



# **Kognitio Standalone Software Installation**

**Installation Run through**

# Kognitio Platform Prerequisites

- x86 (Intel/AMD) processor based servers
  - Blades, Rack-mount, Standalone
  - The more nodes the better
    - The more CPUs and cores the better
    - The more RAM (minimum of 4GB per node) and disks the better
    - Balanced configuration across set of nodes to be used
- Linux OS
  - Red Hat Enterprise Linux 5 or later
  - SUSE Enterprise Server 10 or later
  - Other distributions may work but are not officially supported, e.g. openSUSE, Fedora, CentOS, Ubuntu
- TCP/IP switched network
  - Ideally Gigabit Ethernet
  - Multiple NICs per node is ideal (Kognitio will exploit bandwidth)
  - Each numbered NIC linked to separate switch is best, e.g. all eth0 ports to switch1, all eth1 ports to switch2 etc.

# Kognitio – The 64-bit question?

- Kognitio is a 32-bit application, but from version 8 it can only run on 64-bit Linux distributions
  - is able to use large amounts of RAM per node by dividing memory into chunks – RAM Stores
  - The maximum size of a RAM Store is approximately 4GB
- Kognitio has certain dependencies on 32-bit libraries and other code. [This support forum topic](#) gives more information on what is required, and how to install for various Linux distributions.

# Kognitio – Platform review

- Server environment
  - number and type of nodes
    - Are they generally balanced in configuration?
  - Disk and RAM resources v data and query requirements
    - Kognitio recommend a ratio of 1 unit of RAM to 4 units of disk
  - AP – separate node for data staging, backup etc.
- Disk Configuration
  - Protect Linux partition with hardware RAID if possible
  - Kognitio Disk Resources, either
    - Disk Partitions – preferred if free partition disk space available
    - Database Files – if all available disk storage taken up by Linux file system(s)
  - Kognitio has option of software RAID to protect database storage
- Network Configuration
  - Ports balanced across nodes e.g. each node has 2 NICs
  - Switching
  - Isolated network for larger configurations
    - Kognitio puts lots of traffic onto network
    - Use one network interface per node for LAN traffic – for user connections

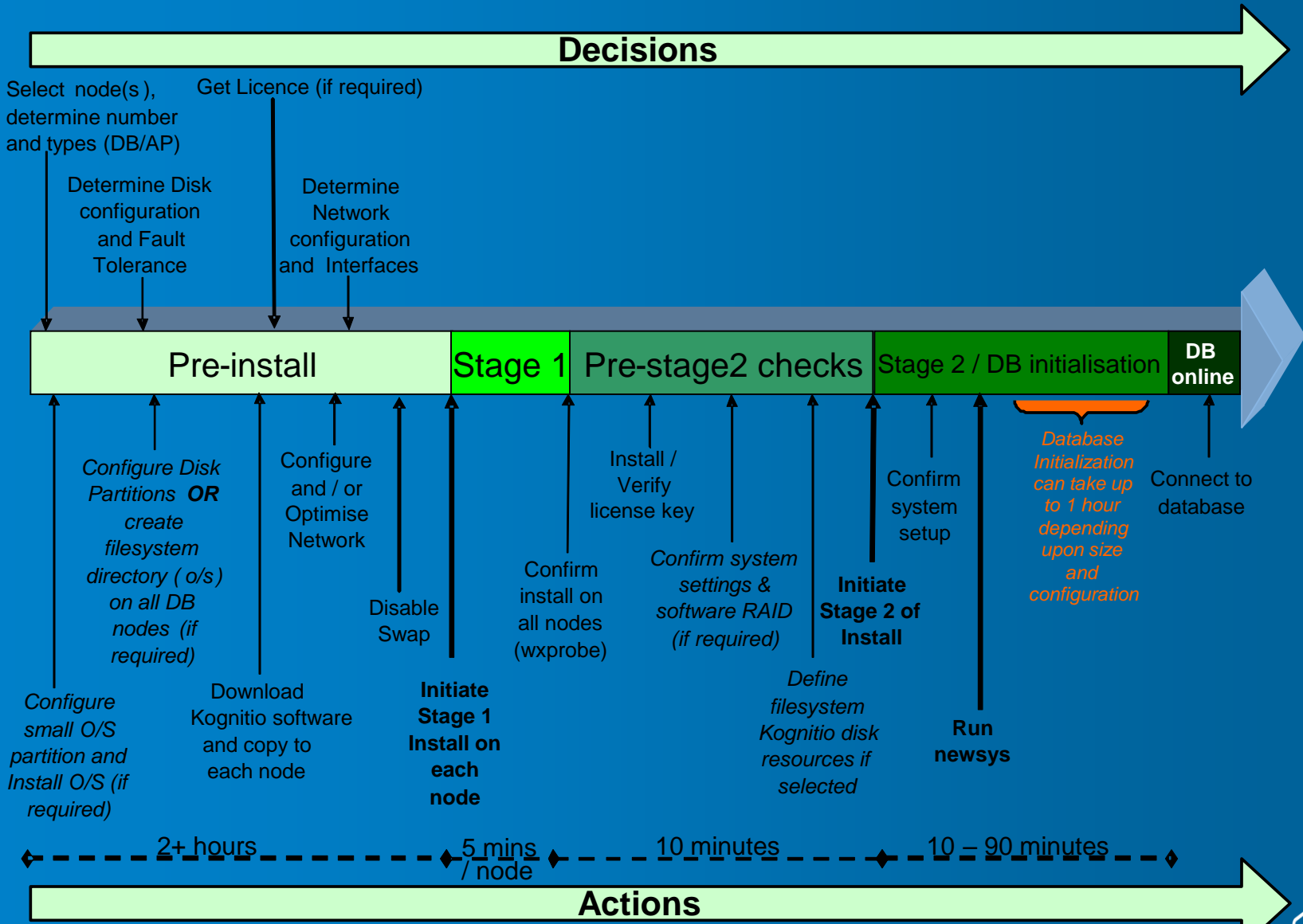
# Kognitio and Disk Storage

- Options in order of preference
  - Kognitio Partition (type 0x60) on each available disk drive
    - Partition size must be common across all disks and nodes
    - Prefer one Kognitio partition per disk
    - Choose a partition size slightly smaller than available free space in case future (replacement) disks are slightly smaller than current disks
  - Database file(s) i.e. regular Linux file in file system
  - Database Sparse file(s) – As above but grows dynamically
    - No formatting cost so quick to create
    - Ensure enough free space available for specified size

# Installation Prerequisites

- Each node has minimal Linux installed
  - Base level, text only install is all that is required
  - Typically use a small Linux partition (e.g. 16GB) so Kognitio can use all remaining free partition space for database storage
- Disable swap on each node
  - `swapoff -a`
  - Edit `/etc/fstab` and comment out swap partition
  - Kognitio should be only application running and it will not use swap
- Disable Linux Firewall on each node
- Nodes connected on common secure network
  - Single node install is OK (use 'lo' option when prompted for network interfaces)
- Disable SELinux on RedHat Linux

# Installation Timeline



# Kognitio Installation Notes

- .sfx executable package used for initial installs
- .wxpkg executable package used for upgrades
- The Stage 1 installation process will require root access on all nodes
  - This will create a minimum communications network amongst all the nodes
  - Kognitio Software must be copied to and installed on all nodes
    - Option for installation on node 2...n to be scripted based on install options used for node 1
- The Stage 2 disk initialization phase can be run from any single node in the configuration
  - All configured Kognitio disk partitions will be simultaneously formatted or Kognitio database files created
  - Can take over an hour for larger partition/file sizes
    - Sparse file option will take a few minutes
  - Single database instance created
  - Database system tables built and populated



# Kognitio Installation Notes

- The installation will create three Linux user accounts for managing Kognitio
  - *wxroot* – privileged administration account
  - *wxadmin* – general administration account
  - *wxextern* – default user for external scripts
- Each node named with SYSTEM ID
  - Group identity for Kognitio nodes used for database instance
  - Any Kognitio software license linked to this identity
- SMD (System Management Daemon) process runs on each node and intercommunicates between database nodes with the same SYSTEM ID
  - Activated in Phase 1 of installation on each node
  - Used as a management and monitoring bus
  - Used to synchronize software, configuration files and database logs across database nodes
  - Phase 2 of installation exploits this

# Kognitio Installation Notes

- Nodes in a Kognitio installation can be of two types:
  - *Server* – A ‘full’ database node that participates in all aspects of Kognitio operations
    - Most nodes in a Kognitio instance are of this type
  - *Client* – An ‘AP’ node that is part of a Kognitio instance, but does not directly take part in database storage and query processing
    - Linked via SMD to other nodes
    - Can run database management utilities

# Installation Walkthrough

- The following slides walk through a Kognitio installation.
  - In places, reference is made to getting a licence, but for systems with up to 128GB total RAM no licence is required.
  - Periodically the output from the installation process may change slightly, so the screenshots shown are illustrative of what you might expect to see.

# Kognitio Disk Partitions set-up

- Create partition(s) before Kognitio installation
  - Partition type hex '60', a.k.a. 0x60
  - The Kognitio installation process will automatically recognize and utilise available type 0x60 partitions
  - Create partition(s) using standard utility like 'fdisk'
  - This should be done on each free disk on each node before the Type 1 installation

```
root hp-rack1-enc6-8:/tmp # fdisk -l
Disk /dev/cciss/c0d0: 146.8 GB, 146807930880 bytes
255 heads, 32 sectors/track, 35139 cylinders
Units = cylinders of 8160 * 512 = 4177920 bytes

   Device Boot      Start         End      Blocks   Id  System
/dev/cciss/c0d0p1  *           1          1028     4194224   83  Linux
/dev/cciss/c0d0p2             1029         3422     9767520   83  Linux
/dev/cciss/c0d0p3             3423         8210    19535040   60  Unknown
```

Kognitio  
type 0x60  
partition

# Kognitio Database Files set-up

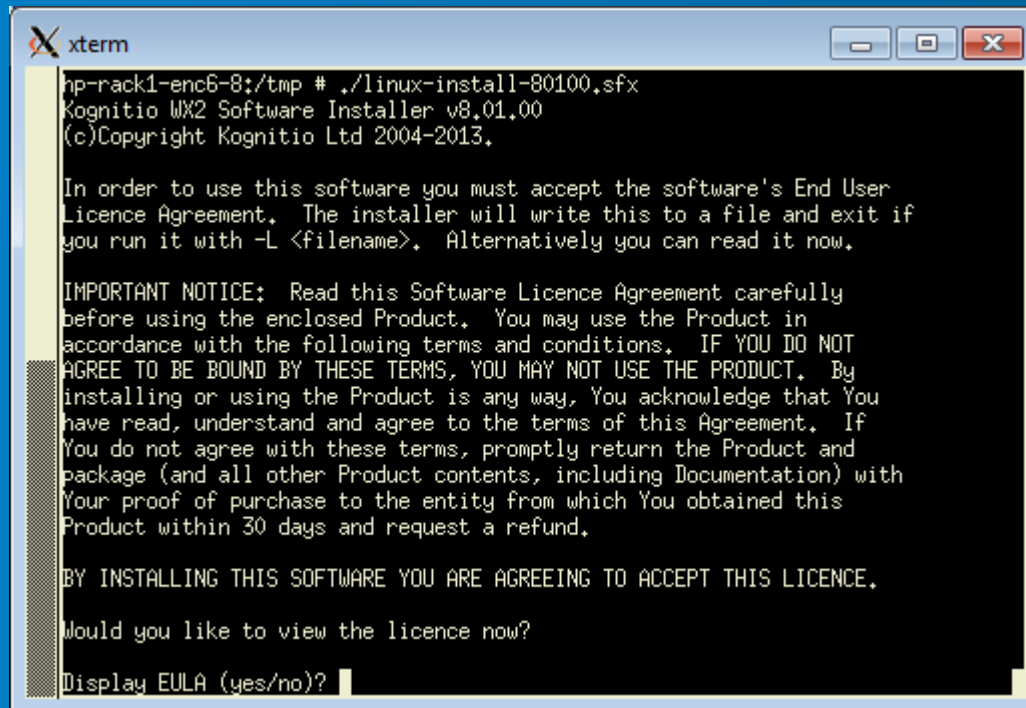
- Use when no free partition space is available but there is free space within Linux file system
- Location must be common across nodes
  - Create a common directory on each node after Stage 1 of the installation process
  - This directory need to be setup with the appropriate privileges to ensure that Kognitio can write to this directory
  - File(s) will be created in stage 2 of installation
  - Example below is for directory /data/wx2

Set up filesystem directory with appropriate privileges

```
vm1:/data # pwd
/data
vm1:/data # ls -l
total 1
drwxr-xr-x  3 root    root    72 2009-01-21 16:40 .
drwxr-xr-x 22 root    root    512 2009-01-21 16:40 ..
drwxrwxr-x  2 wxadmin wxadmin  48 2009-01-21 16:40 wx2
vm1:/data # _
```

# Stage 1: Startup and EULA

- The screen below shows the SFX installer being run, and prompting for the EULA to be displayed:

A screenshot of an xterm window titled "xterm". The terminal output shows the execution of the SFX installer, displaying the End User License Agreement (EULA) text. The text includes a notice about accepting the license and a prompt to view the license now.

```
xterm
hp-rack1-enc6-8:/tmp # ./linux-install-80100.sfx
Kognitio WX2 Software Installer v8.01.00
(c)Copyright Kognitio Ltd 2004-2013.

In order to use this software you must accept the software's End User
Licence Agreement. The installer will write this to a file and exit if
you run it with -L <filename>. Alternatively you can read it now.

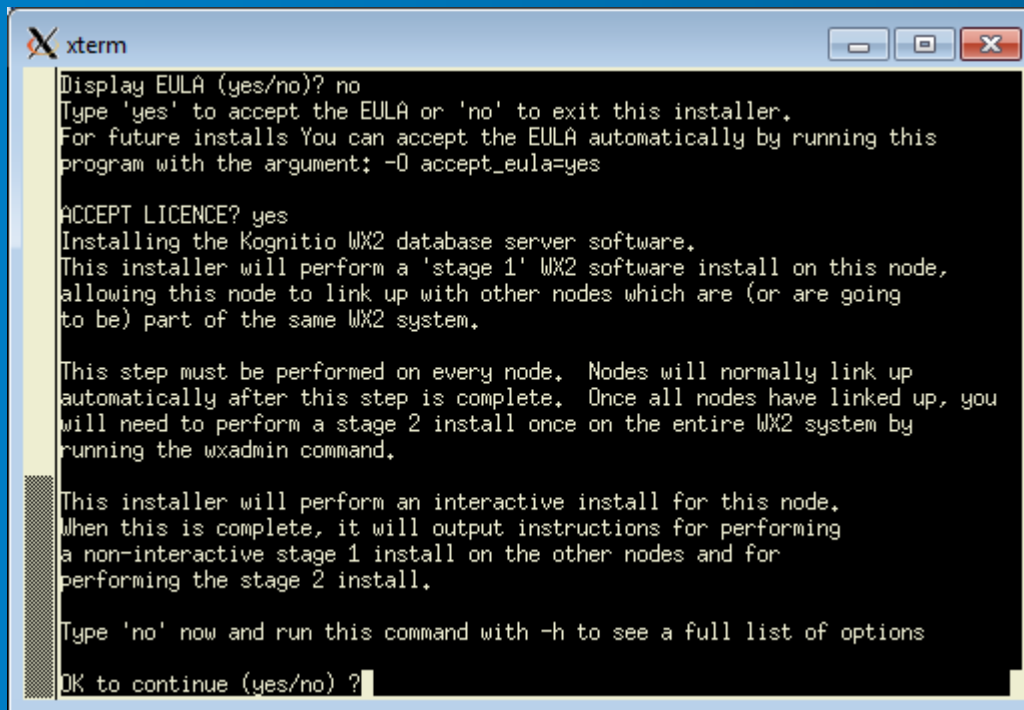
IMPORTANT NOTICE: Read this Software Licence Agreement carefully
before using the enclosed Product. You may use the Product in
accordance with the following terms and conditions. IF YOU DO NOT
AGREE TO BE BOUND BY THESE TERMS, YOU MAY NOT USE THE PRODUCT. By
installing or using the Product in any way, You acknowledge that You
have read, understand and agree to the terms of this Agreement. If
You do not agree with these terms, promptly return the Product and
package (and all other Product contents, including Documentation) with
Your proof of purchase to the entity from which You obtained this
Product within 30 days and request a refund.

BY INSTALLING THIS SOFTWARE YOU ARE AGREEING TO ACCEPT THIS LICENCE.

Would you like to view the licence now?
Display EULA (yes/no)?
```

# Stage 1: Define Two Install Stages

- The screen below shows the being accepted, followed by a reminder of the two stage install process:



```
xterm
Display EULA (yes/no)? no
Type 'yes' to accept the EULA or 'no' to exit this installer.
For future installs You can accept the EULA automatically by running this
program with the argument: -O accept_eula=yes

ACCEPT LICENCE? yes
Installing the Kognitio WX2 database server software.
This installer will perform a 'stage 1' WX2 software install on this node,
allowing this node to link up with other nodes which are (or are going
to be) part of the same WX2 system.

This step must be performed on every node. Nodes will normally link up
automatically after this step is complete. Once all nodes have linked up, you
will need to perform a stage 2 install once on the entire WX2 system by
running the wxadmin command.

This installer will perform an interactive install for this node.
When this is complete, it will output instructions for performing
a non-interactive stage 1 install on the other nodes and for
performing the stage 2 install.

Type 'no' now and run this command with -h to see a full list of options
OK to continue (yes/no) ?
```

# Stage 1: Enter Licence Key String

- A Kognitio instance has a SYSTEM ID (name) identifier which uniquely identifies the instance
  - Licence carries System ID
  - System ID can be manually entered but must match that in the license
  - Or use the implicit free licence for up to 128GB total RAM

```
xterm
OK to continue (yes/no) ?yes
-----
You may now enter one or more licence keys for this system.
Enter each licence one at a time and give a blank line when done.

Alternatively you can enter no licences and skip this step now.
If you do this, you need to specify the correct system ID for
the licences you will add later.
:
Checking licences...
-----
Please enter a system ID for this system.
The system ID must be at most 12 characters long.
All WX2 nodes in the same system must have the same system ID.
You can specify this with the -S <id> command line argument.
:
```



# Stage 1: Specify system id

- As we did not specify a licence, we now specify system id.
- Then we specify that we want this node to be a server rather than an AP:

```
xterm
Please enter a system ID for this system.
The system ID must be at most 12 characters long.
All WX2 nodes in the same system must have the same system ID.

You can specify this with the -S <id> command line argument.

: testinstall

-----

Please choose an install type:

  1) Server -- Install for a server node. This will take part in
      data storage and processing and have client tools.

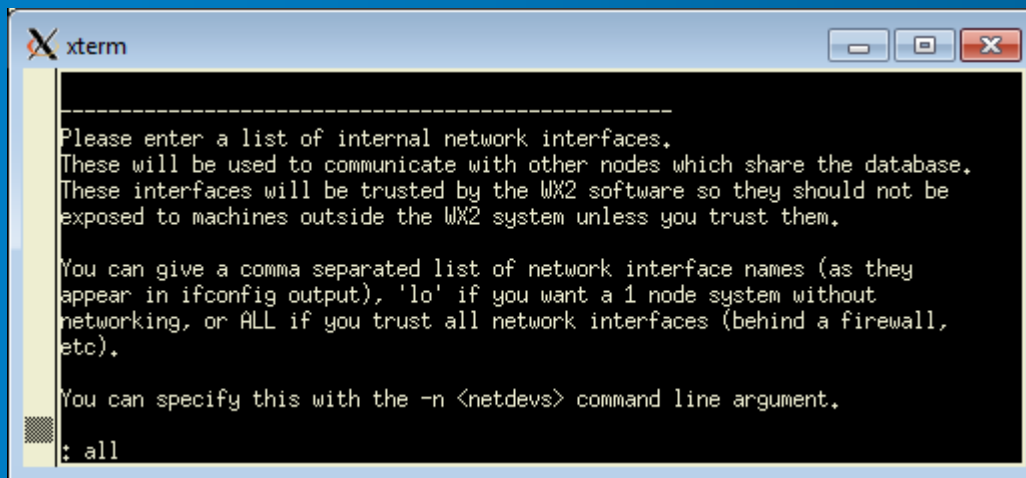
  2) Client -- Install for a managed client node. This node will
      be part of the server group and will get software
      updates, etc but it won't take part in data storage
      or processing. This node won't act as a server for data
      but admin commands, etc will all work and client tools
      can be used if directed at another node.

Enter 1-2 or type server or client.

: 1
```

# Stage 1: Node Type & Network Interfaces

- Now specify the network interfaces (NICs) to be used for internal Kognitio traffic. Do not include any external interfaces used to allow users to connect to the Kognitio system:



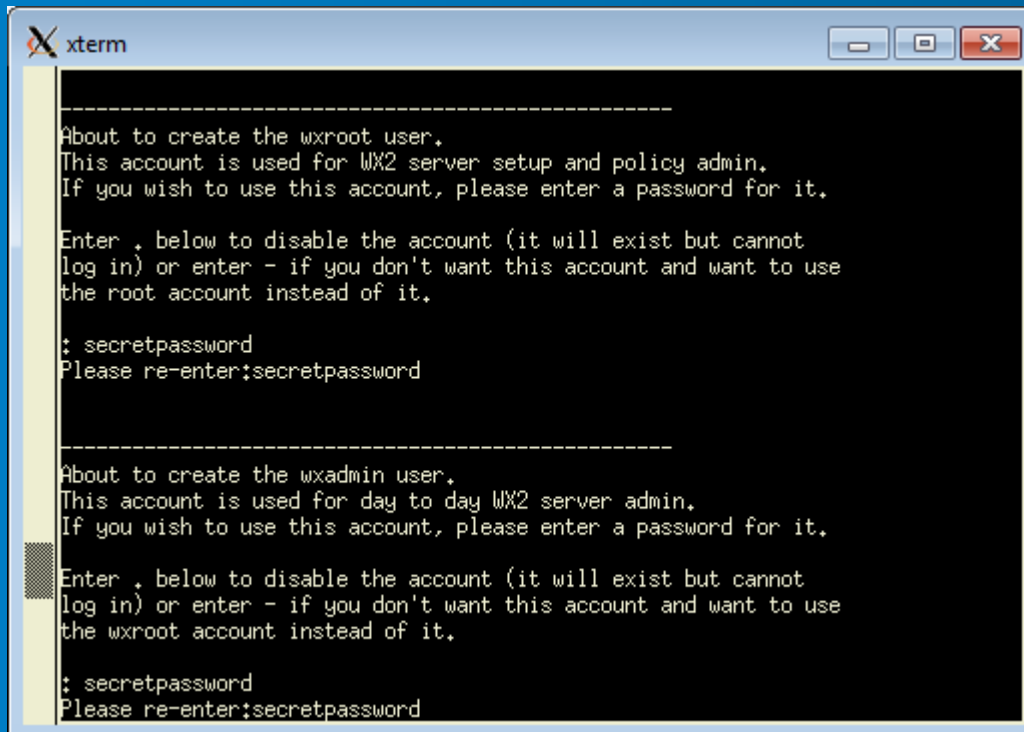
```
xterm
-----
Please enter a list of internal network interfaces.
These will be used to communicate with other nodes which share the database.
These interfaces will be trusted by the WX2 software so they should not be
exposed to machines outside the WX2 system unless you trust them.

You can give a comma separated list of network interface names (as they
appear in ifconfig output), 'lo' if you want a 1 node system without
networking, or ALL if you trust all network interfaces (behind a firewall,
etc).

You can specify this with the -n <netdevs> command line argument.
: all
```

# Stage 1: Create Linux Accounts

- Specify the passwords to allow login as the wxroot and wxadmin users mentioned earlier.
- The wxextern user will not have a password as cannot be used to login.



```
xterm
-----
About to create the wxroot user.
This account is used for WX2 server setup and policy admin.
If you wish to use this account, please enter a password for it.

Enter . below to disable the account (it will exist but cannot
log in) or enter - if you don't want this account and want to use
the root account instead of it.

: secretpassword
Please re-enter:secretpassword

-----

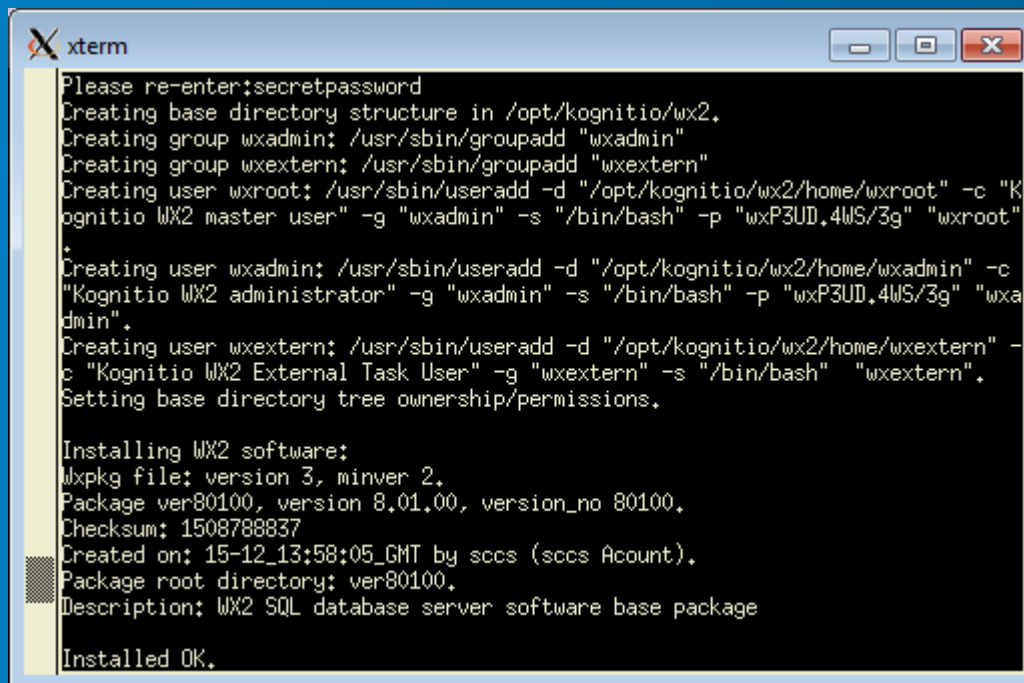
About to create the wxadmin user.
This account is used for day to day WX2 server admin.
If you wish to use this account, please enter a password for it.

Enter . below to disable the account (it will exist but cannot
log in) or enter - if you don't want this account and want to use
the wxroot account instead of it.

: secretpassword
Please re-enter:secretpassword
```

# Stage 1: Software Installation

- Stage 1 installation now runs. Below you can see wxadmin, wxextern and wxroot users being created, and server software being installed:



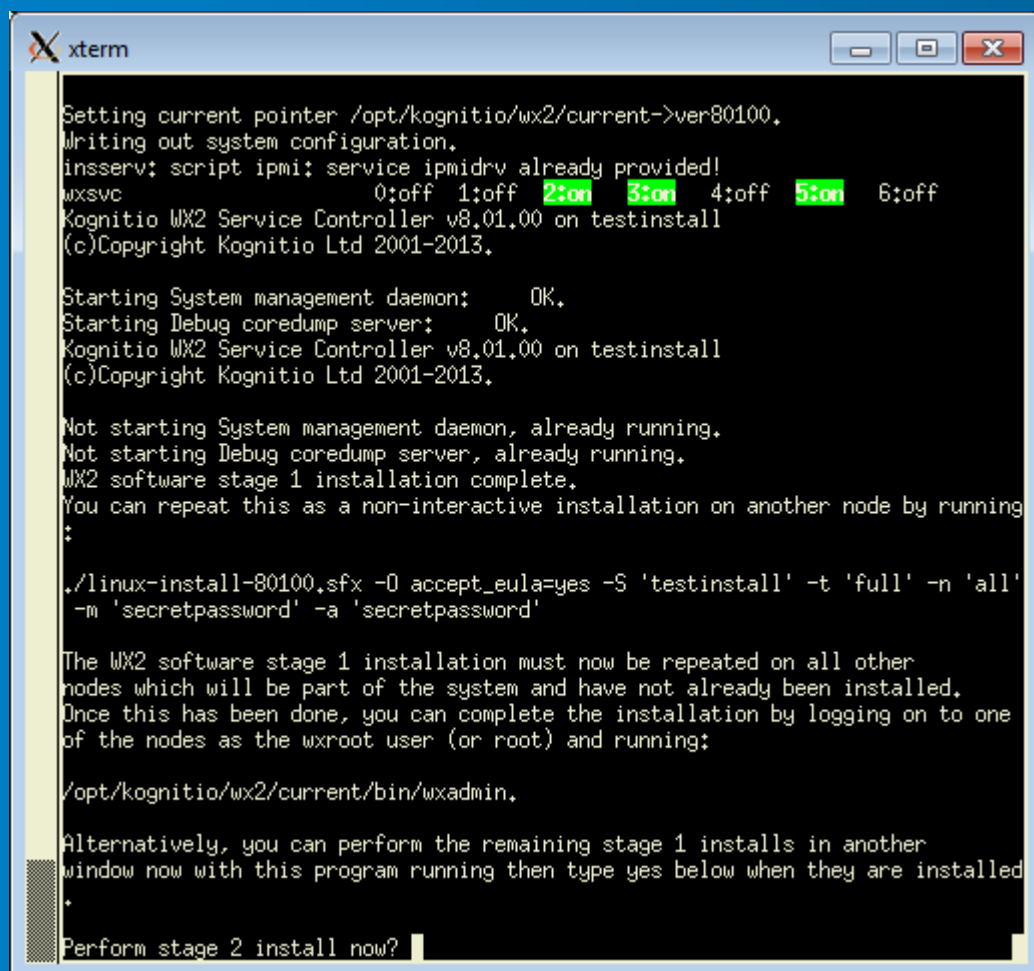
```
xterm
Please re-enter:secretpassword
Creating base directory structure in /opt/kognitio/wx2.
Creating group wxadmin: /usr/sbin/groupadd "wxadmin"
Creating group wxextern: /usr/sbin/groupadd "wxextern"
Creating user wxroot: /usr/sbin/useradd -d "/opt/kognitio/wx2/home/wxroot" -c "Kognitio WX2 master user" -g "wxadmin" -s "/bin/bash" -p "wxP3UD,4WS/3g" "wxroot"
.
Creating user wxadmin: /usr/sbin/useradd -d "/opt/kognitio/wx2/home/wxadmin" -c "Kognitio WX2 administrator" -g "wxadmin" -s "/bin/bash" -p "wxP3UD,4WS/3g" "wxadmin".
Creating user wxextern: /usr/sbin/useradd -d "/opt/kognitio/wx2/home/wxextern" -c "Kognitio WX2 External Task User" -g "wxextern" -s "/bin/bash" "wxextern".
Setting base directory tree ownership/permissions.

Installing WX2 software:
Wxpkg file: version 3, minver 2,
Package ver80100, version 8,01,00, version_no 80100,
Checksum: 1508788837
Created on: 15-12_13:58:05_GMT by sccs (sccs Account).
Package root directory: ver80100.
Description: WX2 SQL database server software base package

Installed OK.
```

# Stage 1: SMD Startup

- Stage 1 install completed by making the installed version current, setting the System Management Daemon (SMD) to auto-start on node restart, and starting it now:



```
xterm
Setting current pointer /opt/kognitio/wx2/current->ver80100.
Writing out system configuration.
inserv: script ipmi: service ipmidrv already provided!
wxsvc      0:off 1:off 2:on 3:on 4:off 5:on 6:off
Kognitio WX2 Service Controller v8.01.00 on testinstall
(c)Copyright Kognitio Ltd 2001-2013.

Starting System management daemon:    OK.
Starting Debug core dump server:      OK.
Kognitio WX2 Service Controller v8.01.00 on testinstall
(c)Copyright Kognitio Ltd 2001-2013.

Not starting System management daemon, already running.
Not starting Debug core dump server, already running.
WX2 software stage 1 installation complete.
You can repeat this as a non-interactive installation on another node by running
:
./linux-install-80100.sfx -O accept_eula=yes -S 'testinstall' -t 'full' -n 'all'
-m 'secretpassword' -a 'secretpassword'

The WX2 software stage 1 installation must now be repeated on all other
nodes which will be part of the system and have not already been installed.
Once this has been done, you can complete the installation by logging on to one
of the nodes as the wxroot user (or root) and running:

/opt/kognitio/wx2/current/bin/wxadmin.

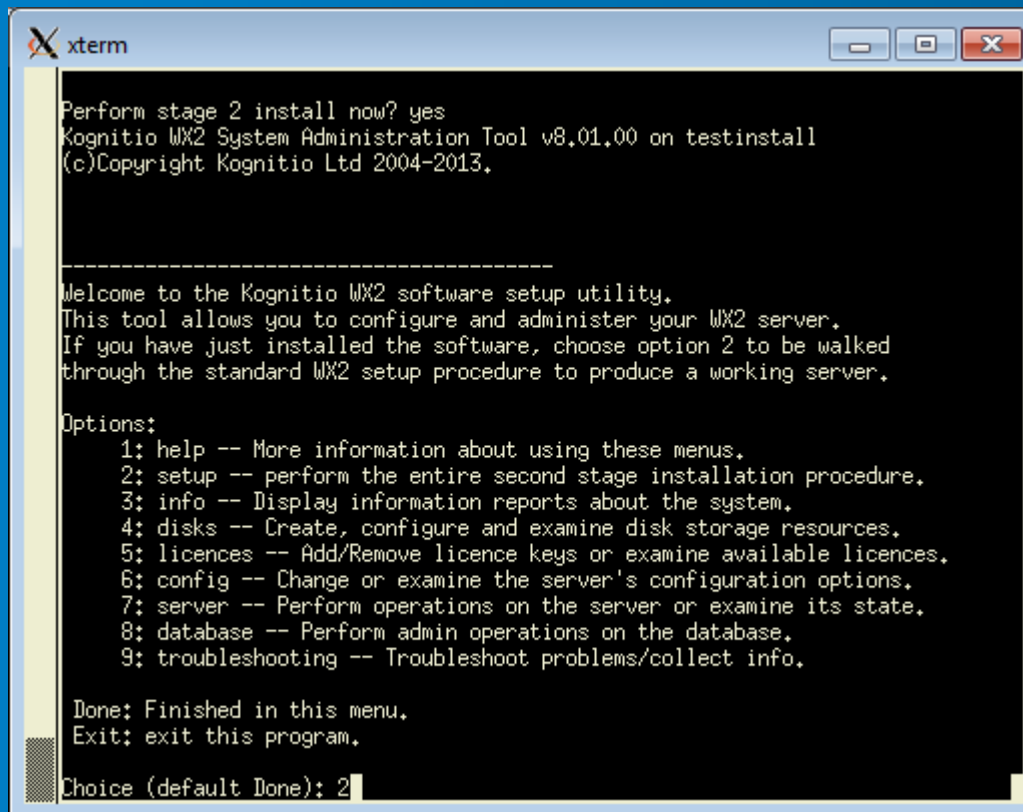
Alternatively, you can perform the remaining stage 1 installs in another
window now with this program running then type yes below when they are installed
*
Perform stage 2 install now? 
```

# Stage 1: Repeat on Other Nodes

- The end of the stage 1 install outputs a command line (see previous screenshot), which can be copied and pasted on other nodes rather than using the interactive stage 1 install.
- Ensure that logging in to a node in the system as wxadmin and running “wxprobe -H” shows all nodes.
  - If it shows just the local node, there is a communication issue. Start off by ensuring there are no firewalls preventing communication between nodes.
  - If it shows no nodes, check the output of the phase 1 install on that node for errors.
- If installing on a machine with non-Kognitio processes using significant RAM, use wxviconf to add a [boot options] entry restricting the RAM available to Kognitio – e.g. fixed\_pool\_size=40 would reserve 40% of RAM for non-Kognitio processes, and so restrict Kognitio to 60% of the node’s RAM.

# Stage 2: Database Setup

- Once all is well, the stage 2 install can be run at the prompt from the end of the stage 1 install, or by running the “wxadmin” command line tool.
- Stage 2 install begins by specifying option 2 for a full second stage install:



```
xterm
Perform stage 2 install now? yes
Kognitio WX2 System Administration Tool v8.01.00 on testinstall
(c)Copyright Kognitio Ltd 2004-2013.

-----

Welcome to the Kognitio WX2 software setup utility.
This tool allows you to configure and administer your WX2 server.
If you have just installed the software, choose option 2 to be walked
through the standard WX2 setup procedure to produce a working server.

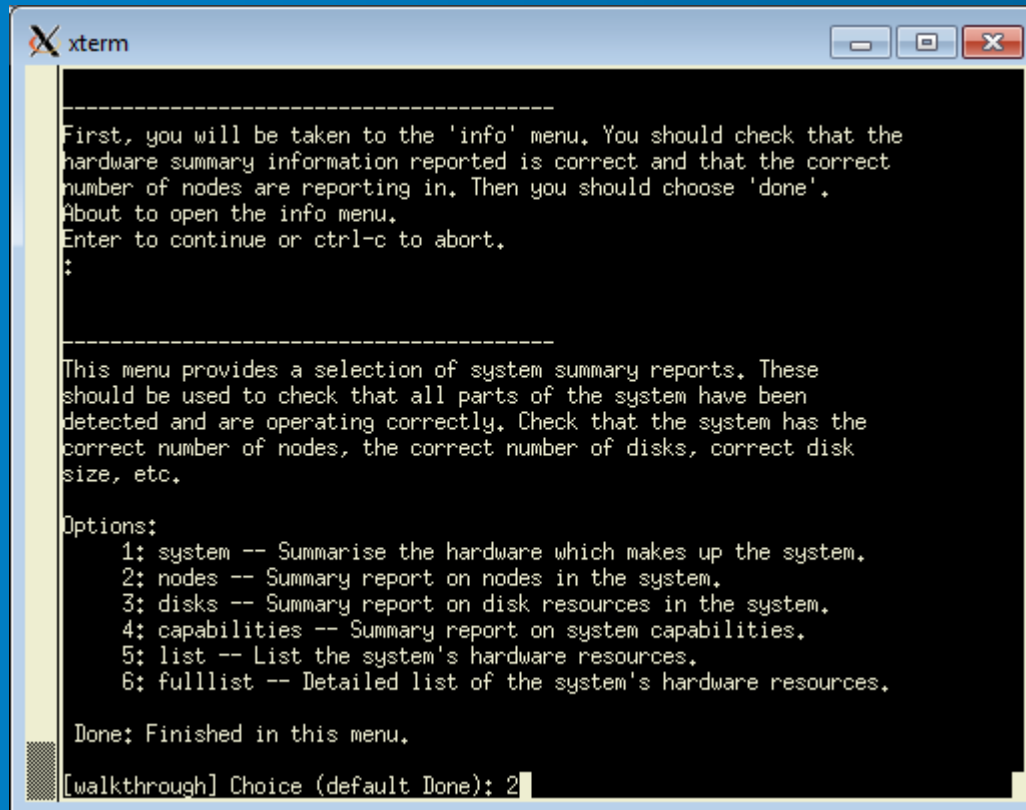
Options:
 1: help -- More information about using these menus.
 2: setup -- perform the entire second stage installation procedure.
 3: info -- Display information reports about the system.
 4: disks -- Create, configure and examine disk storage resources.
 5: licences -- Add/Remove licence keys or examine available licences.
 6: config -- Change or examine the server's configuration options.
 7: server -- Perform operations on the server or examine its state.
 8: database -- Perform admin operations on the database.
 9: troubleshooting -- Troubleshoot problems/collect info.

Done: Finished in this menu.
Exit: exit this program.

Choice (default Done): 2
```

# Stage 2: Check Platform as expected

- Choose option 2 to ensure all nodes are present:



```
xterm
-----
First, you will be taken to the 'info' menu. You should check that the
hardware summary information reported is correct and that the correct
number of nodes are reporting in. Then you should choose 'done'.
About to open the info menu.
Enter to continue or ctrl-c to abort.
:
-----
This menu provides a selection of system summary reports. These
should be used to check that all parts of the system have been
detected and are operating correctly. Check that the system has the
correct number of nodes, the correct number of disks, correct disk
size, etc.

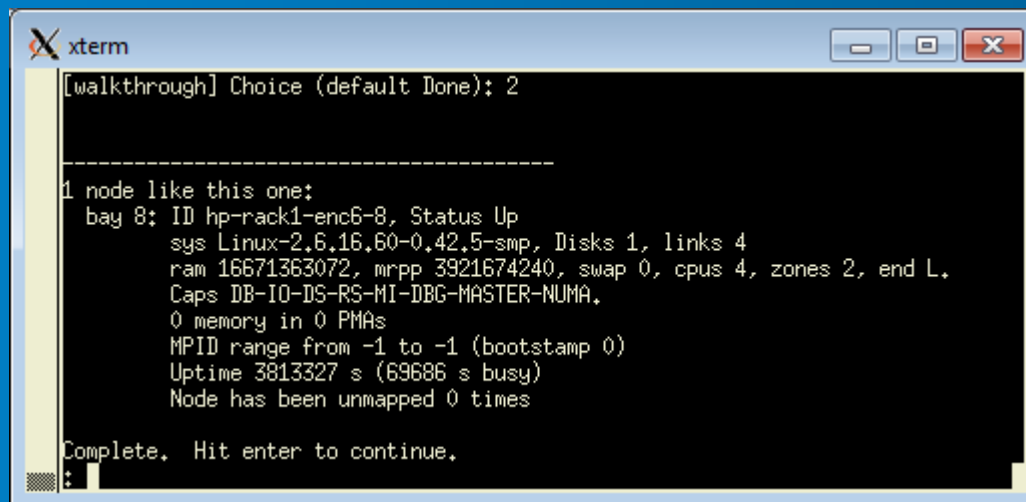
Options:
  1: system -- Summarise the hardware which makes up the system.
  2: nodes -- Summary report on nodes in the system.
  3: disks -- Summary report on disk resources in the system.
  4: capabilities -- Summary report on system capabilities.
  5: list -- List the system's hardware resources.
  6: fulllist -- Detailed list of the system's hardware resources.

Done: Finished in this menu.
[walkthrough] Choice (default Done): 2
```



# Stage 2: Verify All Nodes are as expected

- Visually check that the nodes presented match your expectation, then hit return:



```
xterm
[walkthrough] Choice (default Done): 2

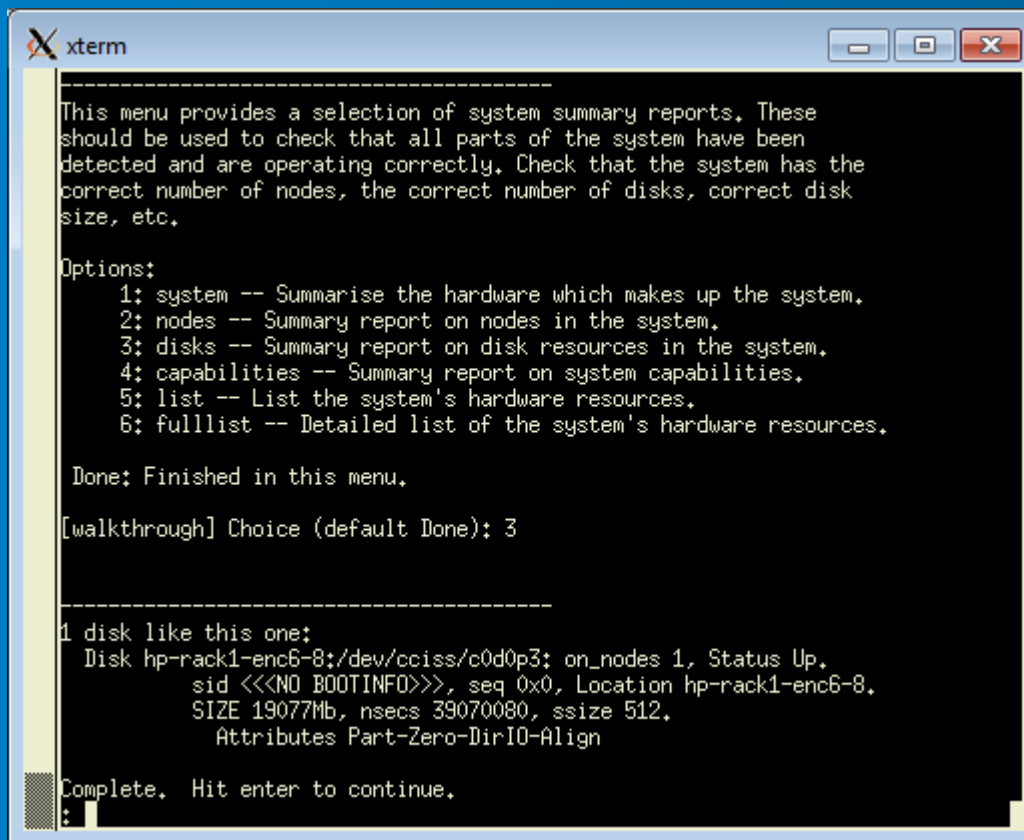
-----
1 node like this one:
  bay 8: ID hp-rack1-enc6-8, Status Up
        sys Linux-2.6.16.60-0.42.5-smp, Disks 1, links 4
        ram 16671363072, mrpp 3921674240, swap 0, cpus 4, zones 2, end L.
        Caps DB-IO-DS-RS-MI-DBG-MASTER-NUMA,
        0 memory in 0 PMAs
        MPID range from -1 to -1 (bootstamp 0)
        Uptime 3813327 s (69686 s busy)
        Node has been unmapped 0 times

Complete. Hit enter to continue.
:
```

## Stage 2: Option 1 - Storage Using Disk Partitions

### Check All Disks Present

- Select option 3 to check the disks in the system are as expected.
  - Check disk number, size and locations
  - Hit return when all is well:



```
xterm
-----
This menu provides a selection of system summary reports. These
should be used to check that all parts of the system have been
detected and are operating correctly. Check that the system has the
correct number of nodes, the correct number of disks, correct disk
size, etc.

Options:
  1: system -- Summarise the hardware which makes up the system.
  2: nodes -- Summary report on nodes in the system.
  3: disks -- Summary report on disk resources in the system.
  4: capabilities -- Summary report on system capabilities.
  5: list -- List the system's hardware resources.
  6: fulllist -- Detailed list of the system's hardware resources.

Done; Finished in this menu.

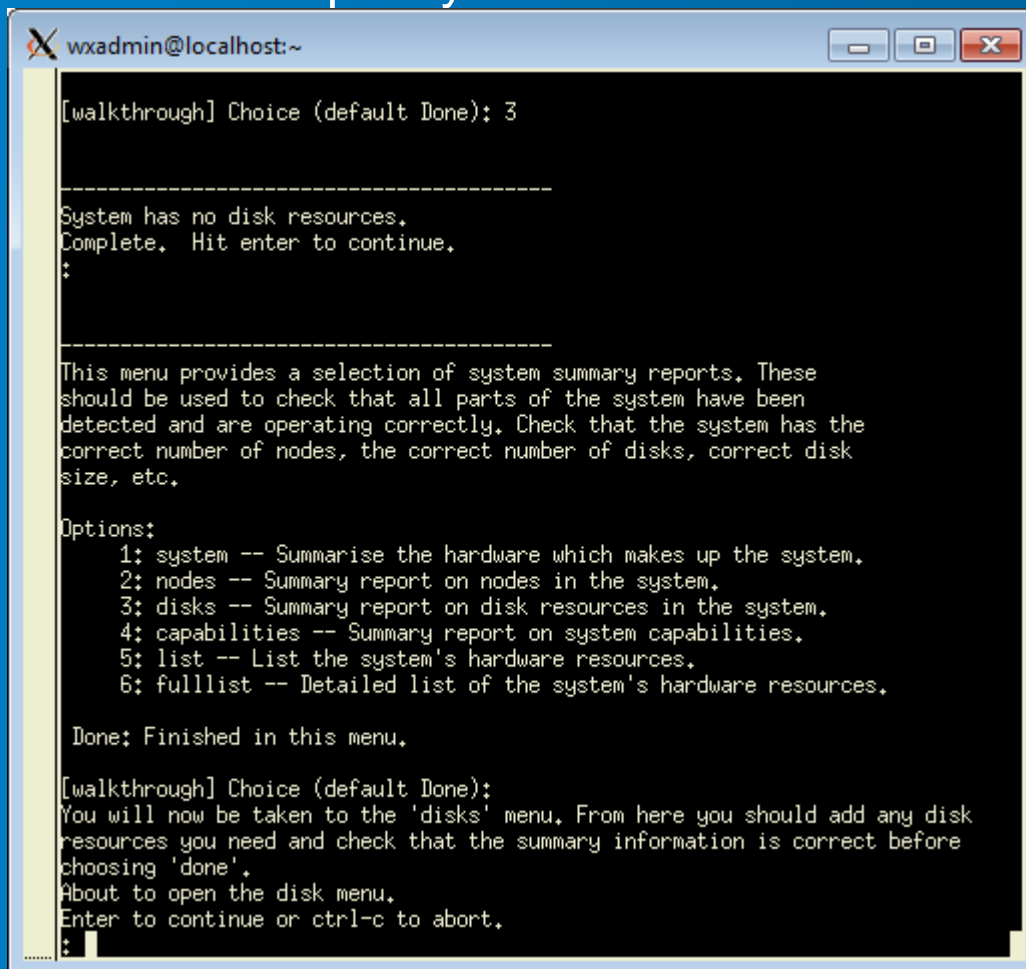
[walkthrough] Choice (default Done): 3

-----
1 disk like this one:
  Disk hp-rack1-enc6-8:/dev/cciss/c0d0p3; on_nodes 1, Status Up,
    sid <<<NO BOOTINFO>>, seq 0x0, Location hp-rack1-enc6-8,
    SIZE 19077Mb, nsecs 39070080, ssize 512,
    Attributes Part-Zero-DirIO-Align

Complete. Hit enter to continue.
:
```

## Stage 2: Option 2 - Storage Using File(s) Set up Disk resources

- If you are going to use files, the disk list will be empty and you will be taken to another menu to specify disk resources:



```
wxadmin@localhost:~  
[walkthrough] Choice (default Done): 3  
-----  
System has no disk resources.  
Complete. Hit enter to continue.  
:  
-----  
This menu provides a selection of system summary reports. These  
should be used to check that all parts of the system have been  
detected and are operating correctly. Check that the system has the  
correct number of nodes, the correct number of disks, correct disk  
size, etc.  
Options:  
  1: system -- Summarise the hardware which makes up the system.  
  2: nodes -- Summary report on nodes in the system.  
  3: disks -- Summary report on disk resources in the system.  
  4: capabilities -- Summary report on system capabilities.  
  5: list -- List the system's hardware resources.  
  6: fulllist -- Detailed list of the system's hardware resources.  
  
Done: Finished in this menu.  
[walkthrough] Choice (default Done):  
You will now be taken to the 'disks' menu. From here you should add any disk  
resources you need and check that the summary information is correct before  
choosing 'done'.  
About to open the disk menu.  
Enter to continue or ctrl-c to abort.  
:  
:
```

# Stage 2: Option 2 - Storage Using File(s)

## Set up Disk resources

```
wxadmin@localhost:~  
-----  
This menu allows you to add disk resources to the system or examine those  
present. If you are using WX2 disk partitions, these should have  
been detected, use 'summary' to check and see 'help' for more details.  
  
Choose 'done' when you have created all the disk resources you need.  
  
You can return to this menu by choosing 'disks' from the main menu.  
  
Options:  
1: help -- More information about disk resources.  
2: summary -- Display a summary of the disks in the system.  
3: list -- Display a list of the disk resources configured.  
4: create -- Create one or more disk resources.  
5: change -- Change settings for one or more disk resources.  
6: raid -- Change software RAID cluster size.  
7: remove -- Remove one or more disk resources.  
  
Done: Finished in this menu.  
  
[walkthrough] Choice (default Done): 4  
  
-----  
Which nodes do you want add disk resources to  
(ctrl-c goes back, default: can DS, ? for help)?  
  
-----  
Enter the filename for the disk resource to create  
(ctrl-c goes back, type ? for help)? /data/wx2/db_wx2.dat  
  
-----  
Enter the disk type for the disk resource to create  
(ctrl-c goes back, default: file, ? for help)? sparsefile  
Enter any other options you would like to specify (e.g. size)  
(ctrl-c goes back, type ? for help)? size=20G  
Operation complete for 1 disk resources.  
Complete. Hit enter to continue.  
:
```

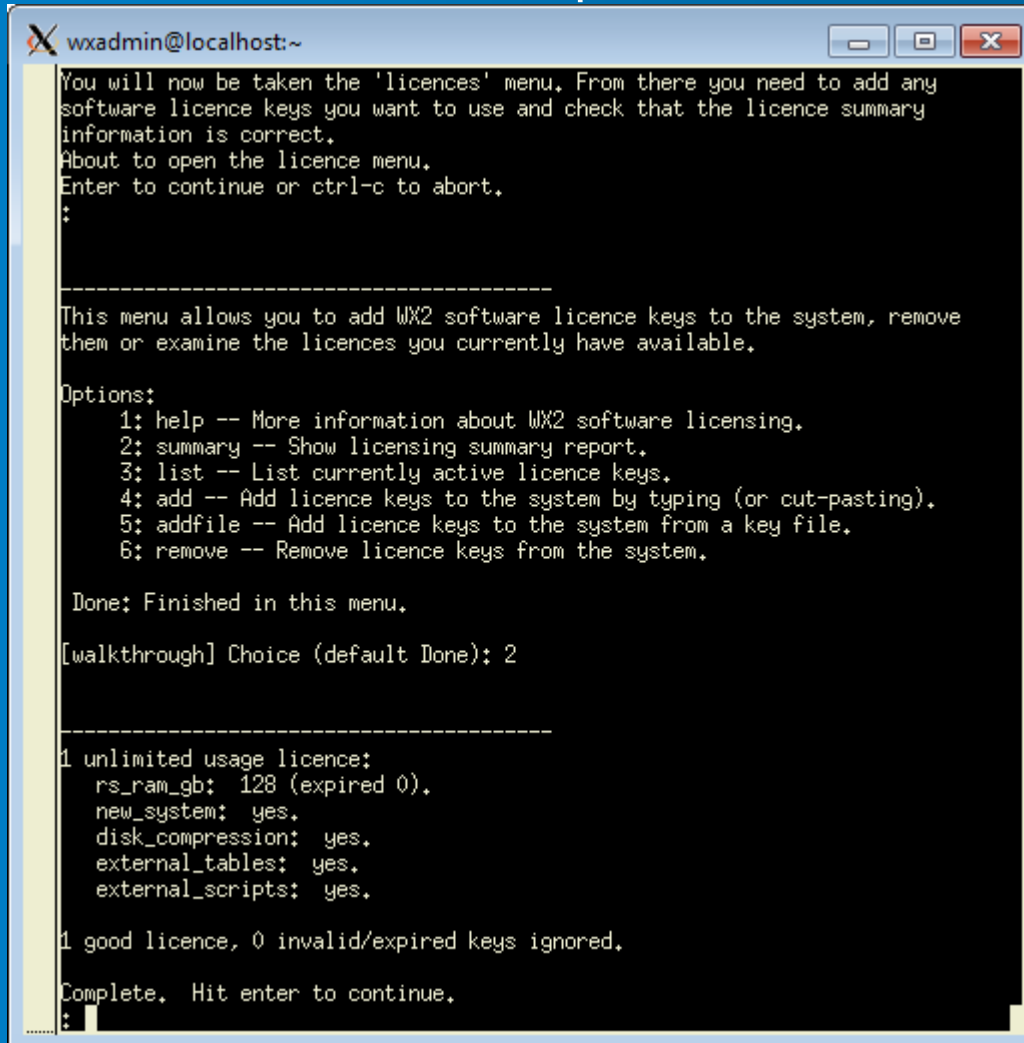
## Stage 2: Option 2 - Storage Using File(s) Verify All Disks Present

- After setting up resources, use option 3 to verify they are as expected:

```
wxadmin@localhost:~  
1: help -- More information about disk resources.  
2: summary -- Display a summary of the disks in the system.  
3: list -- Display a list of the disk resources configured.  
4: create -- Create one or more disk resources.  
5: change -- Change settings for one or more disk resources.  
6: raid -- Change software RAID cluster size.  
7: remove -- Remove one or more disk resources.  
  
Done: Finished in this menu.  
[walkthrough] Choice (default Done): 3  
  
-----  
Which nodes do you want disk info for  
(ctrl-c goes back, default: all, ? for help)?  
  
-----  
WX2: Blocks 1, Nodes 1, Disks 1, Status Up.  
  hardware HPBlade: Status Up.  
  rack rack1: Status Up.  
    enclosure enc6: Status Up.  
      bay 8: ID hp-rack1-enc6-8, Status Up  
        sys Linux-2.6.16.60-0.42.5-smp, Disks 1, links 4  
        ram 16671363072, mrpp 3921674240, swap 0, cpus 4, zones 2, end L.  
        Caps DB-IO-DS-RS-MI-DBG-MASTER-NUMA.  
        0 memory in 0 PMAs  
        MPID range from -1 to -1 (bootstamp 0)  
        Uptime 3814258 s (69693 s busy)  
        Node has been unmapped 0 times  
        Disk: uid hp-rack1-enc6-8:/data/wx2/db_wx2.dat, sysid <NO BOOTINFO>.  
local Y  
  ncpus 1, Status Up.  
  cost 0, local 1, LStatus Up.  
  Attributes File-Sparse-DirIO-Align.  
  resource /data/wx2/db_wx2.dat, disk_is_zeroed 0.  
  nsecs 39062500, ssize 512.  
  
Complete. Hit enter to continue.  
:
```

# Stage 2: Check All Licences Present

- Review licences – in this case, the implicit free 128GB RAM licence is visible:



```
wxadmin@localhost:~
You will now be taken the 'licences' menu. From there you need to add any
software licence keys you want to use and check that the licence summary
information is correct.
About to open the licence menu.
Enter to continue or ctrl-c to abort.
:

-----

This menu allows you to add WX2 software licence keys to the system, remove
them or examine the licences you currently have available.

Options:
 1: help -- More information about WX2 software licensing.
 2: summary -- Show licensing summary report.
 3: list -- List currently active licence keys.
 4: add -- Add licence keys to the system by typing (or cut-pasting).
 5: addfile -- Add licence keys to the system from a key file.
 6: remove -- Remove licence keys from the system.

Done: Finished in this menu.

[walkthrough] Choice (default Done): 2

-----

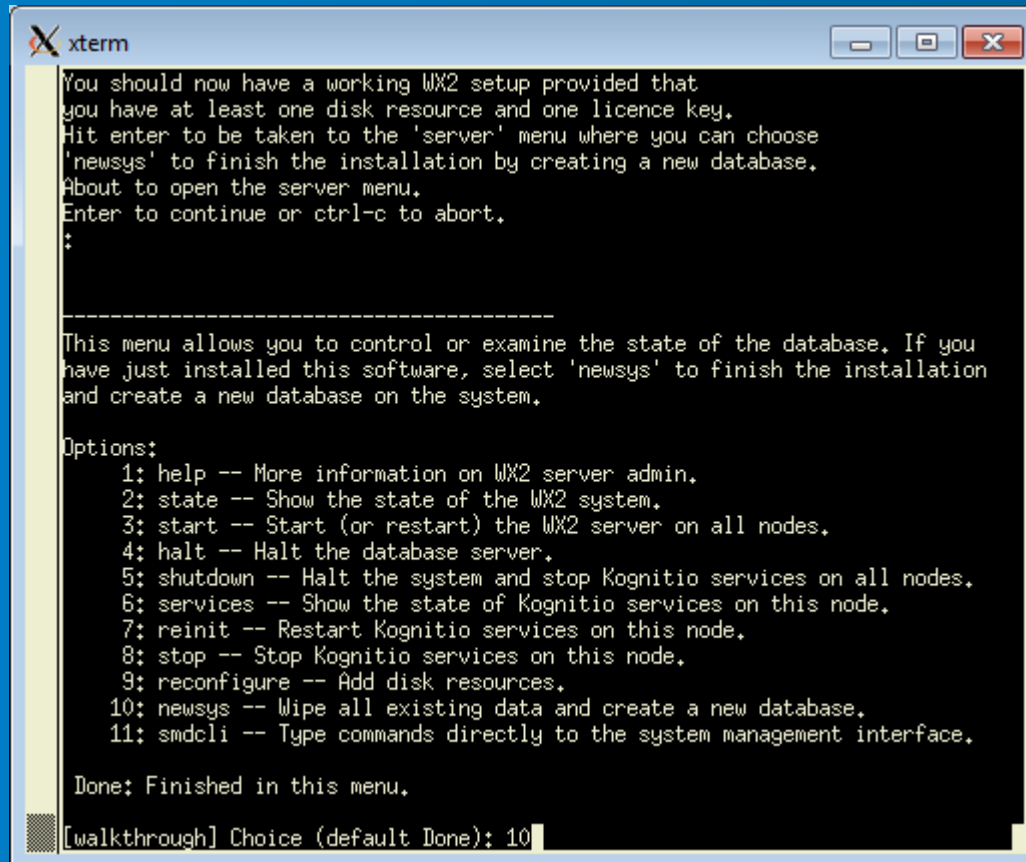
1 unlimited usage licence:
  rs_ram_gb: 128 (expired 0).
  new_system: yes.
  disk_compression: yes.
  external_tables: yes.
  external_scripts: yes.

1 good licence, 0 invalid/expired keys ignored.

Complete. Hit enter to continue.
:
```

# Stage 2: Initialize and Build New Database

- Choose option 10 to commission:



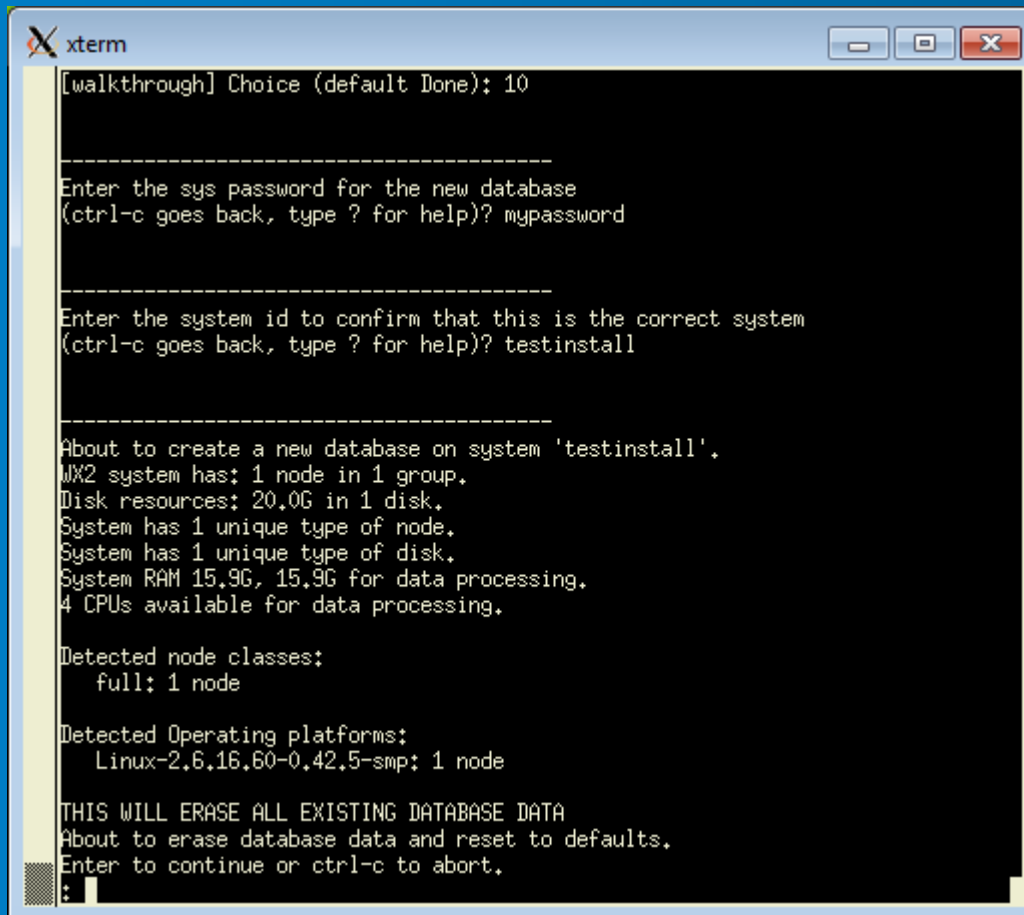
```
xterm
You should now have a working WX2 setup provided that
you have at least one disk resource and one licence key.
Hit enter to be taken to the 'server' menu where you can choose
'newsys' to finish the installation by creating a new database.
About to open the server menu.
Enter to continue or ctrl-c to abort.
:
-----
This menu allows you to control or examine the state of the database. If you
have just installed this software, select 'newsys' to finish the installation
and create a new database on the system.

Options:
 1: help -- More information on WX2 server admin.
 2: state -- Show the state of the WX2 system.
 3: start -- Start (or restart) the WX2 server on all nodes.
 4: halt -- Halt the database server.
 5: shutdown -- Halt the system and stop Kognitio services on all nodes.
 6: services -- Show the state of Kognitio services on this node.
 7: reinit -- Restart Kognitio services on this node.
 8: stop -- Stop Kognitio services on this node.
 9: reconfigure -- Add disk resources.
10: newsys -- Wipe all existing data and create a new database.
11: smdcli -- Type commands directly to the system management interface.

Done: Finished in this menu.
[walkthrough] Choice (default Done): 10
```

# Stage 2: Initialize and Build New Database

- Provide SYS password and system id, then hit enter:



```
xterm
[walkthrough] Choice (default Done): 10

-----
Enter the sys password for the new database
(ctrl-c goes back, type ? for help)? mypassword

-----
Enter the system id to confirm that this is the correct system
(ctrl-c goes back, type ? for help)? testinstall

-----
About to create a new database on system 'testinstall'.
MX2 system has: 1 node in 1 group.
Disk resources: 20.0G in 1 disk.
System has 1 unique type of node.
System has 1 unique type of disk.
System RAM 15.9G, 15.9G for data processing.
4 CPUs available for data processing.

Detected node classes:
  full: 1 node

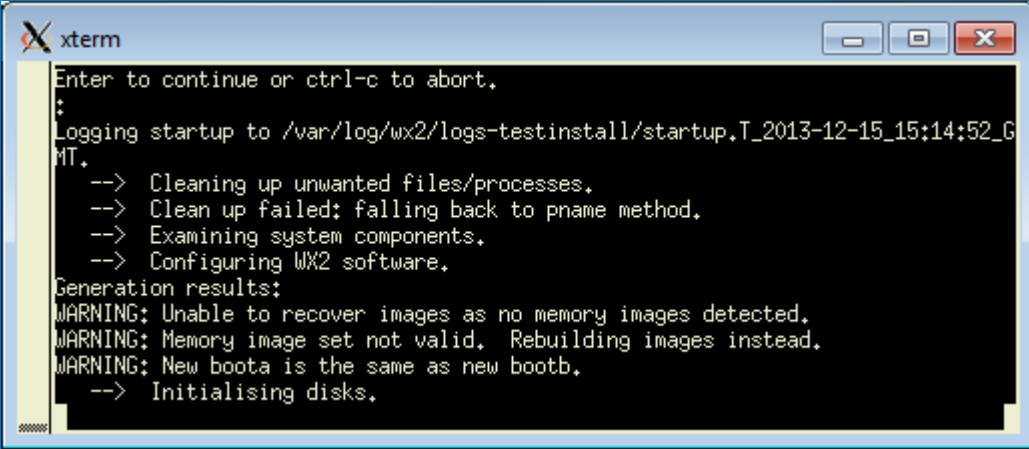
Detected Operating platforms:
  Linux-2.6.16.60-0.42.5-smp: 1 node

THIS WILL ERASE ALL EXISTING DATABASE DATA
About to erase database data and reset to defaults.
Enter to continue or ctrl-c to abort.
:
```



# Stage 2: Initialize Disks

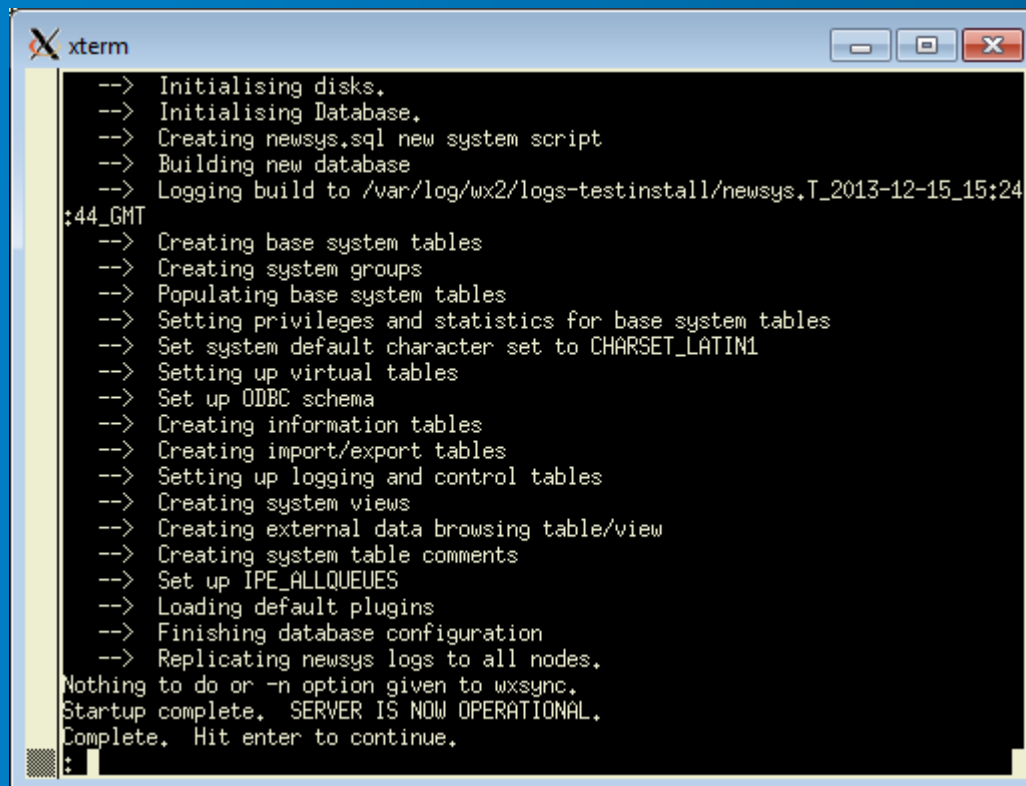
- The disk resources in the system will be zeroed early in the commissioning process. This can take some time if sparse files are not in use:



```
xterm
Enter to continue or ctrl-c to abort.
..
Logging startup to /var/log/wx2/logs-testinstall/startup.T_2013-12-15_15:14:52_G
MT.
--> Cleaning up unwanted files/processes.
--> Clean up failed; falling back to pname method.
--> Examining system components.
--> Configuring WX2 software.
Generation results:
WARNING: Unable to recover images as no memory images detected.
WARNING: Memory image set not valid. Rebuilding images instead.
WARNING: New boota is the same as new bootb.
--> Initialising disks.
```

# Stage 2: Build Database and Boot

- After the disk resources are initialized, the server software starts and SQL scripts are run to complete initialization:

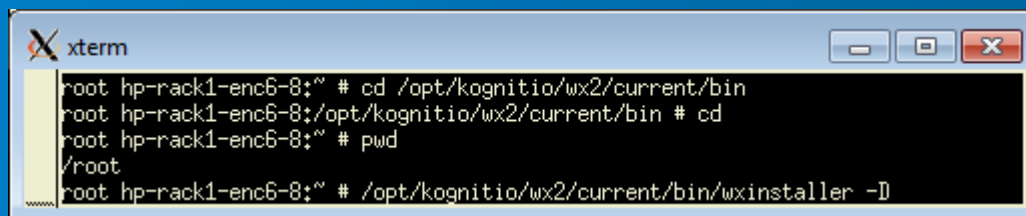


```
xterm
--> Initialising disks.
--> Initialising Database.
--> Creating newsys.sql new system script
--> Building new database
--> Logging build to /var/log/wx2/logs-testinstall/newsys.T_2013-12-15_15:24
:44_GMT
--> Creating base system tables
--> Creating system groups
--> Populating base system tables
--> Setting privileges and statistics for base system tables
--> Set system default character set to CHARSET_LATIN1
--> Setting up virtual tables
--> Set up ODBC schema
--> Creating information tables
--> Creating import/export tables
--> Setting up logging and control tables
--> Creating system views
--> Creating external data browsing table/view
--> Creating system table comments
--> Set up IPE_ALLQUEUES
--> Loading default plugins
--> Finishing database configuration
--> Replicating newsys logs to all nodes.
Nothing to do or -n option given to wxsync.
Startup complete. SERVER IS NOW OPERATIONAL.
Complete. Hit enter to continue.
:
```

# Uninstall

- The following command will completely uninstall Kognitio software on all nodes (as long as SMDs are running and network is integral)
  - This will not remove the database storage itself
    - Partitions / files will need to be manually deleted.
    - /dev/shm/wx2-\* files will also need to be manually deleted.
  - As user root run command

`/opt/kognitio/wx2/current/bin/wxinstaller -D`



```
xterm
root hp-rack1-enc6-8:~ # cd /opt/kognitio/wx2/current/bin
root hp-rack1-enc6-8:/opt/kognitio/wx2/current/bin # cd
root hp-rack1-enc6-8:~ # pwd
/root
root hp-rack1-enc6-8:~ # /opt/kognitio/wx2/current/bin/wxinstaller -D
```

# Uninstall

- The uninstall will stop the Kognitio software, remove the Linux users and groups, and uninstall the software:

```
xterm
root hp-rack1-enc6-8:~ # /opt/kognitio/wx2/current/bin/wxinstaller -D
Kognitio WX2 Software Installer v8.01.00
(c)Copyright Kognitio Ltd 2004-2013.

Stopping database server with '/opt/kognitio/wx2/current/bin/wxdes halt':
Kognitio WX2 System Controller v8.01.00 on testinstall
(c)Copyright Kognitio Ltd 2001-2013.

Setting state to reset(2).
Logging startup to /var/log/wx2/logs-testinstall/startup.T_2013-12-15_16:03:58_G
MT.
--> Cleaning up unwanted files/processes.
Kognitio WX2 Service Controller v8.01.00 on testinstall
(c)Copyright Kognitio Ltd 2001-2013.

Stopping System management daemon: OK.
Stopping Debug core dump server: OK.
insserv: script ipmi: service ipmidrv already provided!
wxsvc 0:off 1:off 2:off 3:off 4:off 5:off 6:off
Deleting user wxadmin: /usr/sbin/userdel "wxadmin"
no crontab for wxadmin
Deleting user wxextern: /usr/sbin/userdel "wxextern"
no crontab for wxextern
Deleting user wxroot: /usr/sbin/userdel "wxroot"
no crontab for wxroot
Deleting group wxadmin: /usr/sbin/groupdel "wxadmin"
Deleting group wxextern: /usr/sbin/groupdel "wxextern"
Deleting base dir /opt/kognitio/wx2.
Deleting log dir /var/log/wx2.
root hp-rack1-enc6-8:~ #
```

# Upgrade

- For version upgrades:
  - where the version number has changed such as ver80100->ver80200
  - wxserver upgrade using /path/newpackage.wxpkg
  
- For software patches:
  - where the version number is the same as the existing version, but the patch level changes such as between two 8.2.0 patches ver80200rel171218->ver80200rel180209:
    1. wxserver install <pathname to patch file \*.wxpkg>
    2. wxserver set current\_version <patch version - e.g. ver80200rel180209>
    3. wxserver smd all restart
    4. wxserver start