This presentation will cover installing WebSphere Extended Deployment V6.

Agenda

- Installation overview
- Platform resource prerequisites
- Walkthrough
- Logs

An overview of WebSphere XD installation will be followed by a screen-by-screen walkthrough. Log file locations will complete this presentation.

Section

Installation overview

This section will provide an overview of WebSphere XD on z/OS installation.

Overview

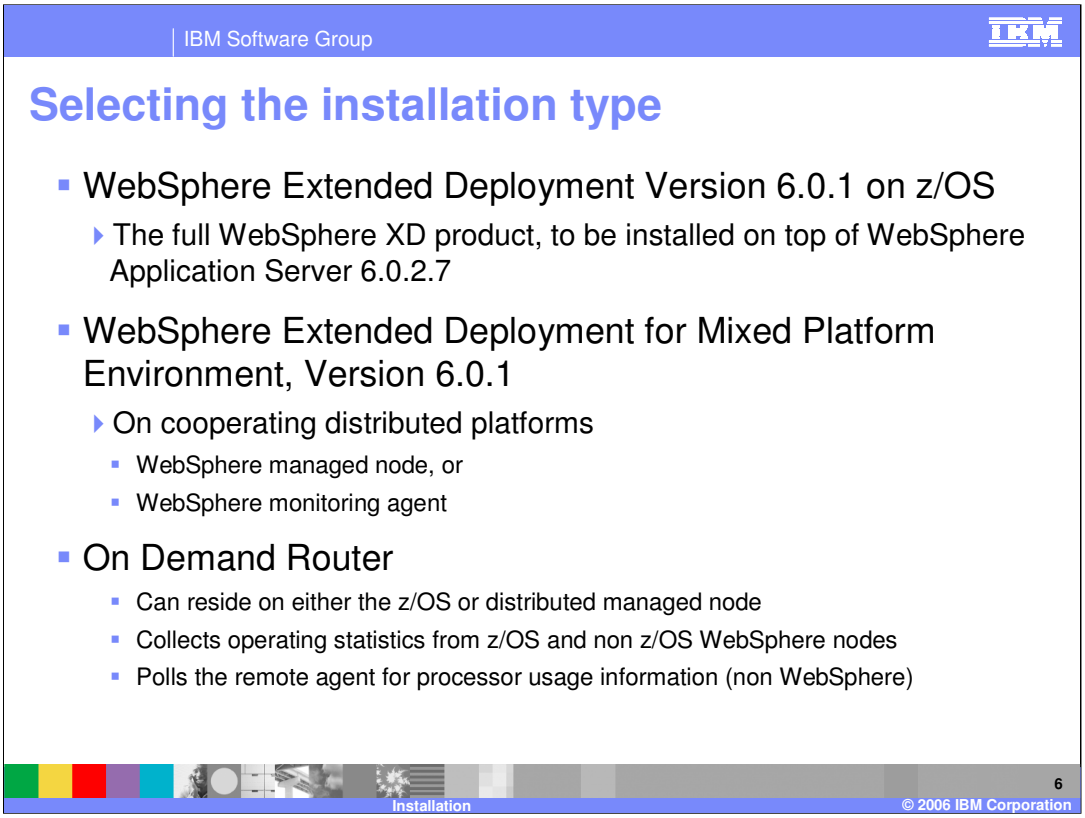
- WebSphere Extended Deployment (XD) 6.0.1 is an 'add-on' product for WebSphere Application Server Network Deployment
  - Requires WebSphere Application Server V6.0.2.7
  - Requires Network Deployment Cells
- Installation updates core product files
- Nodes must be updated
  - New or existing ND nodes can be 'augmented' to XD nodes.

WebSphere Extended Deployment is an add on product for WebSphere Application Server Network Deployment. This means that you must first install WebSphere Application Server version 6.0.2.7 before installing WebSphere XD, and that XD can only be configured to Network Deployment cells. To create a new XD node, you first create a new ND node and then convert it to XD.

General installation process

- Check prerequisites online
  - http://www.ibm.com/software/webservers/appserv/extend/requirements
  - Lists supported platforms and software
- Create a V6.0.2.7 ND cell
- Run through the ISPF panels
- Run the three generated jobs for each node

The general process for installing WebSphere XD is as follows: First, check the Web site listed on this slide to be sure all prerequisites are met.



The WebSphere XD on z/OS installer allows you to install WebSphere XD on top of an existing ND cell. This enables you to create WebSphere XD resources like nodes, application servers, dynamic clusters. With WebSphere XD installer for distributed platforms (e.g. the launch platform) you can install either a WebSphere node or a lightweight Java™-based monitoring agent on a distributed server for systems running non-WebSphere processes that will be part of your environment. In either case, the servers on distributed platforms can participate in a cell that includes z/OS WebSphere nodes. As mentioned in the overview, the On Demand Router can reside on either a distributed or a z/OS server and participate with the z/OS workload management with bi-directional information sharing. The On Demand Router can be placed on a distributed platform in one of two ways, either in a spanning cell or a disjoint cell using a core bridge. Core bridges are discussed in the WebSphere information center. When you are deciding where to place an On Demand Router, consider placing the On Demand Router as an end point for Sysplex distributor as described in the On Demand Router presentation.

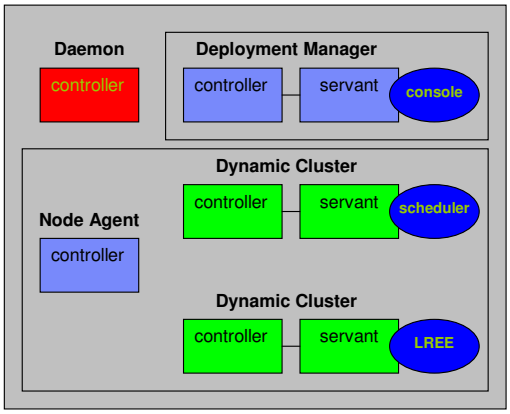
Section

Platform resource prerequisites

This section will provide a quick guide for the resources required to run WebSphere XD

Minimum batch configuration

STC	real frames	total memory	size GB
dmgr controller	108000	442368000	0.411987
dmgr servant	138000	565248000	0.526428
daemon	3472	14221312	0.013245
node agent	82000	335872000	0.312805
appserver controller (scheduler)	99000	405504000	0.377655
appserver servant (scheduler)	115000	471040000	0.43869
appserver controller (lree)	96000	393216000	0.366211
appserver servant (lree)	122000	499712000	0.465393
daemon total GB			0.013245
dmgr total GB			0.938416
nodeagent total GB			0.312805
scheduler total GB			0.816345
lree total GB			0.831604
Grand Total GB			2.912415



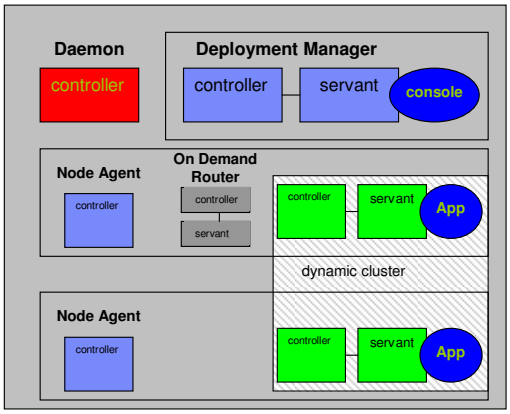
- Single LPAR
- 2 CPUs
- 3 GB available to WebSphere

- 2 WebSphere nodes: Deployment Manager, Application Server
- 2 Dynamic clusters, 1 server each
  - one to host batch scheduler
  - another to host batch initiator (LREE)

The values represented here indicate resource requirements to run the base WebSphere XD configured to process batch. In this configuration, each server basically operates as an initiator for an MVS batch job. Here again two CPs are required not so much for compute power but rather to avoid address space stalls caused by various locks. Three GB of storage is the minimum of minimums storage required. You also have to allow storage to run the applications and support multiple LPARS. Remember, a real deployment will involve multiple LPARS, nodes, clusters, servers, support address spaces and each will have a unique resource requirement.

Minimum OLTP configuration

STC			real frames	total memory	size GB
dmgr controller			108000	442368000	0.411987
dmgr servant			138000	565248000	0.526428
daemon			3472	14221312	0.013245
node agent			82000	335872000	0.312805
appserver controller			82000	335872000	0.312805
appserver servant			105000	430080000	0.400543
odr controller			76000	311296000	0.289917
odr servant			105000	430080000	0.400543
daemon total GB					0.013245
dmgr total GB					0.938416
nodeagent total GB		x 2			0.62561
appserver total GB		x 2			1.426697
odr total GB					0.69046
Grand Total					3.694427



- Single LPAR
- 2 CPUs
- 4.0 GB available to WebSphere
- 3 WebSphere nodes: Deployment Manager, 2 Application Servers
- 1 dynamic cluster across 2 application server nodes
- 1 On Demand Router on one application server node

The values represented here indicate resource requirements to run the base WebSphere XD configured for on line transaction processing. Two CPs are required not so much for compute power but rather to avoid address space stalls caused by various locks. Four GB of storage is the minimum of minimums storage required. You also have to allow storage to run the applications and support multiple LPARs. Remember, a real deployment will involve multiple LPARs, nodes, clusters, servers, support address spaces and each will have a unique resource requirement.

Section

Installation walkthrough

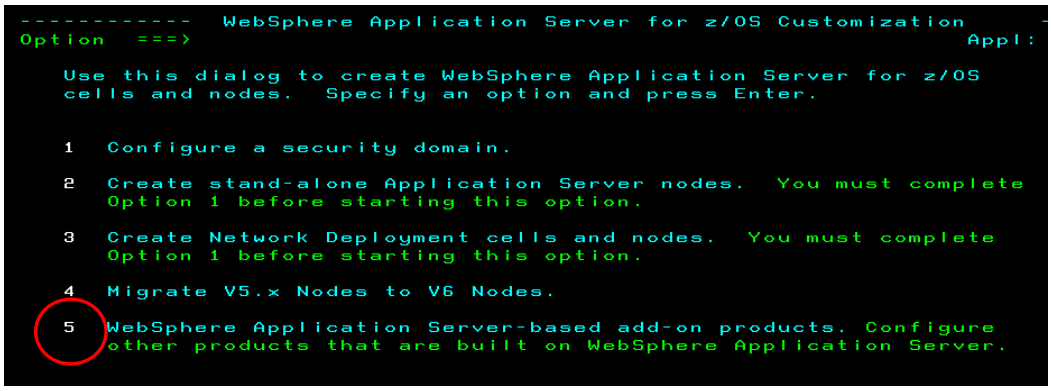
This section will walk through a sample installation.

Starting the installation

- SMP/e installation
  - Create <install root>
- Create ND cell
  - Dump PDS for the ND cell
- ISPF panels

The SMP installation is straight forward after performing the SMP work for WebSphere for z/OS version 6.0.2.7. The same DDDEFs will probably be adequate. An ND cell needs to be created to support the WebSphere XD infrastructure. Because WebSphere XD is an add on product, a new HLQ and hfs path needs to be provided for the WebSphere XD libraries. It is highly advisable to dump the hfs for this ND cell before starting to add XD. The reason for this is that some of the jobs required to convert to an XD cell are not reversible and the jobs can not be re-run without first restoring the hfs to a non XD state. The ISPF panels for WebSphere XD are very similar to what has always existed. Note the additional parameters specify the ISPF panels include WebSphere XD items and specifies the HLQ for XD. The first screen will be a licensing screen, read through the information and if you concur proceed on to the main menu.

Main menu

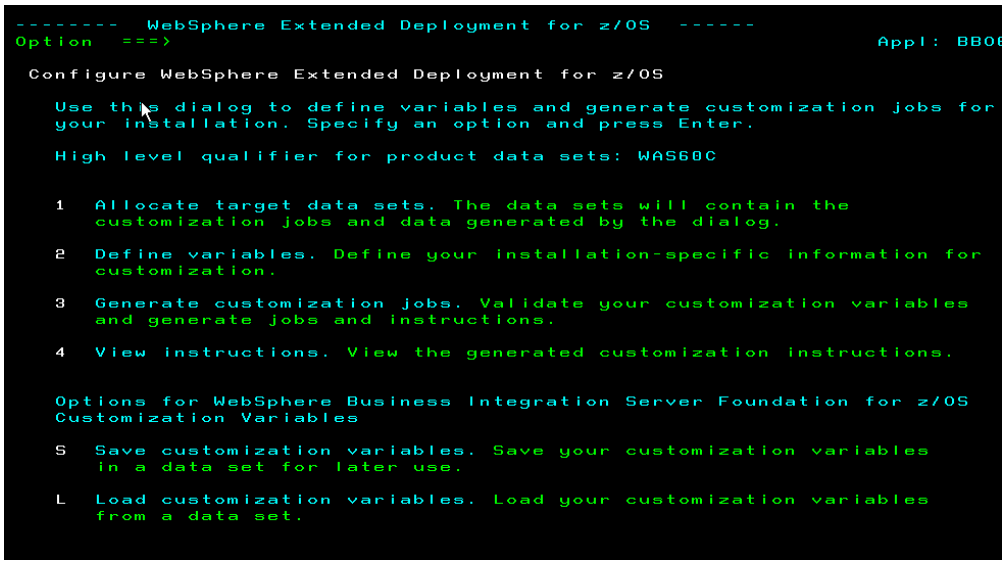


A new item on the main menu is number 5 for add on products, in this case XD.

Add-on products menu

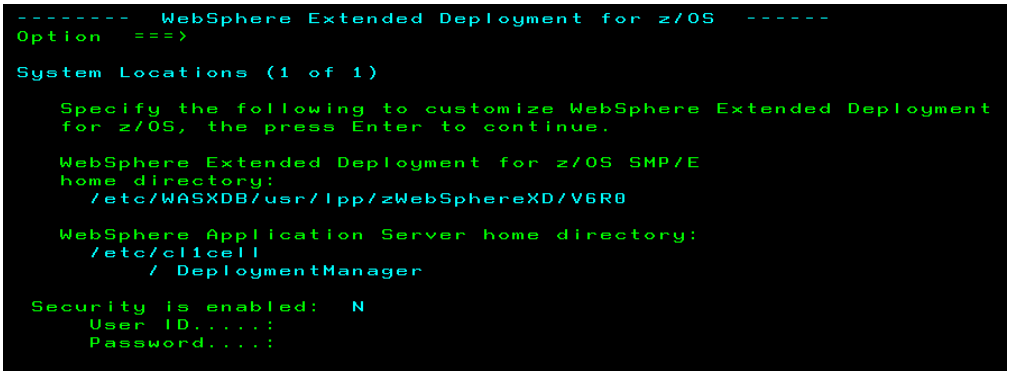
Following selecting 5 on the previous panel, the only choice is convert an ND cell to an XD cell.

XD main menu



Historically, this panel is a standard in configuring WebSphere. Typically, the configuration for the Deployment Manager in the ND cell might be loaded with ‘L’ selection and then saved to a new name with the “s” selection. After defining the target data sets, which can be the same as used before, the variables need to be defined which is item 2 (see next panel) and then generate the jobs. Examining the .CNTL PDS will contain the instructions to run the generated jobs.

XD has only one screen

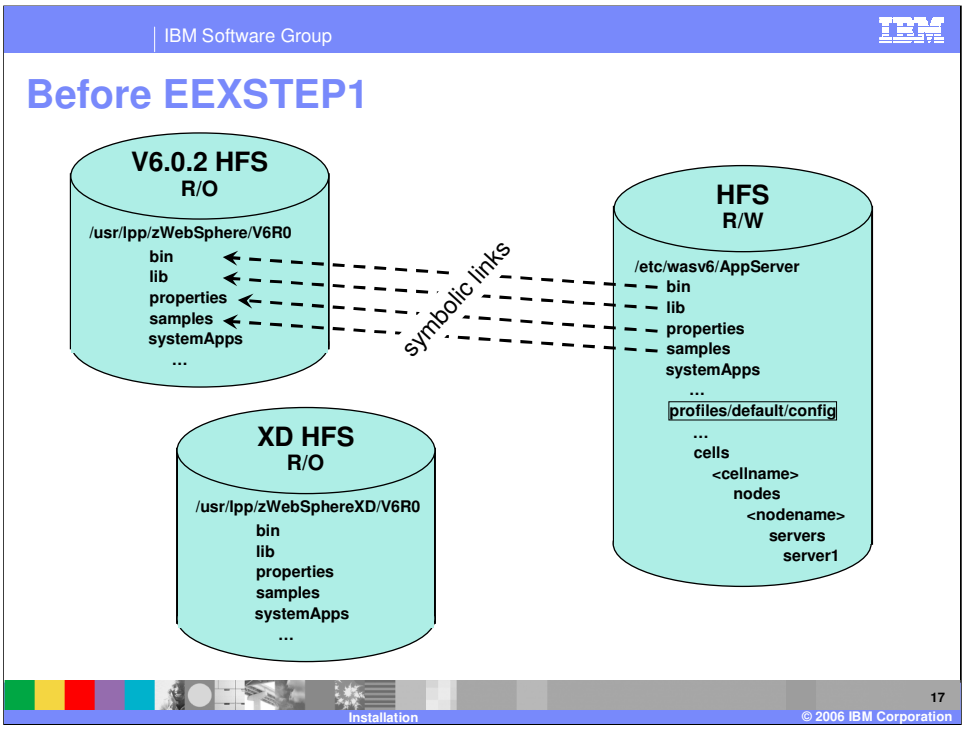


There are only two or three questions required to define the XD jobs. The first one is the hfs where the WebSphere XD libraries were installed. Note that the WebSphere XD libraries will be distinct from the WebSphere 6.0.2 libraries. The second question is what is the path for each node that needs to be augmented to WebSphere XD. Note that the Deployment Manager must be augmented first. Each node needs to be augment in turn. Finally, if security has been turned on for the deployment manager, the administrative user ID and password need to be supplied.

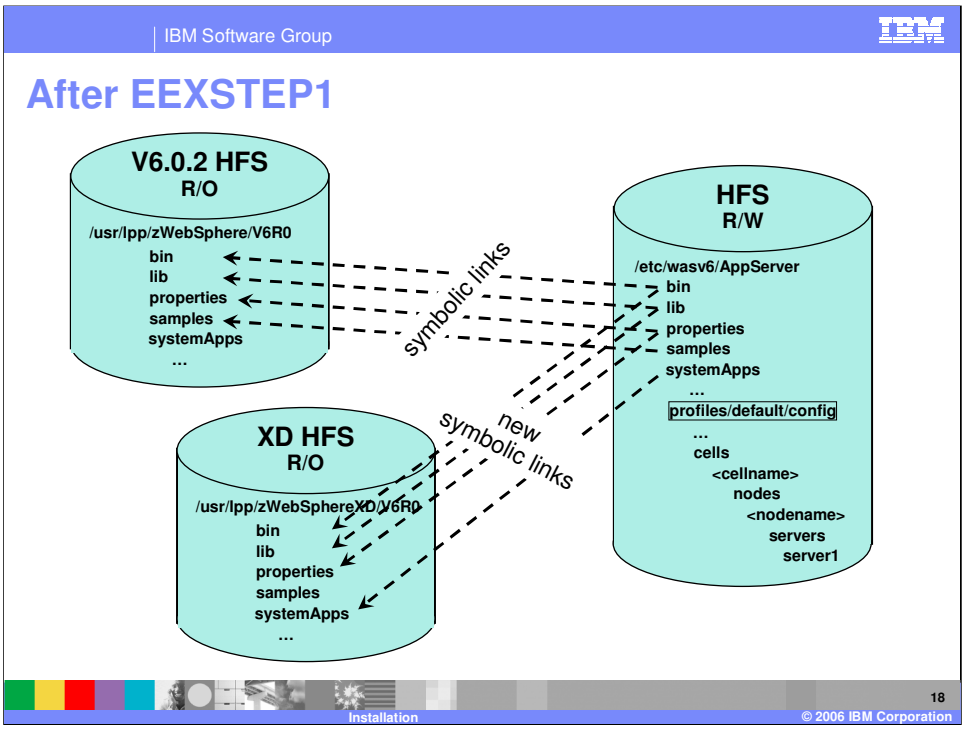
Three jobs are produced

- EEXSTEP1
  - Adds links in configuration tree to the XD libraries
- EEXSTEP2
  - Augment a node
- EEXSTEP3
  - Upgrade the Administration Console (if configuring the DMGR)
  - Sync the master repository (if not configuring the DMGR)

After generating the jobs step, there will be three jobs in the .CNTL PDS. These jobs are listed here. Note these jobs must be run under a WebSphere administrative ID. The first two perform the same function for all nodes. The third job detects if a node is a deployment manager or not. For a deployment manager, the third job installs a new Administrative Console with the new XD functions represented. For a non deployment manager node, the third job causes a synchronization of the master repository to each node. The deployment manager must not be running when it is augmented but needs to be running when each of the other nodes is augmented.



After configuring a base V6.0.2 ND cell and before converting the cell to an XD cell, the picture appears as shown here. The SMP/E installation creates an HFS that contains all the WebSphere files that is referred to as the library file system or tree. The library HFS is shown in the upper left corner and is rooted at **/usr/lpp/zWebSphere/V6R0** on a test system. When a cell is configured, this library HFS is usually mounted as read only. The configuration process creates one or more HFSs. One of these HFSs is shown on the right referred to as the configuration tree and is rooted at **/etc/wasv6/AppServer** on a test system. The configuration tree has a complicated tree structure and only some of that structure is shown here. To save file system space, much of the configuration tree are soft links back to library tree. For example, if you were to look at the file **/etc/wasv6/AppServer/bin/wsadmin.sh** you would see it is a soft link back to **/usr/lpp/zWebSphere/V6R0/bin/wsadmin.sh**.



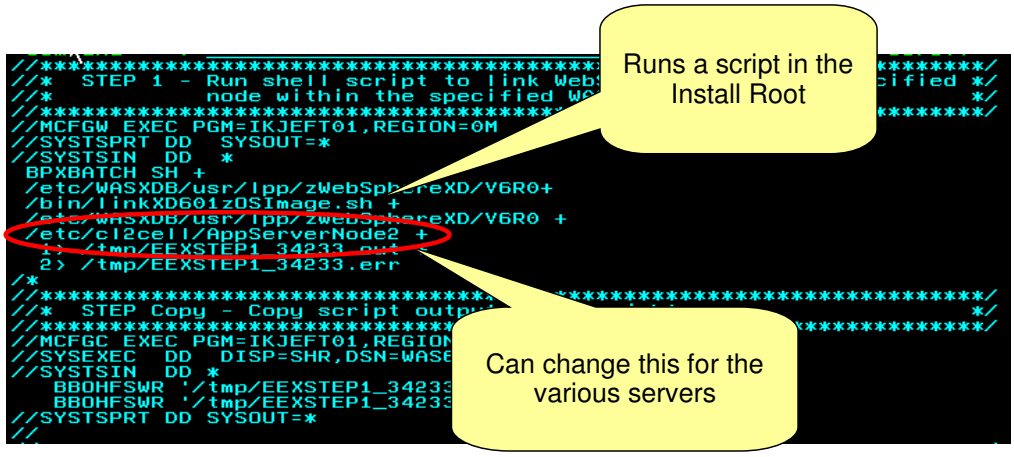
After running the EEXSTEP1 job, several new soft links have been added to the configuration tree that point back to the XD libraries.

XD process

- For a DeploymentManager node:
  - Link the hfs: **EEXSTEP1**
  - Augment the DMGR node: **EEXSTEP2**
  - ISCDeploy the DMGR: **EEXSTEP3**
  - Start the DMGR
- For all other nodes:
  - Stop the node agent and servers
  - Link the hfs: **EEXSTEP1**
  - Augment the Server node: **EEXSTEP2**
  - Sync the node with the DMGR: **EEXSTEP3**

As already mentioned, the third job behaves differently for a deployment manager than another node. The first two perform the same function for all profiles, re-linking to the new libraries as required and then augmenting the profiles – basically altering the various .xml files. The third job detects if a node is a deployment manager or not. For a deployment manager, the third job installs a new Administrative Console with the new XD functions represented. For a non deployment manager node, the third job causes a sync of the master repository to each node. The deployment manager must not be running when it is augmented but needs to be running when each of the other profiles is augmented.

Sample install job: EEXSTEP1



This is an excerpt from one of the three generated jobs. In this case, the script that is run here mainly re-links the libraries. Errors will show up in the Job Log. If you get linking errors, you can examine the shell script output to see what is going on and fix the errors. In general, the jobs can not re-run without returning the configuration HFS back to its state before the job was run, the original configuration HFS for the ND cell. you should dump the PDS for the configuration tree before applying any of these jobs so you can restore the PDS and return to the original XD cell configuration if an error occurs in any of these steps.

To run this and the other jobs for each node, you can rerun the ISPF panels for each of the profiles. Or you can edit the three jobs and change the “what is the HFS path for the node”, as shown here, for each of the profiles and run the jobs again for each node. The other jobs are similar in format to the one shown here.

Section

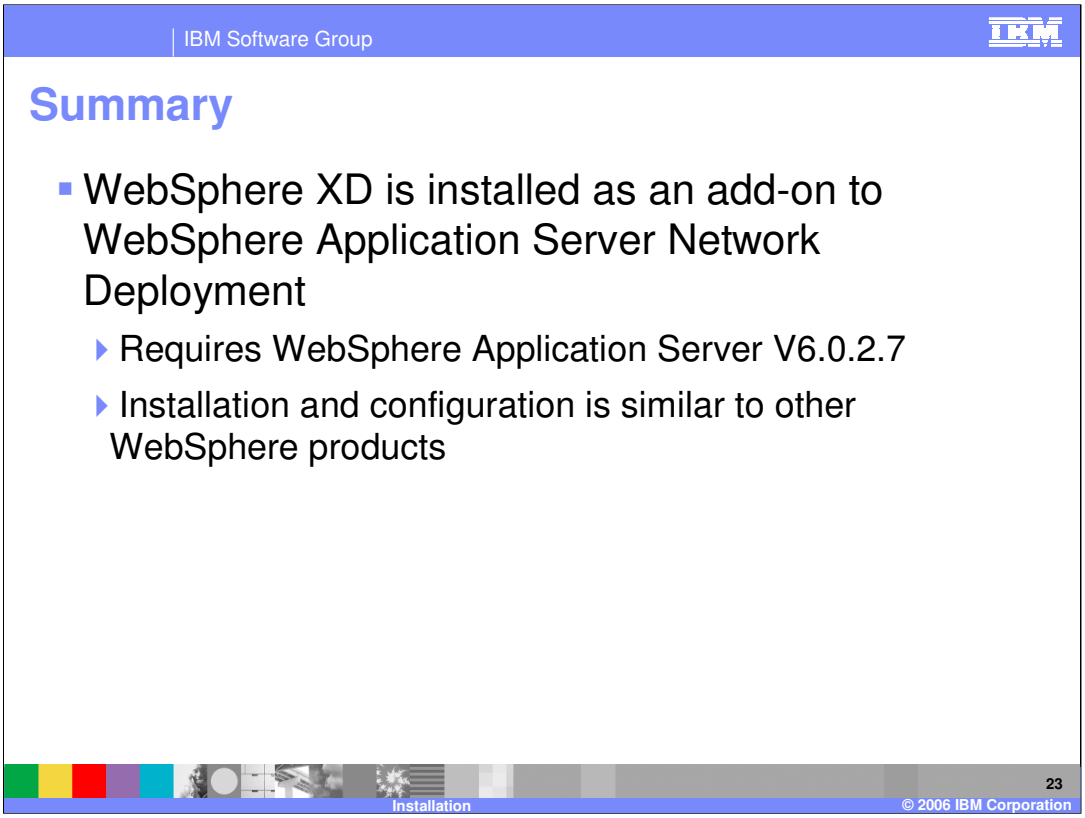
Installation logs

This section will provide an overview of WebSphere XD installation logs.

Installation logs

- Job log
  - Verify the completion code (and return code for each script) is 0
- WAS.XD.install.log
  - Main WebSphere XD installation log
- augmentProfile<*profilename*>.log
  - Logs for node augmentation
  - Will contain reason for failure if the augment process fails

The Job log for each job should be checked to verify the completion codes for each step is zero and each USS script invocation returns a 0 code as well. If the Job log contains a non zero completion code, check the log for error information. The installation log is located in the logs subdirectory of the directory that you selected for installation. The main installation log is named WAS.XD.install.log. If your installation fails, check this log for errors. Tasks launched by the installer, such as node augmentation, also have their own logs, but exist inside the logs directory of an individual node.



In summary, installing WebSphere XD 6.0 requires that you first install WebSphere Application Server 6.0.2.7, since WebSphere XD is an add-on product, rather than a stand-alone product.

You must also augment your profiles, giving the nodes created on them WebSphere XD capabilities.

In addition to installing the full WebSphere XD product, the installer can also be used to install a lightweight remote monitoring agent on non-WebSphere nodes that you wish to use in your WebSphere XD environment.

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