



Installation Instructions for Xorcom TwinStar Servers

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Overview

This document describes the configuration process which must be performed at the customer site for pre-configured TwinStar TS2000/TS3000 servers.

Server Information

	Server-A	Server-B
S/N		
Hostname	srv-a	srv-b
IP address	DHCP	DHCP

1. Connect the Astribank devices to both Server-A and Server-B.
The Astribank USB socket marked as "Main" must be connected to Server-A. The Astribank USB socket marked as "Backup" must be connected to Server-B.
Each Astribank should be connected to the same USB socket location on both servers.
Switch on the Astribanks and make sure that all of them appear in the `lsusb` command output on Server-A. Each device must appear as `e4e4:1162`. For example:

```
# lsusb
Bus 004 Device 001: ID 0000:0000
Bus 001 Device 007: ID e4e4:1162 Xorcom Ltd. Astribank 2 series
Bus 001 Device 006: ID e4e4:1162 Xorcom Ltd. Astribank 2 series
Bus 001 Device 001: ID 0000:0000
```

The following actions must be performed for both servers:

2. Configure IP addresses, host names and DNS on each server.
2.1 The IP address should be defined in the `/etc/sysconfig/network-scripts/ifcfg-eth0` file. For example:

```
DEVICE=eth0
BOOTPROTO=static
IPADDR=192.168.0.166
NETMASK=255.255.240.0
ONBOOT=yes
```

If you have servers with two Ethernet interfaces then you should to configure the second interface (eth1) as well in the `/etc/sysconfig/network-scripts/ifcfg-eth1` file.

2.2 The hostname and the default gateway must be defined in the `/etc/sysconfig/network` file. For example:

```
NETWORKING=yes
HOSTNAME=srv-a
GATEWAY=192.168.0.1
```

2.3 DNS server settings must be defined in the `/etc/resolv.conf` file. For example:

```
nameserver 8.8.8.8
```

2.4 Apply the new IP settings:

On Server-A:

```
/etc/init.d/network restart
hostname srv-a
```

On Server-B:

```
/etc/init.d/network restart
hostname srv-b
```

Make sure that the `'uname -n'` command returns the correct hostname on each server.

The following actions must be performed on Server-A only:

3. Generate the public/private keys for SSH communication:

```
cd /usr/share/twinstar/
./setup_keys <Server-B-IPaddress>
```

4. Configure the parameters in the `/usr/share/twinstar/twinstar_config.conf` file. Each parameter there is accompanied with an explanation. Usually it is necessary to define the `SRV_B_IP` and `CLUSTER_IP` parameters. For example:

```
SRV_B_IP=192.168.0.53
CLUSTER_IP=192.168.0.253/24
```

where `SRV_B_IP` contains address of the backup server (Server-B) and `CLUSTER_IP` contains the cluster IP address that will be activated on the active server only.

Please note that the cluster IP address must be defined in the CIDR (Classless Inter-domain Routing) notation.

5. Make DRBD to get the Primary role on the Server-A and the DRBD partition attached (mounted) at the `/replica` folder.

Check the DRBD status on the Server-A:

```
[root@srv-a ~]# cat /proc/drbd
version: 8.3.12 (api:88/proto:86-96)
GIT-hash: e2a8ef4656be026bbae540305fcb998a5991090f build by
mockbuild@builder10.centos.org, 2012-01-28 13:52:33
 0: cs:WfConnection ro:Primary/Unknown ds:UpToDate/DUnknown A r-----
    ns:0 nr:0 dw:3328536 dr:6725 al:78 bm:0 lo:0 pe:0 ua:0 ap:0 ep:1
wo:b oos:136452
```

If you see that the role is Primary (`ro:Primary`) then you can proceed to p.6. Otherwise, run the following commands:

```
cd /etc/ha.d/resource.d/
./drbddisk r0 start
./TSFilesystem /dev/drbd0 /replica ext3 start
```

After that check again the DRBD status as it is described above.

6. Configure the Servers:

If you have received the servers pre-configured for a particular set of Astribank devices then you have to configure the IP addresses only:

```
cd /usr/share/twinstar
./twinstar_config -i
```

If the connected Astribank devices set is different then add option '-a'. The script will perform the DAHDI hardware detection and configuration, configure DRBD and cluster IP address on both servers. **Again, you must run this script on Server-A only.**

```
cd /usr/share/twinstar
./twinstar_config -i -a
```

7. Check the Server-A status:

- 7.1 Check that DRBD is working properly.

```
# cat /proc/drbd
version: 8.3.12 (api:88/proto:86-94)
GIT-hash: d78846e52224fd00562f7c225bcc25b2d422321d build by
mockbuild@builder10.centos.org, 2010-06-04 08:04:16
0: cs:Connected st:Primary/Secondary ds:UpToDate/UpToDate A r---
ns:520192 nr:4612 dw:158288 dr:533095 al:40 bm:148 lo:0 pe:0 ua:0 ap:0
oos:0
```

7.2 Check that the DAHDI spans are registered:

```
# dahdi_hardware -v
usb:001/002          xpp_usb+[T]  e4e4:1162 Astribank-modular FPGA-firmware
MPP: TWINSTAR_PORT=0
MPP: TWINSTAR_WATCHDOG=0
MPP: TWINSTAR_POWER[0]=1
MPP: TWINSTAR_POWER[1]=1
LABEL=[usb:X1037123]      CONNECTOR=@usb-0000:00:03.3-5
      XBUS-00/XPD-00: FXS      (14)  Span 1  DAHDI-SYNC
      XBUS-00/XPD-10: FXS      (8)   Span 2
usb:001/003          xpp_usb+[T]  e4e4:1162 Astribank-modular FPGA-firmware
MPP: TWINSTAR_PORT=0
MPP: TWINSTAR_WATCHDOG=0
MPP: TWINSTAR_POWER[0]=1
MPP: TWINSTAR_POWER[1]=1
LABEL=[usb:X1037124]      CONNECTOR=@usb-0000:00:03.3-6
      XBUS-01/XPD-00: E1       (31)  Span 3
      XBUS-01/XPD-10: FXS      (8)   Span 4
      XBUS-01/XPD-20: FXS      (8)   Span 5
      XBUS-01/XPD-30: FXS      (8)   Span 6
```

As you can see the DAHDI spans are registered. ("Span 1", "Span 2" etc.).

The dahdi_hardware output provides the following useful information:

TWINSTAR_PORT=0	means that Astribank is working with the "Main" USB socket (0). When Astribank is connected to the Server-B (backup server) then you will see TWINSTAR_PORT=1.
TWINSTAR_WATCHDOG=0	means that the Twinstar watch dog is currently disabled. This is normal after twinstar_config script finish.
TWINSTAR_POWER[0]=1	Astribank senses voltage on USB socket 0. Therefore, Server- A is powered on.
TWINSTAR_POWER[1]=1	Astribank senses voltage on USB socket 1. Therefore, Server- B is powered on.
LABEL=[usb:X1037123]	X1037123 is the Astribank serial number
CONNECTOR=@usb-0000:00:03.3-5	USB connector ID where the Astribank is connected.

7.3 Check that the DAHDI channels are configured in Asterisk:

```
# lsdahdi
### Span 1: XBUS-00/XPD-00 "Xorcom XPD #00/00: FXS" (MASTER)
  1 FXS          FXOKS          (In use) (SWEC: OSLEC)
  2 FXS          FXOKS          (In use) (SWEC: OSLEC)
.....
### Span 2: XBUS-00/XPD-10 "Xorcom XPD #00/10: FXS"
 15 FXS          FXOKS          (In use) (SWEC: OSLEC)
 16 FXS          FXOKS          (In use) (SWEC: OSLEC)
.....
### Span 3: XBUS-01/XPD-00 "Xorcom XPD #01/00: E1" HDB3/CCS/CRC4 RED
 23 E1          Clear          (In use) (SWEC: OSLEC) RED
 24 E1          Clear          (In use) (SWEC: OSLEC) RED
.....
### Span 4: XBUS-01/XPD-10 "Xorcom XPD #01/10: FXS"
 54 FXS          FXOKS          (In use) (SWEC: OSLEC)
 55 FXS          FXOKS          (In use) (SWEC: OSLEC)
.....
### Span 5: XBUS-01/XPD-20 "Xorcom XPD #01/20: FXS"
 62 FXS          FXOKS          (In use) (SWEC: OSLEC)
 63 FXS          FXOKS          (In use) (SWEC: OSLEC)
.....
### Span 6: XBUS-01/XPD-30 "Xorcom XPD #01/30: FXS"
 70 FXS          FXOKS          (In use) (SWEC: OSLEC)
 71 FXS          FXOKS          (In use) (SWEC: OSLEC)
.....
```

The "(In use)" labels mean that Asterisk "uses" the channel.

7.4 Check that the cluster IP address is activated and the IP routing table is re-built correctly:

```
# ip address show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 16436 qdisc noqueue
   link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
   inet 127.0.0.1/8 scope host lo
   inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast qlen 1000
   link/ether 00:1c:c0:65:33:3b brd ff:ff:ff:ff:ff:ff
   inet 192.168.0.166/20 brd 192.168.15.255 scope global eth0
   inet 192.168.0.253/20 brd 192.168.15.255 scope global secondary eth0:0
   inet6 fe80::21c:c0ff:fe65:333b/64 scope link
       valid_lft forever preferred_lft forever
3: sit0: <NOARP> mtu 1480 qdisc noop
   link/sit 0.0.0.0 brd 0.0.0.0
```

As you can see, eth0:0 interface appears with 192.168.0.253 as the assigned IP address.

```
# ip route show
192.168.0.0/20 dev eth0 proto kernel scope link src 192.168.0.253
169.254.0.0/16 dev eth0 scope link
default via 192.168.0.1 dev eth0 src 192.168.0.253
```

Note that the source address for cluster interface (eth0 in our case) and for the default route should be equal to the cluster IP (192.168.0.253).

8. Restart the servers.

8.1 Disable the TwinStar watch dog if it is enabled for any reason:

The following command will show you the current status. Alternatively you can use command 'dahdi_hardware -v' as described above.

```
# twinstar status
DEVICE          PORT      WATCHDOG      POWER0      POWER1
usb:001/008     0         on             yes         yes
usb:001/009     0         on             yes         yes
```

As you can see, the watchdog is enabled. Therefore, let's disable it:

```
# twinstar disable-wd
```

8.2 Reboot both Server-A and Server-B.

The watchdog has been activated; your TwinStar system is now ready for use!