



# Jar Tool

## Bundling Files

JAR v1.0

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1

# Jar Tool

- Platform-independent
- Means of bundling files together
- Supports lossless data compression
- Simple to use at a basic level
- Also supports more advanced features
- Included with the basic development kit

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2

Website: <http://XMaLpha.com>

E-Mail: [Courses@XMaLpha.com](mailto:Courses@XMaLpha.com)

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## Benefits

- Better Download Time
- Compression
- Portability
- Security
- Package Versioning
- Package Sealing
- Extension

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3

## Basic Features

- Create a jar file
- View the contents of a jar file
- Extract the contents of a jar file
- Extract selected files from a jar file
- Run an application packaged as a jar

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## Creating a jar file

- Basic command format:  
jar options destinationFile inputFile(s)
- jar is the command line command
- Basic command options are cf
  - c is for create
  - f is to send the result to a file (vs stdout)
- The destinationFile is the resulting jar file
- The inputFile(s) are the files to be bundled

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5

## More Options

- Verbose (v) – to see progress
- Zero (0) – to not compress
- No Default Manifest (M)
- Include existing manifest (m)
- Change Directories (-C)

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## Specifying Input Files

- Can list files singly  
`jar cvf jar1.jar file1.class file2.class`
- Can mix files and directories  
`jar cvf jar2.jar driver.class subdir`
- Can use wildcards  
`jar cvf jar3.jar *`

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7

## Viewing Contents

- Command option `t` instead of `c`:  
`jar tf jarFile.jar`
- Verbose is a legal command option also
- Contents is sent to stdout
- Includes path information, where paths are always relative

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## Extracting Files

- Command option x:  
jar xf jarFile.jar
- To extract selectedFiles  
jar xf jarFile.jar [selectedFiles]

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9

## Updating Contents

- Command option u:  
jar uf jarFile.jar inputFile(s)
- This will add inputFile(s) to jarFile.jar
- Identical files already in the jar are overwritten

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10



## Running Applications

- Use the java command with the `-jar` option:  
`java -jar jarFile.jar`
- Can only specify one jar file
- Jar file must contain entry point information  
(need to update the manifest file)

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11

## Manifest File Basics

- Metadata about the jar file
- Only one manifest per jar
- Must be named:  
`META-INF/MANIFEST.MF`
- Manifest entries have the format:  
`Header: Value`
- Contains manifest and jdk versions by default

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12



## Modifying a Manifest File

- Command option m:  
Jar cmf jarFile.jar manifestText inputFile(s)
- Need to put modifications in a text file
- Text file MUST end with a carriage return or line feed
- Text file MUST be encoded in UTF-8

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13

## Setting an Entry Point

- Need to add a header-value pair to the manifest:  
Main-Class: classname
- Create a text file with this information
- Create the jar file using the m option:  
jar cmf manifestFile jarFile.jar inputFile(s)

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14



## Exercise

- Create a directory with all of the shape classes in it. No packages at this point.
- Create a manifest file that specifies the entry point for the application.
- Create a jar file of the application using the manifest.
- Run the application through the jar.

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15