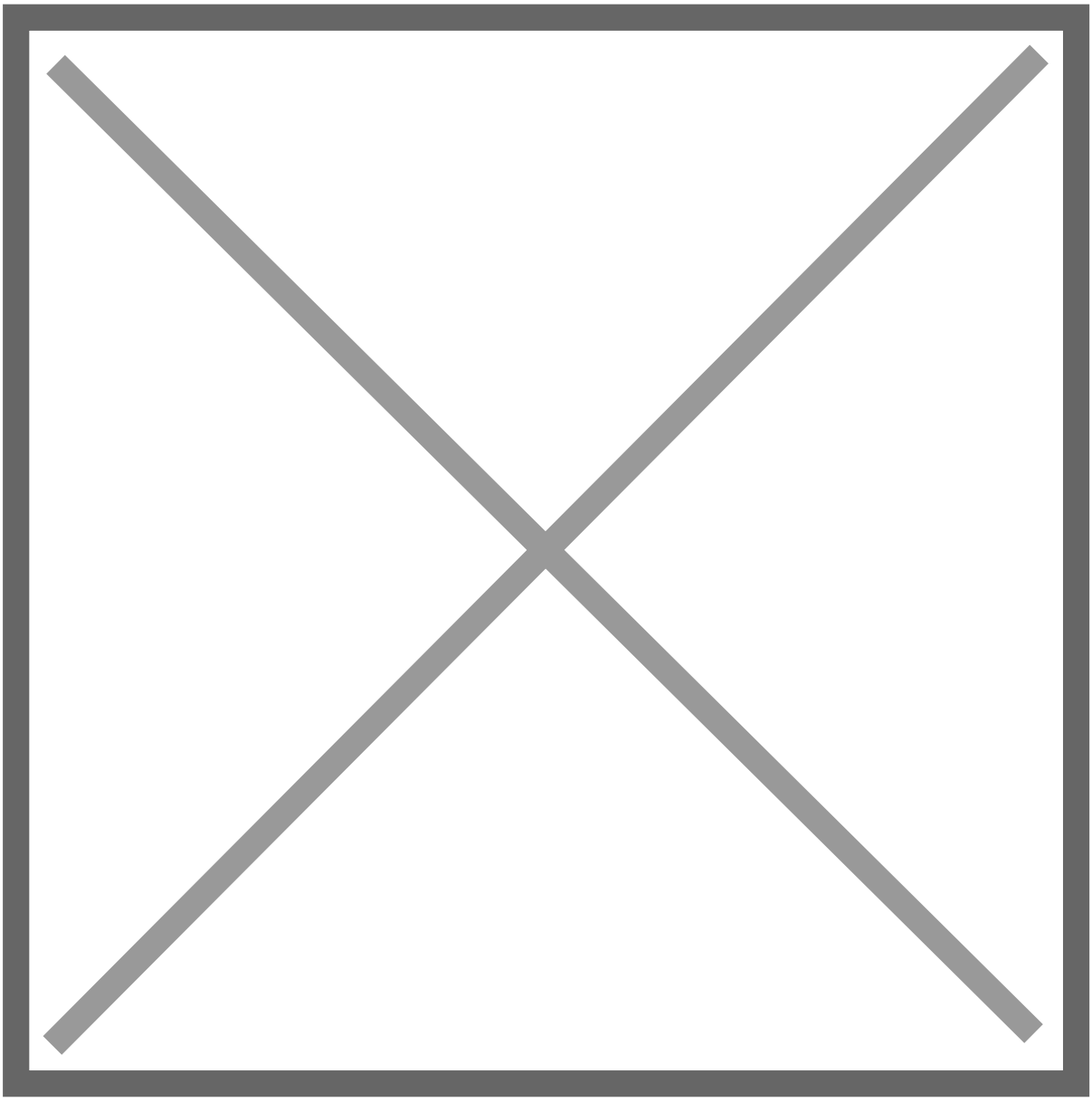
Troubleshooting

SBC - Useful commands CLI

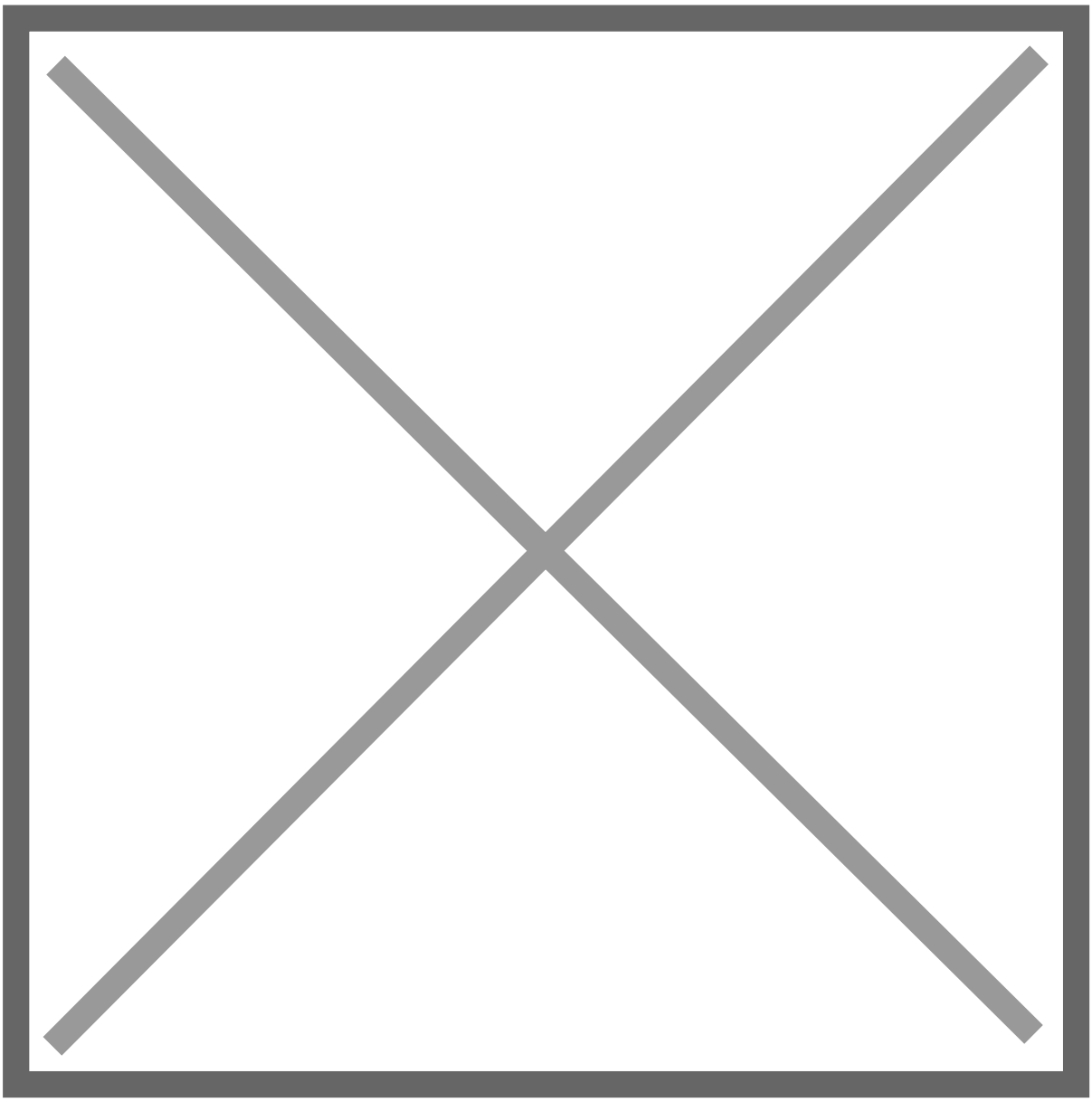
Oracle SBCs can be administered via web and CLI, both ways have pros and cons, in this entry we will review a few CLI commands that can provide useful information.

> SBC Status

display-alarms

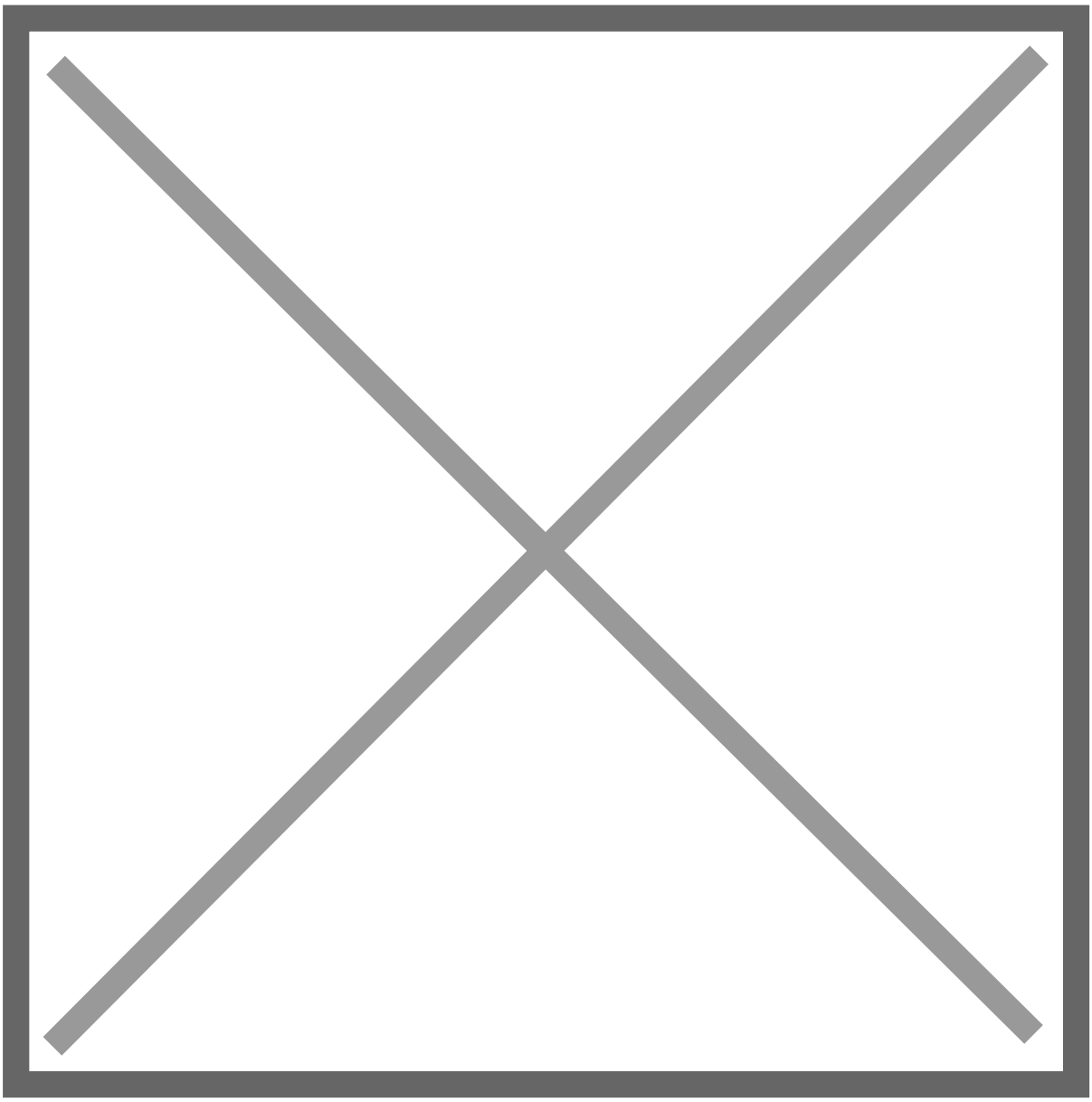


show health

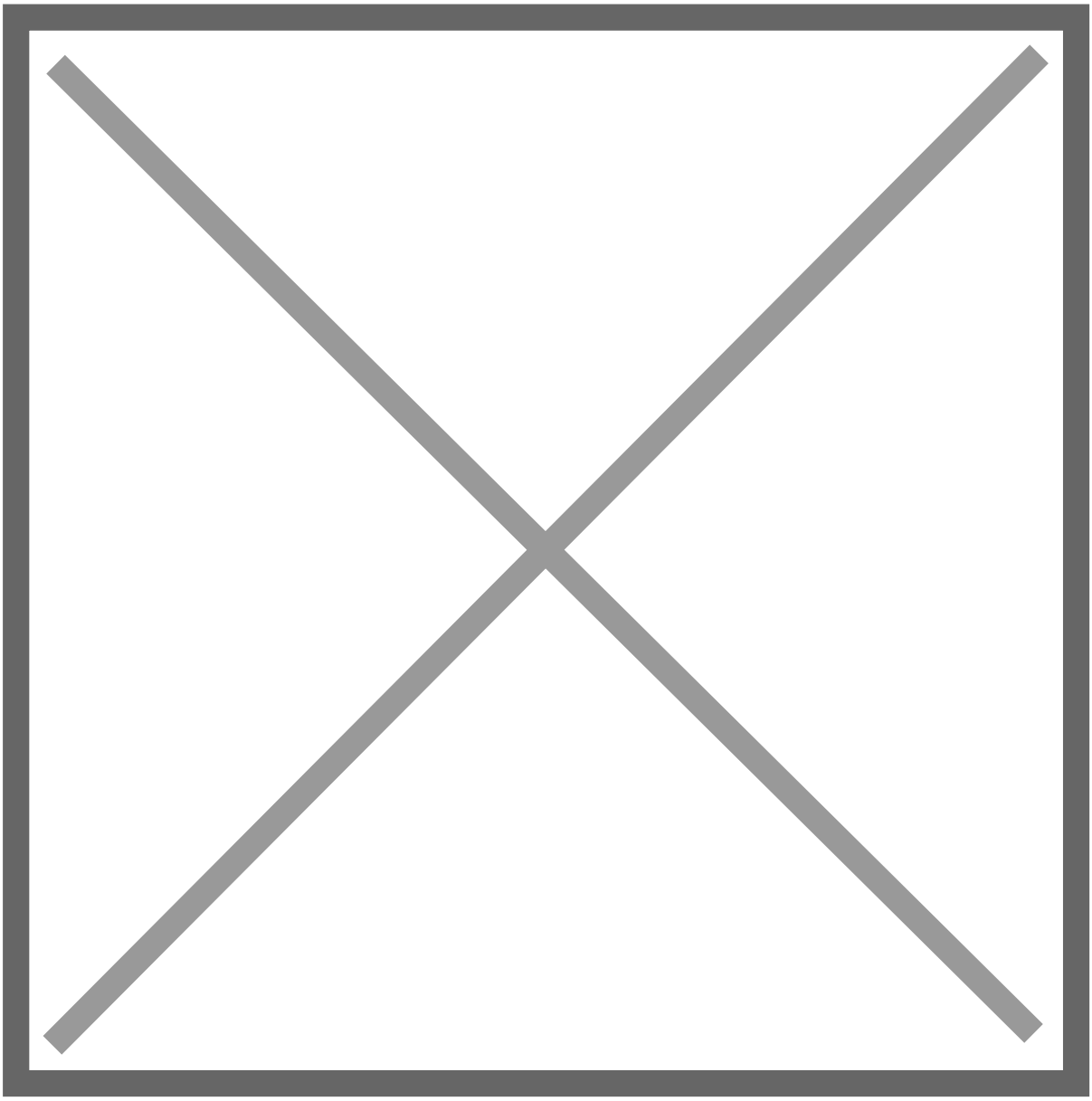


SBC Information

show version

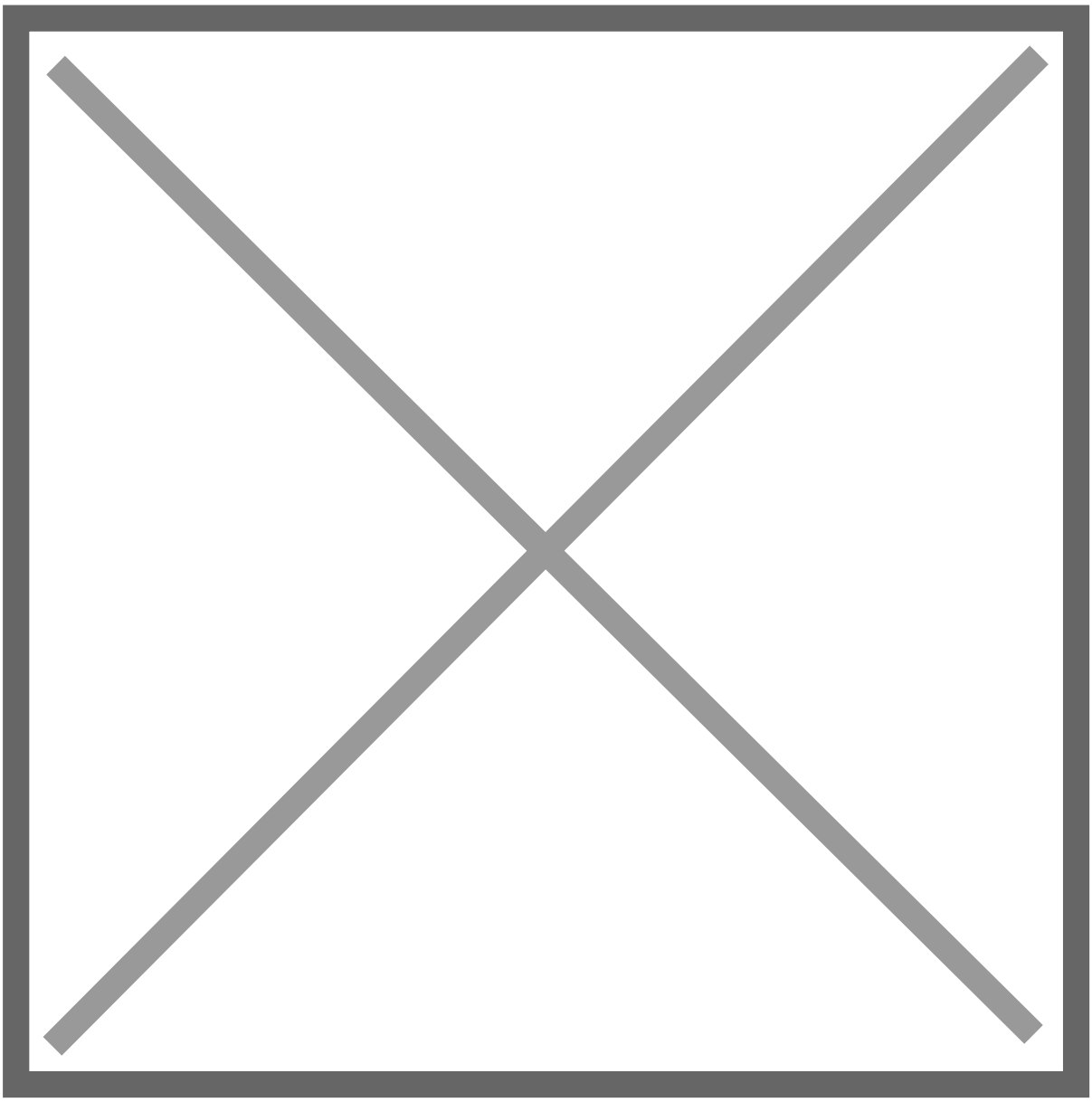


show features

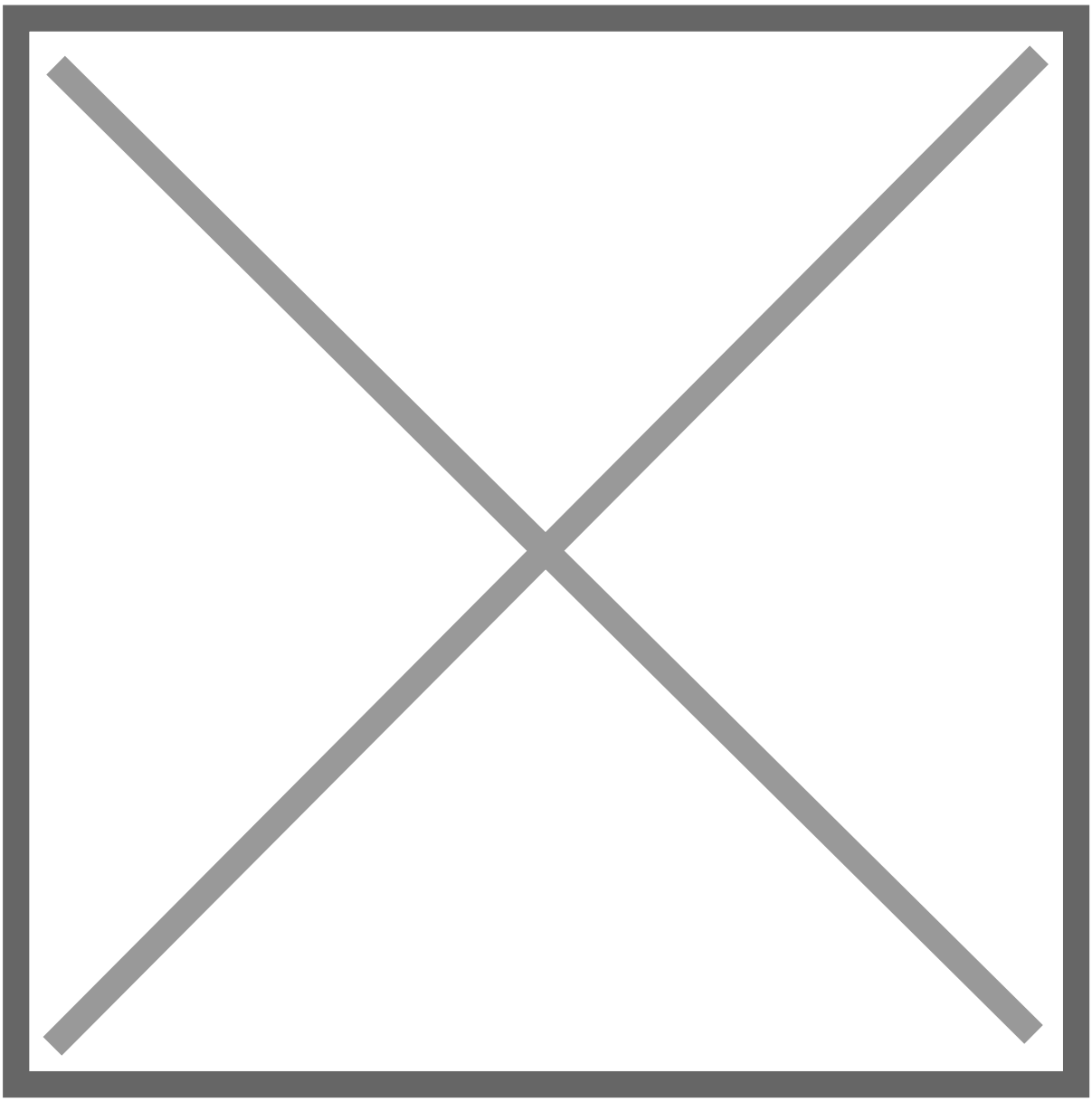


SBC network information

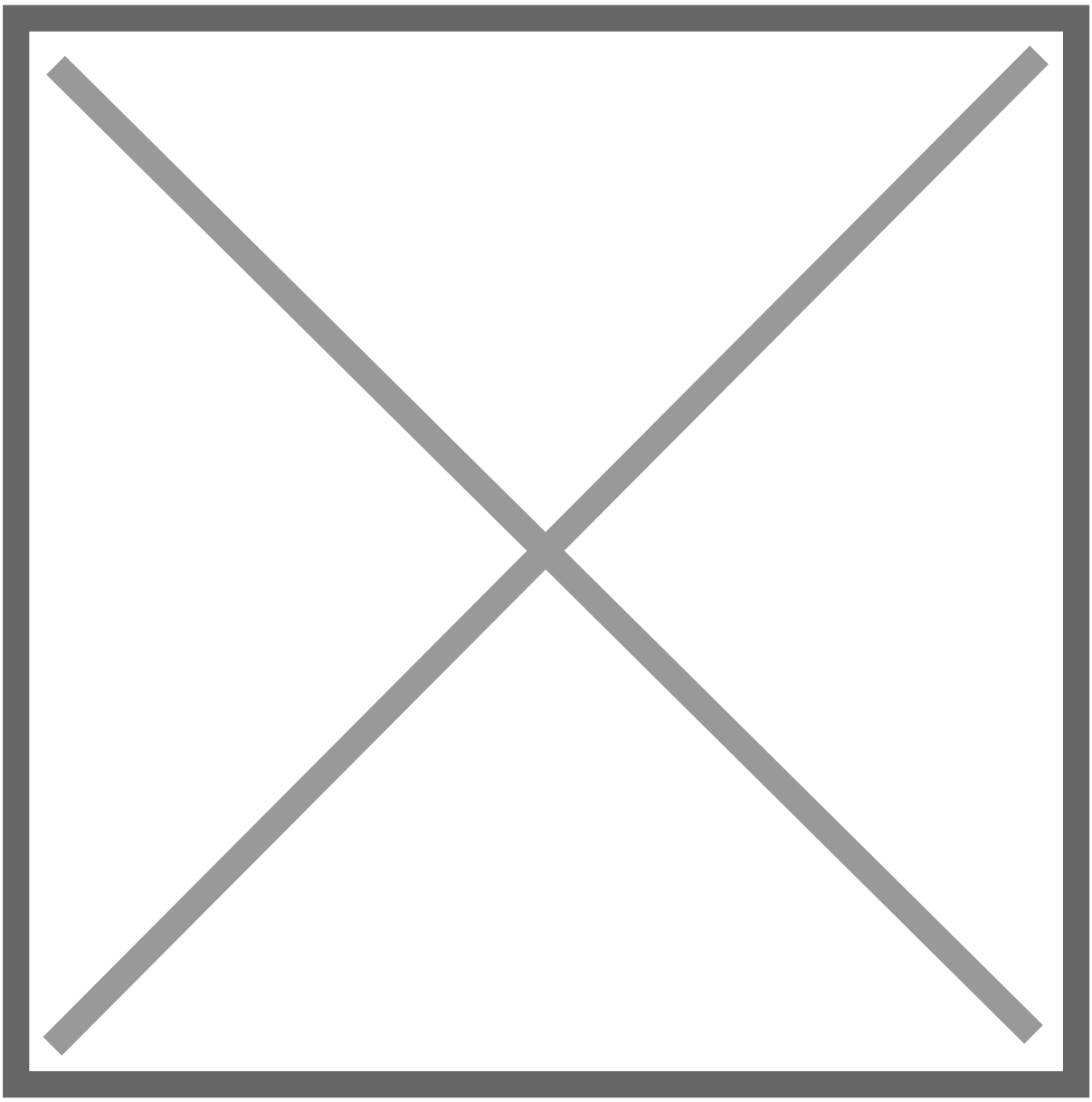
show interfaces



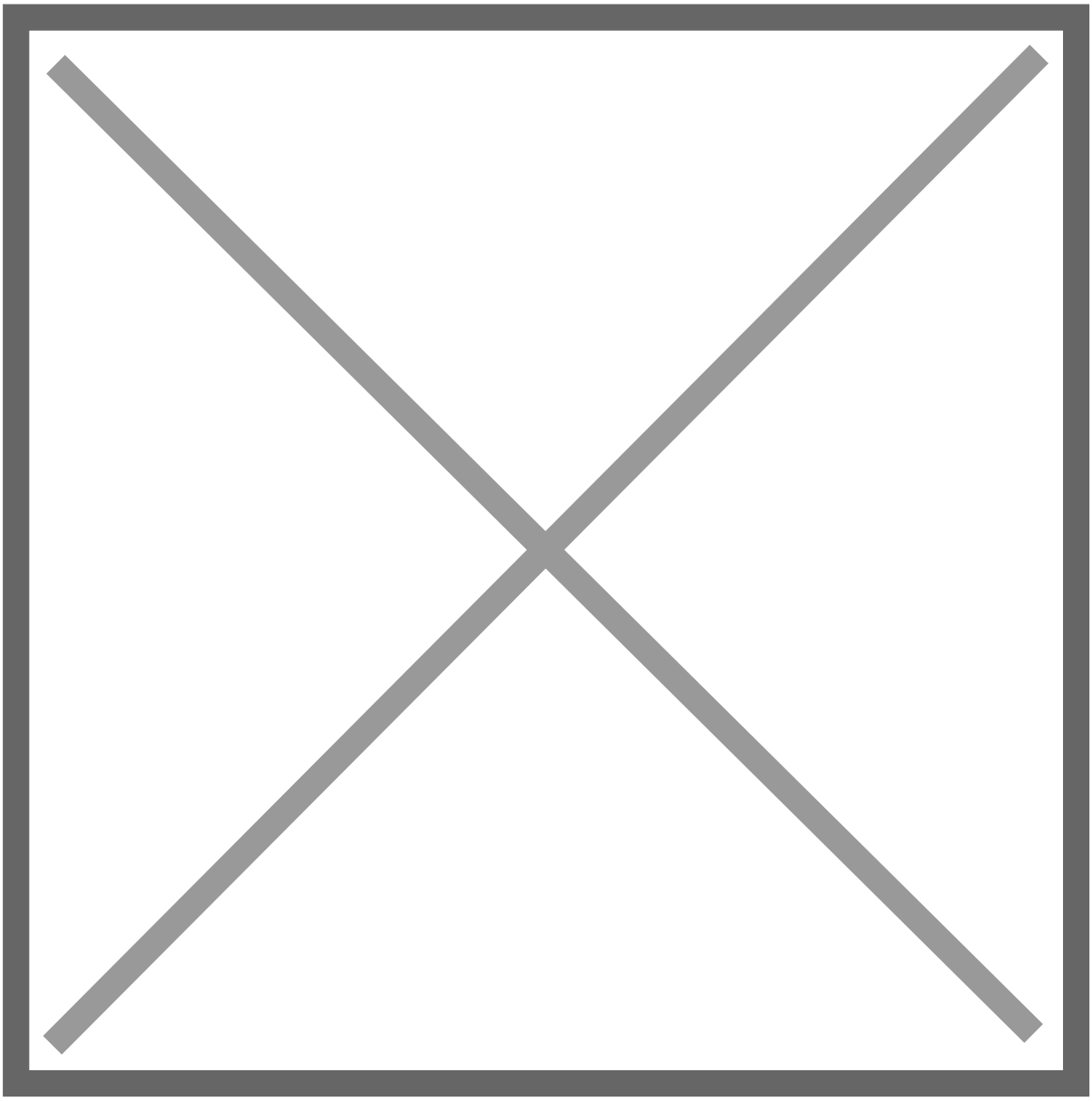
show interfaces brief



show arp

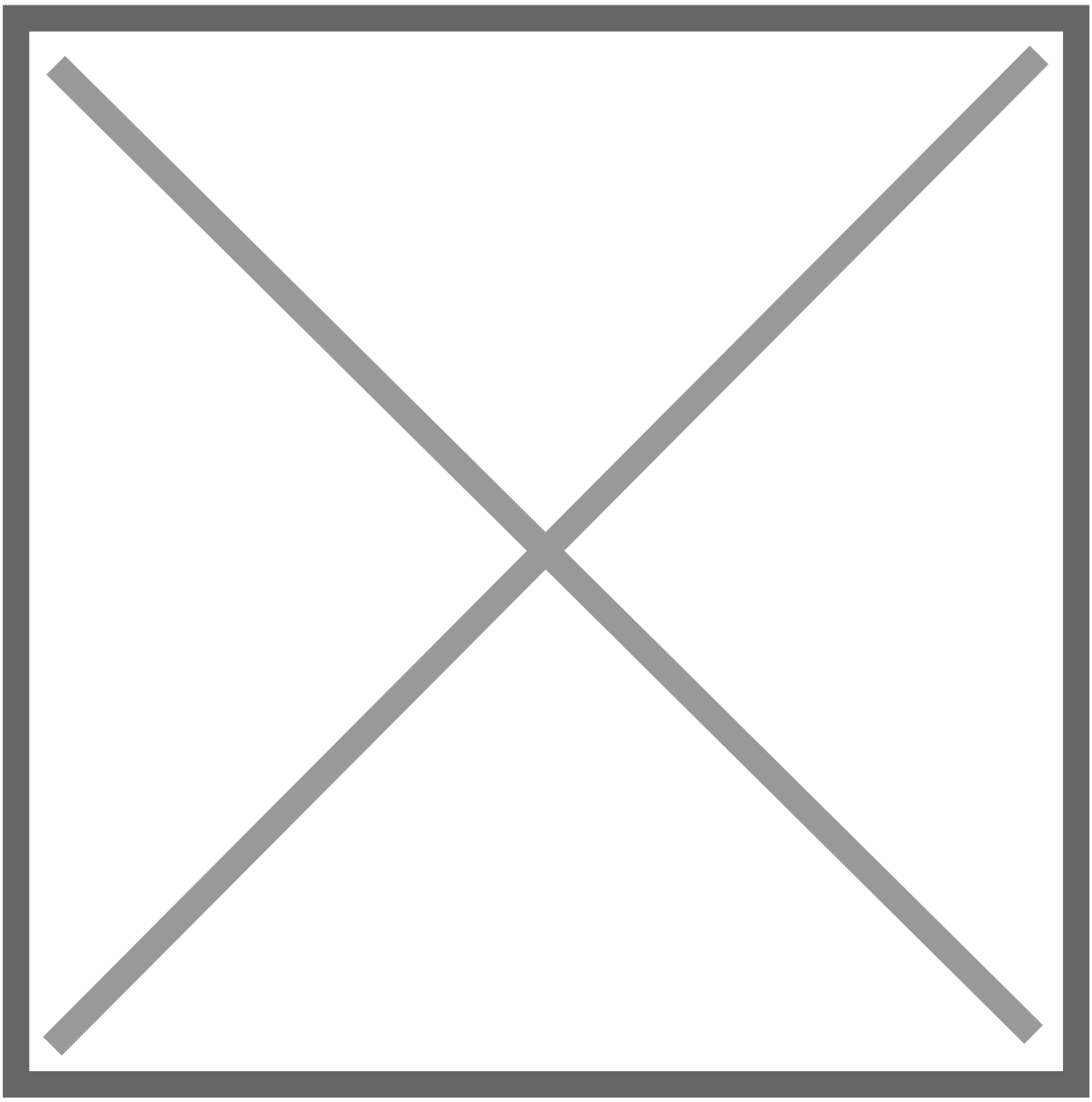


show virtual

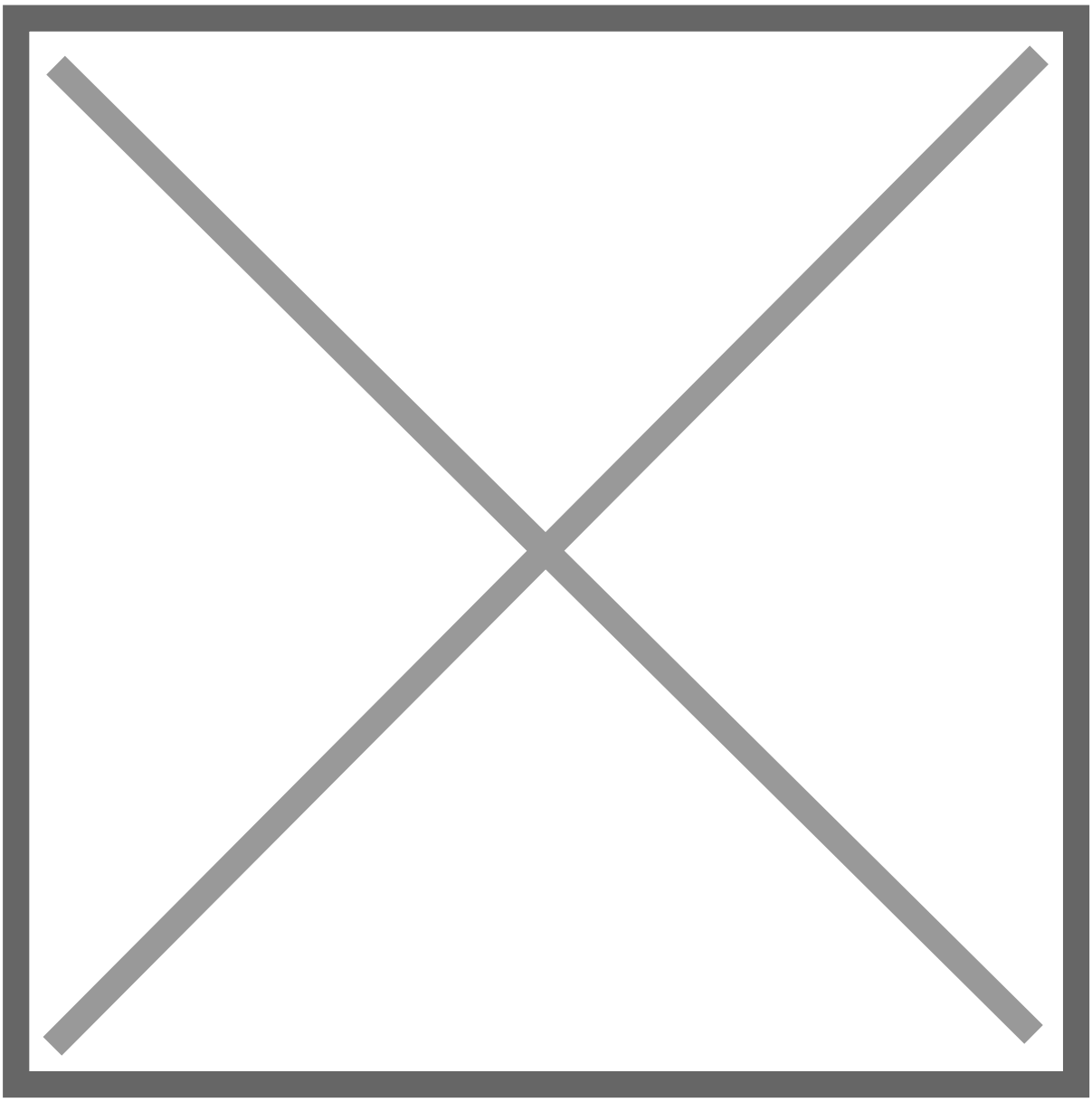


SBC SIP information

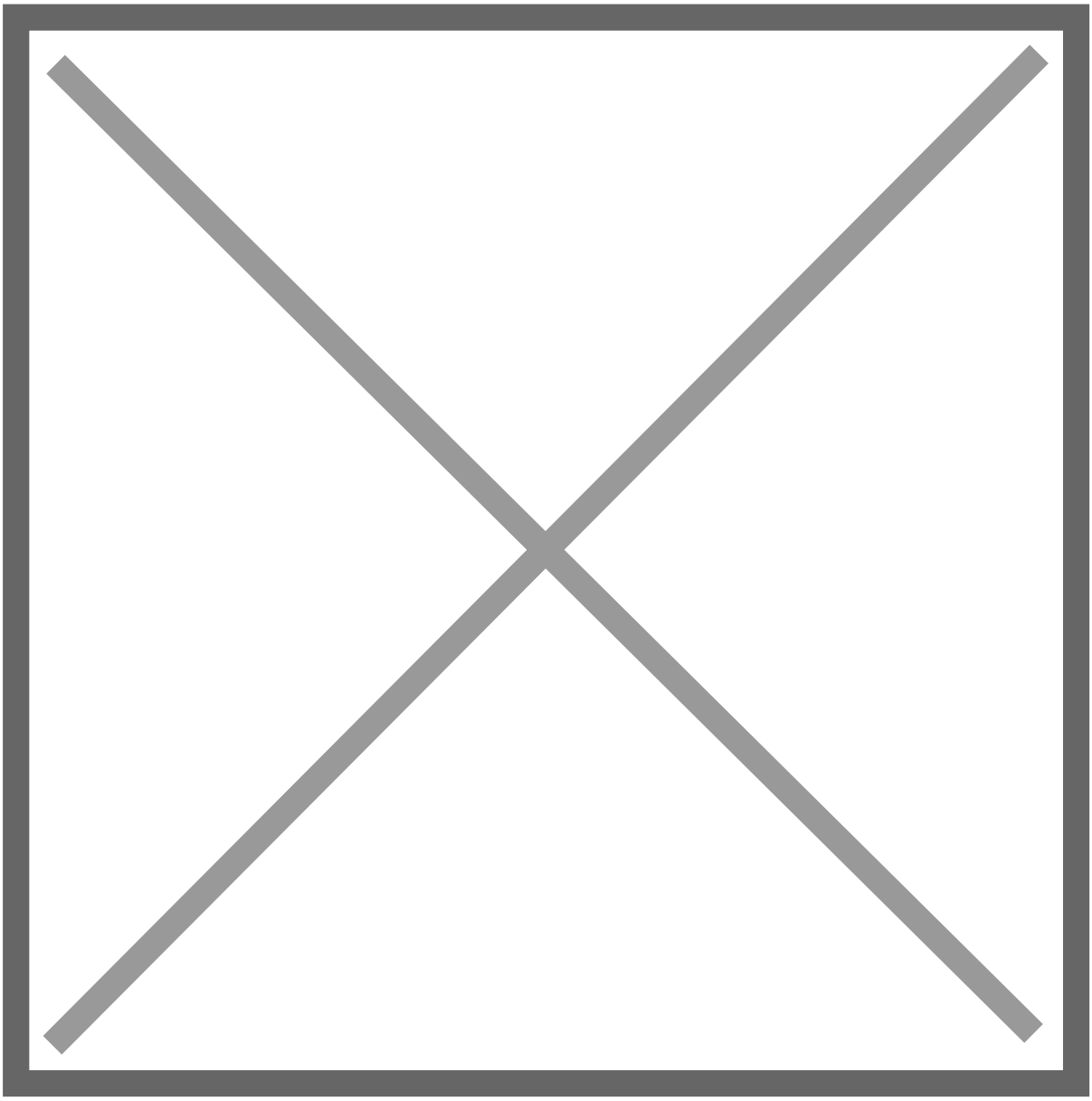
show sipd agent



show sipd invite

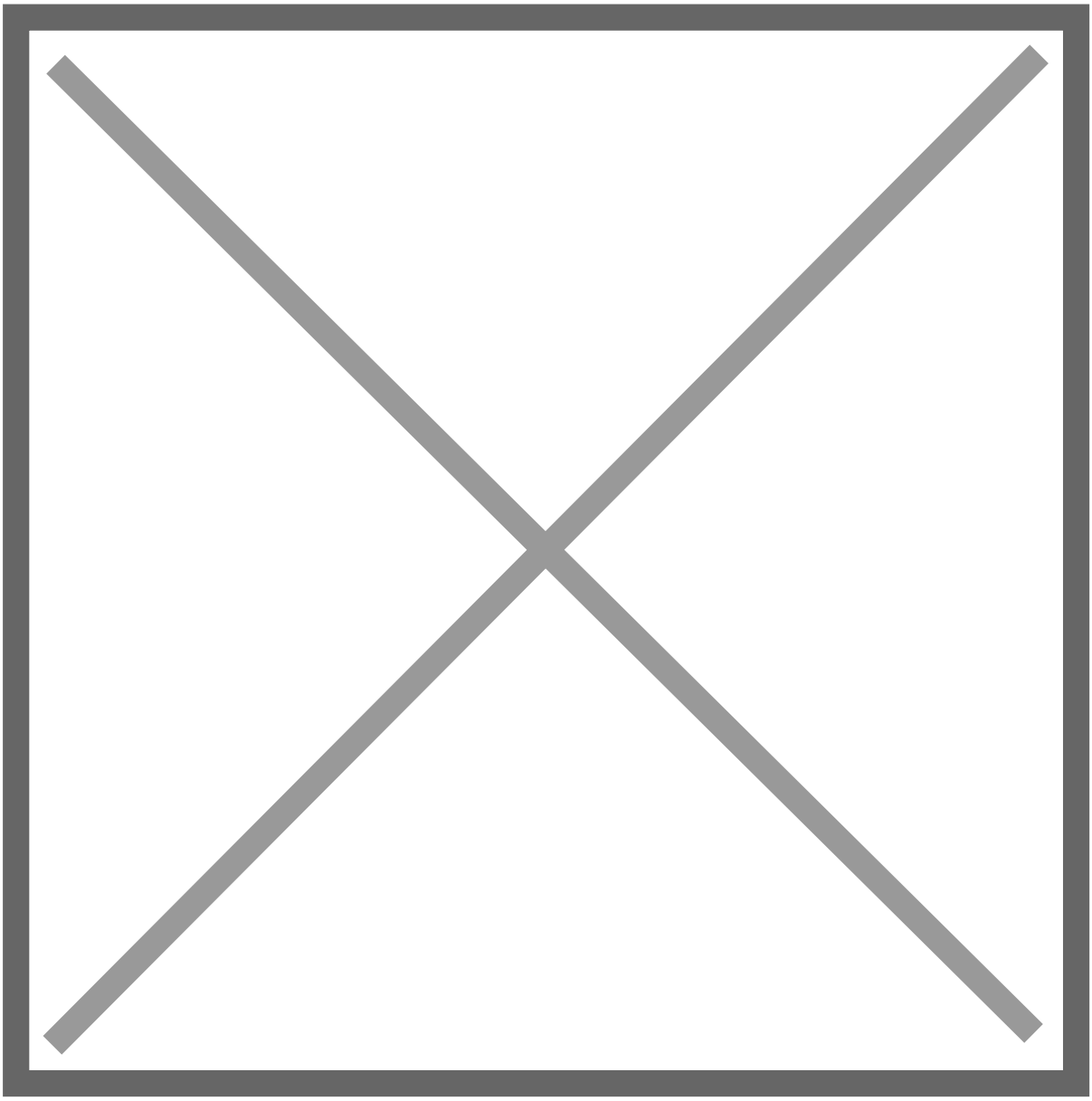


show mbcd realm

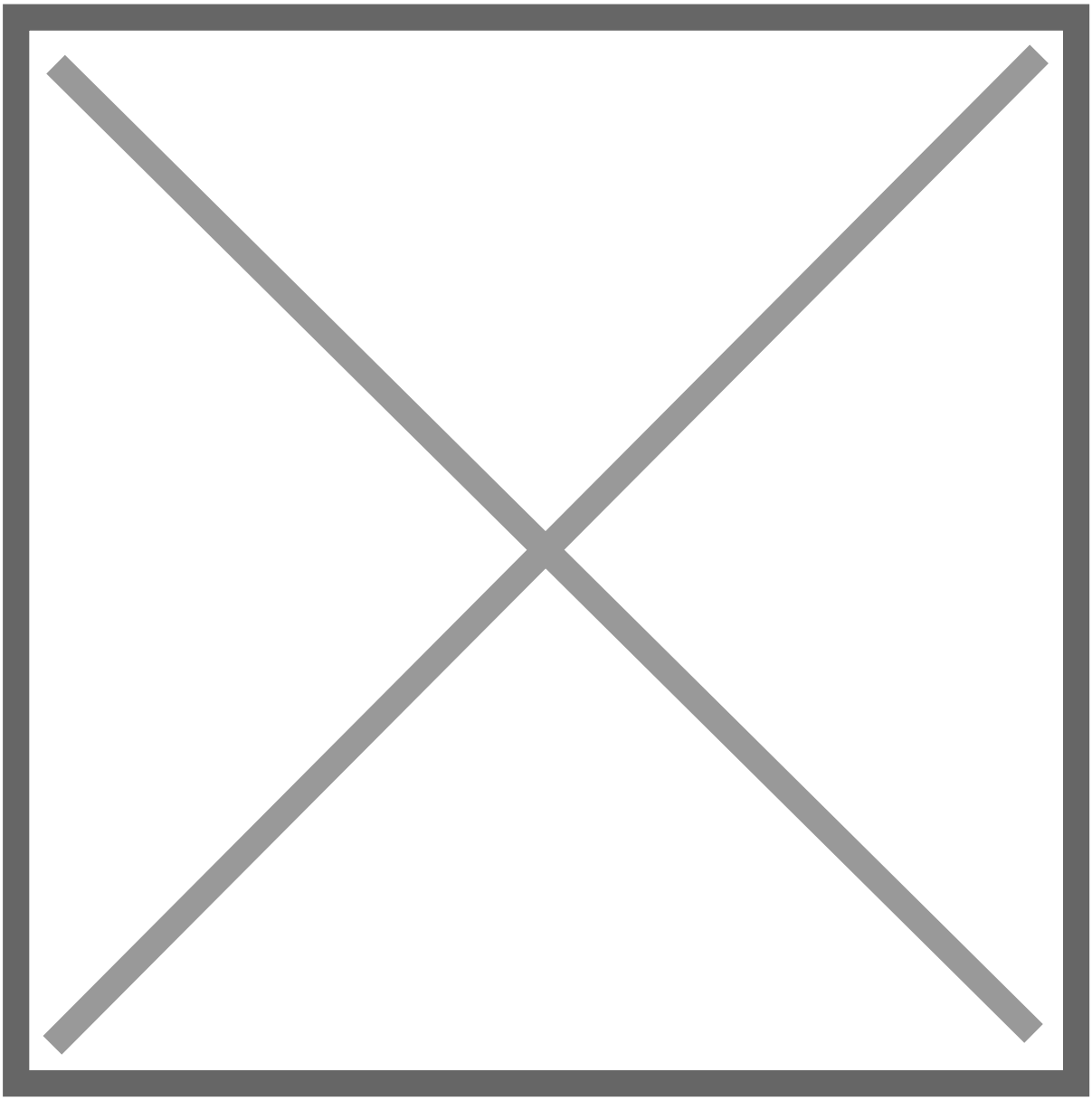


SBC configuration

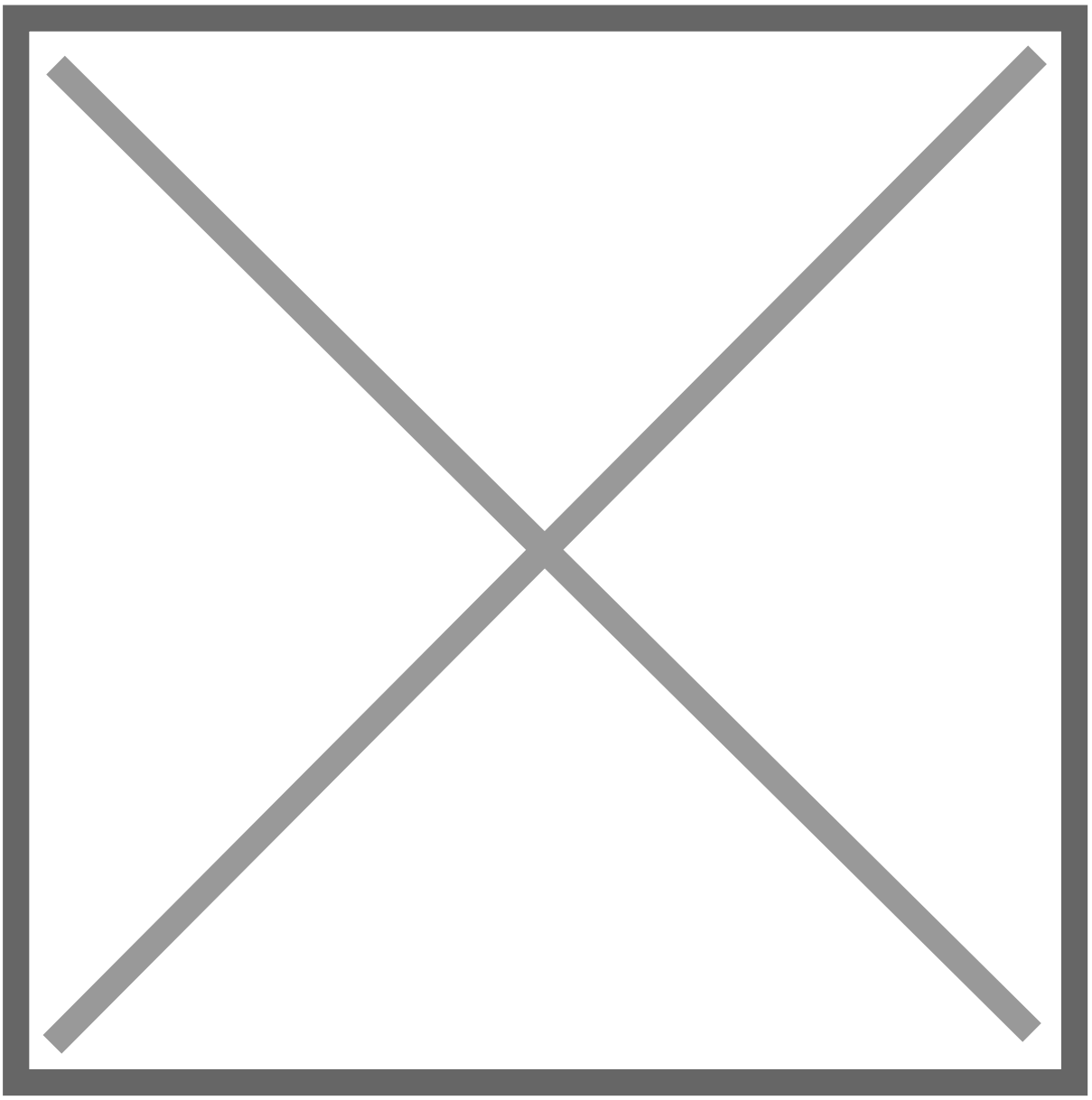
verify-config



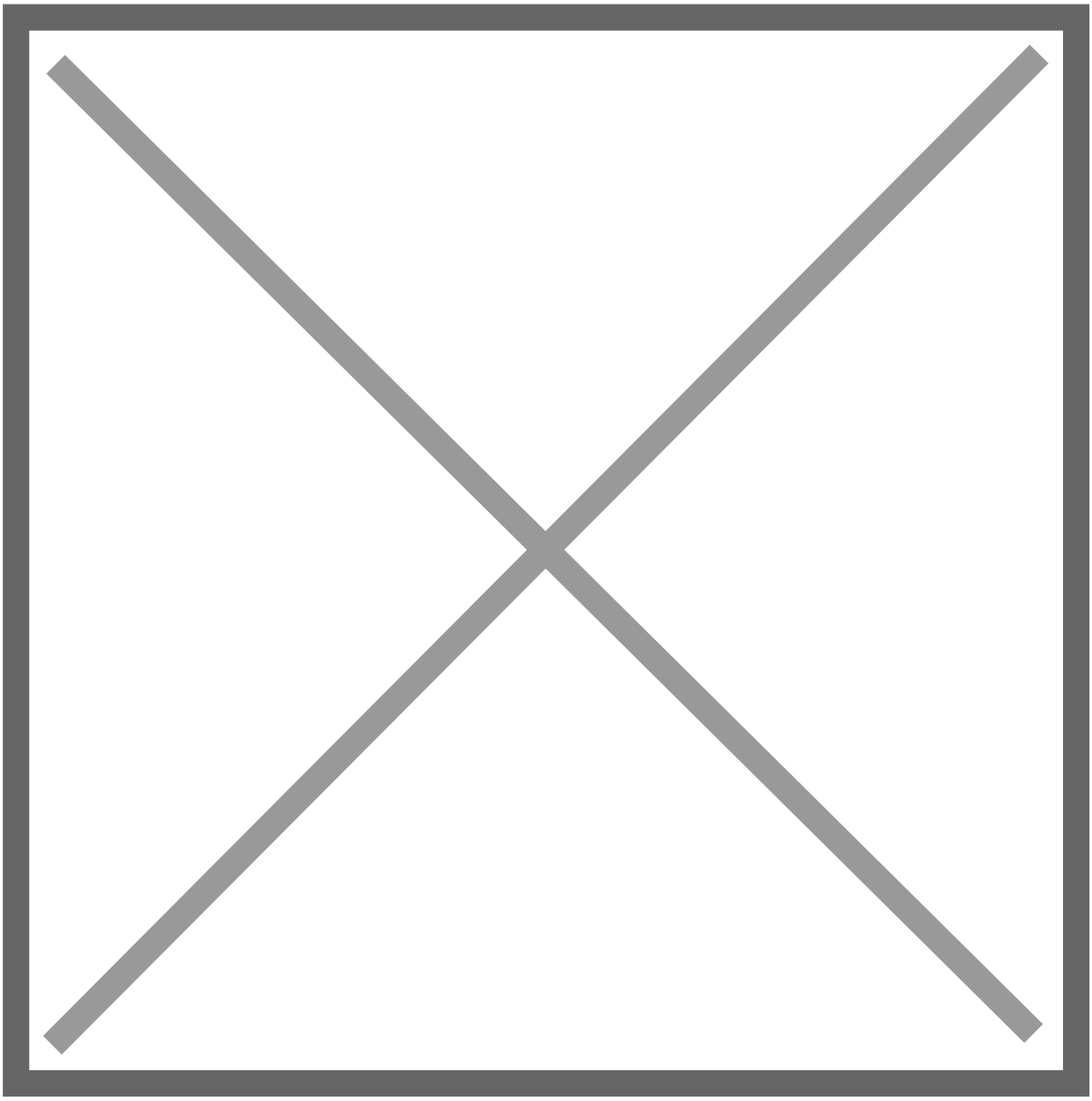
display-running-cfg-version



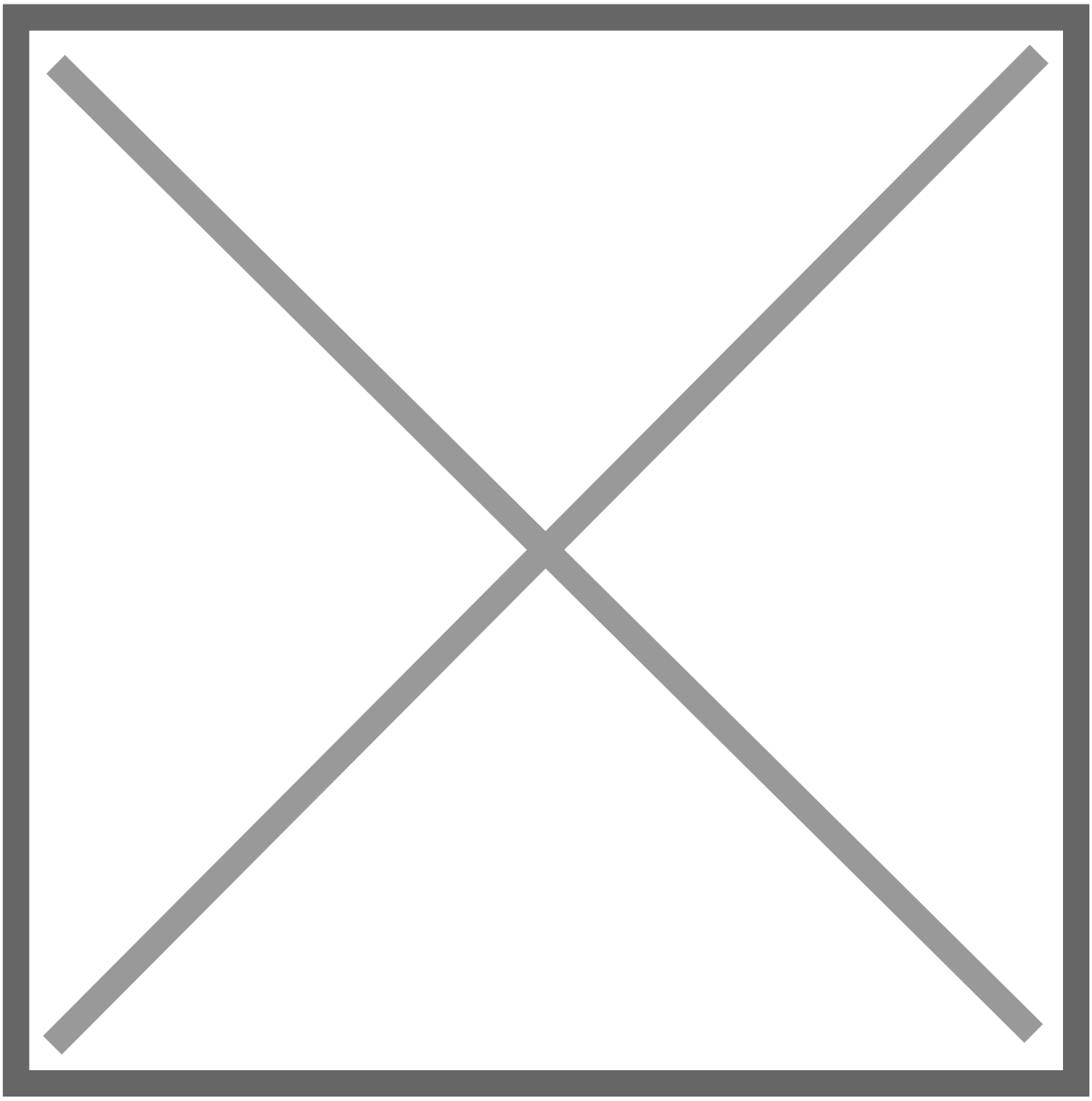
display-current-cfg-version



show running-config short

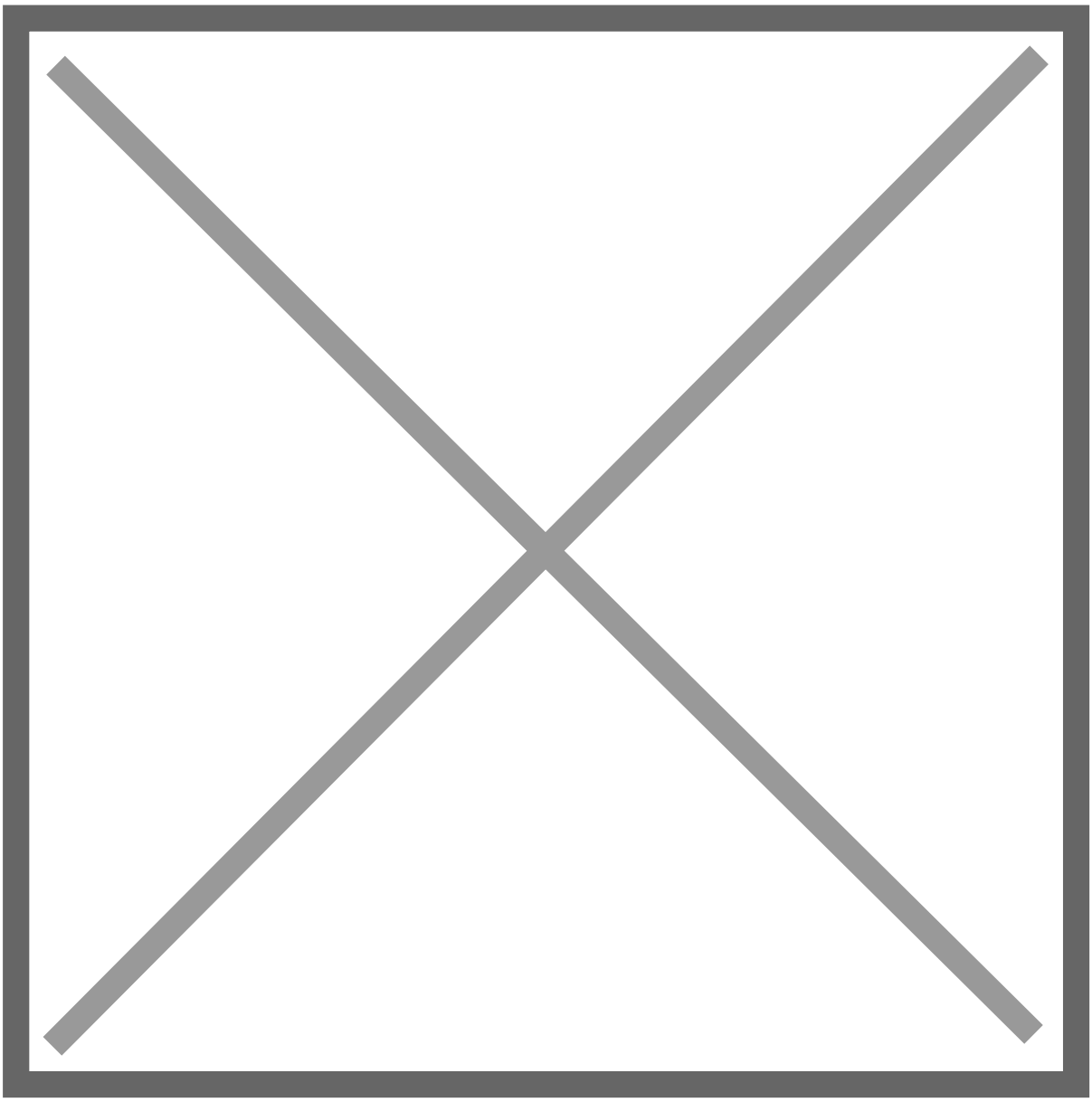


show configuration short

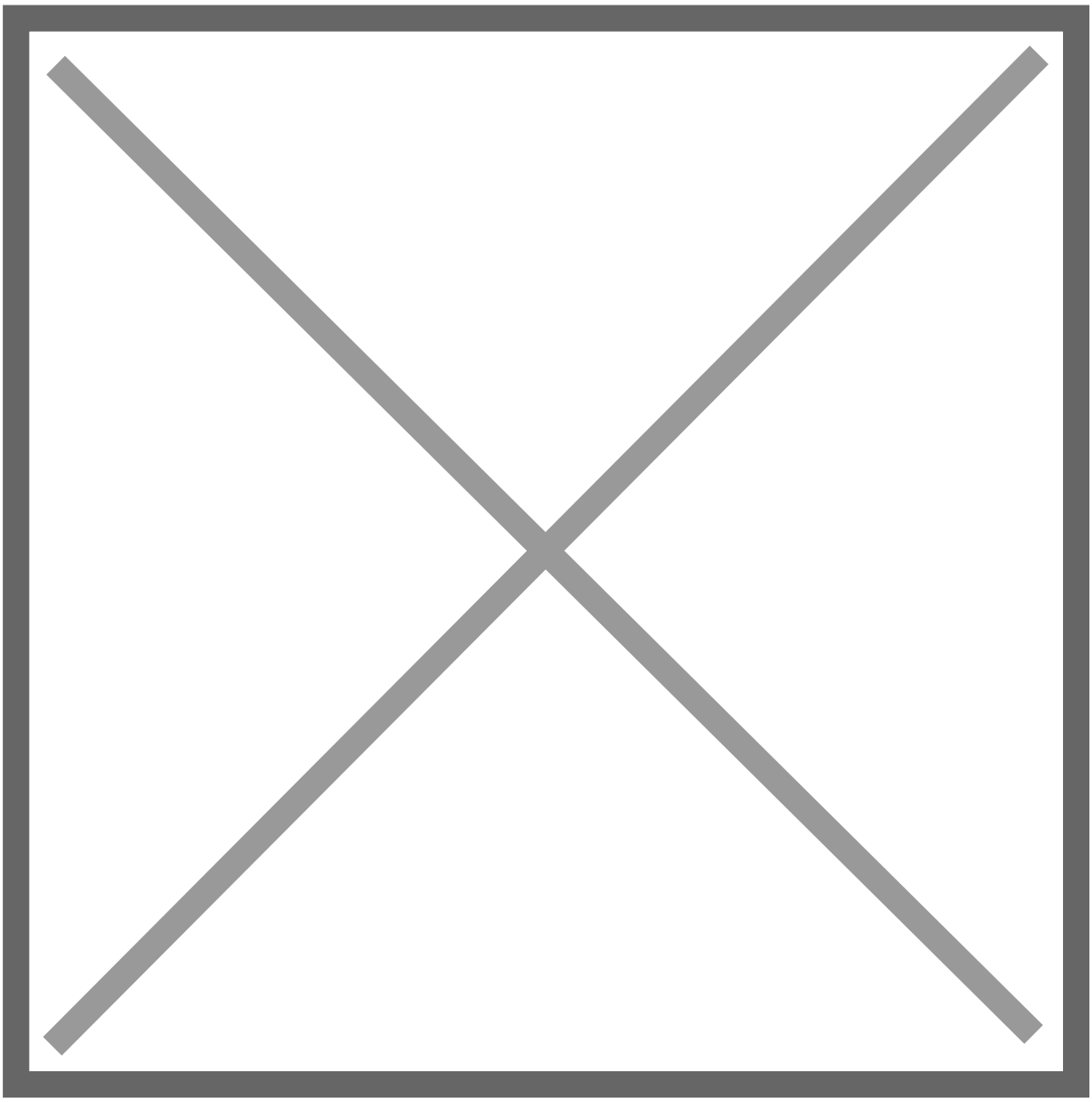


SBC Administration

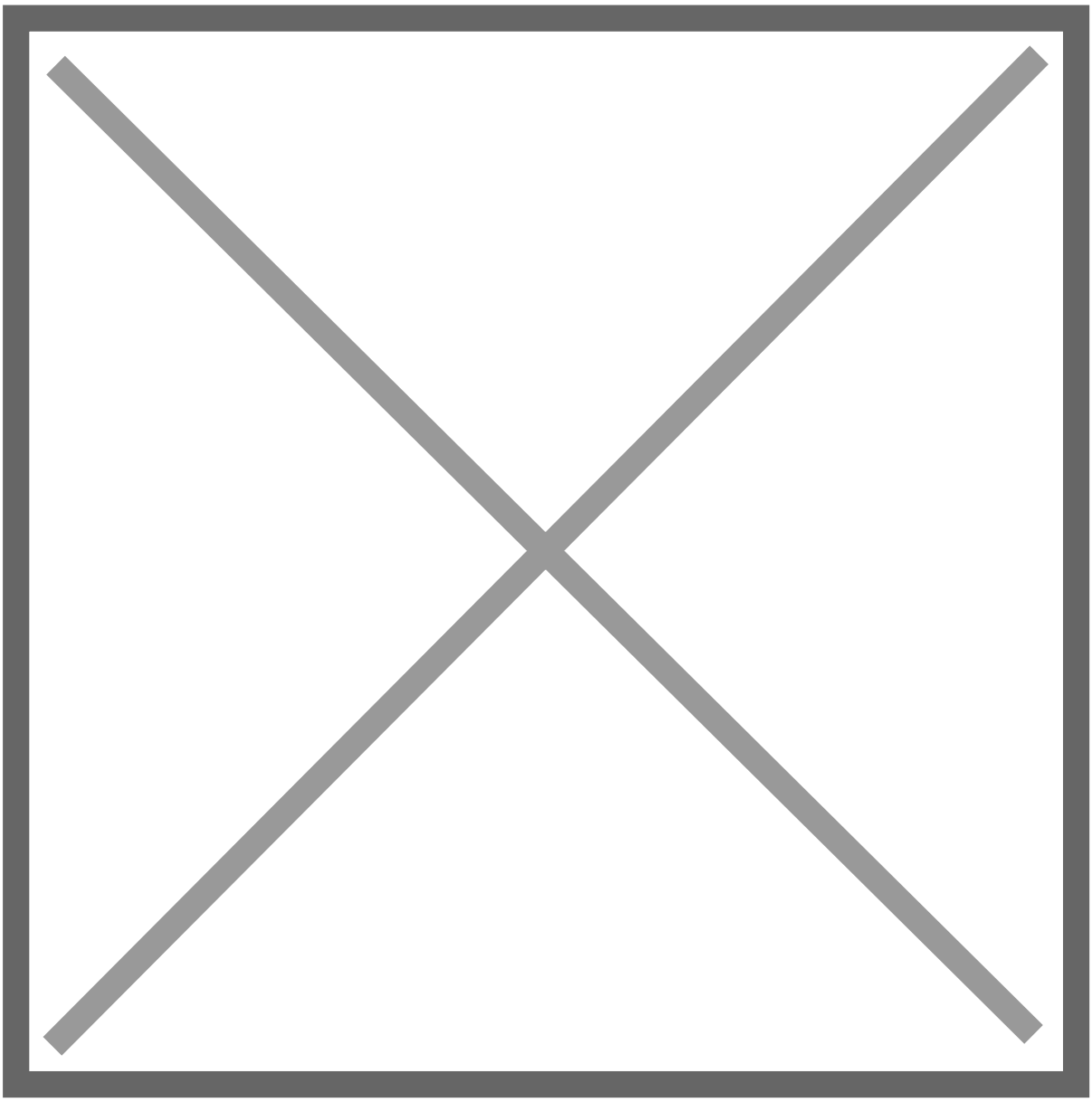
notify berpd force



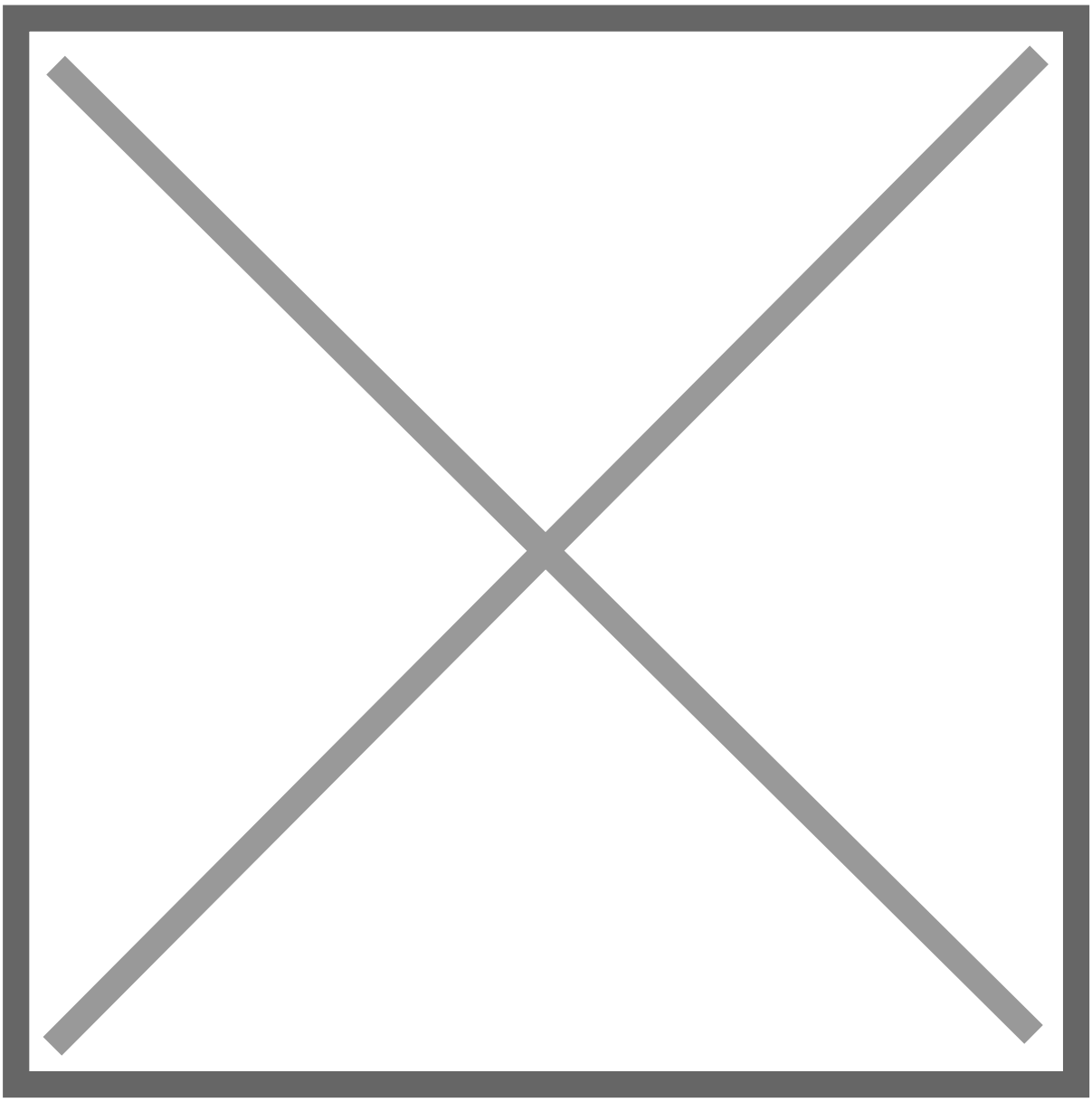
notify lrtd refresh xxxx



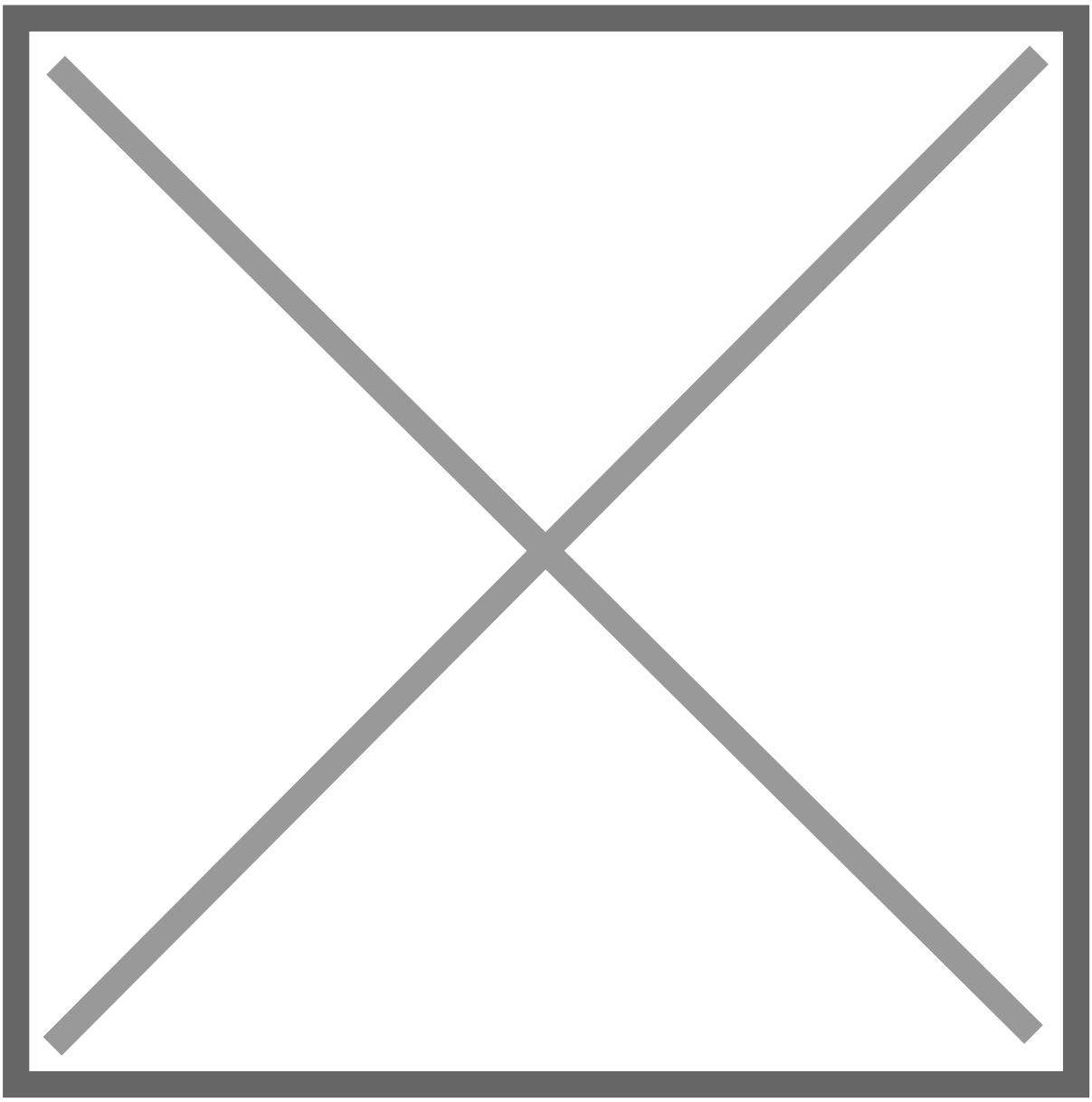
show users



kill sftp 1



reset monitoring records

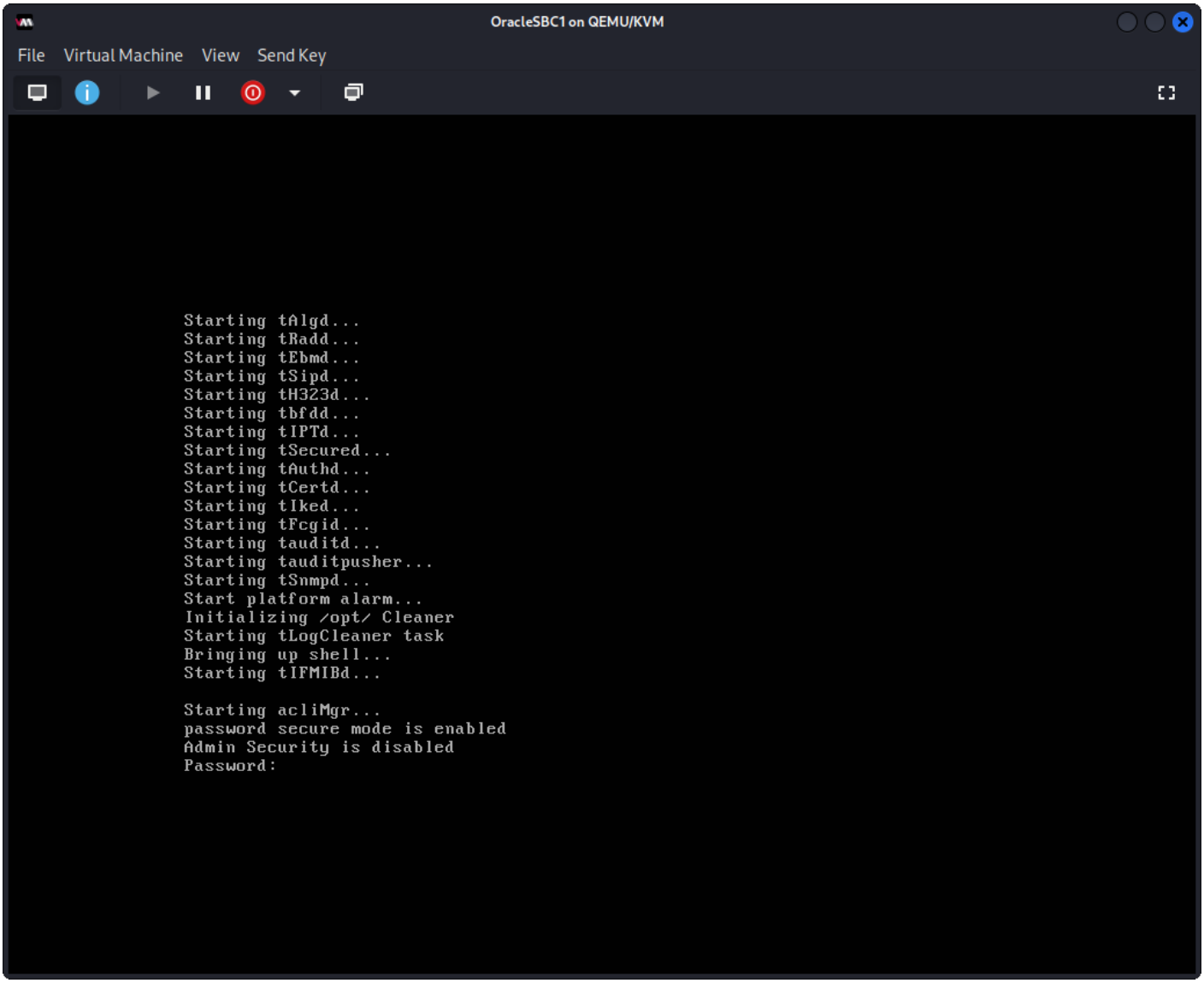


SBC HomeLAB

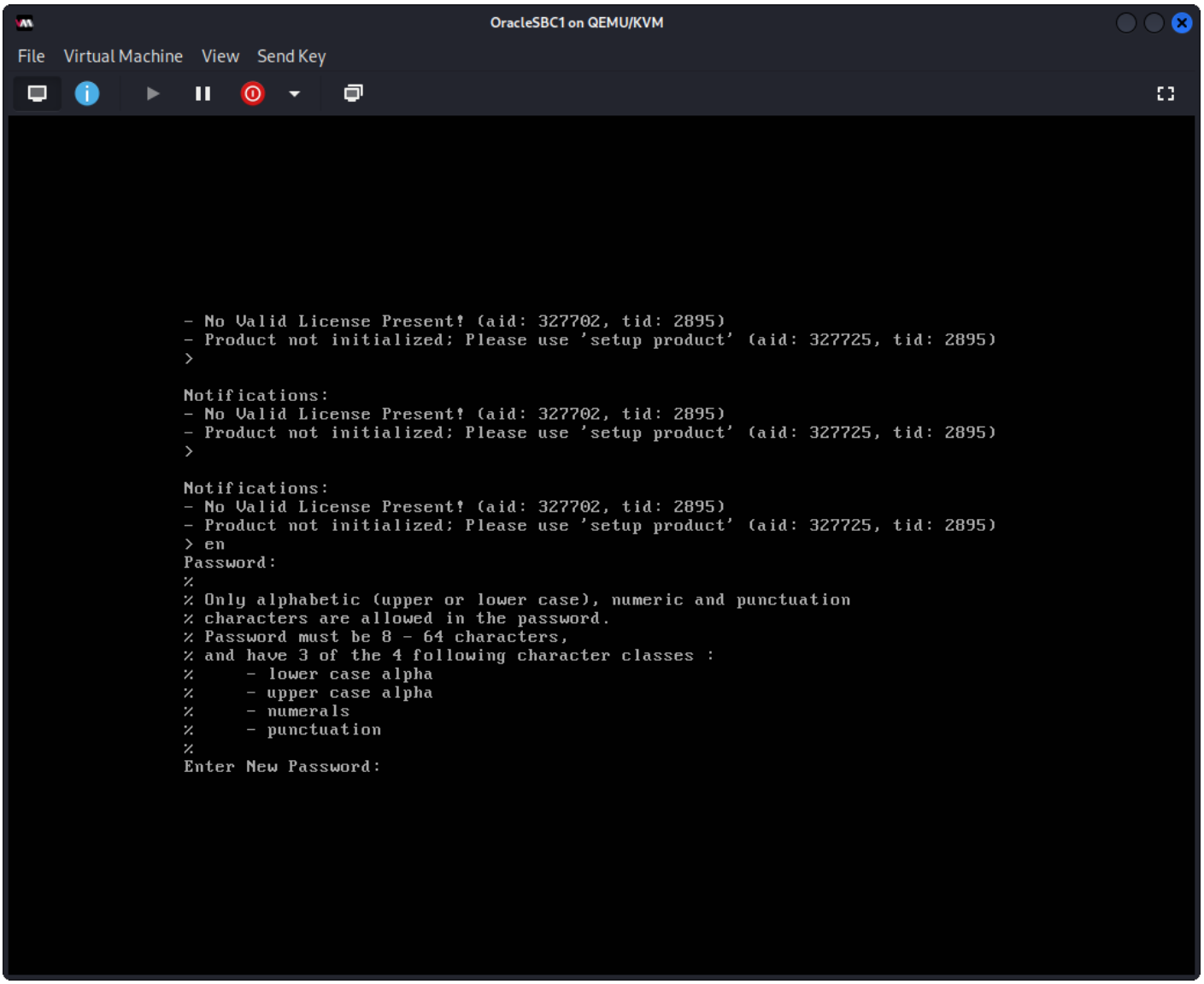
1. - SBC Initial configuration

Initial password acme

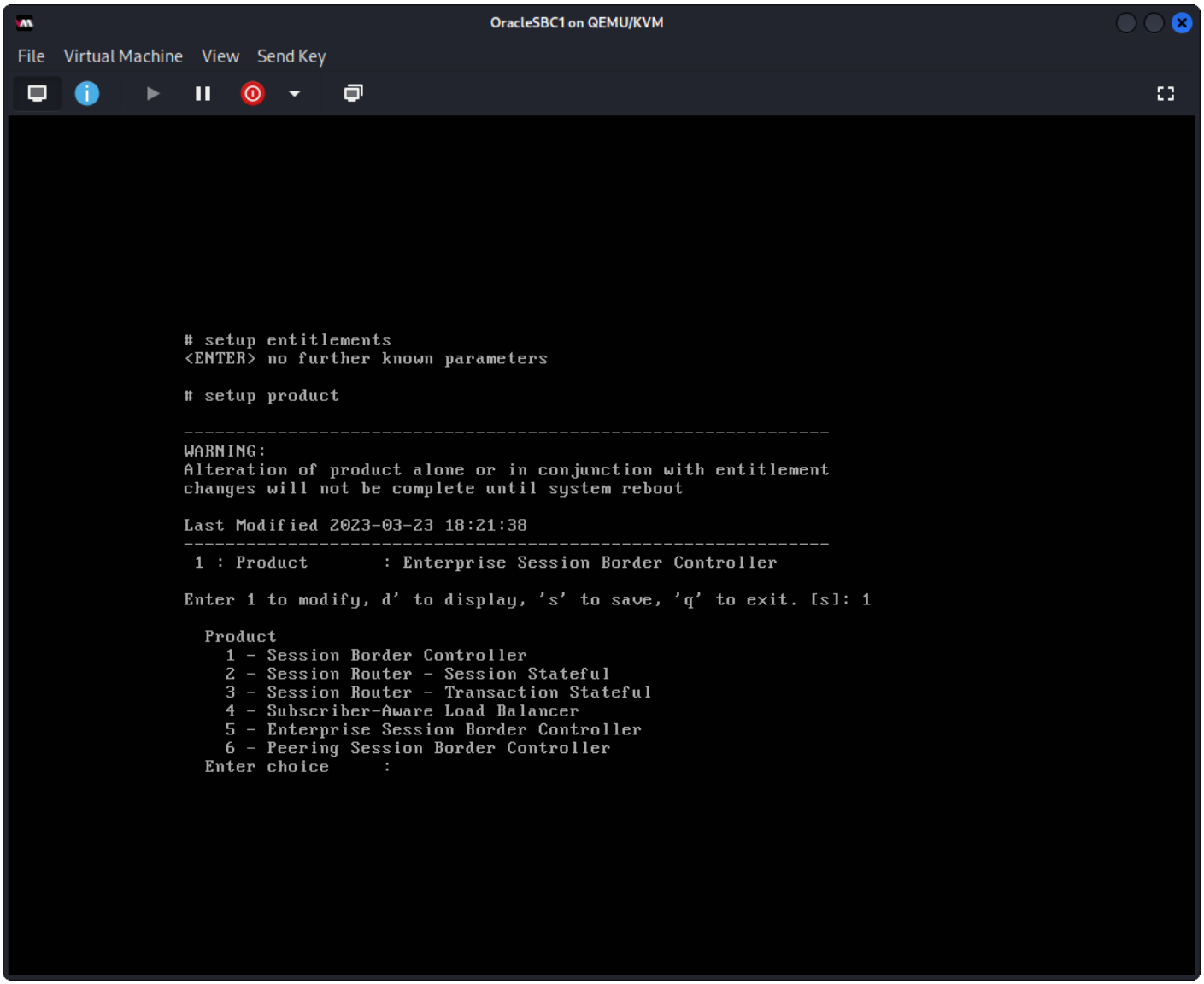
you will need to setup a new password



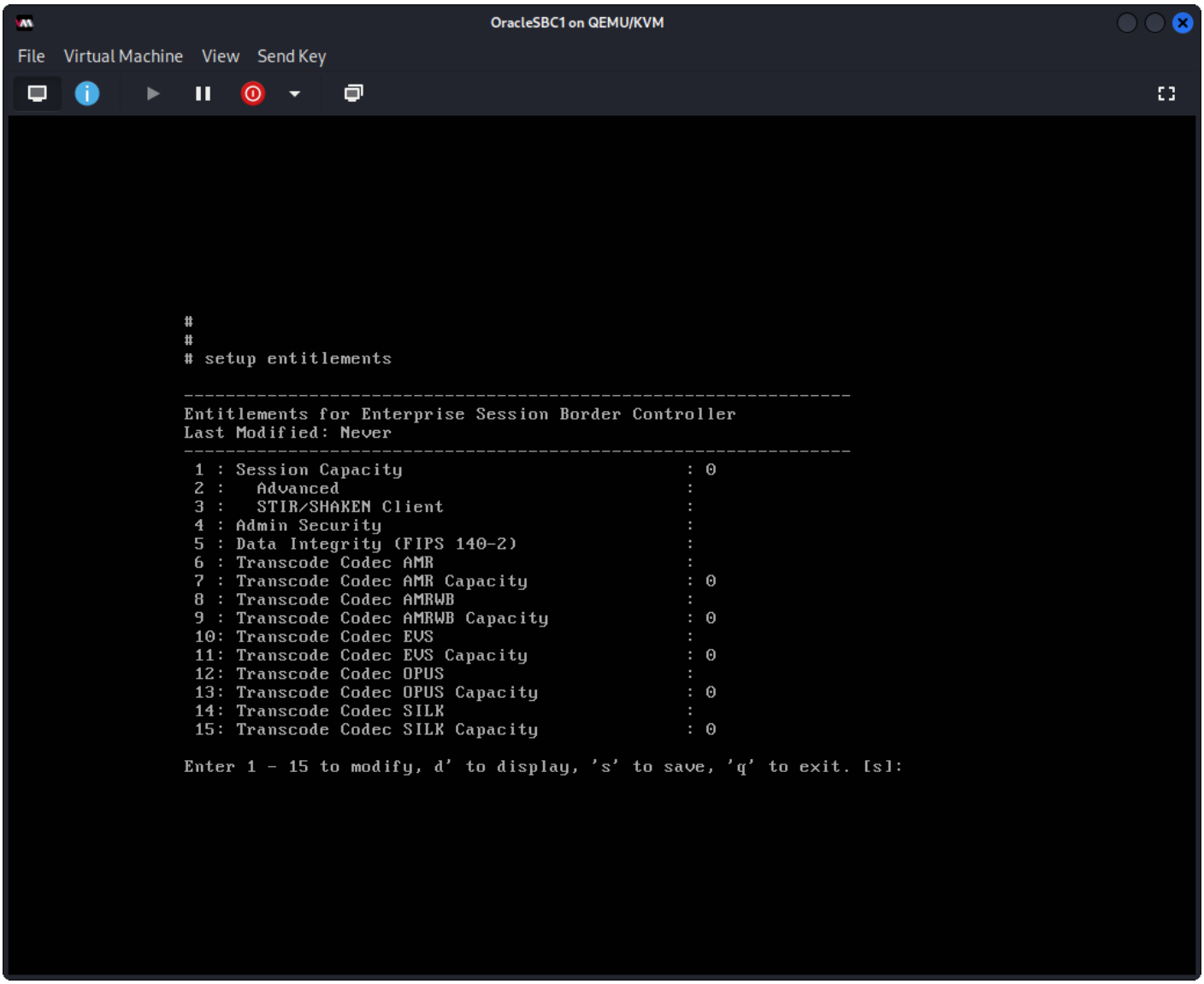
en password is packet



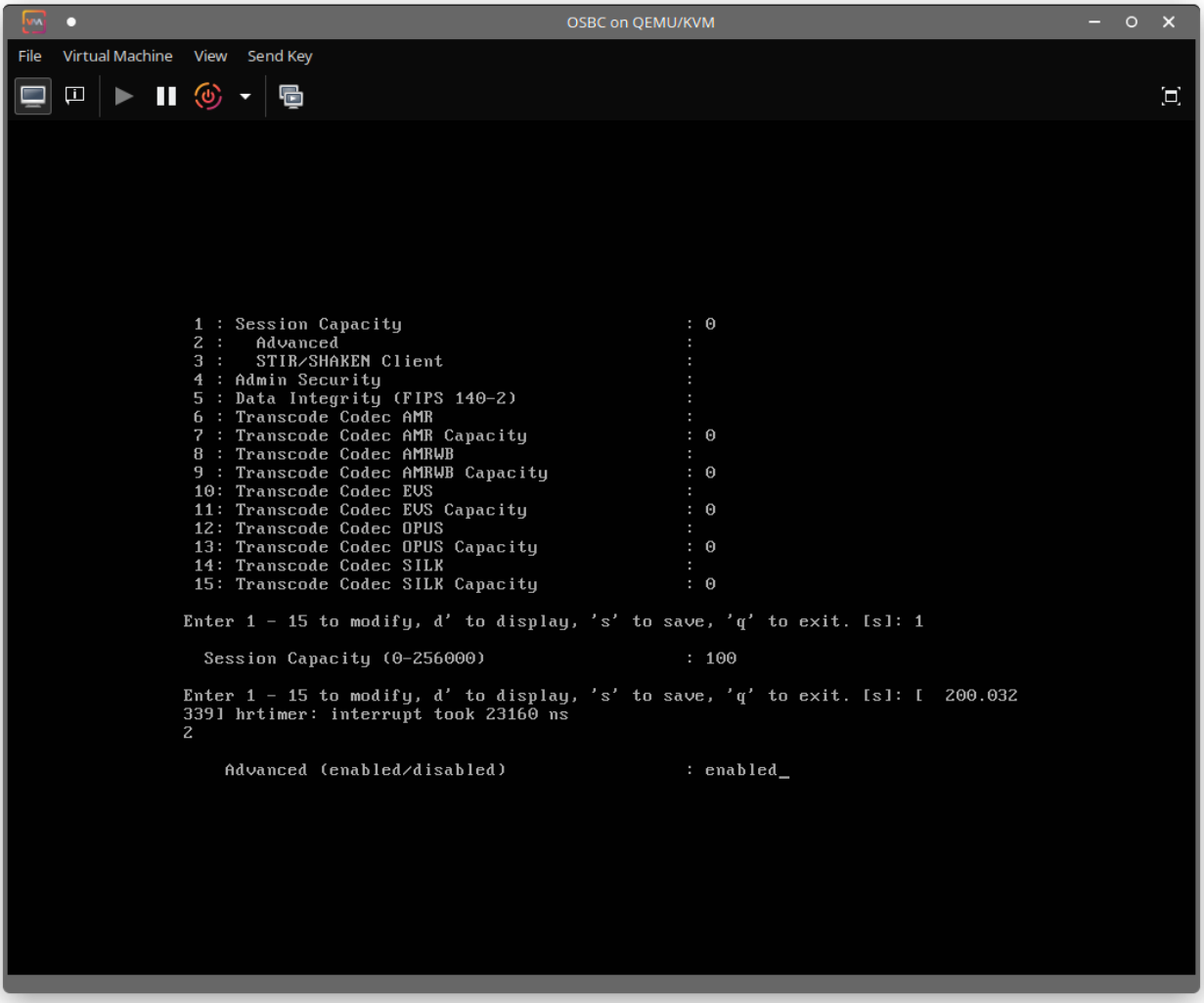
enter setup product, press 1 to modify then 5 for sbc enterprise then s to save



enter command setup entitlements then 1 for session capacity enter 100 then save



Select 2 to enable advance licenses then press s to save config



go to config t and setup bootparam

IP address to ssh remotely for management

```
(configure)# bootparam

'.' = clear field;  '-' = go to previous field;  q = quit

Boot File           : /boot/bzImage
IP Address          : 192.168.10.100
VLAN                :
Netmask             : 255.255.255.0
Gateway             : 192.168.10.1
IPv6 Address        :
IPv6 Gateway        :
Host IP             :
```

```
FTP username            :
FTP password            :
Flags                   :
Target Name             : PCOSBC
Console Device          : VGA
Console Baudrate        : 115200
Other                   :

NOTE: These changed parameters will not go into effect until reboot.
Also, be aware that some boot parameters may also be changed through
PHY and Network Interface Configurations.
```

After rebooting, SBC must show LabOSBC in the prompt name and must reply in the network.

configure options

```
(configure)# session-router
(session-router)# sip-config
(sip-config)# options +max
(sip-config)# options +max-udp-length=0
(sip-config)# options +reinvite-trying=yes
(sip-config)# options +sag-target-uri=ip
(sip-config)# enum-sag-match enabled
(sip-config)# extra-method-stats enable
(sip-config)#
(sip-config)# done
sip-config
```

Options explained

These are some configuration options for SIP (Session Initiation Protocol) on an Oracle SBC:

1. `options +max`: This command sets the maximum number of simultaneous sessions that the SBC can handle. The value can be any integer between 1 and 50000.
2. `options +max-udp-length=0`: This command sets the maximum UDP packet size to 0, which effectively disables UDP transport for SIP signaling. This can be useful for troubleshooting or for environments where UDP traffic is not allowed.
3. `options +reinvite-trying=yes`: This command enables the SBC to send 100 Trying responses to re-INVITE requests from the far-end UA (user agent). This is useful when the far-end UA sends re-INVITE requests without waiting for an answer to the previous

request.

4. `options +sag-target-uri=ip`: This command sets the target URI for the SAG (Session Agent) to the IP address of the SBC. This is useful when the SAG and SBC are on different networks and the SAG needs to know the IP address of the SBC.
5. `enum-sag-match enabled`: This command enables the ENUM (Electronic Numbering) feature on the SBC. ENUM is a protocol that maps telephone numbers to IP addresses, allowing SIP calls to be routed more efficiently.
6. `extra-method-stats enable`: This command enables additional SIP method statistics to be collected by the SBC. This can provide more detailed information on SIP traffic patterns and help with troubleshooting.

Toggle to display options

Options

```
state                          enabled
    operation-mode                 dialog
    dialog-transparency             enabled
    home-realm-id
    egress-realm-id
    auto-realm-id
    nat-mode                     None
    registrar-domain
    registrar-host
    registrar-port               0
    register-service-route          always
    init-timer                   500
    max-timer                    4000
    trans-expire                 32
    initial-inv-trans-expire        0
    invite-expire                180
    session-max-life-limit          0
    inactive-dynamic-conn           32
    enforcement-profile
    pac-method
    pac-interval                 10
    pac-strategy                 PropDist
    pac-load-weight              1
    pac-session-weight              1
    pac-route-weight             1
    pac-callid-lifetime          600
    pac-user-lifetime            3600
    red-sip-port                 1988
```

```
red-max-trans                    10000
red-sync-start-time              5000
red-sync-comp-time               1000
options                          max-udp-length=0
                                 reinvite-trying=yes
                                 sag-target-uri=ip
spl-options
add-reason-header                disabled
sip-message-len                  4096
enum-sag-match                   enabled
extra-method-stats               enabled
extra-enum-stats                 disabled
mps-volte                        disabled
rph-feature                      disabled
nsep-user-sessions-rate          0
nsep-sa-sessions-rate            0
registration-cache-limit         0
register-use-to-for-lp           disabled
refer-src-routing                disabled
add-ucid-header                  disabled
proxy-sub-events
allow-pani-for-trusted-only      inherit
atcf-stn-sr
atcf-psi-dn
atcf-route-to-sccas              disabled
eatf-stn-sr
pass-gruu-contact                disabled
sag-lookup-on-redirect           disabled
set-disconnect-time-on-bye       disabled
refer-reinvite-no-sdp            disabled
msrp-delayed-bye-timer           15
transcoding-realm
transcoding-agents
create-dynamic-sa                disabled
node-functionality               P-CSCF
match-sip-instance               disabled
sa-routes-stats                  disabled
sa-routes-traps                  disabled
rx-sip-reason-mapping            disabled
add-ue-location-in-pani          inherit
hold-emergency-calls-for-loc-info  0
retry-after-upon-offline         0
reg-reject-response-upon-offline   503
hold-invite-calls-for-loc-info   0
```

```
        cache-loc-info-expire                  32
        msg-hold-for-loc-info                  0
        npli-upon-register                     inherit
        start-hold-timer-event                 AAR
        hist-to-div-for-cause-380              inherit
        anonymize-history-for-untrusted        disabled
        asymm-preconditions-evs-swb-support    disabled
        sms-report-timeout                     32
        user-agent
```

config continue

```
(sip-config)# exit
(session-router)# exit
(configure)# media-manager
(media-manager)# media-manager
(media-manager-config)# select
(media-manager-config)# options active-arp
(media-manager-config)#
(media-manager-config)# done
```

Media Manager options

```
media-manager
        state                          enabled
        latching                       enabled
        flow-time-limit                86400
        initial-guard-timer            300
        subsq-guard-timer              300
        tcp-flow-time-limit            86400
        tcp-initial-guard-timer        300
        tcp-subsq-guard-timer          300
        tcp-number-of-ports-per-flow   2
        hnt-rtcp                       disabled
        algd-log-level                 NOTICE
        mbcd-log-level                 NOTICE
        options                        active-arp
        red-flow-port                  1985
        red-mgcp-port                  1986
        red-max-trans                  10000
```

```
red-sync-start-time                  5000
red-sync-comp-time                   1000
media-policing                       enabled
max-arp-rate                         10
max-signaling-packets                0
max-untrusted-signaling              100
min-untrusted-signaling              30
dos-guard-window                     5
untrusted-minor-threshold            0
untrusted-major-threshold            0
untrusted-critical-threshold         0
trusted-minor-threshold              0
trusted-major-threshold              0
trusted-critical-threshold           0
arp-minor-threshold                  0
arp-major-threshold                  0
arp-critical-threshold               0
tolerance-window                     30
untrusted-drop-threshold             0
trusted-drop-threshold               0
acl-monitor-window                   30
trap-on-demote-to-deny               disabled
trap-on-demote-to-untrusted          disabled
syslog-on-demote-to-deny             disabled
syslog-on-demote-to-untrusted        disabled
rtcp-rate-limit                      0
anonymous-sdp                        disabled
rfc2833-timestamp                    disabled
reactive-transcoding                 disabled
default-2833-duration                100
rfc2833-end-pkts-only-for-non-sig    enabled
translate-non-rfc2833-event          disabled
media-supervision-traps              disabled
dnsalg-server-failover               disabled
syslog-on-call-reject                disabled
xcode-fax-max-rate                   14400
```

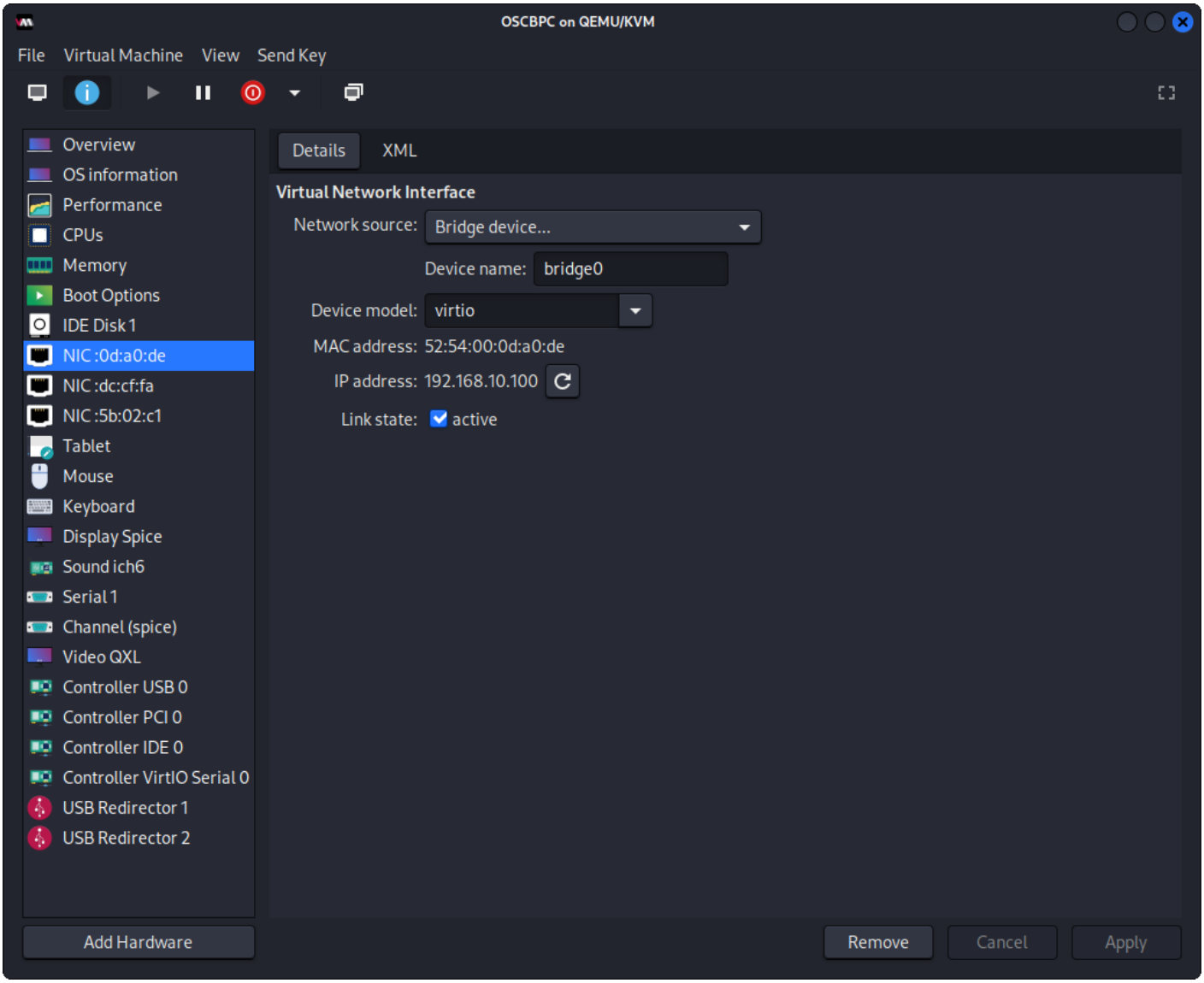
Interface-mapping show

```
# interface-mapping show
Interface Mapping Info
------------------------------------------
```

```
Eth-IF  MAC-Addr               Label
wancom0 52:54:00:0D:A0:DE       #generic
wancom1 52:54:00:DC:CF:FA       #generic
s0p0    52:54:00:5B:02:C1       #generic
wancom2 FF:FF:FF:FF:FF:FF       #dummy
spare   FF:FF:FF:FF:FF:FF       #dummy
s1p0    FF:FF:FF:FF:FF:FF       #dummy
s0p1    FF:FF:FF:FF:FF:FF       #dummy
s1p1    FF:FF:FF:FF:FF:FF       #dummy
s0p2    FF:FF:FF:FF:FF:FF       #dummy
s1p2    FF:FF:FF:FF:FF:FF       #dummy
s0p3    FF:FF:FF:FF:FF:FF       #dummy
s1p3    FF:FF:FF:FF:FF:FF       #dummy
```

In case of an incorrect interface mapping between the VM settings with the interfaces in the Oracle SBC use the following command to swap the MAC addresses. Important note, any swap change requires a reboot of the virtual Oracle SBC.

> Below screenshot its using linux KVM Virtual Machine Manager




```
# interface-mapping show
Interface Mapping Info
-----------------------------------------
Eth-IF  MAC-Addr              Label
wancom0 52:54:00:0D:A0:DE      #generic
wancom1 52:54:00:DC:CF:FA      #generic
s0p0    52:54:00:5B:02:C1      #generic
wancom2 FF:FF:FF:FF:FF:FF      #dummy
spare   FF:FF:FF:FF:FF:FF      #dummy
s1p0    FF:FF:FF:FF:FF:FF      #dummy
s0p1    FF:FF:FF:FF:FF:FF      #dummy
s1p1    FF:FF:FF:FF:FF:FF      #dummy
s0p2    FF:FF:FF:FF:FF:FF      #dummy
s1p2    FF:FF:FF:FF:FF:FF      #dummy
```

```
s0p3    FF:FF:FF:FF:FF:FF       #dummy
s1p3    FF:FF:FF:FF:FF:FF       #dummy

# interface-mapping swap
Error: Missing label text!
# interface-mapping swap wancom0 wancom1
Interface Mapping Info after swapping
-------------------------------------------
Eth-IF  MAC-Addr                Label
wancom0 52:54:00:DC:CF:FA       #generic
wancom1 52:54:00:0D:A0:DE       #generic
s0p0    52:54:00:5B:02:C1       #generic
wancom2 FF:FF:FF:FF:FF:FF       #dummy
spare   FF:FF:FF:FF:FF:FF       #dummy
s1p0    FF:FF:FF:FF:FF:FF       #dummy
s0p1    FF:FF:FF:FF:FF:FF       #dummy
s1p1    FF:FF:FF:FF:FF:FF       #dummy
s0p2    FF:FF:FF:FF:FF:FF       #dummy
s1p2    FF:FF:FF:FF:FF:FF       #dummy
s0p3    FF:FF:FF:FF:FF:FF       #dummy
s1p3    FF:FF:FF:FF:FF:FF       #dummy


Changes could affect service, and Requires Reboot to become effective.

Continue [y/n]?:
```

show arp and ping gateway

```
# show arp
IP address       HW type     Flags       HW address            Mask     Device
192.168.10.1     0x1         0x2         7c:2b:e1:13:be:3d     *        wancom0
192.168.10.10    0x1         0x2         f0:2f:74:20:1a:17     *        wancom0

            Total L2 Entries = 0
            ----------------------
No Gateway Entries (0)
# ping 192.168.10.1
PING 192.168.10.1 from wancom0:1
```

44 bytes from 192.168.10.1: icmp_seq=1 ttl=64 time=0.183 ms

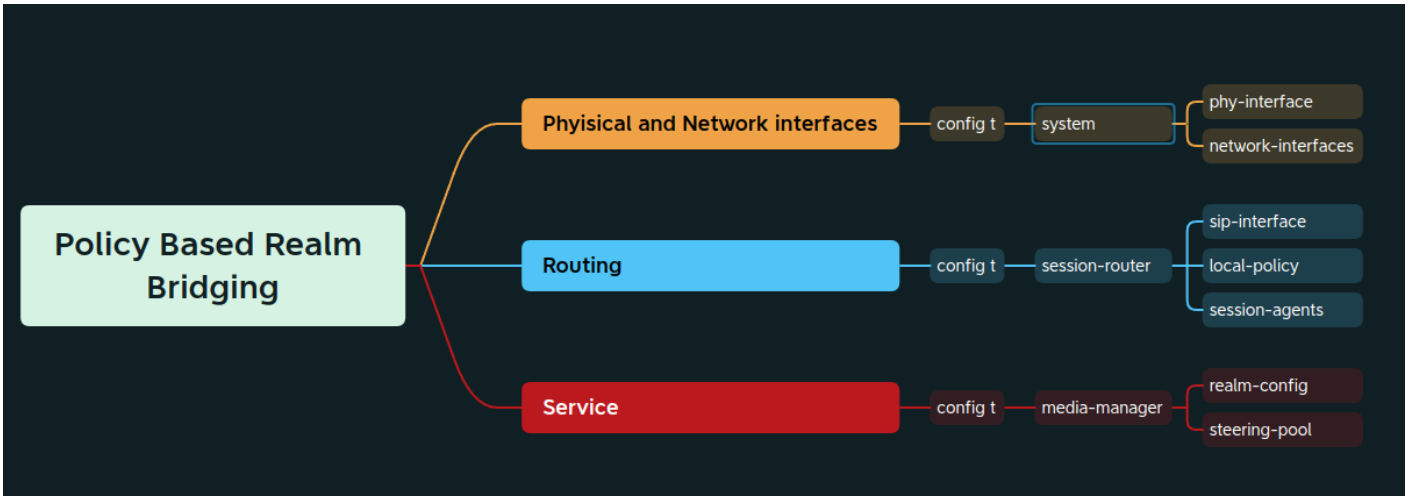
44 bytes from 192.168.10.1: icmp_seq=2 ttl=64 time=0.158 ms

44 bytes from 192.168.10.1: icmp_seq=3 ttl=64 time=0.211 ms

44 bytes from 192.168.10.1: icmp_seq=4 ttl=64 time=0.209 ms

4 packets transmitted, 4 received, 0% packet loss

2. - SBC physical and network interfaces



Oracle SBCs have dedicated interfaces to be used for signaling and media, those interfaces are defined as sXpX when listing the interfaces. As defined in the first entry two interfaces will be created and configured dedicating one for internal (s0p0) communication and the other for external (s1p1) communication.

The first step is set up a physical interface: s1p1 (slot 1 port 1)

```
PCOSBC# config t
PCOSBC(configure)# system phy-interface
PCOSBC(phy-interface)# name Internal
PCOSBC(phy-interface)# operation-type Media
PCOSBC(phy-interface)# port 1
PCOSBC(phy-interface)# slot 1
PCOSBC(phy-interface)#
```

```
PCOSBC(phy-interface)# done
phy-interface
        name                            Internal
        operation-type                      Media
        port                            1
        slot                            1
        virtual-mac
        admin-state                       enabled
        auto-negotiation                   enabled
        duplex-mode                        FULL
        speed                           100
        wancom-health-score                  50
        overload-protection                disabled
```

With the physical interface created an IP address can be assigned to the physical interface, the link between the physical and the network interface is using the same name, in this case Internal.

```
PCOSBC(system)#
PCOSBC(system)# network-interface
PCOSBC(network-interface)#
PCOSBC(network-interface)# name Internal
PCOSBC(network-interface)# ip-address 192.168.10.101
PCOSBC(network-interface)# netmask 255.255.255.0
PCOSBC(network-interface)# gateway 192.168.10.1
PCOSBC(network-interface)# add-hip-ip 192.168.10.101
PCOSBC(network-interface)# add-icmp-ip 192.168.10.101
PCOSBC(network-interface)#
PCOSBC(network-interface)# done
network-interface
        name                            Internal
        sub-port-id                      0
        description
        hostname
        ip-address                       192.168.10.101
        pri-utility-addr
        sec-utility-addr
        netmask                          255.255.255.0
        gateway                          192.168.10.1
        sec-gateway
        gw-heartbeat
```

```
        state                         disabled
        heartbeat                       0
        retry-count                     0
        retry-timeout                   1
        health-score                    0
    bfd-config
        state                         disabled
        health-score                    0
        options
    dns-ip-primary
    dns-ip-backup1
    dns-ip-backup2
    dns-domain
    dns-timeout                     11
    dns-max-ttl                     86400
    signaling-mtu                   0
    hip-ip-list                   192.168.10.101
    icmp-address                    192.168.10.101
    snmp-address
    ssh-address
```

Now lets set up the physical interface s0p0, it will be named as External.

```
PCOSBC(network-interface)#
PCOSBC(network-interface)# exit
PCOSBC(system)# phy-interface
PCOSBC(phy-interface)# name External
PCOSBC(phy-interface)# operation-type Media
PCOSBC(phy-interface)# port 0
PCOSBC(phy-interface)# slot 0
PCOSBC(phy-interface)#
PCOSBC(phy-interface)# done
phy-interface
    name                          External
    operation-type                    Media
    port                          0
```

```
        slot                        0
        virtual-mac
        admin-state                   enabled
        auto-negotiation              enabled
        duplex-mode                   FULL
        speed                       100
        wancom-health-score             50
        overload-protection           disabled
```

and now the network-interface for external

```
PCOSBC(phy-interface)# exit
PCOSBC(system)# network-interface
PCOSBC(network-interface)# name External
PCOSBC(network-interface)# ip-address 192.168.10.201
PCOSBC(network-interface)# netmask 255.255.255.0
PCOSBC(network-interface)# gateway 192.168.10.1
PCOSBC(network-interface)# add-hip-ip 192.168.10.1
PCOSBC(network-interface)# add-icmp-ip 192.168.10.1
PCOSBC(network-interface)#
PCOSBC(network-interface)# done
network-interface
        name                        External
        sub-port-id                  0
        description
        hostname
        ip-address                   192.168.10.201
        pri-utility-addr
        sec-utility-addr
        netmask                      255.255.255.0
        gateway                      192.168.10.1
        sec-gateway
        gw-heartbeat
                state                   disabled
                heartbeat                0
                retry-count              0
                retry-timeout             1
                health-score              0
```

```
    bfd-config
        state                          disabled
        health-score                     0
        options
    dns-ip-primary
    dns-ip-backup1
    dns-ip-backup2
    dns-domain
    dns-timeout                      11
    dns-max-ttl                     86400
    signaling-mtu                    0
    hip-ip-list                   192.168.10.1
    icmp-address                     192.168.10.1
    snmp-address
    ssh-address
```

With all IP addresses assigned, connectivity can be verified with ***show arp*** (this command lets you know the status connectivity to the default gateways)

In this configuration we're using 1 gateway only.

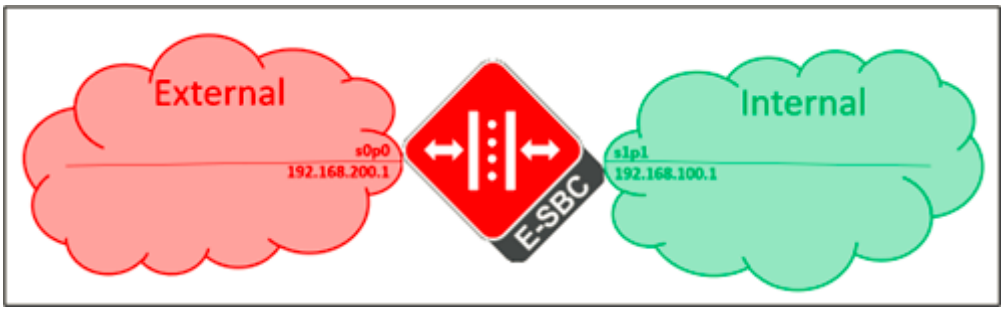
```
PCOSBC# show arp
IP address       HW type     Flags       HW address            Mask     Device
192.168.10.1     0x1         0x2         7c:2b:e1:13:be:3d     *        wancom0
192.168.10.10    0x1         0x2         f0:2f:74:20:1a:17     *        wancom0

        Total L2 Entries = 0
        ----------------------
No Gateway Entries (0)
```

3. - SBC Realms

Session Border Controllers are network devices that secures voice over IP (VoIP) infrastructure while providing interworking between incompatible signaling messages and media flows from end device or application servers.

An important element in Oracle SBCs is realm which are defined as a logical way to identify domain, network, collection of networks.

Let’s forget the management interfaces running in the lab devices for now, the concept of realm would be applied as the following image associating the SBCs interfaces to the realms and any external device sending traffic to the IPs associated.



Now let’s go back to the CLI and configure the realms as shown in the image above, it’s important to mention that identifier can have any name, in my case I used the same names used in physical interfaces and network interfaces, but the key is associate the correct network interface name created in the previous entry.

```
PCOSBC# config t
PCOSBC(configure)# media-manager
PCOSBC(media-manager)# realm-config
PCOSBC(realm-config)# identifier External
PCOSBC(realm-config)#
PCOSBC(realm-config)# network-interfaces External
PCOSBC(realm-config)#
PCOSBC(realm-config)# done
realm-config
```

realm-config extended

```
realm-config
        identifier                      External
        description
        addr-prefix                     0.0.0.0
        network-interfaces                  External:0
        media-realm-list
        mm-in-realm                     disabled
        mm-in-network                    enabled
        mm-same-ip                      enabled
        mm-in-system                     enabled
        bw-cac-non-mm                    disabled
        msm-release                     disabled
        qos-enable                      disabled
        max-bandwidth                       0
        fallback-bandwidth                  0
        max-priority-bandwidth                0
        max-latency                   0
        max-jitter                    0
        max-packet-loss                     0
        observ-window-size                   0
        parent-realm
        dns-realm
        media-policy
        nsep-media-policy
        rtcp-mux                      disabled
        ice-profile
        teams-fqdn
        teams-fqdn-in-uri                disabled
        sdp-inactive-only                disabled
        dtls-srtp-profile
        class-profile
        in-translationid
        out-translationid
        in-manipulationid
        out-manipulationid
        average-rate-limit                  0
        access-control-trust-level            none
        invalid-signal-threshold            0
        maximum-signal-threshold              0
        untrusted-signal-threshold           0
        nat-trust-threshold                 0
        max-endpoints-per-nat                0
```

nat-invalid-message-threshold 0
wait-time-for-invalid-register 0
deny-period 30
session-max-life-limit 0
cac-failure-threshold 0
untrust-cac-failure-threshold 0
ext-policy-svr
diam-e2-address-realm
subscription-id-type END_USER_NONE
symmetric-latching disabled
pai-strip disabled
trunk-context
device-id
early-media-allow
enforcement-profile
additional-prefixes
restricted-latching none
restriction-mask 32
user-cac-mode none
user-cac-bandwidth 0
user-cac-sessions 0
icmp-detect-multiplier 0
icmp-advertisement-interval 0
icmp-target-ip
monthly-minutes 0
options
spl-options
accounting-enable enabled
net-management-control disabled
delay-media-update disabled
refer-call-transfer disabled
hold-refer-reinvite disabled
refer-notify-provisional none
dyn-refer-term disabled
codec-policy
codec-manip-in-realm disabled
codec-manip-in-network enabled
rtcp-policy
constraint-name
session-recording-server
session-recording-required disabled
manipulation-string
manipulation-pattern
stun-enable disabled

```
        stun-server-ip                  0.0.0.0
        stun-server-port                3478
        stun-changed-ip                 0.0.0.0
        stun-changed-port               3479
        sip-profile
        flow-time-limit                 -1
        initial-guard-timer             -1
        subsq-guard-timer               -1
        tcp-flow-time-limit             -1
        tcp-initial-guard-timer         -1
        tcp-subsq-guard-timer           -1
        sip-isup-profile
        match-media-profiles
        qos-constraint
        block-rtcp                      disabled
        hide-egress-media-update        disabled
        tcp-media-profile
        monitoring-filters
        node-functionality
        default-location-string
        alt-family-realm
        pref-addr-type                  none
        sm-icsi-match-for-invite
        sm-icsi-match-for-message
        merge-early-dialogs             disabled
        user-site
        srvcc-trfo
        feature-trfo
```

```
PCOSBC(media-manager)# realm-config
PCOSBC(realm-config)# identifier Internal
PCOSBC(realm-config)# network-interfaces Internal
PCOSBC(realm-config)#
PCOSBC(realm-config)# done
```

real-config extended

```
realm-config
        identifier                      Internal
        description
```

addr-prefix 0.0.0.0
network-interfaces Internal:0
media-realm-list
mm-in-realm disabled
mm-in-network enabled
mm-same-ip enabled
mm-in-system enabled
bw-cac-non-mm disabled
msm-release disabled
qos-enable disabled
max-bandwidth 0
fallback-bandwidth 0
max-priority-bandwidth 0
max-latency 0
max-jitter 0
max-packet-loss 0
observ-window-size 0
parent-realm
dns-realm
media-policy
nsep-media-policy
rtcp-mux disabled
ice-profile
teams-fqdn
teams-fqdn-in-uri disabled
sdp-inactive-only disabled
dtls-srtp-profile
class-profile
in-translationid
out-translationid
in-manipulationid
out-manipulationid
average-rate-limit 0
access-control-trust-level none
invalid-signal-threshold 0
maximum-signal-threshold 0
untrusted-signal-threshold 0
nat-trust-threshold 0
max-endpoints-per-nat 0
nat-invalid-message-threshold 0
wait-time-for-invalid-register 0
deny-period 30
session-max-life-limit 0
cac-failure-threshold 0

untrust-cac-failure-threshold 0
ext-policy-svr
diam-e2-address-realm
subscription-id-type END_USER_NONE
symmetric-latching disabled
pai-strip disabled
trunk-context
device-id
early-media-allow
enforcement-profile
additional-prefixes
restricted-latching none
restriction-mask 32
user-cac-mode none
user-cac-bandwidth 0
user-cac-sessions 0
icmp-detect-multiplier 0
icmp-advertisement-interval 0
icmp-target-ip
monthly-minutes 0
options
spl-options
accounting-enable enabled
net-management-control disabled
delay-media-update disabled
refer-call-transfer disabled
hold-refer-reinvite disabled
refer-notify-provisional none
dyn-refer-term disabled
codec-policy
codec-manip-in-realm disabled
codec-manip-in-network enabled
rtcp-policy
constraint-name
session-recording-server
session-recording-required disabled
manipulation-string
manipulation-pattern
stun-enable disabled
stun-server-ip 0.0.0.0
stun-server-port 3478
stun-changed-ip 0.0.0.0
stun-changed-port 3479
sip-profile

```
        flow-time-limit                    -1
        initial-guard-timer                -1
        subsq-guard-timer                  -1
        tcp-flow-time-limit                -1
        tcp-initial-guard-timer            -1
        tcp-subsq-guard-timer              -1
        sip-isup-profile
        match-media-profiles
        qos-constraint
        block-rtcp                         disabled
        hide-egress-media-update           disabled
        tcp-media-profile
        monitoring-filters
        node-functionality
        default-location-string
        alt-family-realm
        pref-addr-type                     none
        sm-icsi-match-for-invite
        sm-icsi-match-for-message
        merge-early-dialogs                disabled
        user-site
        srvcc-trfo
        feature-trfo
```

At this point any device communicating with IP 192.168.10.101 will be associated with the Internal realm and any traffic to/from 192.168.10.201 associated with the External realm.

4. - SBC SIP Interfaces

It’s now time to create a SIP service associating the IP in network interfaces with realms configured previously.

On the CLI lets first create the External SIP interface:

```
PCOSBC# config t
PCOSBC(configure)# session-router
PCOSBC(session-router)# sip-interface
PCOSBC(sip-interface)# realm-id External
PCOSBC(sip-interface)# sip-ports
PCOSBC(sip-port)# address 192.168.10.201
PCOSBC(sip-port)# port 5060
PCOSBC(sip-port)# transport-protocol udp
PCOSBC(sip-port)# allow-anonymous all
PCOSBC(sip-port)#
PCOSBC(sip-port)# done
sip-port
        address                       192.168.10.201
        port                          5060
        transport-protocol                UDP
        allow-anonymous                   all
        multi-home-addrs
        ims-aka-profile
```

> Remember to issue the done command when completing the sip-port element and exit to jump to the sip-interface branch and issue the done command.

Setup SIP Interface for Internal

```
PCOSBC(configure)# session-router
PCOSBC(session-router)# sip-interface
PCOSBC(sip-interface)# realm-id Internal
```

```
PCOSBC(sip-interface)# sip-ports
PCOSBC(sip-port)# address 192.168.2.101
PCOSBC(sip-port)# transport-protocol UDP
PCOSBC(sip-port)#
PCOSBC(sip-port)# allow-anonymous all
PCOSBC(sip-port)# done
sip-port
        address                         192.168.2.101
        port                            5060
        transport-protocol                  UDP
        allow-anonymous                     all
        multi-home-addrs
        ims-aka-profile


PCOSBC(sip-port)# exit
PCOSBC(sip-interface)# done
sip-interface
        state                           enabled
        realm-id                        Internal
        description
        sip-port
                address                         192.168.2.101
                port                            5060
                transport-protocol                  UDP
                allow-anonymous                     all
                multi-home-addrs
                ims-aka-profile
```

> An easy way to confirm the association of the IP address with the correct realm is issuing the command: show virtual need to save active config to display the information

```
PCOSBC# show virtual
intf phy-name vlan ip-addr       realm    type
0/0  External 0    192.168.10.201 External sip-port
1/1  Internal 0    192.168.10.101 Internal sip-port
```

5. - SBC Steering pool

With the current configuration Oracle SBC is now able to process signaling but there are two problems, first there are no resources to manage audio and there is no routing in place to process the session correctly.

Let’s fix the problem about the resources adding steering pools associated with the Internal and External realms.

Adding steering pools resources must be associated with the number of sessions to be supported and needs to be consider ports for video and RTCP. For this lab environment we will add only 101 ports.

```
PCOSBC# config t
PCOSBC(configure)# media-manager
PCOSBC(media-manager)# steering-pool
PCOSBC(steering-pool)# ip-address 192.168.10.201
PCOSBC(steering-pool)# start-port 20000
PCOSBC(steering-pool)# end-port 20100
PCOSBC(steering-pool)# realm-id External
PCOSBC(steering-pool)# done
steering-pool
        ip-address                      192.168.10.201
        start-port                      20000
        end-port                        20100
        realm-id                        External
        network-interface
        last-modified-by                admin@192.168.10.10
        last-modified-date              2023-03-30 05:53:07
```

```
PCOSBC(media-manager)# steering-pool
PCOSBC(steering-pool)# ip-address 192.168.10.101
PCOSBC(steering-pool)# start-port 30000
PCOSBC(steering-pool)# end-port 30100
```

```
PCOSBC(steering-pool)# reallm
PCOSBC(steering-pool)# realm-id Internal
PCOSBC(steering-pool)# done
steering-pool
        ip-address                      192.168.10.101
        start-port                      30000
        end-port                        30100
        realm-id                        Internal
        network-interface
        last-modified-by                admin@192.168.10.10
        last-modified-date              2023-03-30 05:53:47
```

an easy way to verify the number of ports assigned ot realms is issuing the command show mbcd realm

```
PCOSBC# show mbcd realms
05:55:51-47
                --- Steering Ports ---  ---------- Bandwidth Usage ----------
Realm           Used   Free  No Ports    Flows Ingrss Egress  IngrssPriority EgressPriority  Total  Insuf BW
External           0    101        0        0     0K     0K         0K         0K             0K         0
Internal           0    101        0        0     0K     0K         0K         0K             0K         0
```

This command can be used in real time to verify if ports are enough to support current sessions.

6. - SBC Local Policies

The last step for this basic lab environment is to create routing to connect the External and Internal realms.

In Oracle SBCs this kind of configuration is called Policy Realm Based Realm Bridging.

To configure this routing, we need to create 2 local policies, indicating the source realm and destination realm, let’s go to the CLI:

Administration

Administration

Oracle SBC - Reject calls

Verify system health

```
usdensbc2# set-system-state offline
Are you sure you want to bring the system offline? [y/n]?: y
Setting system state to going-offline, proccess will complete when all current
SIP calls and SIP registrations have completed
usdensbc2# show health

        Media Synchronized           true
        SIP Synchronized             true
        REC Synchronized             true
        XSERV Synchronized           disabled
        Config Synchronized          true
        Collect Synchronized         disabled
        RADIUS CDR Synchronized      true
        Rotated CDRs Synchronized    true
        IPSEC Synchronized           disabled
        Iked Synchronized            disabled
        Lbpd Synchronized            disabled
        tCCD Synchronized            disabled
        Service Health Synchronized  true
        Active Peer Address

Redundancy Protocol Process (v3):
        State                        Active
        Health                       100
        Lowest Local Address         s.s.s.s.s
        1 peer(s) on 2 socket(s):
        usdensbc1: v3, Standby, health=100, max silence=1050
                last received from 1x.x.x.x on wancom1:0
```

Set system offline

```
usdensbc2# set-system-state offline
Are you sure you want to bring the system offline? [y/n]?: y
Setting system state to going-offline, proccess will complete when all current
SIP calls and SIP registrations have completed
usdensbc2#
```

To specify reject response

```
usdensbc2# config t
usdensbc2(configure)# session-router
usdensbc2(session-router)# sip-config
usdensbc2(sip-config)# select
usdensbc2(sip-config)# show
sip-config
        state                         enabled
        operation-mode                dialog
        dialog-transparency           enabled
        home-realm-id
        egress-realm-id
        auto-realm-id
        nat-mode                      None
        registrar-domain
        registrar-host
        registrar-port                0
        register-service-route        always
        init-timer                    500
        max-timer                     4000
        trans-expire                  32
        initial-inv-trans-expire      0
        invite-expire                 180
        session-max-life-limit        0
        inactive-dynamic-conn         32
        enforcement-profile
        pac-method
        pac-interval                  10
        pac-strategy                  PropDist
        pac-load-weight               1
        pac-session-weight            1
```

```
pac-route-weight                    1
pac-callid-lifetime                 600
pac-user-lifetime                   3600
red-sip-port                        1988
red-max-trans                       10000
red-sync-start-time                 5000
red-sync-comp-time                  1000
options                             max-udp-length=0
                                    reinvite-trying=yes
                                    sag-target-uri=ip
spl-options
add-reason-header                   disabled
sip-message-len                     4096
enum-sag-match                      enabled
extra-method-stats                  enabled
extra-enum-stats                    disabled
mps-volte                           disabled
rph-feature                         disabled
nsep-user-sessions-rate             0
nsep-sa-sessions-rate               0
registration-cache-limit            0
register-use-to-for-lp              disabled
refer-src-routing                   disabled
add-ucid-header                     disabled
proxy-sub-events
allow-pani-for-trusted-only         disabled
atcf-stn-sr
atcf-psi-dn
atcf-route-to-sccas                 disabled
eatf-stn-sr
pass-gruu-contact                   disabled
sag-lookup-on-redirect              disabled
set-disconnect-time-on-bye          disabled
refer-reinvite-no-sdp               disabled
msrp-delayed-bye-timer              15
transcoding-realm
transcoding-agents
create-dynamic-sa                   disabled
node-functionality                  P-CSCF
match-sip-instance                  disabled
```

```
sa-routes-stats                         disabled
sa-routes-traps                         disabled
rx-sip-reason-mapping                   disabled
add-ue-location-in-pani                 disabled
hold-emergency-calls-for-loc-info       0
retry-after-upon-offline                0
reg-reject-response-upon-offline        503
hold-invite-calls-for-loc-info          0
cache-loc-info-expire                   32
msg-hold-for-loc-info                   0
npli-upon-register                      disabled
start-hold-timer-event                  AAR
hist-to-div-for-cause-380               inherit
anonymize-history-for-untrusted         disabled
sms-report-timeout                      32
user-agent
last-modified-by                        admin@x.x.x.x
last-modified-date                      2020-07-14 16:00:24
```

Config Cheat sheet