

**vw4tools**

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# Chapter 1. Namespace Documentation

**com::fasterxmlxml::jackson::core**

**com::fasterxmlxml::jackson::core::json**

**com::fasterxmlxml::jackson::databind**

**com::fasterxmlxml::jackson::databind::jsonschema  
org**

## Namespaces

- struct org::smallfoot

**org::smallfoot**

## Namespaces

- struct org::smallfoot::vw4

**org::smallfoot::vw4**

## Classes

- struct org::smallfoot::vw4::Entity
- struct org::smallfoot::vw4::EntityArray
- struct org::smallfoot::vw4::EntityFA
- struct org::smallfoot::vw4::EntityHBA
- struct org::smallfoot::vw4::EntityHost
- struct org::smallfoot::vw4::VirtualWisdom4ClientTool

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# Chapter 2. JavaDoc API Markup for vw4tools

## **vw4tools .**

Tools and utilities for VirtualWisdom4

At current, VW4Tools is a script or two, plus one big jar file. vw4tool.jar allows a user to import a text file in one of several formats and output an Entity import JSON for VirtualWisdom4.

## **Running Java .**

In this document, it is assumed "java" runs from the command prompt. In some cases, this isn't true. Windows users, for example, may need to change their usage, from:

```
java -jar vw4tool.jar ...
```

to:

```
java.exe -jar vw4tool.jar ...
```

In both cases, if the "java" (or java.exe) executable is not available on the user's "path" or list of locations wherein to find a binary/executable, the user will need to type the full pathname to the java executable.

Macintosh OSX users can simply type "java":

```
java -jar vw4tool.jar ...
```

A UNIX (or unix-like) user may need to type /opt/local/bin/java or similar:

```
/opt/local/bin/java -jar vw4tool.jar ...
```

A Windows user may need to type a full pathname such as:

```
"C:\Program Files (x86)\Java\jre7\bin\java.exe" -jar vw4tool.jar ...
```

In all cases, where I type merely "java", make sure you replace that with however the invocation details are for your platform.

To confirm you've found a working Java Runtime Environment, use the "help" command to as vw4tool.jar what version it is:

```
java -jar vw4tool.jar --help
Usage: vw4tool -V|--version|-H|--help
       : vw4tool --read <filename>|--input <filename> | -r <filename> | -i <filename>
       ie: vw4tool --read import.json
       ie: vw4tool -r import.json
```

note: many commands have shorter versions. "--version" (with two "-") is the same as "-V" (with one dash). Pay special attention to case. Uppercase "N" is different from lowercase "n".

## **Common Usage .**

```
java -jar vw4tool.jar -N localfile1.txt -N localfile2.txt -N localfile3.txt -oexa
```



or

```
java -jar vw4tool.jar -N localfile1.txt -N localfile2.txt -N localfile3.txt -oOrderedTuples.csv > example.json
```

This is the most common usage, here as a reference. Notice that although this shows EITHER OrderedTuples.csv or a JSON file being created, both could be created by multiple "-o" options. Notice also that "-o" is "cuddled" to the filename after it. No spaces, but this should change in the future to avoid ambiguity.

### Overview .

In general, collection and conversion looks like the following diagram:

## Figure 2.1.

### Import of FTP or HTTP Data .

VW4Tools uses the URLDataSource functionality to open a stream from a HTTP or FTP server; this means that the files it parses can be stored on a local filesystem, a FTP server, and an HTTP server as constant data, or can be the result of a CGI program on an HTTP server. Less common, a local file may also be mounted as a FUSE filesystem, allowing even "local" data to be generated like a CGI program.

In order to draw a text stream from a FTP server or HTTP server, merely use a RFC-1738-compliant URL to indicate these two sources:

```
(ftp|http)://{user{:password@@}server{:port}}/pathname/to/resource
```

for example:

(basic user/pass: user = scott, pass = T1ger, host = ftp.example.com, subdir = . , file = nicknames.txt

```
java -jar vw4tool.jar --nickname=ftp://scott:T1ger@ftp.example.com/nicknames.txt
```

(basic user/pass: user = scott, pass = T1ger, host = ftp.example.com, subdir = /users/local/ScottAdams/ , file = aliases.txt

```
java -jar vw4tool.jar --nickname=ftp://scott:T1ger@ftp.example.com/%2fusers/local
```

(basic user/pass: user = anonymous, pass = scott@uberserver.net, host = ftp.example.com, subdir = examples , file = aliases

```
java -jar vw4tool.jar -N ftp://anonymous:scott%2Fuberserver.net@ftp.example.com/e
```

(basic http: host = www.example.com, subdir = . , file = aliases

```
java -jar vw4tool.jar --nickname=http://www.example.com/aliases
```

(basic HTTP GET: host = www.example.com, subdir = . , path=/cgi-bin/fetch.cgi, some parameters

```
java -jar vw4tool.jar --nickname=http://www.example.com/cgi-bin/fetch.cgi?now=2014
```

NOTE: "--nickname=" and "-N" are functionally identical; "--nickname=" may offer a slight benefit in more clearly self-documenting the behavior of the commandline option.

### Import of Local Text File .

The most common usage is local text files representing the metadata of the local environment. This is done by offering a RFC-1738-compliant local file URL:

```
file://pathname/to/resource
```

Note that if the "file://" is not given, and no "protocol" (ie "file://") is given, vw4tool will warn you about this but try the local file:// protocol prefix for you

for example:

(local file in subdir ./files/aliases)

```
java -jar vw4tool.jar --nickname=file://files/aliases
java -jar vw4tool.jar --nickname=files/aliases
```

(local file in subdir /Full/Path/files/aliases)

```
java -jar vw4tool.jar --nickname=file:///Full/Path/files/aliases
java -jar vw4tool.jar --nickname=/Full/Path/files/aliases
```

### **Specifying Formats .**

The user doesn't need to specify the format of a file; vw4tool will try the file at the same time across many different parsers and see which one can make sense of it. Unfortunately, the parsers cannot always chew through any user-interface codes (such as "press any key to continue") and preamble (the verbose text trash before the actual zone or aliases or such). Trimming that to a minimum offers a better chance of parsing the file.

The corollary to this is that if a file doesn't seem to parse, yet it seems like it should, remove anything before or after the actual content, and confirm that it was collected in a non-interactive method. If the user ever needs to "press any key for more", chances are, the parsed result will be either partial, or none at all.

### **Multiple Inputs .**

These input formats can be mixed. For example

```
java -jar vw4tool.jar --nickname=http://www.example.com/cgi-bin/fetch.cgi?now=2014
```

### **Outputs .**

vw4tool will either generate an OrderedTuples.csv file (if that specific filename is given on the "-o" option) or a json file (any other putput filename). Or both:

```
java -jar vw4tool.jar -N local.txt -oOrderedTuples.csv -oexample.json
```

NOTE: giving no filename sends the output to stdout:

```
java -jar vw4tool.jar -N local.txt -o
```

For this reason, the following two commands do different things:

```
java -jar vw4tool.jar -N local.txt -oexample.json
java -jar vw4tool.jar -N local.txt -o example.json
```

Stdout can be represented as "-"; the following two commands do the same thing:

```
java -jar vw4tool.jar -N local.txt -o
java -jar vw4tool.jar -N local.txt -o-
```

This behavior may disappear in future. Please try to use "-" to print the result to stdout:

```
java -jar vw4tool.jar -N local.txt -N (another) --nickname=(another) -o-
```

**Proprietary Intellectual Property .**

With the exception of samples/import01.json, all files and content are based on the same level of access to the product enjoyed by a customer. Implicitly, no private information is shared, all of this content (save the one file) is based on empirical discovery, and could change overnight.

---

## Chapter 3. README

---

## Chapter 4. Todo List

```
Global
VirtualWisdom4ClientTool._load
(String filename)
:
mapper.configure(DeserializationConfig.Feature.FAIL_ON_UNKNOWN_PROPERTIES,
false);
evaluate:
```

---

# Chapter 5. Class Documentation

## org::smallfoot::vw4::Entity class Reference

### Classes

- struct org::smallfoot::vw4::Entity::ImproperChildException
- struct org::smallfoot::vw4::Entity::LeafEntity

### Protected Attributes

- Vector< Entity > children  
*local singleton late-instantiated as needed by children()*
- String description  
*the description of the entity showing source*
- String name  
*the unique name of the entity*
- WeakReference< Entity > parent  
*convenience weak-reference to parent: I want a reference but not one that will block GC*
- abstract boolean canBeChild ( Entity e)
- Vector< Entity > children ( )
- abstract org.smallfoot.vw4.VWImport.Entity vmentity ( String tag)
- Entity ( String name)
- Entity ( String name, Entity e)
- String description ( )
- void maybeAdopt ( Entity e)
- String name ( )
- abstract Entity newParent ( String name)
- void setDescription ( String description)
- void setname ( String name)
- int addTo ( VWImport v, String tag)

- boolean isOrphan ( )
- boolean isOrphan ( TreeMap< String, Entity > list)

## Brief Description

An Entity is the core mutable object used in the JSON import for VW4.

## Detailed Description

I'm not so sure how it'll unfold yet, but I intend to treat all hosts and hbas and storagecontrollers and iomodels as similar objects: things that can have children things. In the short term, be very careful: there is an Entity, and a VWImport::Entity

Definition at line 47 of file Entity.java

The Documentation for this struct was generated from the following file:

- Entity.java

## abstract boolean canBeChild (Entity e)

*whether a given entity can be this entity's child*

**Returns:** . true if accepted, false if refused

**Table 5.1. Parameters**

e	entity to check for possible descendent-hood
---	--

## Vector<Entity> children ( )

## abstract org.smallfoot.vw4.VWImport.Entity vwentity (String tag)

*create a streamable JSON entity from this one*

**Returns:** . a org.smallfoot.vw4.VWImport.Entity representation of this instance

**Table 5.2. Parameters**

tag	default tag to apply
-----	----------------------

## Entity (String name)

*Class Constructor with no initial child.*

## Entity (String name, Entity e)

*Class Constructor with an initial child to absorb.*

**String description ()**

**void maybeAdopt (Entity e)**

**String name ()**

**abstract Entity newParent (String name)**

*create a new Entity of the correct class to be a parent of this one*

**void setDescription (String description)**

**void setname (String name)**

**int addTo (VWImport v, String tag)**

*convenience: add myself and all children to the streamable exporter given as "v"*

**Table 5.3. Parameters**

v	VWImport streamer to add myself and children to
tag	default tag to apply

**Returns:** .    number of entities written

**boolean isOrphan ()**

**boolean isOrphan (TreeMap< String, Entity > list)**

**org::smallfoot::vw4::EntityArray class**

**Reference**

- EntityArray ( String name, Entity e)
- Entity newParent ( String name)
- boolean canBeChild ( Entity e)
- org.smallfoot.vw4.VWImport.Entity ventity ( String tag)

## Brief Description

An EntityArray is the representation of an Array entity in the JSON import for VW4.

## Detailed Description

Be very careful: there is an Entity, and a VWImport::Entity



Definition at line 45 of file EntityArray.java

The Documentation for this struct was generated from the following file:

- EntityArray.java

## EntityArray (String name, Entity e)

*Basic Class Constructor.*

## Entity newParent (String name)

*create a new Entity of the correct class to be a parent of this one*

## boolean canBeChild (Entity e)

*whether a given entity can be this entity's child*

**Returns:** . true if accepted, false if refused

**Table 5.4. Parameters**

e	entity to check for possible descendent-hood
---	--

## org.smallfoot.vw4.VWImport.Entity ventity (String tag)

*create a streamable JSON entity from this one*

**Returns:** . a org.smallfoot.vw4.VWImport.Entity representation of this instance

**Table 5.5. Parameters**

tag	default tag to apply
-----	----------------------

## org::smallfoot::vw4::EntityFA class Reference

- EntityFA ( String name, String wwn)
- Entity newParent ( String name)
- org.smallfoot.vw4.VWImport.Entity ventity ( String tag)

## Brief Description

An EntityFA is the representation of an Storage FA entity in the JSON import for VW4.

## Detailed Description

Be very careful: there is an Entity, and a VWImport::Entity

Definition at line 45 of file EntityFA.java

The Documentation for this struct was generated from the following file:

- EntityFA.java

## EntityFA (String name, String wwn)

*Basic Class Constructor.*

## Entity newParent (String name)

*create a new Entity of the correct class to be a parent of this one*

## org.smallfoot.vw4.VWImport.Entity ventity (String tag)

*create a streamable JSON entity from this one*

**Returns:** . a org.smallfoot.vw4.VWImport.Entity representation of this instance

**Table 5.6. Parameters**

tag	default tag to apply
-----	----------------------

# org::smallfoot::vw4::EntityHBA class Reference

- EntityHBA ( String name, String wwn)
- Entity newParent ( String name)
- org.smallfoot.vw4.VWImport.Entity ventity ( String tag)

## Brief Description

An EntityHBA is the representation of an HBA entity in the JSON import for VW4.

## Detailed Description

Be very careful: there is an Entity, and a VWImport::Entity

Definition at line 45 of file EntityHBA.java

The Documentation for this struct was generated from the following file:

- EntityHBA.java

## EntityHBA (String name, String wwn)

*Basic Class Constructor.*

## Entity newParent (String name)

*create a new Entity of the correct class to be a parent of this one*

## org.smallfoot.vw4.VWImport.Entity vntity (String tag)

*create a streamable JSON entity from this one*

**Returns:** . a org.smallfoot.vw4.VWImport.Entity representation of this instance

**Table 5.7. Parameters**

tag	default tag to apply
-----	----------------------

## org::smallfoot::vw4::EntityHost class Reference

- EntityHost ( String name, Entity e)
- Entity newParent ( String name)
- boolean canBeChild ( Entity e)
- org.smallfoot.vw4.VWImport.Entity vntity ( String tag)

### Brief Description

An EntityHost is the representation of an Host entity in the JSON import for VW4.

### Detailed Description

Be very careful: there is an Entity, and a VWImport::Entity

Definition at line 45 of file EntityHost.java

The Documentation for this struct was generated from the following file:

- EntityHost.java

### EntityHost (String name, Entity e)

*Basic Class Constructor.*

### Entity newParent (String name)

*create a new Entity of the correct class to be a parent of this one*

### boolean canBeChild (Entity e)

*whether a given entity can be this entity's child*

**Returns:** . true if accepted, false if refused

**Table 5.8. Parameters**

e	entity to check for possible descendent-hood
---	--

## **org.smallfoot.vw4.VWImport.Entity ventity (String tag)**

*create a streamable JSON entity from this one*

**Returns:** . a org.smallfoot.vw4.VWImport.Entity representation of this instance

**Table 5.9. Parameters**

tag	default tag to apply
-----	----------------------

## **java::lang::Exception class Reference**

## **org::smallfoot::vw4::Entity::ImproperChildException class Reference**

- ImproperChildException ( String s)
- ImproperChildException ( Entity e, Entity p)

### **Brief Description**

Descendents of Entity should know whether a given entity can be one of their child elements.

### **Detailed Description**

This exception is intended as a method of signalling – and rippling up if necessary – than an intended seconding as a child element is not accepted by the would-be parent.

Definition at line 50 of file Entity.java

The Documentation for this struct was generated from the following file:

- Entity.java

## **ImproperChildException (String s)**

*create a new instance with the given message*

**Table 5.10. Parameters**

s	description to encapsulate
---	----------------------------

## **ImproperChildException (Entity e, Entity p)**

*create a new instance with a consistent message based on the entities offered*

**Table 5.11. Parameters**

e	child entity
p	parent entity

## org::smallfoot::vw4::Entity::LeafEntity class Reference

### Protected Attributes

- String wwn  
*the unique WWPN of the hba*
- LeafEntity ( String name, String wwn)
- Entity newParent ( String name)
- String parentName ( )
- String wwn ( )
- boolean canBeChild ( Entity e)
- org.smallfoot.vw4.VWImport.Entity vwentify ( String tag)

### Brief Description

A LeafEntity is the common ancestor of Storage FAs and Server HBAs; this is combined only so that leaves can be treated in common.

### LeafEntity (String name, String wwn)

*Class Constructor with no initial child.*

### Entity newParent (String name)

### String parentName ( )

### String wwn ( )

### boolean canBeChild (Entity e)

### org.smallfoot.vw4.VWImport.Entity vwentify (String tag)

*create a bogus function to avoid build errors*

# org::smallfoot::vw4::VirtualWisdom4ClientTool

## class Reference

### Private Attributes

- org.w3c.dom.Document xmlDocument

*eventually used to hold an XML document when converting XML<—>JSON<—>XML*

### Public Attributes

- VWImport vwimport

*singleton list of JSON-writable objects accessed through vwimport()*

### Protected Attributes

- TreeMap< String, Entity > entities

*local singleton array accessed from entities()*

- Vector< Pattern > patterns

*local singleton array accessed from patterns()*

- WWNDescription wwndesc

*local singleton array accessed from wwndesc()*

- VirtualWisdom4ClientTool ( String xmlFile)

- VirtualWisdom4ClientTool ( )

- TreeMap< String, Entity > entities ( )

- void load ( String filename)

- Vector< Pattern > patterns ( )

- String prettyJSON ( VWImport v)

- void save ( String filename)

- WWNDescription wwndesc ( )

- void \_load ( String filename)

- void \_save ( String filename)

- void loadAndAbsorbFile ( String f)

- `void loadAndRemoveFile ( String f)`
- `VWImport vwimport ( )`
- `void absorbPattern ( String pattern)`
- `Entity entityAccepting ( Entity newguy)`
- `String[] exercisePattern ( String alias)`
- `int finalizeEntities ( )`
- `void report ( )`
- `void usage ( String progname)`
- `void writeOrderedTuples ( String name)`
- `void writeOutputfile ( String filename)`
- `static void main ( String args)`

## Brief Description

VirtualWisdom4ClientTool is a "Swiss Army Knife" of tools used when working with VirtualWisdom4.

## Detailed Description

The existence of these tools is not a judgement on VirtualWisdom4's proper Engineering; rather, an acceptance that a faster-response solution for the longer-tail of the normal curve is often helpful swapping QA delay for reduced customer friction.

As you'd expect, there is no support for this. If it breaks, you may choose to keep both pieces :)

Ad-Hoc content for this utility-stack may appear at <http://fcfae.com/>

Definition at line 57 of file VirtualWisdom4ClientTool.java

The Documentation for this struct was generated from the following file:

- VirtualWisdom4ClientTool.java

## VirtualWisdom4ClientTool (String xmlFile)

*Class Constructor to create with an initial file to load.*

**Table 5.12. Parameters**

xmlFile	File to load at start
---------	-----------------------

**See also:** . `load(String)`

## VirtualWisdom4ClientTool ()

*Class Constructor with no initial file.*

## TreeMap<String,Entity> entities ()

## void load (String filename)

*Wrapper to just load the file, spitting out exceptions and stacks as they occur.*

**Table 5.13. Parameters**

filename	file to load
----------	--------------

## Vector<Pattern> patterns ()

## String prettyJSON (VWImport v)

*Convenience function to generate a pretty-printed JSON text string.*

**Table 5.14. Parameters**

v	VWImport object to markup
---	---------------------------

**Returns:** . a pretty-printed JSON using `ObjectWriter.withDefaultPrettyPrinter()` or null if an exception occurs

## void save (String filename)

*Wrapper to just save the file, spitting out exceptions and stacks as they occur.*

**Table 5.15. Parameters**

filename	filename to save into
----------	-----------------------

## WWNDescription wwndesc ()

## void \_load (String filename)

*Open a file.*

This is actually a wrapper for the underlying file load

**Table 5.16. Parameters**

filename	file to load
----------	--------------



**Table 5.17. Exceptions**

IOException	when File() encounters an error instaitating (typically path or permissions)
-------------	--

## **void \_save (String filename)**

*Save the current XML Document to a new file.*

**Table 5.18. Parameters**

filename	filename to save into
----------	-----------------------

## **void loadAndAbsorbFile (String f)**

*one-shot load a new file and absorb the contents: open the file and stream the contents at an array of parsers, the one with the best results wins; using that result, absorb all alias information, attempting to create parent storagecontroller(s) or hosts as resulting from absorbtion patterns*

**Table 5.19. Parameters**

f	name of file to open
---	----------------------

**See also:** . <https://github.com/chickenandpork/fibrechannel-parsers/>

## **void loadAndRemoveFile (String f)**

*one-shot load a new file and remove the contents from the internal list of leafEntities (HBAs, FAs)*

Working on only the leaf entities, this uses the parser array to parse an input stream, and for each WWPN found, it removes that leaf entity from the system. It doesn't affect the child\_entities of referring entities to allow for a loaded entity list to still refer to entities which are already on the target system.

**Table 5.20. Parameters**

f	name of file to open
---	----------------------

**See also:** . <https://github.com/chickenandpork/fibrechannel-parsers/>

## **VWImport vwimport ()**

## **void absorbPattern (String pattern)**

*Absorb a pattern for chunking together nickname patterns and execute it immediately on all current orphan LeafEntities.*

The pattern given will be absorbed for the side-benefit of a user testing patterns against names using the `-checkpattern` option. The pattern is also immediately executed, such that the following four cases occur for each orphan entity evaluated:

1. the resulting name is not an entity that exists in the permanent nor hold space; create a hold-space entity which adopts this orphan
2. the resulting name is an entity which does adopt this orphan; orphan is adopted by named entity
3. the resulting name is an entity which does not adopt this orphan; entity does not adopt this one nor does a new entity get created in hold space
4. the resulting name matches the current orphan entity; create a hold-space entity which adopts this orphan and suffixes its name

When complete, the "hold" space is evaluated to remove any "parents" for which there is only one child, thus eliminating lame pattern results before any next run

**Table 5.21. Parameters**

pattern	a String pattern to execute and absorb (into an internal array for use later)
---------	---

## Entity entityAccepting (Entity newguy)

## String [] exercisePattern (String alias)

*Exercise all current chunking patterns against a given nickname.*

Given a string assumed to be a hostname or alias, all patterns currently absorbed will be exercised to show the possible results in order they would be attempted. This is intended to allow in-situ pattern editing and verification rather than perfect knowledge of the regex system used.

As is assumed in the VW4 product, the regex is performed as: s/{pattern}/^1/ such that for a given pattern, the first capturing group is the result. For example, given a pattern of "^(.\*).{5}\$", the ".{5}\$" matches the final 5 characters (5 wildcards before end-of-line), leaving the remainder within "^(.\*)". All but the final 5 characters are contained in that capture-grouping, so the result is all but the final 5 characters.

param alias a String nickname to exercise all patterns against

## int finalizeEntities ()

*Finalize absorbed Entities: for each entity, transfer from structured tree of Entities to vwimport array for writing.*

**Returns:** . number of items finalized

## void report ()

## void usage (String progame)

*Usage messages are useful to those of us with short memories as well (hey, I just need to add swap!)*

**Table 5.22. Parameters**

progame	the name of the program (args[0]) to print on a usage message
---------	---

## void writeOrderedTuples (String name)

*Export an "OrderedTuples.csv" file as a stopgap measure until proper JSON processing can be completed.*

**Table 5.23. Parameters**

name	filename to write
------	-------------------

**Table 5.24. Exceptions**

java.io.IOException	when PrintStream throws an exception
---------------------	--------------------------------------

## void writeOutputfile (String filename)

*Write an output file, finalizing from entities() if required.*

**Table 5.25. Parameters**

filename	name of file to write
----------	-----------------------

## static void main (String args[])

*Main function, as you can tell.*

this function merely parses the command-line to dispatch actions to the meat of the meal above. I'm using an actual GetOpt because, yes, I'm a UNIX/C hack, re-using 3-decades-old knowledge, but this also preserves both extensibility and the ability to use longopts in scripts as a way to self-document what the tool's doing.

No real intelligence herein except the parse-and-redirect action.

**Table 5.26. Parameters**

args	as you'd expect, these are commandline arguments given when the jar is activated
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# Chapter 6. File Documentation

## README.dox File Reference

### Detailed Description

Definition in file `/Users/allan.clark/src/vw4tools/htdocs/README.dox`

## Entity.java File Reference

### Classes

- `struct org::smallfoot::vw4::Entity`
- `struct org::smallfoot::vw4::Entity::ImproperChildException`
- `struct org::smallfoot::vw4::Entity::LeafEntity`

### Namespaces

- `struct com::fasterxml::jackson::core`
- `struct com::fasterxml::jackson::core::json`
- `struct com::fasterxml::jackson::databind`
- `struct com::fasterxml::jackson::databind::jsonschema`
- `struct org::smallfoot::vw4`

### Detailed Description

Definition in file `/Users/allan.clark/src/vw4tools/java/Entity.java`

## EntityArray.java File Reference

### Classes

- `struct org::smallfoot::vw4::EntityArray`

### Namespaces

- `struct org::smallfoot::vw4`

### Detailed Description

Definition in file `/Users/allan.clark/src/vw4tools/java/EntityArray.java`

# EntityFA.java File Reference

## Classes

- struct org::smallfoot::vw4::EntityFA

## Namespaces

- struct org::smallfoot::vw4

## Detailed Description

Definition in file /Users/allan.clark/src/vw4tools/java/EntityFA.java

# EntityHBA.java File Reference

## Classes

- struct org::smallfoot::vw4::EntityHBA

## Namespaces

- struct org::smallfoot::vw4

## Detailed Description

Definition in file /Users/allan.clark/src/vw4tools/java/EntityHBA.java

# EntityHost.java File Reference

## Classes

- struct org::smallfoot::vw4::EntityHost

## Namespaces

- struct org::smallfoot::vw4

## Detailed Description

Definition in file /Users/allan.clark/src/vw4tools/java/EntityHost.java

# VirtualWisdom4ClientTool.java File Reference

## Classes

- struct org::smallfoot::vw4::VirtualWisdom4ClientTool

## Namespaces

- `struct org::smallfoot::vw4`

## Detailed Description

Definition in file `/Users/allan.clark/src/vw4tools/java/VirtualWisdom4ClientTool.java`

# VWImport.java File Reference

## Namespaces

- `struct org::smallfoot::vw4`

## Detailed Description

Definition in file `/Users/allan.clark/src/vw4tools/java/VWImport.java`

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# Chapter 7. Directory Documentation

## java Directory Reference

### Files

- file Entity.java
- file EntityArray.java
- file EntityFA.java
- file EntityHBA.java
- file EntityHost.java
- file VirtualWisdom4ClientTool.java
- file VWImport.java

### Detailed Description

Directory location is /Users/allan.clark/src/vw4tools/java/