

# Apache ANT

## Basic Elements of build file

- **Project Tag**- Defines the properties of the build file
- **Target Tag**- Defines the each target build
- **Tasks**- Tag that represent the action that has to be done during the build process
- **Types**- Data types(tags) that can be included inside task tags
- **Properties**- Variable used in the build file

## Project Elements(Tag)

Basically, project element has got 3 attributes:

1. **name**- The name of the project, which is optional
2. **default**- The default target for the build script. A project may contain multiple number of targets. This attribute specifies which target should be considered as the default, which is mandatory attribute.
3. **basedir**- The base directory or root folder for the project, which is optional.

## Target Element (Tag)

- A target is a collection of **tasks** that you to run as one unit
- Target can have dependencies on other targets
- For instance, a deploy target may have a dependency on the **package** target, the **package** target may have a dependency on the **compile** target and so forth. Dependencies are denoted using the **depends** attribute.

### Elements of Target attribute

- **name**- The name of the target, optional
- **depends**- The name of the target which has to be executed first
- **description**- small description of the target, optional

```
<project name="test" default="deploy">  
  
<target name="deploy" depends="package">  
....  
</target>  
<target name="package" depends="compile">  
....
```

```
</target>
<target name="compile" depends="clean">
....
</target>
<target name="clean" >
....
</target>
```

## **Tasks in the Target Tag**

- ✓ File System tasks
- ✓ Java Related tasks
- ✓ Properties
- ✓ Data types
- ✓ Advanced tasks
- ✓ Web project build
- ✓ Third party tasks

### **File System tasks**

- Creating dir
- Deleting dir
- Copy/move

```
<?xml version="1.0"?>
<project name='mkdir' default='copy'>

    <target name='clean'>
        <delete dir='build'/>
    </target>
    <target name='create a dir' depends='clean'>
        <mkdir dir="build/classes"/>
    </target>

    <target name='copy' depends='create a dir'>
        <copy file='folder1/file1.txt' todir='folder2'/>
    </target>

</project>
```

## OUTPUT

```
E:\Ant\Ant Exercises\Exercise2>ant
Buildfile: E:\Ant\Ant Exercises\Exercise2\build.xml

clean:

create a dir:
[mkdir] Created dir: E:\Ant\Ant Exercises\Exercise2\build\classes

copy:
[copy] Copying 1 file to E:\Ant\Ant Exercises\Exercise2\folder2

BUILD SUCCESSFUL
Total time: 0 seconds
```

- Copy file to file
- Copy file to dir
- Move file to file
- Move file to dir
- set of files (fileset)

```
<project name="test" default="test">

  <target name="test">
    <echo> File System Tasks </echo>

    <mkdir dir="build/classes"/>
    <delete dir="build/classes"/>
    <delete file="myManifest"/>

    <copy file="HelloWorld.jar" tofile="HelloWorld.jar"/>

    <copy file="HelloWorld.jar" todir="build"/>

    <copy todir="build">
      <fileset dir="src">
        <include name="**/*.java" />
      </fileset>
    </copy>

    <move file="HelloWorld.jar" tofile="Hello.jar"/>
    <move file="Hello.jar" todir="build" />
  </target>
</project>
```

## OUTPUT

```
E:\Ant\Ant Exercises\Exercise3>ant -buildfile FileSystemTasks.xml
Buildfile: E:\Ant\Ant Exercises\Exercise3\FileSystemTasks.xml

test:
  [echo] File System Tasks
  [mkdir] Created dir: E:\Ant\Ant Exercises\Exercise3\build\classes
  [delete] Deleting directory E:\Ant\Ant Exercises\Exercise3\build\classes
  [copy] Copying 1 file to E:\Ant\Ant Exercises\Exercise3\build
  [copy] Copying 1 file to E:\Ant\Ant Exercises\Exercise3\build
  [move] Moving 1 file to E:\Ant\Ant Exercises\Exercise3
  [move] Moving 1 file to E:\Ant\Ant Exercises\Exercise3\build

BUILD SUCCESSFUL
Total time: 1 second
```