



IBM Software Group

IBM WebSphere Application Server V6.1

Installation Factory V6.1



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This presentation will provide an overview of the Installation Factory feature in WebSphere® Application Server V6.1.

Agenda

- Installation Factory V6.1 overview
- Features of Installation Factory
- Problem determination



This presentation will begin with an overview of the Installation Factory, which will explain the benefits of using this new component. The next section will discuss the features that have been added to the Installation Factory in the current release. Lastly, this presentation will discuss concerns related to determining the cause of problems with the Installation Factory.

Section

Installation Factory V6.1 overview



This section presents an overview of the Installation Factory.

Overview: current usage

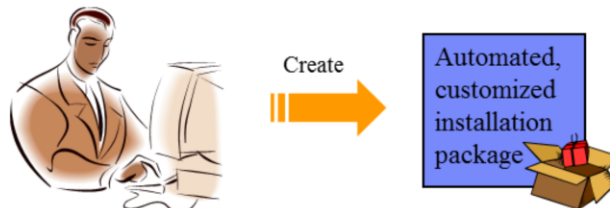
- Installing and configuring WebSphere Application Server is a time consuming and repetitive task
 - ▶ Full install of WebSphere Application Server
 - ▶ Install refresh packs
 - ▶ Install fix packs
 - ▶ Install interim fixes
 - ▶ Create and configure profiles
 - ▶ Deploy applications
- Repeat for other machines that need to be installed
 - ▶ Usually creating the same image on multiple machines



The existing process for installing, updating, and configuring a WebSphere Application Server installation can be very time consuming and repetitive. The process includes installing WebSphere Application Server, and then updating the installation with refresh packs, fix packs and interim fixes as appropriate. Once WebSphere Application Server has been updated to the appropriate version, profiles need to be created and configured before applications can be properly installed and tuned. Then depending on the environment and number of systems, this process must be repeated to create multiple installations.

Overview: custom solutions

- Users need a simpler approach
 - ▶ Independent software vendors (ISVs)
 - ▶ Customers
 - ▶ IBM products
- Different groups need to create fast, reliable and repeatable WebSphere Application Server installations that are tailored to their specific needs



WebSphere Application Server needed a solution to simplify the installation and configuration process. Independent software vendors, customers, and even other IBM products can all benefit from an easier way to quickly install and update WebSphere Application Server. For example, if another IBM product needs to first have a specific version of WebSphere Application Server installed before the product can be installed. A simpler method for installing and updating WebSphere Application Server can actually improve the installation for other products.

Overview: concerns

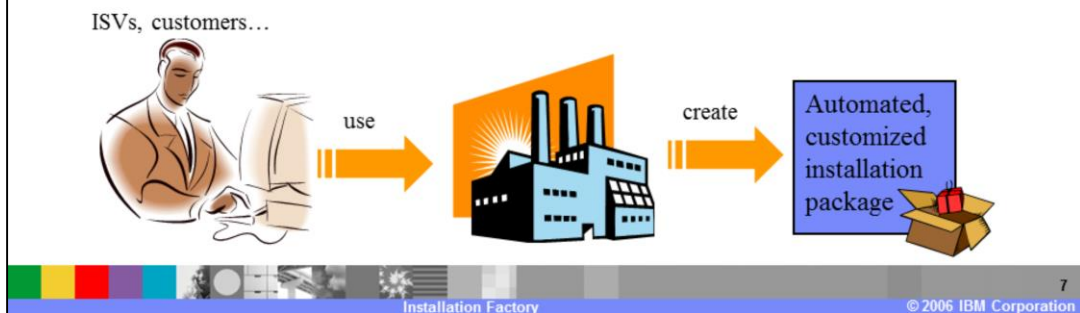
- Depending on the approach taken, a customized installation solution can still exhibit problems:
 - ▶ **Large** - because it contains refresh packs or fix packs
 - Installation package may not fit on a single CD
 - ▶ **Slow** - because there are still multiple steps being performed 'under the covers'
 - ▶ **Unreliable** - if any steps fail the entire install will fail
 - ▶ **Non-integrated** - instead of a seamless installation experience, it will often look like an attempt to bolt together several disjointed processes
 - ▶ **Not forward-compatible** - when WebSphere Application Server installation changes from release to release the custom installation procedure must be changed or rewritten
 - A non-trivial amount of work



Developing a custom solution for installing, updating and configuring WebSphere Application Server has a number of difficulties. Often a solution can result in a very large installation image, because it can contain additional refresh or fix packs. This can easily result in the install image not fitting on a CD. The solution may also be very slow. If it installs and then runs numerous updates this process can be very time consuming. This can also make the installation and updating process unreliable, if any of the updates fails, the entire installation will fail. Forcing a restart to the time consuming installation process. Optimally the solution should also be integrated and forward-compatible. This will create a better installation experience, and result in less updating when new versions of WebSphere Application Server are released. Creating a custom install solution can be very difficult when all of these problems need to be addressed.

Installation Factory helps

- Installation Factory can create automated, custom installation packages (CIP) for WebSphere Application Server
 - ▶ Provides a simple user interface
- Eliminates variations in installation packages
 - ▶ Easier for IBM to support



The Installation Factory feature provides an automated method for creating custom installation packages or CIPs for WebSphere Application Server. It is a IBM provided solution that solves for all of the problems on the previous slide, and creates easy to use and reliable custom installations. The Installation Factory provides options for both a graphical user interface or for using a command line option. The WebSphere Application Server installation that is created is the same robust installer is normally used, supporting the same silent install options as well. The custom installer can also be used to update an existing installation of WebSphere Application Server, providing an easier alternative to installing multiple fix packs.

Significant features

- Can be used to create a custom service refresh
 - ▶ An installation image that can install WebSphere Application Server at any level of maintenance
 - ▶ Fastest, smallest, easiest, and most reliable way to install WebSphere Application Server at a given level of maintenance
 - ▶ Installed maintenance packages are registered in the usual way, easily discoverable and removable
- Custom installation package may contain a configuration archive
 - ▶ Contains one or more configuration entities (cell, node, server, application) to be automatically restored into a new profile, with appropriate changes to make it relocatable
 - ▶ Provides an easy way to restore a predefined configuration, including deployed applications, during installation
 - ▶ Scripts can also be included and run to further configure the instance
- The above features provide the capability to create a custom install package that can replicate an existing installation of WebSphere Application Server



Installation Factory has a number of significant features that can be combined to create some interesting capabilities. The main feature of the Installation Factory is the ability to create a customer service refresh. This supports the ability to create custom installers for WebSphere Application Server at a specific maintenance level. This type of custom installer is an excellent choice for installing WebSphere Application Server at a specific level of maintenance. The maintenance and fix packages that are installed with the custom installer are registered and can be removed in the normal manner.

The Installation Factory also has the capability to include a configuration archive for a stand-alone application server profile. A configuration archive can store all the configuration changes and applications that have been configured. This allows a user to create a custom installer that can install WebSphere Application Server without the need to upgrade it, and restore a configuration for the application server. This results in an easy way to recreate an existing installation across multiple machines.

Input and output

One or more of...

- Feature selections
- Default input values
- WebSphere Application Server binaries
- Maintenance packages
- Configuration archives (from existing installation)
- EARs to be deployed
- EARs to be deployed
- Scripts to be run

Input



Output

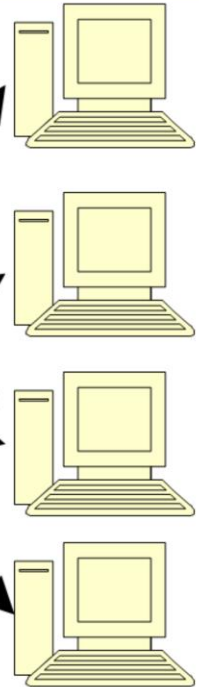


Deploy

Demo

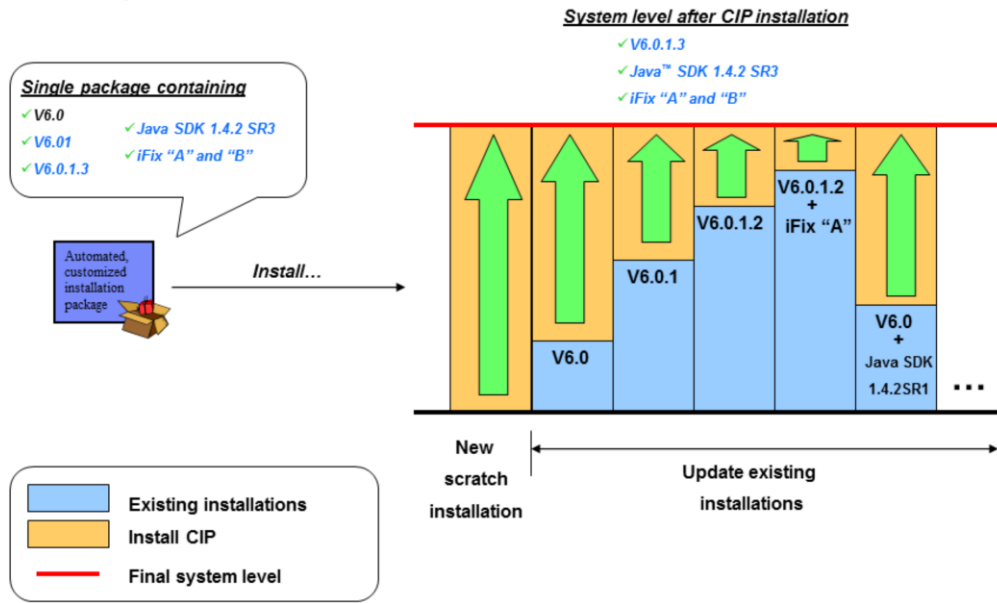
OEM

Other



The Installation Factory provides a simple mechanism for grouping numerous inputs and creating a custom install package for WebSphere Application Server as an output. The inputs to customize the installation can be things like maintenance packages, scripts, or applications to install. The resulting custom installation package can be used to create installation for deployments, demonstrations or other purposes.

Using a CIP to update an installation



As was mentioned previously a Custom Installation Package, or CIP, can also be used to upgrade an existing installation of WebSphere Application Server. In the example illustrated on this slide a CIP has been built that contains WebSphere Application Server V6.0, the V6.0.1 maintenance package, the fix pack for V6.0.1.3, an upgrade for the Java SDK, and 2 I-Fixes. When this custom install package is installed on the various systems shown on the right, they will be upgraded to the same maintenance level as the custom install package. The chart illustrates that the custom installer will only install what is needed to upgrade the installations.

Section

Features of Installation Factory



The next section discusses the new features of Installation Factory.

New features in V6.0.2

- Support further customization of a CIP by including various artifacts
 - ▶ Scripts
 - ▶ Configuration archives (CARs)
 - ▶ EARs and enhanced EARs
- An enhanced profile creation tool
 - ▶ `<was_root>/cip/<cip_id>`



Installation Factory was first introduced as a separate download with WebSphere Application Server V6.0.2. That release offered the ability to further customize a custom install package by including scripts, configuration archives and EARs. It was also necessary in that release to include an enhanced profile creation tool, this is no longer needed in V6.1 due to the capabilities of the new profile management tool.

Installation Factory scripts

- Supports Java™, Jacl, Jython, Ant, .bat/.sh scripts
- Scripts are run at a specific point during installation/uninstallation
 - ▶ Install: lay down binaries -> configuration actions -> installation scripts
 - ▶ Uninstall: uninstallation scripts -> uninstall configuration actions -> remove binaries
- Scripts may reference other files stored in the CIP
 - ▶ Scripts: <WAS_HOME>/cip/<cipID>/config
 - ▶ Additional files: <WAS_HOME>/cip/<cipID>/userFiles
 - ▶ Deploy EARs: <WAS_HOME>/cip/<cipID>/installableApps



The capability to include scripts with a Custom Installation Package can provide a very flexible mechanism for configuring an installation. Installation Factory supports a number of different script formats, including Java class files, JACL, Jython, Ant, batch and shell scripts. Scripts of different formats can be included in the same CIP, and associated with either the installation or uninstallation option. Installation scripts are run after the installation is complete, where as uninstallation scripts are run before the un-installation takes place. The scripts included in the CIP can also reference other data stored within the CIP, such as additional files or EARs, the locations where the additional files are stored within the CIP is shown on the slide.

New features in V6.1

- **Cross-platform CIP generation**
 - ▶ The following platform combinations are supported:
 - Generate CIP for any UNIX® or Linux® platform from any UNIX or Linux platform
 - Generate CIP for Windows® from any UNIX or Linux platform
 - Generate CIP for i5/OS® from Windows platform
- **Support for i5/OS**
- **Support for 64 bit platforms**



A number of new features have been introduced for Installation Factory in WebSphere Application Server V6.1. The first big change is the ability to do cross-platform generation of CIPs. Installation Factory can now generate a CIP for any UNIX or Linux system from any other UNIX or Linux system or even a Windows system. V6.1 also introduces support for the i5/OS and 64 bit operating system support.

Two outputs of Installation Factory

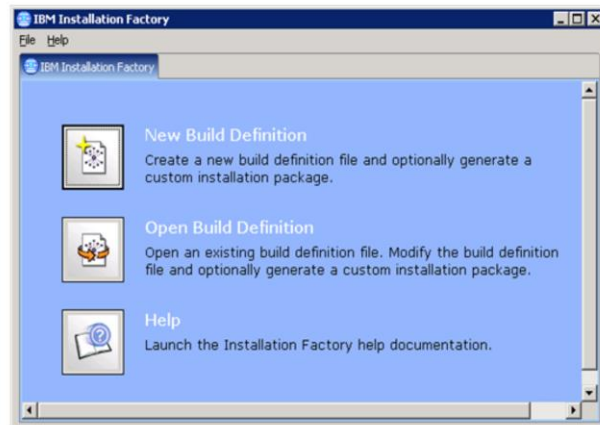
- Customized Installation Package (CIP)
 - ▶ WebSphere Application Server installable at a specific maintenance level
- Build Definition
 - ▶ Metadata representing a specific CIP
 - ▶ Used to generate a CIP



There are two main outputs from the Installation Factory tool. One is a build definition that represents the metadata that describes a custom installation package. Installation Factory uses the data stored in a build definition to create a custom installation package. A custom installation package is the end result, an installable WebSphere Application Server package at a specific maintenance level and possibly including further customizations.

Installation Factory opening panel

- Create a new build definition or work with an existing one
 - ▶ XML file that describes the CIP
- A number of panels are used to select the type of software package for which to make a CIP



When working with the Installation Factory the first step is to create or edit a build definition. At the end of the build definition interface there is an option to also create a custom installation package from the build definition. There are sample build definition files provided with the Installation Factory, these can be used to create build definitions manually if preferred. There is also a command line option to create a CIP from an existing build definition.

Section

Problem determination



The next section will offer tips for problem determination with Installation Factory.

Installation Factory logging

- -logFile log_file_path_name
 - ▶ Identifies the log file
 - ▶ The default value is current_working_directory/logs/log.txt
- -logLevel log_level
 - ▶ Sets the level of logging
 - ▶ The default value is INFO, valid values are:
 - ALL
 - CONFIG
 - INFO
 - WARNING
 - SEVERE
 - OFF (Turns off logging)



When running the command line option to generate a custom installation package, logging can be enabled using the `-logFile` and `-logLevel` options. By default Installation Factory will log information to the logs directory in the Installation Factory home directory. By increasing the log level, additional information can be captured about a problem with the generation of a CIP.

Installation logs

- Install time logs
 - ▶ <WAS_HOME>/logs/install/logs.txt
- How to tell WebSphere Application Server was installed from a CIP
 - ▶ If you have installed any CIPs you will see the CIP ids under <WAS_HOME>/CIP/



When using a custom install package to install WebSphere Application Server, errors will be logged to the standard logs/install directory. This is no different than a standard WebSphere Application Server installation. The easiest method to determine if an installation was created from a CIP is to look in the <was_home>/CIP directory. Any CIPS that have been installed will be listed by their CIP ID.

Section

Summary and reference



The next section contains a summary and references.

Summary and reference

- Installation Factory enables you to build customized installation packages for WebSphere Application Server
 - ▶ Reusable, portable packages can include maintenance, enterprise applications, configuration data, and scripts
 - ▶ Save time and improve repeatability of installations



In summary, Installation Factory is a feature that enables the creation of customized installation packages for WebSphere Application Server. These packages can be used to perform a complete WebSphere Application Server installation in a simple, repeatable fashion, including installing maintenance, installing enterprise applications, and creating and configuring profiles. This feature can save time and increase consistency in environments where installations are performed on numerous machines.

Installation Factory support

- Installation Factory 6.0.2
 - ▶ CLI is supported on all platforms where except for z/OS® and i5/OS®
 - ▶ GUI is supported where Eclipse 3.0.2 RCP GUI application are supported
- Installation Factory 6.1
 - ▶ CLI is supported on all platforms where WebSphere Application Server is supported except for z/OS
 - ▶ GUI is supported where Eclipse 3.1 RCP GUI application are supported
- Platforms supported by Eclipse
 - ▶ <http://ies.ottawa.ibm.com/ies/downloads/index.php>



This slide contains information related to the Installation Factory user interface and its support.

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