



# Introduction to Apache Ant



# Agenda

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## **Introduction to Apache Ant**

# Objectives

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At the end of this module, you will be able to:

- Appreciate the advantages of using ANT
- Learn how to install ANT and use

# Why ANT?

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- Building a software is much more than just typing and compiling the source code
- Do you know that there are a number of steps required to transform the source into a deployable software solution?



# High level view of a software build process

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- Let us look at a high level view of a software build process
  - The team members of a project usually upload their source code into the source code repository. Hence you may need to download or fetch the source code from the source code repository.
  - You may need to prepare the build area. You may want to create a set of directories. Different applications might want to have a different directory structure.
  - You may want to compile the source code.
  - You may want to validate the source code. You may have a style guide and you may want to confirm that your source code conforms to the standards set before it is released.

# High level view of a software build process

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- You may want to complete the testing of all the source code that you have downloaded from the Source code control system.
- You may want to build the compiled code into libraries.
- Package all the components of the software - code, images, resources, documentation etc
- You may want to produce several packages in different formats for different target users
- Deploy the software to some standard location for use or distribution

# Why these tasks need to be automated?

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- The steps mentioned earlier may vary depending upon the type of software that you are developing.
- Each of these steps may involve many individual operations.
- Doing all these steps manually will be error prone and a tedious task.
- And all these tasks might have to be done so many number of times.
- Hence we may want to automate the build process and hence you need the help of build tools.
- ANT is one such build tool which is platform independent.

# Introduction

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- Ant stands for '***Another Neat Tool***'
- Ant is a free java based build tool from the Apache Jakarta Group
- Originally written by James Duncan Davidson who is also the author of Tomcat Server
- It's like a '***make file***' (a build file in Unix platform) but is better than that as it is cross platform
- Uses an XML file to drive its action – build.xml
- Extremely powerful and modular
- Easily extensible



# Why would I want to use Ant?

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Do you spend your day doing the following tasks manually?

- Compile code
  - Package the binaries
  - Deploy the binaries to the test server
  - Test your changes
  - Copy code from one location to another
- If you have answered yes to any of the above, then it is time to automate the process and take away that burden from you.
  - On average, a developer spends 3 hours (out of a 8 hour working day) doing mundane tasks like build and deployment.
  - ANT helps you to build your project easily. It can be used in all platforms and hence it offers a big advantage to developers working on different OS.
  - It doesn't need human intervention when the build process is on and the status of the build process can be mailed to different stakeholders at the end of the building process.

# Why would I want to use Ant?

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- Ant is a java based build tool used to automate software build process
- Can be used in different platforms
- It supports unattended builds
- It can fetch source code from Source code management systems like CVS, SourceSafe, PVCS etc
- Ant uses an XML build file and it can be easily updated by anyone with basic XML skills

# Why would I want to use Ant?

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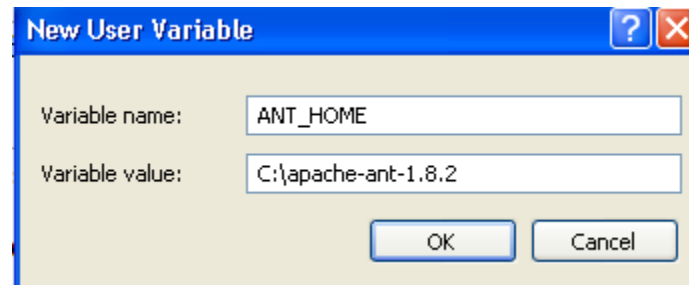
- Ant is a java based build tool used to automate software build process
- Can be used in different platforms
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# Installing Ant

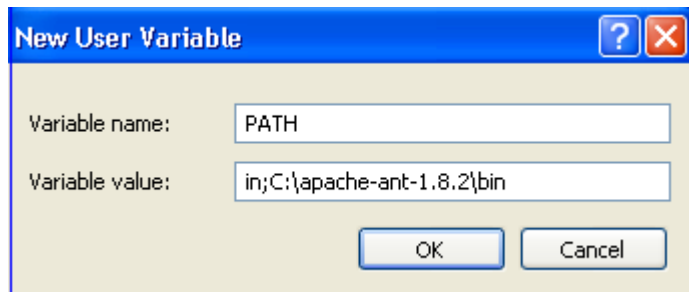
- Ant binary distribution can be downloaded from:  
<http://ant.apache.org/bindownload.cgi>
- You have to set ANT\_HOME variable to the location where you installed Ant
- The \$ANT\_HOME\bin should be included in PATH
- The JAVA\_HOME variable should point to JDK

# Setting up variables

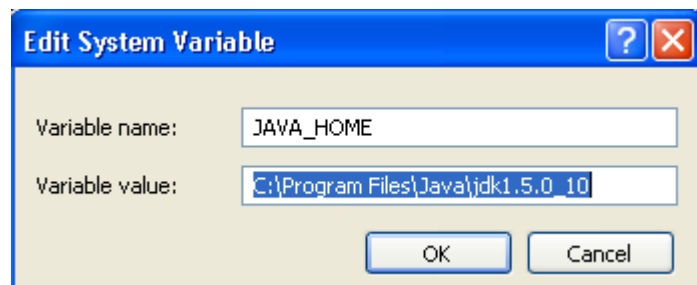
- Setting ANT\_HOME



- Updating PATH



- Setting JAVA\_HOME



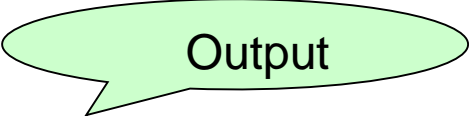
# Running Ant from the command line

- The ant command syntax is as shown below  
**ant [options] [target [target2 [target3] ...]**
- Some important options are :

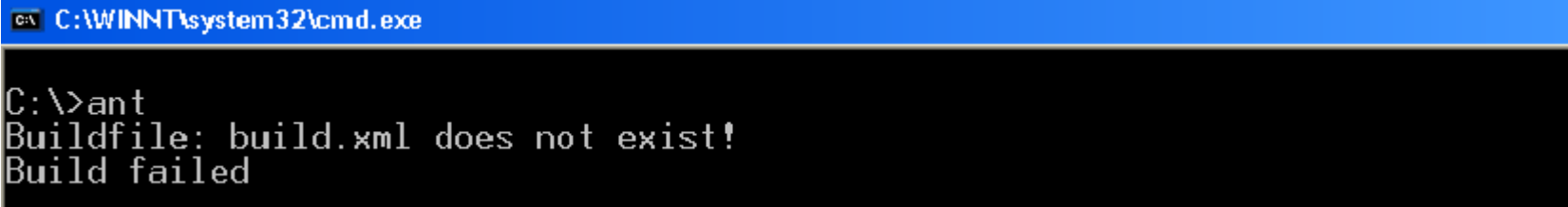
-help, -h	Used to display the help message.
-version	Used to print the version information.
-verbose, -v	Used to print all the possible output that Ant produces.
-lib <path>	Used to specify the path to search for JARs and classes, in addition to your classpath
-buildfile <file> -file <file> -f <file>	Specifies the name of the build file to be used for this build. The default one is a file called build.xml in the current directory.
-D<property>=<value>	Sets the value of property <property> to <value>
-keep-going, -k	Forces Ant to execute every target that does not depend on a failed target. This ensures that at least part of the build was successful.
-propertyfile <name>	Loads all the properties from specified property file

# Running Ant from the command line

- Type ant command from the command prompt



Output



```
C:\>ant
Buildfile: build.xml does not exist!
Build failed
```

- The error message is because ant command looks for a build.xml file in the current directory, and we have not created one
- Let's learn about the build.xml and it's various parts in the next session

# Assignment

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## Installation and Setting of ANT

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Step -1: Download latest stable version of Ant 1.9. It is available from the Ant web page <http://archive.apache.org/dist/ant/binaries/> or obtain it from the Faculty.

Step -2: Extract the contents of the downloaded zip file.

Step -3: Assume Ant is installed in c:\ant\. Set up the following environment variables:

set ANT\_HOME=<path to ant installation directory e.g c:\ant >

set JAVA\_HOME=<path to JDK installation>

set PATH=%PATH%;%ANT\_HOME%\bin

Step -4: In the command prompt type ant and check if it gives an error message as shown in the previous slide



# Quiz

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1. ANT is?
  - a. Another Nice Tool
  - b. A Neat Tool
  - c. Another Normal Tool
  - d. Another Neat Tool
2. Which of the following is the configuration file for ANT?
  - a. build.properties
  - b. buld.xml
  - c. ant.xml
  - d. ant.properties
3. Which of the following is ANT?
  - a. Testing Tool
  - b. Build Tool
  - c. Logging Framework
  - d. IDE

# Summary

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In this session, you were able to :

- Understand the need for a build tool
- How to install ANT